Health Evidence Review Commission's

Value-based Benefits Subcommittee

December 13, 2012

Meridian Park Hospital
Community Health Education Center, Room 117B&C
19300 SW 65th Avenue, Tualatin, OR 97062

Section 1

Agenda

AGENDA
VALUE-BASED BENEFITS SUBCOMMITTEE
December 13, 2012
8:30am - 2:30pm

Meridian Park Room 117B&C
Community Health Education Center
Tualatin, OR 97062
A working lunch will be served at approximately 12:00 PM
All times are approximate

I.	**Call to Order, Roll Call, Approval of Minutes – Lisa Dodson**	**8:30 AM**
II.	**Staff report – Ariel Smits, Cat Livingston, Darren Coffman**	**8:35 AM**
III.	**Straightforward** A. Straightforward issues table B. Low back pain coding specifications C. Bariatric surgery coding specification	**8:45 AM**
IV.	**New CPT Codes** A. 2013 CPT codes A. 2013 Genetic testing CPT codes B. 2013 Psychiatric CPT codes B. 2013 HCPCS codes C. 2013 CDT codes A. Dental guideline changes	**8:50 AM**
V.	**New discussion items** A. Silver nitrate treatments for dental caries B. Pseudobulbar affect	**11:00 AM**
VI.	**Coverage Guidances for review** A. Viscosupplementation for osteoarthritis of the knee B. Percutaneous interventions for low back pain C. Management of chronic otitis media in children	**12:00 PM**
VII.	**Previous Discussion Items** A. Puberty suppression for transgendered youth	**1:00 PM**
VIII.	**Guidelines** A. Guideline note 44, Menstrual Bleeding Disorders B. Prenatal genetic testing guideline	**1:45 PM**
IX.	**Public comment**	**2:25 PM**
X.	**Adjournment**	**2:30 PM**

Section 2

Minutes

Value-based Benefits Subcommittee Recommendations Summary
For Presentation to:
Health Evidence Review Commission on October 11, 2012

For specific coding recommendations and guideline wording, please see the text of the (10/11/12) VbBS minutes.

CODE MOVEMENT

- Spinal arthrodesis codes were added to lines that had some, but not all, of the spinal arthrodesis codes
- Acupuncture and cognitive behavioral therapy were added to the low back pain lines
- Spinal traction was removed from the low back pain lines
- Artificial disc replacement was added to the covered and the uncovered spinal conditions lines
- Electromyelography was recommended to be moved from the Ancillary to the Diagnostic List
- Transcranial magnetic stimulation was added to the major depression line
- A series of straightforward code changes were accepted
- Injections into the labyrinth were added for treatment of Meniere's disease
- Several procedures were added for the treatment of congenital dislocation of the hip

ITEMS CONSIDERED BUT NO CHANGES MADE

- An unspecific ICD-9 code for toe walking was considered for movement from an uncovered line to a covered dysfunction line; however, a more specific code for tendon contractures was found to pair with the desired treatment and was felt to represent more appropriate coding
- A guideline for neuroimaging in headache was considered, but will be revisited in December

GUIDELINE CHANGES

A series of guidelines were revised to ensure consistency between the Prioritized List and HERC-approved coverage guidances

- DIAGNOSTIC GUIDELINE D4, ADVANCED IMAGING FOR LOW BACK PAIN was changed to include the imaging recommendation table included in the HERC low back pain evidence-based guideline
- GUIDELINE NOTE 85, ELECTIVE INDUCTION OF LABOR. The Guideline Note was clarified to indicate that elective induction of labor is not covered for elective induction of labor prior to 41 weeks except in the cases of maternal diabetes, prelabor rupture of membranes, or other medical or obstetrical indications.

Other guideline notes were revised:

- GUIDELINE NOTE 7, ERYTHROPOIESIS-STIMULATING AGENT (ESA) GUIDELINE. The Guideline Note was changed to require reassessment of ESA use at 12 rather than 8 weeks of therapy for patients with renal insufficiency.

- GUIDELINE NOTE 37 DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT was modified to clarify the definition of radiculopathy and which lines contained which diagnoses
- GUIDELINE NOTE 47, URINARY INCONTINENCE. The Guideline Note was modified to not include electrical stimulation as a possible modality that could be required to be tried prior to surgery.
- GUIDELINE NOTE 92, ACUPUNCTURE was revised to allow coverage for low back pain for 12 visits and for tension headache

New guidelines were adopted:

- GUIDELINE NOTE XXX, SMOKING AND SPINAL FUSION. This guideline allows coverage of spinal fusion only for non-smoking patients.
- GUIDELINE NOTE XXX, FOREIGN BODIES IN THE GI TRACT was adopted to specify that hazardous foreign bodies would be covered on a higher line, nonhazardous bodies on a lower line

A series of new guidelines were adopted to ensure consistency between the Prioritized List and HERC-approved coverage guidances

- GUIDELINE NOTE XXX, ARTIFICIAL DISC REPLACEMENT was adopted which details when artificial disc replacement would potentially be covered**.**
- GUIDELINE NOTE XXX, NON-PHARMACOLOGIC INTERVENTIONS FOR TREATMENT-RESISTANT DEPRESSION was adopted to require trials of two antidepressant medications prior to ECT or repetitive transcranial magnetic stimulation
- DIAGNOSTIC GUILDELINE XXX, NEUROIMAGING IN DEMENTIA was adopted specifying when neuroimaging is covered for the work up of dementia

CHANGES FOR THE OCTOBER 1, 2014 (TENTATIVE) PRIORITIZED LIST AS PART OF THE ICD-10 CONVERSION PROCESS

- Various ICD-10 codes for peripheral neuropathies were moved from an uncovered sprain/strain line to covered nerve disorder lines
- Foreign body codes were added to a covered line with a guideline specifying when these codes are on the upper covered and when on the lowered uncovered lines
- Albinism codes were added to the precancerous skin condition line; certain albinism codes involving conditions of the eyes were also added to an ophthalmology line

VALUE-BASED BENEFITS SUBCOMMITTEE
Meridian Park Health Education Center
October 11, 2012
8:30 AM – 1:30 PM

Members Present: Lisa Dodson, MD, Chair; Kevin Olson, MD, Vice-chair; Chris Kirk, MD; James Tyack, DMD; Mark Gibson; Laura Ocker, Lac; David Pollack, MD; Irene Croswell, RPh (by phone)

Members Absent: None

Staff Present: Darren Coffman; Ariel Smits, MD, MPH; Cat Livingston, MD, MPH; Jason Gingerich; Dorothy Allen

Also Attending: Denise Taray (DMAP); Kathy Kirk, Oregon Pain Management Commission

Roll Call/Minutes Approval/Staff Report

The meeting was called to order at 8:30 am and roll was called. Minutes from the August 9, 2012 VbBS meeting were reviewed and approved as submitted.

ACTION: HERC staff will post the approved minutes on the website as soon as possible.

An orthopedic surgeon from Roseburg has expressed interest in joining the VbBS/HERC. The HERC has been looking for surgical expertise in a member. The subcommittee had no objections to having the HERC consider her for VbBS membership. She will likely be joining the VbBS for the December meeting.

Coffman discussed having a possible new timeline for dealing with new CPT codes. These codes are expected to be published in September rather than late October. The VbBS may take these codes up in November (starting in 2013) and publish a new List on January 1st to allow the new codes to be incorporated into the List in a timely fashion. The downside of this proposal would be to have a longer time between Lists (January 1 and October 1 rather than April 1 and October 1). Kirk reported that the plans did not have an issue with the delayed code publication to date. HERC staff will continue to examine this possible change and update the subcommittee.

Smits presented a HERC staff request for input from the subcommittee for dealing with treatments with low effectiveness and high cost. Two options would be a specific guideline for each new class of treatment or a general guideline outlining general coverage guidance. Gibson thought that a set of principles for coverage would be useful. Ocker suggested that some of these treatments should still be brought to the committee to review. Coffman mentioned that previous discussions with the HSC had brought up issues about having an absolute number (QALY threshold) in a guideline. Kirk urged staff to consider the guideline note method as these notes have been very useful for the plans and in the legal process.

- **Topic: Mononeuritis and other peripheral neuropathies**

Discussion: Livingston introduced a summary document with suggested placement changes for ICD-10 codes for peripheral neuropathies on the 2014 list. It was clarified the new acute peripheral nerve injury line included surgical treatment only. There was minimal discussion and changes were approved as proposed.

Actions:

1) G57.10-G57.13 moved from line 638 to lines 535 and 557
2) G57.20-G57.22 moved from line 638 to lines 450 (new line on October 1, 2014 List), 535 and 557.
3) G57.40-G57.42 moved from line 557 to line 441
4) G58.8-G58.9 moved from line 638 to lines 535 and 557
5) DMAP advised to move G59 from line 638 to the Excluded File

- **Topic: Toe walking**

Discussion: Smits introduced a summary regarding coverage of toe walking. Kirk brought up that most toe-walking self resolves and therefore does not need to be covered. Pollack was concerned about the cases in which kids have an underlying medical condition which results in the toe walking, such as cerebal palsy. In CP and other cases, there are true ligament contractures. The group felt that ligament contractures should be covered, but not toe walking per se. Smits noted that 727.18 (ligament contracture) was on line 318 and paired with the tendon lengthening CPT code requested for treatment of toe walking. The decision was that 727.18 could be used to code for this condition when surgery is required. Providers may need to be educated that this pairing exists on line 318. Toe walking (ICD-9 739.79) was not added to line 318.

Actions: No changes made to the Prioritized List

- **Topic: Erythropoeisis stimulating guideline revision**

Discussion: Livingston introduced a summary document regarding suggested changes to the erythropoeisis stimulating agents (ESAs) guideline. There was some discussion about use of ESAs for conditions not currently included in the guideline, such as anemia resulting from treatment including multiple medications for hepatitis C. The decision was not to consider adding any indications until specifically requested to review ESAs for a new particular indication. The requested change increasing the reassessment period in renal failure to 12 weeks was accepted.

Actions: A revised guideline note was adopted as shown in Attachment A.

- **Topic: Radiculopathy and guideline note 37**

Discussion: Livingston introduced a summary document with suggested changes to guideline note 37. There was a discussion about adding radiculopathy and members suggested a language modification could be made for greater clarity. There were

clarifying suggestions about which portion of the guideline applied to which line on the Prioritized List.

Actions: A revised diagnostic guideline was approved as shown in Attachment A.

- **Topic: Guideline for spinal fusion and smoking**

Discussion: Smits introduced a summary with a suggested new guideline regarding smoking and spinal fusion. There was some discussion about whether it would be problematic to require testing on the day of surgery. Kirk felt that the guideline as written was implementable and the requirement for testing was not significantly different from the bariatric surgery guideline. There was concern that there was no restriction to not smoke after surgery; however, it was felt that such restrictions would not be feasible. Gibson suggested that, because there are multiple types of surgery which have better outcomes with non-smoking, a more general guideline limiting most types of surgery to non-smokers should be considered. However, it was felt that the evidence reviewed showed decrease efficacy with smoking and spinal fusion; evidence was not reviewed for other types of surgery.

Ocker expressed concern for discrimination with this guideline. She was concerned that smokers may tend to have other characteristics such as poor diet, sedentary lifestyle, etc. She suggested that patient education may be more valuable than a restrictive guideline. Other members agreed that there was a concern about discrimination. However, the general consensus was that the evidence supported this guideline. Additionally, restricting smoking had precedence in other rules such as restricting alcohol use prior to liver transplant. Spinal fusion is generally an elective surgery, which gives patients time to quit smoking. Dodson reminded the subcommittee that OHP covers tobacco cessation treatments, so patients would all have access to these types of services. The group felt that Ocker's concerns about patient education and optimizing lifestyle issues should be brought up again when this guideline was discussed at HERC. The group also added a clause to the guideline specifying that patients have access to tobacco cessation services.

There was discussion that spinal fusion surgery has marginal effectiveness, so any restrictions which improve outcomes are useful. There was also support for having patients have accountability for optimizing their own health outcomes.

DMAP raised concerns about the suggested guideline specifying "non-elective" spinal surgery. There was a question about what the definition of elective was. The subcommittee felt that only emergent indications would require a waiving of the non-smoking guideline and changed that wording in the guideline. Emergent indications were thought to be neurologic conditions which were unstable, such as rapidly progressing neurological deterioration. An emergent indication would be one for which delay in treatment would reasonably be expected to result in permanent serious dysfunction. The decision was to change the language to "emergent" without a specific definition in the guideline. If there is a problem in defining emergent in practice, then DMAP or the health plans can bring this guideline back for further modifications.

Actions:

1) A new guideline was adopted as shown in Attachment B.

2) Add 22532-22548, 22590-22632 to line 84 DEEP ABSCESSES, INCLUDING APPENDICITIS AND PERIORBITAL ABSCESS; INTESTINAL PERFORATION
3) Add 22532-22548 to line 607 SPINAL DEFORMITY, NOT CLINICALLY SIGNIFICANT

- **Topic: Urinary Incontinence Guideline**

Discussion: Smits introduced a summary document with suggested changes to the urinary incontinence guideline. There were some questions about whether electrical stimulation was part of physical therapy. Ocker noted that some of the literature showed acupuncture treatments, others showed electrical pads as the therapy. Kirk noted that electrical stimulation was billed in addition to PT. Dodson expressed concern about limiting the modalities used by a PT. Smits pointed out that electrical stimulation (CPT 97014) was currently on the Excluded List, so we are not covering it currently. The subcommittee agreed to not add coverage for this service and to remove reference to this service from the current urinary incontinence guideline.

Actions: A revised guideline note was adopted as shown in Attachment A

- **Topic: Coverage Guidance for Low Back Pain/Acupuncture Guideline**

Discussion: Livingston introduced a summary of changes to the Prioritized List to make it consistent with the HERC coverage guidance for low back pain. There was discussion about adding coverage for low back pain, which has traditionally been below the funding line. However, OHP is currently paying for primary care visits for this diagnosis. Members discussed that as OHP moves toward CCOs, there may be additional incentive to cover services such as yoga. There was some concern about CCOs not being willing to accept the global budget amounts, which would make such coverage less likely. Currently, many patients with back pain are treated by pain clinics, but there is an access issue for both pain clinics and primary care for patients with back pain and narcotic prescriptions. There is an emerging issue of PCPs unwilling to see patients who are taking narcotics at all.

There was some discussion about requiring referrals for acupuncture. Ocker was concerned that this might limit access. Others expressed concern that acupuncturists may not be able to make a diagnosis, which would be required for coverage. Seeing a PCP and getting identified as having a covered diagnosis would be facilitated by requiring referral for acupuncture. There was concern that some PCPs would refuse to refer to acupuncture as they do not feel that it is effective. The subcommittee expressed their intent to not limit acupuncture access, but rather to have a referral to maintain continuity between the PCP and acupuncturist.

Further discussion of the acupuncture guideline centered around the number of visits allowed for low back pain. The decision was 12 visits was a reasonable place to start. Ocker felt that 12 visits was a reasonable number for any chronic pain condition.

The decision was to add coverage for acupuncture and CBT to lines 400 and 562 (the back lines). Spinal traction will no longer be covered per the coverage guidance. A

coding specification will be added to these lines to specify that CBT is only covered for certain back pain diagnoses. The acupuncture guideline was modified to reflect coverage for low back pain. An additional modification was made to the acupuncture guideline to allow coverage for tension headaches. HERC staff will work with Ocker to consider other conditions to be added to the acupuncture guideline.

Actions:

1) Add acupuncture (97810-4) to lines 400 and 562.
2) Add cognitive behavioral therapy (90804-15) to lines 400 and 562
3) Delete spinal traction (CPT code 97012) from lines 400 and 562
4) Add a coding specification to Line 400
    i. Cognitive behavioral therapy (90804-15) only pairs on Line 400 with the low back diagnoses (M47.26, M47.27, M51.06, M51.07, M51.16, M51.17, M51.26, M51.27, M54.16, M54.17)
5) Add a coding specification to Line 562
    i. Cognitive behavioral therapy (90804-15) only pairs on Line 562 with the low back diagnoses (M47.816, M47.817, M47.896, M47.897, M48.36, M48.37, M51.26, M51.27, M51.36, M51.37, M51.86, M51.87, M54.5, M62.830, S33.5xxA, S33.9xxA, S39.092A, S39.82xA, S39.93xA)
6) Acupuncture guideline modified as shown in Attachment A.

- **Topic: Coverage Guidance for Artificial Disc Replacement**

Discussion: Smits introduced a summary of changes suggested for the Prioritized List to allow agreement with the approved coverage guidance on artificial disc replacement. Livingston reminded the subcommittee that the data showed that artificial disks were non-inferior to spinal fusion. Olson pointed out that the HSC had not adopted coverage of artificial discs due to concern about safety; however, the newer data reviewed to create the coverage guidance appeared to be more reassuring about the safety of this procedure. It was also discussed that this procedure is safer than the alternative of spinal fusion. Dodson wanted the List to match the coverage guidance and the HTAS decision. It was pointed out that the diagnoses suggested to pair with artificial disc replacement were on lines 400 and 562 and the artificial disk CPT codes should be added to both lines. The decision was to adopt the guideline as suggested, with an additional reference to line 562.

Actions:

1) Adopt a new guideline as shown in Attachment B
2) Add artificial disc replacement (CPT 22856-22865) to line 400 and 562

- **Topic: Coverage Guidance for Neuroimaging for Low Back Pain**

Discussion: Livingston introduced a summary of changes suggested for the Prioritized List to allow agreement with the approved coverage guidance on neuroimaging for low back pain. There was minimal discussion about the guideline. It was pointed out that electromyelography (CPT 96002-4) is used for diagnosis of a variety of conditions. The proposal was to not cover this service for the diagnosis of low back pain; however, the

group agreed that it should be covered for diagnosis for other conditions and moved from the Ancillary to the Diagnostic List. The intention is to not cover EMG for diagnosis of low back pain.

Actions:

1) Advise DMAP to move electromyelography (CPT 96002-4) from the Ancillary List to the Diagnostic List
2) Diagnostic guideline 4 modified as shown in Attachment A.

Topic: Coverage Guidance for Nonpharmacologic Interventions for Treatment Resistant Depression

Discussion: Livingston introduced a summary of changes suggested for the Prioritized List to allow agreement with the approved coverage guidance on treatment resistant depression. Pollack expressed concern that there was no evidence for treatments such as meditation, psychotherapy, etc. There was some discussion about clarifying what qualifies as two medications for depression. For example, sleep aids should not be considered medications. The medications should be SSRIs, SNRIs, tricyclic antidepressants or similar medications. There was some concern that psychotherapy may not be reasonable to try in certain cases, such as catatonic patients. The group felt that the proposed guideline was reasonable, but changed the title to more closely reflect what was included in the guideline.

Actions:

1) Transcranial magnetic stimulation codes 90867 - 90868 were added to Line 9 MAJOR DEPRESSION, RECURRENT; MAJOR DEPRESSION, SINGLE EPISODE, SEVERE
2) No change was made to 90869 placement
3) A new treatment guideline for nonpharmacologic interventions for treatment resistant depression was adopted for line 9 as shown in Attachment B

- **Topic: Coverage Guidance for Neuroimaging for Dementia**

Discussion: Livingston introduced a summary of changes suggested for the Prioritized List to allow agreement with the approved coverage guidance on neuroimaging for dementia. The only modification requested to the proposed guideline was to add the reversible causes of dementia that were listed in the coverage guidance to the guideline.

Actions:

1) A new diagnostic guideline for neuroimaging in dementia was adopted as shown in Attachment B

- **Topic: Coverage Guidance for Neuroimaging for Headache**

Discussion: Livingston introduced a summary of changes suggested for the Prioritized List to allow agreement with the approved coverage guidance on neuroimaging for

headache. DMAP has made HERC staff aware that this guideline is unenforceable. This guideline needs to be reworked and brought back for consideration at the December meeting.

Actions:
1) HERC staff to rework guideline and bring back to the December meeting

- **Topic: Coverage Guidance for Elective Induction of Labor**

Discussion: Smits introduced a summary of changes suggested for the Prioritized List to allow agreement with the approved coverage guidance on elective induction of labor. The guideline affected by this coverage guidance was previously reviewed in August. However, HERC staff on review found that the elective induction of labor guideline substantially did not match the coverage guidance. There was some discussion about whether elective induction should be limited prior to 39 weeks or prior to 41 weeks. Elective induction after 39 weeks is standard of care in many Oregon communities. However, there is no evidence that this improves outcomes, and it may cause harm. The group felt that the HERC should challenge community standard, when the evidence supports other practice. The group also felt that the Prioritized List should match HERC guidances.

Actions:
1) A revised guideline note was adopted as shown in Attachment A

- **Topic: ICD-10 Follow Up Foreign Body in the GI Tract**

Discussion: Livingston introduced a summary document regarding suggested changes to coverage of treatment of foreign bodies in the GI tract. There was minimal discussion.

Actions:
1) Duplicate foreign body in GI tract codes currently on the 2014 biennial Prioritized List line 527 (T18.2xxA, T18.3xxA, T18.4xxA, T18.5xxA, T18.8xxA, T18.9xxA) on renamed Line 48 INTUSSCEPTION, VOLVULUS, INTESTINAL OBSTRUCTION, HAZARDOUS FOREIGN BODY IN GI TRACT WITH RISK OF PERFORATION OR OBSTRUCTION
2) Rename Line 527 FOREIGN BODY IN GI TRACT WITHOUT RISK OF PERFORATION OR OBSTRUCTION.
3) Adopt a new guideline for lines 48 and 527 as shown in Attachment B for the 2014 biennial list

- **Topic: ICD-10 Follow Up Placement of Albinism Codes**

  Discussion: Livingston introduced a summary document for changes involving albinism codes for the 2014 biennial list. The discussion centered around whether routine skin exams should be covered for persons with this condition. The suggested placement was on the prevention line (line 3); however, the line containing high risk skin conditions (line 257) was considered to be a better place to pair albinism with skin exam CPT codes. Ocular and cutaneous diagnoses would be on both the ophthamalogical and the skin lines. Cutaneous only diagnosis codes should only be on line 257.

  Actions:

  1. Place E70.338 and E70.339 (with hematologic abnormality) on Line 329 DISORDERS OF AMINO-ACID TRANSPORT AND METABOLISM (NON PKU)
     Place oculocutaneous albinism codes (E70.31x and E70.32x) on Line 452 STRABISMUS; CONGENITAL ANOMALIES OF EYE
  2. Place cutaneous albinism codes E70.30, E70.32X, AND E70.39 on line 257 DERMATOLOGICAL PREMALIGNANT LESIONS AND CARCINOMA IN SITU

- **Topic: Straightforward Issues**

  Discussion: Smits presented a summary of straightforward changes to the Prioritized List. There was a brief discussion about adding cerumen impaction lavage (69210) to several lines or taking off all lines but 526. The group felt that the lavage was needed to treat the hearing loss or to diagnose otitis media and therefore should be on these lines. Uncomplicated cerumen impaction will stay on line 526. There was also discussion about adding PT/OT for treatment of brachial plexus. The group decided to add PT/OT to both lines with brachial plexus codes (lines 493 and 535).

  Actions:

  1) Remove 59830 from line 1
  2) Add 59830 to line 41
  3) Add 75557-75561, 75565 to line 50
  4) Add 26665 to line 382
  5) Add 26785 to line 297
  6) Add 43262, 43264, 43265, 43268, and 43271 to line 308
  7) Add 28190 to line 415
  8) Remove 96920-2 from lines 223, 386, 432, 517, 545, 553, 554 and 568
  9) Add 61582 to line 320
  10) Remove 839.40 from line 497
  11) Add 839.40 to line 551
  12) Add 77371 to line 466
  13) Add 19120 to lines 197, 509 and 665
  14) Advise DMAP to remove 19120 from the Ancillary List
  15) Remove 11401 and 11402 from line 197
  16) Remove 11623 from line 197
  17) Remove 13122, 13132, and 13133 from line 197
  18) Add 23470 and 23472 to line 208
  19) Add 27130 to lines 89, 207, 308 and 382

20) Add 27495 to line 208
21) Add 11043-11047 to line 142
22) Add 76801, 76805, and 76815-7 to line 59
23) Add 27495 to line 208
24) Add 61571 to line 101
25) Add 14000 to line 208
26) Add 14001 to lines 197, 216, 308, 448
27) Add 69210 to lines 383 and 470
28) Add 44120, 44121, and 44125 to line 88
29) Add 15100 and 15101 to lines 146, 167, 250, and 448
30) Add 44130 to line 341
31) Add 33530 to line 77
32) Add 12021 to line 216
33) Add 77418 and 77421 to line 165
34) Add 97001-97004, 97110-97124 to line 493 and 535
35) Add reference to line 493 and 535 to GUIDELINE NOTE 6, REHABILITATIVE THERAPIES
36) Add 92002-92014 to lines 183, 292, 308, 320, and 448
37) Add 65430 to line 164
38) Add 44125 to lines 35 and 165
39) Add 99211-99255 to line 173
40) Change the treatment description of line 173 to "Medical and surgical treatment"
41) Add 357.2 to line 535
42) Add 51705 and 51710 to line 351
43) Add 29828 to line 406
44) Remove 45378 from line 48
45) Advise DMAP to place 45378 on the Diagnostic List

- **Topic: Intratympanic Gentamycin for Meniere's Disease**

Discussion: Smits presented a summary document. There was no discussion.

Actions:
1) Add 69801 (Labyrinthotomy, with perfusion of vestibuloactive drug(s); transcanal) to line 442 MENIERE'S DISEASE

- **Topic: Hip Dysplasia Surgical Treatment**

Discussion: Smits presented a summary document. There was no discussion.

Actions:
1) Add 27001-27006 (Open tenotomy, hip) to line 336
2) Add 27140-27165 (osteotomy, hip or pelvis) to line 336
3) Add 77036 (capsulectomy or capsulotomy, hip) to line 336
4) Do not add hip arthroplasty (27130) to line 336

- **Topic: Coverage Algorithm**

  Discussion: Livingston presented a proposed coverage algorithm for discussion. A comment was raised that the burden of proof should be on those advocating the treatment. A discussion of coverage with evidence development ensued, and there were considerations such as less risk or harm, but unknown effectiveness. There was a discussion of standard of care and how to invest public resources and public dollars. The entire side of the algorithm in which there is insufficient or mixed evidence was felt to be risky for recommended coverage. If there is insufficient evidence, how can one know if it is safer and cheaper. The middle avenue on the algorithm should not have coverage.

  Actions:

  1) Further discussion of the algorithm is planned for today's HERC meeting

- **Public Comment:**

  There was no additional public comment received.

- **Issues for next meeting:**
  - Placement of 2013 CPT codes
  - Guideline note 44, menstrual bleeding disorders
  - Puberty suppressing medications for gender questioning youth
  - Silver nitrate treatment for dental caries
  - Neuroimaging for headache

- **Next meeting:**
  - Scheduled for December 13, 2012, Meridian Park Hospital Health Education Center, Tualatin OR, Room 117B&C, 8:30 AM

Attachment A

Revised Guidelines

The following guideline revisions will go into effect on April 1, 2013:

GUIDELINE NOTE 7, ERYTHROPOIESIS-STIMULATING AGENT (ESA) GUIDELINE

Lines 33,66,79,102,103,105,123-125,131,138,144,159,165,166,168,170,181,197,198,206-208,218,220,221,228,229,231,235,243,249,252,275-278,280,287,292,310-312,314,320,339-341,352,356,366,459,622

A) Indicated for anemia (Hgb < 10gm/dl or Hct < 30%) induced by cancer chemotherapy given within the previous 8 weeks or in the setting of myelodysplasia.

1) Reassessment should be made after 8 weeks of treatment. If no response, treatment should be discontinued. If response is demonstrated, ESAs should be discontinued once the hemoglobin level reaches 10gm/dl, unless a lower hemoglobin level is sufficient to avoid the need for red blood cell (RBC) transfusion.

B) Indicated for anemia (Hgb < 10gm/dl or HCT < 30%) associated with HIV/AIDS.

1) An endogenous erythropoietin level < 500 IU/L is required for treatment, and patient may not be receiving zidovudine (AZT) > 4200 mg/week.

2) Reassessment should be made after 8 weeks. If no response, treatment should be for RBC transfusions should be used, and the Hgb should not exceed 11gm/dl.

C) Indicated for anemia (Hgb < 10 gm/dl or HCT <30%) associated with chronic renal failure, with or without dialysis.

1) Reassessment should be made after ~~8~~ 12 weeks. If no response, treatment should be discontinued. If response is demonstrated, the lowest ESA dose sufficient to reduce the need for RBC transfusions should be used, and the Hgb should not exceed 11gm/dl. In those not on dialysis, the Hgb level should not exceed 10gm/dl.

GUIDELINE NOTE 37, DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT

Line: 400

For the purpose of treatment coverage on Line 400, neurologic impairment or radiculopathy is defined as:

~~Neurologic impairment or radiculopathy is defined as objective evidence of one or more of thefollowing:~~

A) Abnormal reflexes
B) Segmental muscle weakness
C) Segmental sensory loss
D) EMG or NCV evidence of nerve root impingement
E) Cauda equina syndrome,
F) Neurogenic bowel or bladder
G) Long tract abnormalities

Otherwise, disorders of spine not meeting these criteria (e.g. pain alone) fall on Line 562 ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT.

Attachment A

Revised Guidelines

GUIDELINE NOTE 47, URINARY INCONTINENCE

Line 478

Surgery for genuine stress urinary incontinence may be indicated when all of the following are documented (A-G):

A) Patient history of (1, 2, and 3):
- 1) Involuntary loss of urine with exertion
- 2) Identification and treatment of transient causes of urinary incontinence, if present (e.g., delirium, infection, pharmaceutical causes, psychological causes, excessive urine production, restricted mobility, and stool impaction)
- 3) Involuntary loss of urine on examination during stress (provocative test with direct visualization of urine loss) and low or absent post void residual

B) Patient's voiding habits

C) Physical or laboratory examination evidence of either (1 or 2):
- 1) Urethral hypermobility
- 2) Intrinsic sphincter deficiency

D) Diagnostic workup to rule out urgency incontinence

E) Negative preoperative pregnancy test result unless patient is postmenopausal or has been previously sterilized

F) Nonmalignant cervical cytology, if cervix is present

G) Patient required to have 3 months alternative therapy (e.g., pessaries or physical therapy, including bladder training, pelvic floor exercises, and/or biofeedback, ~~and/or electrical stimulation~~, as available).

GUIDELINE NOTE 92, ACUPUNCTURE

Lines 1,212,435,563

Line 1 PREGNANCY

Acupuncture (97810-97814) pairs on Line 1 for the following conditions and codes.

Hyperemesis gravidarum

ICD-9 codes: 643.00, 643.03, 643.10, 643.11, 643.13

Acupuncture for hyperemesis gravidarum is covered when a diagnosis is made by the maternity care provider and referred for acupuncture treatment. Up to 2 sessions of acupressure/acupuncture are covered.

Breech presentation

ICD-9 codes: 652.20, 652.23

Acupuncture (and moxibustion) for breech presentation is covered when a referral with a diagnosis of breech presentation is made by the maternity care provider, the patient is between 33 and 38 weeks gestation, for up to 2 visits.

Back and pelvic pain of pregnancy

ICD-9 codes: 648.70, 648.73

Acupuncture is covered for back and pelvic pain of pregnancy when referred by maternity care provider/primary care provider for up to 12 sessions.

Line 212 DEPRESSION AND OTHER MOOD DISORDERS, MILD OR MODERATE

Acupuncture is covered on this line for the treatment of post-stroke depression only. Treatments may be billed to a maximum of 30 minutes face-to-face time an limited to 15 total sessions, with documentation of meaningful improvement.

Attachment A

Revised Guidelines

Line 400 DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT

Acupuncture (97810-4) is included on Line 400 only for pairing with disorders of the spine with myelopathy and/or radiculopathy represented by the diagnosis codes M47.26, M47.27, M51.06, M51.07, M51.16, M51.17, M51.26, M51.27, M54.16, M54.17. Acupuncture for the treatment of these conditions is only covered, when referred, for up to 12 sessions.

Line 435 MIGRAINE HEADACHES

Acupuncture pairs on Line 435 for ICD-9 346, when referred, for up to 12 sessions.

Line 562 ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT

Acupuncture pairs on Line 562 only with the low back diagnoses (M47.816, M47.817, M47.896, M47.897, M48.36, M48.37, M51.26, M51.27, M51.36, M51.37, M51.86, M51.87, M54.5, M62.830, S33.5xxA, S33.9xxA, S39.092A, S39.82xA, S39.93xA), when referred, for up to 12 sessions.

Line 563 TENSION HEADACHES

Acupuncture is ~~covered for~~ included on Line 563 for treatment of tension headaches ~~on Line 563~~, when referred, for up to 12 sessions.

DIAGNOSTIC GUIDELINE D4, ~~MRI OF THE SPINE~~ ADVANCED IMAGING FOR LOW BACK PAIN

In patients with non-specific low back pain and no "red flag" conditions [see Table D.1], imaging is not a covered service; otherwise work up is covered as shown in the table.

Electromyelography (CPT 96002-4) is not covered for non-specific low back pain.

~~MRI of the spine is covered in the following situations:~~

1. ~~Recent onset of major or progressive neurologic deficit (objective evidence of reflex loss, dermatomal muscle weakness, dermatomal sensory loss, EMG or NCV evidence of nerve root impingement), suspected cauda equina syndrome (loss of bowel or bladder control or saddle anesthesia), or neurogenic claudication in patients who are potential candidates for surgery~~
2. ~~Clinical or radiological suspicion of neoplasm; or,~~
3. ~~Clinical or radiological suspicion of infection.~~

Table D.1
Low Back Pain - Potentially Serious Conditions ("Red Flags") and Recommendations for Initial Diagnostic Work-up

Possible cause	Key features on history or physical examination	Imaging*	Additional studies*
Cancer	• History of cancer with new onset of LBP	MRI	ESR
	• Unexplained weight loss • Failure to improve after 1 month • Age >50 years • Symptoms such as painless neurologic deficit, night pain or pain increased in supine position	Lumbosacral plain radiography	

Attachment A

Revised Guidelines

	• Multiple risk factors for cancer present	Plain radiography or MRI	
Spinal column infection	• Fever • Intravenous drug use • Recent infection	MRI	ESR and/or CRP
Cauda equina syndrome	• Urinary retention • Motor deficits at multiple levels • Fecal incontinence • Saddle anesthesia	MRI	None
Vertebral compression fracture	• History of osteoporosis • Use of corticosteroids • Older age	Lumbosacral plain radiography	None
Ankylosing spondylitis	• Morning stiffness • Improvement with exercise • Alternating buttock pain • Awakening due to back pain during the second part of the night • Younger age	Anterior-posterior pelvis plain radiography	ESR and/or CRP, HLA-B27
Nerve compression/ disorders (e.g. herniated disc with radiculopathy)	• Back pain with leg pain in an L4, L5, or S1 nerve root distribution present < 1 month • Positive straight-leg-raise test or crossed straight-leg-raise test	None	None
	• Radiculopathic symptoms present >1 month • Severe/progressive neurologic deficits (such as foot drop), progressive motor weakness	MRI**	Consider EMG/NCV
Spinal stenosis	• Radiating leg pain • Older age • Pain usually relieved with sitting (Pseudoclaudication a weak predictor)	None	None
	• Spinal stenosis symptoms present >1 month	MRI**	Consider EMG/NCV

* Level of evidence for diagnostic evaluation is variable
** Only if patient is a potential candidate for surgery or epidural steroid injection

Red Flag: Red flags are findings from the history and physical examination that may be associated with a higher risk of serious disorders. CRP = C-reactive protein; EMG = electromyography; ESR = erythrocyte sedimentation rate; MRI = magnetic resonance imaging; NCV = nerve conduction velocity.

Extracted and modified from Chou R, Qaseem A, Snow V, et al: Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society. Ann Intern Med. 2007; 147:478-491.

Attachment A

Revised Guidelines

GUIDELINE NOTE 85, ~~ELECTIVE~~ INDUCTION OF LABOR

Line 1

~~Elective i~~Induction of labor ~~without medical or obstetrical indication~~ is covered only for gestational age beyond 41 and 0/7 weeks, prelabor rupture of membranes, maternal diabetes (pre-existing or gestational), or other medical or obstetrical indications. ~~prior to 39 weeks of completed gestation is not a covered service. Elective i~~Induction of labor is not covered at any gestational age for fetal macrosomia in the absence of maternal diabetes, ~~or~~ for breech presentation, or for elective purposes without a medical or obstetrical indication.

The following new guidelines will go into effect on April 1, 2013:

GUIDELINE NOTE XXX SMOKING AND SPINAL FUSION

Lines 84, 158, 208, 271, 400, 434, 507, 549, 607

Non-emergent spinal arthrodesis (CPT 22532-22634) is limited to patients who are non-smoking for 6 months prior to the planned procedure, as shown by three negative urine cotinine tests including testing on the day of surgery. Patients should be given access to appropriate smoking cessation therapy.

GUIDELINE NOTE XXX ARTIFICIAL DISC REPLACEMENT

Line 400, 562

Artificial disc replacement (CPT 22856-22865) is included on these lines as an alternative to fusion only when all of the following criteria are met:

Lumbar artificial disc replacement

1) Patients must first complete a structured, intensive, multi-disciplinary program for management of pain, if covered by the agency;
2) Patients must be 60 years or under;
3) Patients must meet FDA approved indications for use and not have any contra-indications. FDA approval is device specific but includes:
   - Failure of at least six months of conservative treatment
   - Skeletally mature patient
   - Replacement of a single disc for degenerative disc disease at one level confirmed by patient history and imaging

Cervical artificial disc replacement

1) Patients must meet FDA approved indications for use and not have any contra-indications. FDA approval is device specific but includes:
   - Skeletally mature patient
   - Reconstruction of a single disc following single level discectomy for intractable symptomatic cervical disc disease (radiculopathy or myelopathy) confirmed by patient findings and imaging.

GUIDELINE NOTE XXX NON-PHARMACOLOGIC INTERVENTIONS FOR TREATMENT-RESISTANT DEPRESSION

Line 9

Repetitive transcranial magnetic stimulation (CPT 90867-90868) and electroconvulsive therapy (CPT 90870) are covered only after failure of at least two antidepressants.

DIAGNOSTIC GUILDELINE XXX, NEUROIMAGING IN DEMENTIA

Neuroimaging is covered:
A) To rule out reversible causes of dementia (tumors, normal pressure hydrocephalus and chronic subdural hematoma) via structural neuroimaging only

Neuroimaging is not covered:
A) For screening of asymptomatic patients for dementia
B) To predict progression of the risk of developing dementia in patients with mild cognitive impairment
C) For screening, diagnosis, or monitoring of dementia, with functional neuroimaging (PET, SPECT or fMRI)

The following new guideline will go into effect with the implementation of the new biennial list projected for October 1, 2014:

GUIDELINE NOTE XXX, FOREIGN BODIES IN THE GI TRACT

Line 48, 527

ICD 10 codes T18.2xxA, T18.3xxA, T18.4xxA, T18.5xxA, T18.8xxA, T18.9xxA are included on Line 48 only when hazardous objects are involved that are likely to cause perforation (e.g. sharp objects >2 inches, neodinium magnets, button batteries) or obstruction.

Section 3

Straightforward Items

Straightforward Issues—December, 2012

Code	Code Description	Line(s) Involved	Issue	Recommendation(s)
69424 69433	Ventilating tube removal requiring general anesthesia Tympanostomy (requiring insertion of ventilating tube), local or topical anesthesia	**178** ACUTE MASTOIDITIS **383** HEARING LOSS - AGE 5 OR UNDER	In March, 2012, the VBBS voted to remove placement of PE tubes from line 383. However, 69436 was mistakenly not identified as requiring removal at that time (only 69436, PE tube placement under general anesthesia was removed). Removal of PE tubes under general anesthesia (69424) remains on line 383 and should be removed as well (it is present on the complications line 308 and therefore existing tubes can still be removed). Insertion of PE tubes codes are on line 178, but not removal of PE tubes (69424).	Add 69424 to line 178. Remove 69424 and 69433 from line 383
42950	Pharyngoplasty (plastic or reconstructive operation on pharynx)	**71** CONGENITAL ANOMALIES OF UPPER ALIMENTARY TRACT, EXCLUDING TONGUE	An OHP medical director requested pairing of 42950 with several congenital defects of the pharynx on line 71. 42950 is currently on line 84 DEEP ABSCESSES. A similar code, 42145 (Palatopharyngoplasty) is on line 71.	Add 42950 to line 71

Low Back Pain Coding Specifications

Issue: At the October 2012 VbBS meeting, coding specifications were added to Line 400 and line 562, which contained ICD-10 codes. However, these coding specifications need to also be part of the April 2013 List with ICD-9 codes. Additionally, the cognitive behavioral therapy CPT codes referenced in the October, 2014 List are no longer valid and need to be changed to reflect the 2013 psychiatric CPT codes.

Coding specifications added for the October, 2014 ICD-10 List:

Line **400** ACUTE AND CHRONIC DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT

Cognitive behavioral therapy (90804-15) only pairs on Line 400 with the low back diagnoses (M47.26, M47.27, M51.06, M51.07, M51.16, M51.17, M51.26, M51.27, M54.16, M54.17)

Line 562 ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT

Cognitive behavioral therapy (90804-15) only pairs on Line 562 with the low back diagnoses (M47.816, M47.817, M47.896, M47.897, M48.36, M48.37, M51.26, M51.27, M51.36, M51.37, M51.86, M51.87, M54.5, M62.830, S33.5xxA, S33.9xxA, S39.092A, S39.82xA, S39.93xA)

Recommendations:

1) Add the following coding recommendation to Line 400 for the April 1, 2013 Prioritized List
    a. Cognitive behavioral therapy (90785-90840) only pairs on Line 400 with the low back diagnoses (344.60, 722.1, 722.2, 722.7, 724.4)
2) Add the following coding recommendation to Line 562 for the April 1, 2013 Prioritized List
    a. Cognitive behavioral therapy (90785-90840) only pairs on Line 562 with the low back diagnoses (720.2, 721.3, 721.7, 721.8, 721.90, 722.1, 722.2, 722.32, 722.39, 722.5, 722.6, 722.8, 722.9, 724.1, 724.2, 724.5-724.9, 739.2-739.4, 847.1-847.9).
3) Change the following coding recommendation for Line 400 for the October 1, 2014 Prioritized List
    a. Cognitive behavioral therapy (90785-90840) only pairs on Line 400 with the low back diagnoses (344.60, 722.1, 722.2, 722.7, 724.4)
4) Change the following coding recommendation for Line 562 for the October 1, 2014 Prioritized List
    a. Cognitive behavioral therapy (90785-90840) only pairs on Line 562 with the low back diagnoses (720.2, 721.3, 721.7, 721.8, 721.90, 722.1, 722.2, 722.32, 722.39, 722.5, 722.6, 722.8, 722.9, 724.1, 724.2, 724.5-724.9, 739.2-739.4, 847.1-847.9).

Bariatric Surgery Coding Specification

Issue: the coding specification on line 33, TYPE II DIABETES MELLITUS, regarding bariatric surgery has errors in it that need to be corrected.

1) 43775 (Laparoscopy, surgical, gastric restrictive procedure; longitudinal gastrectomy (ie, sleeve gastrectomy)) is now included on this line, but missing from the coding specification
2) The tertiary diagnosis code indicating the BMI states V85-35-V85.40. However, this range should include diagnoses up to V85.45 (BMI 70 and over).

Recommendation:

1) Change the coding specification for line 33 as shown below:

Line: 33
Condition: TYPE II DIABETES MELLITUS (See Coding Specification Below) (See Guideline Notes 1,7,8,64,65,76)
Treatment: MEDICAL THERAPY, BARIATRIC SURGERY WITH BMI >= 35
ICD-9: 250.00,250.02,250.10,250.12,250.20,250.22,250.30,250.32,250.40, 250.42,250.50,250.52,250.60,250.62,250.70,250.72,250.80,250.82,250.90,250.92,V53.51
CPT: 43644,43645,43770-43775,43846-43848,90935-90947,90989-90997,92002-92014,92227,96150-96154,97802-97804,98966-98969,99051,99060,99070, 99078, 99201-99360,99366,99374,99375,99379-99412,99429-99444,99468-99480,99605-99607
HCPCS: G0108,G0245,G0246,G0396,G0397,G0406-G0408,G0425-G0427,S0270-S0274,S2083,S9145,S9353,S9537

CPT codes 43644-43645 and 43846-43848 (Roux-En-Y gastric bypass) and 43770-4377~~4~~5 (laparoscopic adjustable gastric banding) are only included on this line as treatment according to the requirements in Guideline Note 8 when paired with:
1) a primary diagnosis of 250.x0 or 250.x2 (Type II Diabetes with or without complication);
2) a secondary diagnosis of 278.00 (Obesity, Unspecified) or 278.01 (Morbid Obesity); AND,
3) a tertiary diagnosis code of V85.35-V85.4~~0~~5 (BMI >= 35).

Section 4

2013 Code Review

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
22586	Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); each additional interspace	**Prioritized**	**84** DEEP ABSCESSES, INCLUDING APPENDICITIS AND PERIORBITAL ABSCESS; INTESTINAL PERFORATION **158** CERVICAL VERTEBRAL DISLOCATIONS/FRACTURES, OPEN OR CLOSED; OTHER VERTEBRAL DISLOCATIONS/FRACTURES, OPEN; SPINAL CORD INJURIES WITH OR WITHOUT EVIDENCE OF VERTEBRAL INJURY **208** CERVICAL VERTEBRAL DISLOCATIONS/FRACTURES, OPEN OR CLOSED; OTHER VERTEBRAL DISLOCATIONS/FRACTURES, OPEN; SPINAL CORD INJURIES WITH OR WITHOUT EVIDENCE OF VERTEBRAL INJURY **271** CHRONIC OSTEOMYELITIS **400** DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT **434** SPINAL DEFORMITY, CLINICALLY SIGNIFICANT **507** CLOSED DISLOCATIONS/FRACTURES OF NON-CERVICAL VERTEBRAL COLUMN WITHOUT SPINAL CORD INJURY **549** BENIGN NEOPLASM BONE AND ARTICULAR CARTILAGE INCLUDING OSTEOID OSTEOMAS; BENIGN NEOPLASM OF CONNECTIVE AND OTHER SOFT TISSUE **607** SPINAL DEFORMITY, NOT CLINICALLY SIGNIFICANT	Similar codes 22551-22585 (Arthrodesis, anterior interbody) are on lines 84, 158, 208, 271, 400, 434, 507, 549, 607
23473	Revision of total shoulder arthroplasty, including allograft when performed; humeral or glenoid component	**Prioritized**	**208** CERVICAL VERTEBRAL DISLOCATIONS/FRACTURES, OPEN OR CLOSED; OTHER VERTEBRAL DISLOCATIONS/FRACTURES, OPEN; SPINAL CORD INJURIES WITH OR WITHOUT EVIDENCE OF VERTEBRAL INJURY **308** COMPLICATIONS OF A PROCEDURE ALWAYS REQUIRING TREATMENT **384** RHEUMATOID ARTHRITIS, OSTEOARTHRITIS, OSTEOCHONDRITIS DISSECANS, AND ASEPTIC NECROSIS OF BONE **467** MALUNION AND NONUNION OF FRACTURE	23471 (total shoulder arthroplasty) is on lines 208, 308, 384, 467. Alternatively, place only on line 308 as a complication.

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
23474	Revision of total shoulder arthroplasty, including allograft when performed; humeral and glenoid component	**Prioritized**	**208** CERVICAL VERTEBRAL DISLOCATIONS/FRACTURES, OPEN OR CLOSED; OTHER VERTEBRAL DISLOCATIONS/FRACTURES, OPEN; SPINAL CORD INJURIES WITH OR WITHOUT EVIDENCE OF VERTEBRAL INJURY **308** COMPLICATIONS OF A PROCEDURE ALWAYS REQUIRING TREATMENT **384** RHEUMATOID ARTHRITIS, OSTEOARTHRITIS, OSTEOCHONDRITIS DISSECANS, AND ASEPTIC NECROSIS OF BONE **467** MALUNION AND NONUNION OF FRACTURE	23471 (total shoulder arthroplasty) is on lines 208, 308, 384, 467.
24370	Revision of total elbow arthroplasty, including allograft when performed; humeral or ulnar component	**Prioritized**	**208** CANCER OF BONES **384** RHEUMATOID ARTHRITIS, OSTEOARTHRITIS, OSTEOCHONDRITIS DISSECANS, AND ASEPTIC NECROSIS OF BONE	24360-24362 are on line 384. 24363 is on line 208 as well.
24371	Revision of total elbow arthroplasty, including allograft when performed; humeral and ulnar component	**Prioritized**	**208** CANCER OF BONES **384** RHEUMATOID ARTHRITIS, OSTEOARTHRITIS, OSTEOCHONDRITIS DISSECANS, AND ASEPTIC NECROSIS OF BONE	24360-24362 are on line 384. 24363 is on line 208 as well.
31647	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with balloon occlusion, when performed, assessment of air leak, airway sizing, and insertion of bronchial valve(s), initial lobe	**Excluded**		See Issues document
31648	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with removal of bronchial valve(s), initial lobe	**Excluded**		See Issues document
31649	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with removal of bronchial valve(s), each additional lobe	**Excluded**		See Issues document
31651	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with balloon occlusion, when performed, assessment of air leak, airway sizing, and insertion of bronchial valve(s), each additional lobe	**Excluded**		See Issues document
31660	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with bronchial thermoplasty, 1 lobe	**Excluded**		See Issues document
31661	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with bronchial thermoplasty, 2 or more lobes	**Excluded**		See Issues document
32554	Thoracentesis, needle or catheter, aspiration of the pleural space; without imaging guidance	**Prioritized**	**84** DEEP ABSCESSES, INCLUDING APPENDICITIS AND PERIORBITAL ABSCESS; INTESTINAL PERFORATION **153** PNEUMOTHORAX AND HEMOTHORAX	Empyema and abscess of lung are on line 84. Pleural effusion and pneumothorax are on line 153. Consider also Diagnostic List

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
32555	with imaging guidance	**Prioritized**	**84** DEEP ABSCESSES, INCLUDING APPENDICITIS AND PERIORBITAL ABSCESS; INTESTINAL PERFORATION **153** PNEUMOTHORAX AND HEMOTHORAX	Empyema and abscess of lung are on line 84. Pleural effusion and pneumothorax are on line 153. Consider also Diagnostic List
32556	Pleural drainage, percutaneous, with insertion of indwelling catheter; without imaging guidance	**Prioritized**	**84** DEEP ABSCESSES, INCLUDING APPENDICITIS AND PERIORBITAL ABSCESS; INTESTINAL PERFORATION **153** PNEUMOTHORAX AND HEMOTHORAX	Empyema and abscess of lung are on line 84. Pleural effusion and pneumothorax are on line 153
32557	with imaging guidance	**Prioritized**	**84** DEEP ABSCESSES, INCLUDING APPENDICITIS AND PERIORBITAL ABSCESS; INTESTINAL PERFORATION **153** PNEUMOTHORAX AND HEMOTHORAX	Empyema and abscess of lung are on line 84. Pleural effusion and pneumothorax are on line 153
32701	Thoracic target(s) delineation for stereotactic body radiation therapy (SRS/SBRT), (photon or particle beam), entire course of treatment	**Excluded**		See Issues Document
33361	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; percutaneous femoral artery approach	**Prioritized**	**76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **90** MYOCARDITIS (NONVIRAL), PERICARDITIS (NONVIRAL) AND ENDOCARDITIS **116** CONGENITAL STENOSIS AND INSUFFICIENCY OF AORTIC VALVE **192** MULTIPLE VALVULAR DISEASE **195** CHRONIC ISCHEMIC HEART DISEASE **237** DISEASES AND DISORDERS OF AORTIC VALVE **308** COMPLICATIONS OF A PROCEDURE ALWAYS REQUIRING TREATMENT **354** COCCIDIOIDOMYCOSIS, HISTOPLASMOSIS, BLASTOMYCOTIC INFECTION, OPPORTUNISTIC AND OTHER MYCOSES	33405-33413 (Replacement aortic valve) are on lines 76,90,116,192,195,237,308,354. Rename line 354 "Treatment: Medical and Surgical Therapy"
33362	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; open femoral artery approach	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361
33363	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; open axillary artery approach	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361
33364	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; open iliac artery approach	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361
33365	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; transaortic approach (eg, median sternotomy, mediastinotomy)	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
33367	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; cardiopulmonary bypass support with percutaneous peripheral arterial and venous cannulation (eg, femoral vessels) (List separately in addition to code for primary procedure)	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361
33368	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; cardiopulmonary bypass support with open peripheral arterial and venous cannulation (eg, femoral, iliac, axillary vessels) (List separately in addition to code for primary procedure	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361
33369	Transcatheter aortic valve replacement (TAVR/TAVI) with prosthetic valve; cardiopulmonary bypass support with central arterial and venous cannulation (eg, aorta, right atrium, pulmonary artery) (List separately in addition to code for primary procedure)	**Prioritized**	**76, 90, 116, 192, 195, 237, 308, 354**	See 33361
33990	Insertion of ventricular assist device, percutaneous including radiological supervision and interpretation; arterial access only	**Prioritized**	**90** MYOCARDITIS (NONVIRAL), PERICARDITIS (NONVIRAL) AND ENDOCARDITIS **108** HEART FAILURE **279** CONGESTIVE HEART FAILURE, CARDIOMYOPATHY, TRANSPOSITION OF GREAT VESSELS, HYPOPLASTIC LEFT HEART SYNDROME **367** IDIOPATHIC OR VIRAL MYOCARDITIS AND PERICARDITIS	33975, 33979 (Insertion of VAD) and 33977, 33980 (removal of VAD) are on lines 90,108,279,367.
33991	Insertion of ventricular assist device, percutaneous including radiological supervision and interpretation; both arterial and venous access, with transseptal puncture	**Prioritized**	**90, 108, 279, 367**	See 33990
33992	Removal of percutaneous ventricular assist device at separate and distinct session from insertion	**Prioritized**	**90, 108, 279, 367**	See 33990
33993	Repositioning of percutaneous ventricular assist device with imaging guidance at separate and distinct session from insertion	**Prioritized**	**90, 108, 279, 367**	See 33990
36221	Non-selective catheter placement, thoracic aorta, with angiography of the extracranial carotid, vertebral, and/or intracranial vessels, unilateral or bilateral, and all associated radiological supervision and interpretation, includes angiography of the cervicocerebral arch, when performed	**Diagnostic**		Diagnostic procedure to evaluate blood vessels. Other angiography codes (75635-75791) are on the Diagnostic List.

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
36222	Selective catheter placement, common carotid or innominate artery, unilateral, any approach, with angiography of the ipsilateral extracranial carotid circulation and all associated radiological supervision and interpretation, includes angiography of the extracranial carotid and cervicocerebral arch, when performed	**Diagnostic**		See 36221
36223	Selective catheter placement, common carotid or innominate artery, unilateral, any approach, with angiography of the ipsilateral intracranial carotid circulation and all associated radiological supervision and interpretation, includes angiography of the extracranial carotid and cervicocerebral arch, when performed	**Diagnostic**		See 36221
36224	Selective catheter placement, internal carotid artery, unilateral, with angiography of the ipsilateral intracranial carotid circulation and all associated radiological supervision and interpretation, includes angiography of the extracranial carotid and cervicocerebral arch, when performed	**Diagnostic**		See 36221
36225	Selective catheter placement, subclavian or innominate artery, unilateral, with angiography of the ipsilateral vertebral circulation and all associated radiological supervision and interpretation, includes angiography of the cervicocerebral arch, when performed	**Diagnostic**		See 36221
36226	Selective catheter placement, vertebral artery, unilateral, with angiography of the ipsilateral vertebral circulation and all associated radiological supervision and interpretation, includes angiography of the cervicocerebral arch, when performed	**Diagnostic**		See 36221
36227	Selective catheter placement, external carotid artery, unilateral, with angiography of the ipsilateral external carotid circulation and all associated radiological supervision and interpretation	**Diagnostic**		See 36221

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
36228	Selective catheter placement, each intracranial branch of the internal carotid or vertebral arteries, unilateral, with angiography of the selected vessel circulation and all associated radiological supervision and interpretation (eg, middle cerebral artery, posterior inferior cerebellar artery)	**Diagnostic**		See 36221
37197	Transcatheter retrieval, percutaneous, of intravascular foreign body (eg, fractured venous or arterial catheter), includes radiological supervision and interpretation, and imaging guidance (ultrasound or fluoroscopy), when performed	**Prioritized**	**308** COMPLICATIONS OF A PROCEDURE ALWAYS REQUIRING TREATMENT	996.1 (Mechanical complication of other vascular device, implant, and graft) is on line 308
37211	Transcatheter therapy, arterial infusion for thrombolysis other than coronary, any method, including radiological supervision and interpretation, initial treatment day	**Prioritized**	**270** ARTERIAL EMBOLISM/THROMBOSIS: ABDOMINAL AORTA, THORACIC AORTA **342** STROKE **378** ATHEROSCLEROSIS, PERIPHERAL **472** ATHEROSCLEROSIS, AORTIC AND RENAL	3795 (Thrombolysis, cerebral, by intravenous infusion) is on line 342. 37184-37186 (Transluminal mechanical thrombectomy, artery) are on lines 270, 378, 472.
37212	Transcatheter therapy, venous infusion for thrombolysis, any method, including radiological supervision and interpretation, initial treatment day	**Prioritized**	**87** PHLEBITIS AND THROMBOPHLEBITIS, DEEP **303** BUDD-CHIARI SYNDROME, AND OTHER VENOUS EMBOLISM AND THROMBOSIS	37187-37188 (Transluminal mechanical thrombectomy, venous) are on lines 87 and 303.
37213	Transcatheter therapy, arterial or venous infusion for thrombolysis other than coronary, any method, including radiological supervision and interpretation, continued treatment on subsequent day during course of thrombolytic therapy, including follow-up catheter contrast injection, position change, or exchange, when performed;	**Prioritized**	**87** PHLEBITIS AND THROMBOPHLEBITIS, DEEP **270** ARTERIAL EMBOLISM/THROMBOSIS: ABDOMINAL AORTA, THORACIC AORTA **303** BUDD-CHIARI SYNDROME, AND OTHER VENOUS EMBOLISM AND THROMBOSIS **342** STROKE **378** ATHEROSCLEROSIS, PERIPHERAL **472** ATHEROSCLEROSIS, AORTIC AND RENAL	See 37211 and 37212 above
37214	Transcatheter therapy, arterial or venous infusion for thrombolysis other than coronary, any method, including radiological supervision and interpretation, continued treatment on subsequent day during course of thrombolytic therapy, including follow-up catheter contrast injection, position change, or exchange, when performed; cessation of thrombolysis including removal of catheter and vessel closure by any method	**Prioritized**	**87** PHLEBITIS AND THROMBOPHLEBITIS, DEEP **270** ARTERIAL EMBOLISM/THROMBOSIS: ABDOMINAL AORTA, THORACIC AORTA **303** BUDD-CHIARI SYNDROME, AND OTHER VENOUS EMBOLISM AND THROMBOSIS **342** STROKE **378** ATHEROSCLEROSIS, PERIPHERAL **472** ATHEROSCLEROSIS, AORTIC AND RENAL	See 37211 and 37212 above

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
38243	Hematopoietic progenitor cell (HPC); HPC boost	**Prioritized**	**79** AGRANULOCYTOSIS **103** ACUTE LEUKEMIAS, MYELODYSPLASTIC SYNDROME **105** HEREDITARY IMMUNE DEFICIENCIES **125** HODGKIN'S DISEASE **131** OTHER SPECIFIED APLASTIC ANEMIAS **170** NON-HODGKIN'S LYMPHOMAS **198** MULTIPLE MYELOMA **206** CONSTITUTIONAL APLASTIC ANEMIAS **231** TESTICULAR CANCER **280** CHRONIC NON-LYMPHOCYTIC LEUKEMIA **314** OSTEOPETROSIS	38240 (Allogenic HPC transplatation) on lines 79, 103, 105, 125, 131, 170, 198, 206, 231, 280, 314 (bone marrow transplant lines). 38241 (Autologous HPC transplantation) on lines 103,125,170,198,231,280,314. Stem cell "boost" is a non-standardized term that is used to describe an infusion of additional hematopoietic stem cells to an individual who has undergone recent hematopoietic stem cell transplantation and has poor graft function. The infusion of additional hematopoietic stem cells is to mitigate either graft failure or rejection with or without immunosuppression. This process may include the collection of additional hematopoietic stem cells from a donor and infusion into the transplant recipient. Note that a "boost" is distinct from a repeat transplant
43206	Esophagoscopy, rigid or flexible; with optical endomicroscopy	**Excluded**		See Issues document
43252	Upper gastrointestinal endoscopy including esophagus, stomach, and either the duodenum and/or jejunum as appropriate; with optical endomicroscopy	**Excluded**		See Issues document
44705	Preparation of fecal microbiota for instillation, including assessment of donor specimen	**Excluded**		See Issues document
52287	Cystourethroscopy, with injection(s) for chemodenervation of the bladder	**Prioritized**	**351** FUNCTIONAL AND MECHANICAL DISORDERS OF THE GENITOURINARY SYSTEM INCLUDING BLADDER OUTLET OBSTRUCTION	See Issues document Guideline recommended
64615	Chemodenervation of muscle(s); muscle(s) innervated by facial, trigeminal, cervical spinal and accessory nerves, bilateral (eg, for chronic migraine)	**Excluded**		See Issues document
78012	Thyroid uptake, single or multiple quantitative measurement(s) (including stimulation, suppression, or discharge, when performed)	**Diagnostic**		Replaces 78000-78010, which were Diagnostic
78013	Thyroid imaging (including vascular flow, when performed);	**Diagnostic**		Replaces 78011, which was Diagnostic

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
78014	Thyroid imaging (including vascular flow, when performed); with single or multiple uptake(s) quantitative measurement(s) (including stimulation, suppression, or discharge, when performed)	**Diagnostic**		See above
78071	Parathyroid planar imaging (including subtraction, when performed); with tomographic (SPECT)	**Diagnostic**		78070 (Parathyroid imaging) is Diagnostic
78072	Parathyroid planar imaging (including subtraction, when performed); with tomographic (SPECT), and concurrently acquired computed tomography (CT) for anatomical localization	**Diagnostic**		
81201	APC (adenomatous polyposis coli) (eg, familial adenomatosis polyposis [FAP], attenuated FAP) gene analysis; full gene sequence	**Diagnostic**		See Genetic Testing Issues
81202	APC (adenomatous polyposis coli) (eg, familial adenomatosis polyposis [FAP], attenuated FAP) gene analysis; known familial variants	**Diagnostic**		See Genetic Testing Issues
81203	APC (adenomatous polyposis coli) (eg, familial adenomatosis polyposis [FAP], attenuated FAP) gene analysis; duplication/deletion variants	**Diagnostic**		See Genetic Testing Issues
81235	EGFR (epidermal growth factor receptor) (eg, non-small cell lung cancer) gene analysis, common variants (eg, exon 19 LREA deletion, L858R, T790M, G719A, G719S, L861Q)	**Diagnostic**		See Genetic Testing Issues
81252	GJB2 (gap junction protein, beta 2, 26kDa; connexin 26) (eg, nonsyndromic hearing loss) gene analysis; full gene sequence	**Diagnostic**		See Genetic Testing Issues
81253	GJB2 (gap junction protein, beta 2, 26kDa; connexin 26) (eg, nonsyndromic hearing loss) gene analysis; known familial variants	**Diagnostic**		See Genetic Testing Issues
81254	GJB6 (gap junction protein, beta 6, 30kDa, connexin 30) (eg, nonsyndromic hearing loss) gene analysis, common variants (eg, 309kb [del(GJB6-D13S1830)] and 232kb [del(GJB6-D13S1854)])	**Diagnostic**		See Genetic Testing Issues
81321	PTEN (phosphatase and tensin homolog) (eg, Cowden syndrome, PTEN hamartoma tumor syndrome) gene analysis; full sequence analysis	**Diagnostic**		See Genetic Testing Issues
81322	PTEN (phosphatase and tensin homolog) (eg, Cowden syndrome, PTEN hamartoma tumor syndrome) gene analysis; known familial variant	**Diagnostic**		See Genetic Testing Issues

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
81323	PTEN (phosphatase and tensin homolog) (eg, Cowden syndrome, PTEN hamartoma tumor syndrome) gene analysis; duplication/deletion variant	**Diagnostic**		See Genetic Testing Issues
81324	PMP22 (peripheral myelin protein 22) (eg, Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; duplication/deletion analysis	**Diagnostic**		See Genetic Testing Issues
81325	PMP22 (peripheral myelin protein 22) (eg, Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; full sequence analysis	**Diagnostic**		See Genetic Testing Issues
81326	PMP22 (peripheral myelin protein 22) (eg, Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; known familial variant	**Diagnostic**		See Genetic Testing Issues
81479	Unlisted molecular pathology procedure	**Suspend for Review**		Only covered on a per cases basis after manual review
81500	Oncology (ovarian), biochemical assays of two proteins (CA-125 and HE4), utilizing serum, with menopausal status, algorithm reported as a risk score	**Excluded**		See Issues document
81503	Oncology (ovarian), biochemical assays of five proteins (CA-125, apoliproprotein A1, beta-2 microglobulin, transferrin, and pre-albumin), utilizing serum, algorithm reported as a risk score	**Excluded**		See Issues document
81506	Endocrinology (type 2 diabetes), biochemical assays of seven analytes (glucose, HbA1c, insulin, hs-CRP, adoponectin, ferritin, interleukin 2-receptor alpha), utilizing serum or plasma, algorithm reporting a risk score	**Excluded**		See Issues document
81508	Fetal congenital abnormalities, biochemical assays of two proteins (PAPP-A, hCG [any form]), utilizing maternal serum, algorithm reported as a risk score	**Prioritized**	**1** PREGNANCY	first trimester serum screening for genetic anomalies
81509	Fetal congenital abnormalities, biochemical assays of three proteins (PAPP-A, hCG [any form], DIA), utilizing maternal serum, algorithm reported as a risk score	**Prioritized**	**1** PREGNANCY	"triple screen"
81510	Fetal congenital abnormalities, biochemical assays of three analytes (AFP, uE3, hCG [any form]), utilizing maternal serum, algorithm reported as a risk score	**Prioritized**	**1** PREGNANCY	"Quad screen"

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
81511	Fetal congenital abnormalities, biochemical assays of four analytes (AFP, uE3, hCG [any form], DIA) utilizing maternal serum, algorithm reported as a risk score (may include additional results from previous biochemical testing)	**Prioritized**	**1** PREGNANCY	second trimester serum screening used in conjunction with 81508 (i.e. The Sequential Screen).
81512	Fetal congenital abnormalities, biochemical assays of five analytes (AFP, uE3, total hCG, hyperglycosylated hCG, DIA) utilizing maternal serum, algorithm reported as a risk score	**Prioritized**	**1** PREGNANCY	second trimester serum screening called The Penta Screen
81599	Unlisted multianalyte assay with algorithmic analysis	**Suspend for Review**		Only covered on a per cases basis after manual review
82777	Galectin-3	**Excluded**		See Issues document
86152	Cell enumeration using immunologic selection and identification in fluid specimen (eg, circulating tumor cells in blood)	**Diagnostic**		
86153	Cell enumeration using immunologic selection and identification in fluid specimen (eg, circulating tumor cells in blood); physician interpretation and report, when required	**Diagnostic**		
86711	Antibody; JC (John Cunningham) virus	**Diagnostic**		Newly FDA approved diagnostic test to help determine if patients using natalizumab (Tysabri) are at increased risk for developing progressive multifocal leukoencephalopathy (PML). The presence of anti–John Cunningham virus (JCV) antibodies would indicate that a patient has been exposed to JCV in the past. Patients receiving immunomodulatory therapies such as natalizumab have an increased chance of developing PML from JCV.
86828	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, flow cytometry); qualitative assessment of the presence or absence of antibody(ies) to HLA Class I and Class II HLA antigens	**Prioritized**	Transplant lines (**78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574**)	Similar codes 86825 and 86826 (HLA crossmatch, non cytotoxic) are on lines 78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574 (transplant lines)
86829	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); qualitative assessment of the presence or absence of antibody(ies) to HLA Class I or Class II HLA antigens	**Prioritized**	Transplant lines (**78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574**)	Similar codes 86825 and 86826 (HLA crossmatch, non cytotoxic) are on lines 78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574 (transplant lines)

CPT Code	Descriptor	List	Recommended Line Placement	Comments/Issues
86830	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); antibody identification by qualitative panel using complete HLA phenotypes, HLA Class I	**Prioritized**	Transplant lines (**78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574**)	Similar codes 86825 and 86826 (HLA crossmatch, non cytotoxic) are on lines 78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574 (transplant lines)
86831	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); antibody identification by qualitative panel using complete HLA phenotypes, HLA Class II	**Prioritized**	Transplant lines (**78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574**)	Similar codes 86825 and 86826 (HLA crossmatch, non cytotoxic) are on lines 78, 91, 102, 105, 110, 125, 131, 169, 170, 198, 206, 232, 253, 254, 255, 279, 280, 313, 332, 574 (transplant lines)

2013 CPT Code Issues

Bronchial Valves

1) CPT codes: 31647, 31651 (placement of bronchial valves) and 31648, 31649 (removal of bronchial valves)
2) Definition: Endobronchial valves are synthetic devices that are deployed with bronchoscopy into ventilatory airways of the lung for the purpose of controlling airflow. They have been investigated for use in patients who have prolonged broncho-pleural air leaks, as well as an alternative to lung volume reduction surgery (LVRS) in patients with lobar hyperinflation from severe emphysema.
3) Evidence
    a. **NICE 2009**
        i. Literature review of efficacy and safety of bronchoscopic treatment of severe COPD with pulmonary valves
        ii. 6 case series identified (N=98, 21, 57, 98, 19, 19)
        iii. 2 studies showed significant improvement in forced expiratory volume (FEV1) at 3-month follow-up; 1 study found improvement at 1 year follow up (significance not given); 1 study showed no difference at 6 month follow up
        iv. 3 studies found improvement in quality of life; 1 study did not
        v. A case series of 98 patients with end-stage emphysema treated by bronchoscopic lung volume reduction with airway valves reported that 1% (1/98) of patients died following complications related to pneumonia
        vi. Pneumothorax occurred in 20% (4/20), 10% (2/19), 7% (4/57), and 5% (1/19) of patients across the studies. Most resolved spontaneously but 1 patient required valve removal and 2 required tube insertion.
        vii. Across the case series exacerbation of COPD following the procedure occurred at a rate of 35% (20/57) and 17% (17/98) of patients (follow-up period varied between studies).
        viii. The most consistently reported complication across the series was bronchospasm, which occurred in 5% (5/98), 5% (1/20), 5% (1/19) and 4% (2/57) of patients.
        ix. A case series of 19 patients with severe emphysema treated with bronchoscopic lung volume reduction with airway valves reported that bronchial hypersecretion with worsening clinical status occurred in 5% (1/19) of patients; this resolved after a number of valves were removed. In the same series valve displacement occurred in 5% (1/19) of patients; the valve was also removed
    b. **Sterman 2010** (abstract only available)
        i. Multicenter pilot study
        ii. N=91 patients

iii. Pneumothorax was the most frequent serious device-related complication and primarily occurred when all segments of a lobe, especially the left UL, were occluded.
iv. Highly significant health-related quality of life (HRQL) improvement (-8.2 +/- 16.2, mean +/- SD change at 6 months) was observed. HRQL improvement was associated with a decreased volume (mean -294 +/- 427 ml, p = 0.007) in the treated lobes without visible atelectasis. FEV(1), exercise tests, and total lung volume were not changed but there was a proportional shift, a redirection of inspired volume to the untreated lobes.
v. **CONCLUSION:** Bronchial valve treatment of emphysema has multiple mechanisms of action and acceptable safety, and significantly improves quality of life for the majority of patients.

c. **Du Rand 2011**
   a. British Thoracic Society guideline for indications for therapeutic thorascopy
   b. "Endobronchial valves may be used in the treatment of emphysema with severe hyperinflation, in an attempt to reduce lung volume. In patients with severe emphysema and hyperinflation they have been shown to produce small improvements in lung function (Evidence level 2-). Sufficient efficacy has not yet been demonstrated to recommend their routine use."

b. **FDA 2008**
   a. Approved use for treatment of post-surgical air leak based on a study with 4 patients in a compassionate use protocol

4). Recommendation: **Excluded list**
   a. Experimental therapy

<u>Bronchial thermoplasty</u>

1) CPT codes 31660-3166
2) Definition: Bronchial thermoplasty, which involves the delivery of radio frequency energy to the airways to reduce airway smooth muscle mass, has been recently introduced for the treatment of severe asthma.
3) Evidence
   a. Thomson 2012
      i. Review
      ii. 3 RCTs included (N=112, 34, 288)
      iii. 2 RCTs showed clinical benefits of bronchial thermoplasty compared with usual care in patients with moderate or severe asthma. The third trial

reports the results of a comparison with sham bronchial thermoplasty in 288 adults with severe asthma. Bronchial thermoplasty improved asthma quality of life questionnaire scores compared with sham bronchial thermoplasty; in the posttreatment period, there were fewer severe exacerbations and emergency department visits. Bronchial thermoplasty causes short-term increases in asthma-related morbidity.

iv. Conclusions: Bronchial thermoplasty has a role in the management of patients with severe asthma who have uncontrolled symptoms despite current therapies. Future studies need to identify factors that predict a beneficial clinical response.

b. Du Rand 2011

i. British Thoracic Society guideline for indications for therapeutic thorascopy

ii. The goal of bronchial thermoplasty is to reduce airway smooth muscle by the application of radiofrequency-generated heat at 658C. Although there is a high level of evidence for the effectiveness of this technique in reducing symptoms, adverse events and frequency of exacerbations (Evidence level 1), its place in the treatment of asthma remains to be established and we recommend that treatment should be limited to a few specialist centres in carefully selected patients.

4) Other policies

a. Aetna 2012

i. Aetna considers bronchial thermoplasty experimental and investigational for the treatment of asthma and other indications (e.g., chronic obstructive pulmonary disease) because its effectiveness has not been established.

b. **Cigna 2012**

i. Do not cover bronchial thermoplasty for any indication because it is considered experimental, investigational or unproven.

5) Recommendation: **Excluded List**

a. Experimental

<u>Stereotactic body radiation therapy</u>

1) CPT codes under review and current placement:

a. 32701 (Thoracic target(s) delineation for stereotactic body radiation therapy (SRS/SBRT), (photon or particle beam), entire course of treatment)--New code

b. 77011 (Computed tomography guidance for stereotactic localization)--Ancillary

c. 77373 (Stereotactic body radiation therapy, treatment delivery, per fraction to 1 or more lesions, including image guidance, entire course not to exceed 5 fractions)--Excluded

   d. 77435 (Stereotactic body radiation therapy, treatment management, per treatment course, to 1 or more lesions, including image guidance, entire course not to exceed 5 fractions)-- 78,124,137,162,165,207,243,278,292,312,320,340 and 4 other lines (cancer lines)
   e. Note: currently covered for treatment of intracranial and spinal cord lesions. Reviewed in December, 2008 and good evidence found for coverage
2) Description: Stereotactic radiation is a specialized type of external beam radiation therapy. It uses focused radiation beams targeting a well-defined tumor using extremely detailed imaging scans.
3) HSC history:
   a. Discussed in October, 2010. The decision at that time was not to add coverage for stereotactic body radiation therapy, as there was no good long term data about whether this more expensive method of delivering radiation was any better than conventional radiation therapy for non-CNS indications. The HOSC wanted data on improved outcomes/lower cost/improved safety data before covering for non-CNS indications. This decision was upheld by the HSC at the January, 2011 meeting.
   b. 77373 and 77435 were new codes for 2007, but no discussion found in the 2006 or 2007 minutes for HSC or HOSC
4) Issue: It appears to be the intent of the HSC/HERC to not cover stereotactic body radiation for non-intracranial malignancies. In 2010, the decision was to wait for additional evidence prior to coverage. A new MED report was published about a year ago on this topic. Additionally, the current code placement is inconsistent and needs to be revised.
5) Evidence
   a. MED 2011
      i. Evidence based review of newer radiation therapies for non-intracranial malignancies
      ii. 2 good quality technology assessments found addressing SBRT
      iii. Both technology assessments concluded that SBRT has potential and improves convenience for patients (due to fewer treatment sessions), but comparative studies are needed to determine its efficacy, safety, and cost-effectiveness compared to other treatments.
      iv. One systematic review found three economic studies of SBRT but stated that firm conclusions about cost-effectiveness could not be made due to lack of well-designed comparative trials
      v. No studies compared SBRT to other treatments including conventional radiation therapy
6) Recommendations:
   a. Do not cover SBRT for non-intracranial indications

i. Place 32701 and 77435 on the Excluded List
    1. Remove 77435 from current lines
ii. Keep 77011 on Ancillary List
    1. May be used for intracranial lesions
iii. Keep 77373 on the Excluded List

Optical endomicroscopy

1) CPT codes 43206, 43252, 88375
2) Definition: Confocal laser endomicroscopy is a new endoscopic modality developed to obtain very high-resolution images of the mucosal layer of the GI tract.
3) Evidence
    a. American Society for Gastrointestinal Endoscopy 2009
        i. Position statement
        ii. In recent years, confocal laser endomicroscopy rapidly moved from the bench to the bedside. It is being analyzed as a potentially valuable addition to conventional endoscopy as a means of in vivo optical biopsy enabling realtime histological examination of the superficial layer of the GI tract. How this will affect the practice of screening, surveillance, and early diagnosis of benign, premalignant, and malignant lesions of the GI tract requires further study.
        iii. Currently available devices for confocal endomicroscopy have a very narrow field of view and allow only visualization of the superficial mucosal layer of the GI tract. Further technological developments are needed to enlarge the field of view, which will facilitate the use of confocal endomicroscopy for cancer screening and surveillance.
        iv. Increased depth of penetration is also needed to assess depth of invasion during cancer staging.
        v. Confocal endomicroscopy is an examiner-dependent technology. Interobserver and intraobserver variability of this technique has not been adequately studied.
        vi. Finally, adequate histopathology training is needed for interpretation of confocal endomicroscopy images by gastroenterologists performing this procedure.
        vii. The incremental clinical benefit and cost-effectiveness of this imaging modality relative to conventional histopathology examination require further study.
2) Recommendation: **Excluded File**
    a. Experimental

2013 CPT Code Issues

Fecal transplantation

1) CPT 44705
2) Definition: Fecal (microbiota transplantation (FMT) is the process of transplantation of fecal bacteria from a healthy individual into a recipient as a treatment for patients suffering from Clostridium difficile infection
3) Evidence:
    a. **Vecchio 2012**, review
        i. Case series are only available evidence reported to date
            1. Landy et al. recently reported that fecal transplant was effective in 87% of cases of CDI, and the response appears rapid and enduring; however, reporting bias was identified.
        ii. Two phase III randomized trials assessing the efficacy of donor fecal transplant in adult population are underway.
        iii. Despite minimal side effects being reported, barriers to the use of bacteriotherapy include acceptability of treatment, a minimal risk of transmitting pathogens from the donor, and the theoretical risk of small intestinal bacterial overgrowth after duodenal installation of feces.
4) Recommendation: **Excluded File**
    a. Experimental

Chemodenervation of the bladder

1) CPT 52287
2) Definition: the use of botulinum toxin to treat detrusor overactivity, which causes urge incontinence. This overactivity may be due to neurological issues such as MS or spinal cord injury, or may be idiopathic (overactive bladder syndrome).
3) Evidence:
    a. **NICE 2012,** management of urinary incontinence in neurological disease
        i. Offer bladder wall injection with botulinum toxin type A to adults:
            1. with spinal cord disease (for example, spinal cord injury or multiple sclerosis) **and**
            2. with symptoms of an overactive bladder **and**
            3. in whom antimuscarinic drugs have proved to be ineffective or poorly tolerated.
    b. **NICE 2006,** management of bladder incontinence in women
        i. Bladder wall injection with botulinum toxin A should be used in the treatment of idiopathic detrusor overactivity only in women who have not responded to conservative treatments and who are willing and able to self-catheterise. Women should be informed about the lack of long-term data.

There should be special arrangements for audit or research. Level D evidence

a. **Patel 2006**, systematic review
   ii. Studies generally small, some recruitment bias noted, few RCTs.
   iii. One double blind RCT (N=57), showed decreased incontinence and increased QOL
   iv. All other studies either case series or RCTs of various dosages
   v. "Although many of the studies were small, overwhelming evidence supports the efficacy, safety, and tolerability of the botulinum toxins, specifically serotype A, for the management of these conditions. Before this is accepted as a widespread treatment modality, good-quality evidence from large-scale randomised controlled trials is needed. These studies should identify not only the most appropriate patients to treat but also the best dose, administration technique, and frequency for treatment."

a. **Giannantoni 2008**, review of botulinum use for neurogenic detrusor overactivity
   a. Several studies show promising results in terms of both clinical and urodynamic improvements, supporting the efficacy, safety and tolerability of botulinum toxin serotype A (BoNT-A) for managing neurogenic detrusor overactivity (DO). DO due to spinal cord injuries represents the most frequently treated dysfunction, where the efficacy appears to be high, with beneficial effects on quality of life.
   b. Data on the management of DO in patients with multiple sclerosis, cerebrovascular accidents and Parkinson's disease are scarce or absent; thus, the suitability of BoNT-A in the treatment neurogenic DO of other diseases of central nervous origin requires further investigation.
   c. Good quality, randomized controlled trials are still needed to identify not only the most appropriate patients to treat, but also the appropriate dose, administration technique, frequency of treatment and any eventual long-term complications. Thus, the use of intravesical BoNT-A in the control of neurogenic DO appears to be promising, but the drug is still in phase 3 clinical development, and further high-quality research is essential.

b. **Schmid 2008**, review of botulinum use for idiopathic detrusor overactivity
   a. Clinical studies with different dosages and injection protocols show success rates of 60–96% for neurogenic and nonneurogenic detrusor overactivity, with wide variations in the duration of response. The drug is still under development for the indication of idiopathic detrusor overactivity, and is under ongoing investigation for long-term efficacy and safety.

4) Other policies
   a. Aetna 2012

i. Finds botulinum use for neurogenic detrusor (bladder) overactivity resulting from multiple sclerosis or spinal cord injury medically necessary

b. Wellmark BCBS 2012

i. The use of botulinum toxin may be considered medically necessary for the treatment of incontinence due to detrusor overreactivity (urge incontinence), either idiopathic or due to neurogenic causes (e.g., spinal cord injury, multiple sclerosis), that is inadequately controlled with anticholinergic therapy.

5) Recommendation:
   a. Add 52287 to line 351 FUNCTIONAL AND MECHANICAL DISORDERS OF THE GENITOURINARY SYSTEM INCLUDING BLADDER OUTLET OBSTRUCTION
      i. Includes detrusor overactivity (ICD-9 596.51)
      ii. Include the guideline note below

GUIDELINE NOTE XXX CHEMODENERVATION OF THE BLADDER

Line 351

Chemodenervation of the bladder (CPT 55287) is included on this line only for treatment of overactive bladder caused by spinal cord disease in patients in whom antimuscarinic drugs have proved to be ineffective or poorly tolerated.

Chemodenervation for migraine

1) CPT 64615
2) Definition: use of botulinum toxin for prophylactic treatment to reduce the frequency of chronic migraine headaches
3) Current Prioritized List information: other codes (64612-4) exist for treatment of true muscle contractures with botox
4) Evidence
   a. **MED 2012** Botulinum Toxin A Treatment for Chronic Headache and Chronic Migraine
      i. 4 systematic reviews and 2 Hayes reports identified
      ii. Overall, the evidence for the effectiveness of BTX-A on chronic migraine is inconsistent, with the studies that do show a benefit finding the improvement small and potentially clinically insignificant.
      iii. All reviews reached essentially the same conclusions, which is that BTX-A is ineffective for treatment of chronic migraine.
      iv. The overall quality of the body of evidence for chronic migraine is high, including multiple RCTs of moderate to good quality. However, most

trials (nine) were sponsored by the manufacturer and thus have the potential for funding bias.

b. **NICE 2012**: botulinum for chronic migraine prevention
    i. Botulinum toxin type A is recommended as an option for the prophylaxis of headaches in adults with chronic migraine (defined as headaches on at least 15 days per month of which at least 8 days are with migraine): that has not responded to at least three prior pharmacological prophylaxis therapies **and** whose condition is appropriately managed for medication overuse.
    ii. Treatment with botulinum toxin type A that is recommended according to the above should be stopped in people whose condition: is not adequately responding to treatment (defined as less than a 30% reduction in headache days per month after two treatment cycles) **or** has changed to episodic migraine (defined as fewer than 15 headache days per month) for three consecutive months.

5) Other policies
    a. Wellmark BCBS 2012
        i. The use of onabotulinum toxin A may be considered medically necessary for the prophylaxis of headaches in adult patients with chronic migraine (≥ 15 days per month with headaches lasting four hours a day or longer)
        ii. Botulinum toxin treatment is considered investigational for prophylaxis or acute treatment of all other types of migraine headache including, but not limited to, episodic migraine or as prophylaxis or acute treatment of all other types of headache including, but not limited to, chronic tension-type headache
    b. Aetna 2012
        i. Botulinum A treatment is considered medically necessary for migraines -- for prevention of chronic (more than 14 days per month with headaches lasting 4 hours a day or longer) migraine headaches (see appendix for diagnostic criteria) in adults who have tried and failed trials of at least 3 classes of migraine headache prophylaxis medications of at least 2 months (60 days) duration for each medication
6) Recommendation: **Excluded List**
    a. MED review found no evidence of effectiveness

Algorithmic testing for ovarian cancer risk

1) CPT 81500, 81503
2) Definition: Blood test of various tumor markers used to help diagnose women with ovarian masses. The combination of CA-125 and HE4 is frequently referred to as Risk

for Ovarian Malignancy Algorithm (ROMA). Uses combination of CA-125 with HE4 (81500) or CA-125 with apoliproprotein A1, beta-2 microglobulin, transferrin, and pre-albumin (81503)

3) Current List placement
   a. Currently, testing for CA-125 is included on the Diagnostic List
   b. HE4 was determined to be experimental in the HSC 2009 review, placed on the Excluded List

4) Evidence
   a. **NICE 2011**, review on diagnosis and treatment of ovarian cancer
      i. Recommendation is that women with symptoms suggestive of possible ovarian cancer be given the following test options: pelvic examination, serum CA125 or pelvic ultrasound either individually or in combination
      ii. Reviewed additional tumor markers, including CEA, CDX2, CA 72-4, CA 19-9, AFP, beta-hCG and HE4.
      iii. Review of HE4
         1. There was consistent evidence, from five studies comparing HE4 and serum CA125 in women with pelvic masses, that HE4 is more sensitive and specific than serum CA125 for the diagnosis of ovarian cancer (Abdel-Azeez *et al.,* 2010; Huhtinen *et al.,* 2009; Moore *et al.,* 2008; Nolen *et al.,* 2010; Shah *et al.,* 2009). These five studies included a total of 434 women with ovarian cancer and 583 with benign disease. Summary ROC curves suggested peak sensitivity/specificity of 77% for serum CA125 compared with 83% for HE4. From these figures, for every 1,000 women referred for diagnosis of a pelvic tumour, using HE4 instead of serum CA125 would identify an additional seven patients with cancer with 81 fewer false positives (assuming a 10% prevalence of undiagnosed ovarian cancer in this population (Myers *et al.,* 2006)).
         2. Five studies looked at the combination of HE4 and serum CA125 (Abdel-Azeez *et al.,* 2010; Huhtinen *et al.,* 2009; Moore *et al.,* 2008; Moore *et al.,* 2009; Nolen *et al.,* 2010). The evidence suggests that the combination of HE4 and serum CA125 is more specific, but less sensitive than either marker in isolation.
      iv. Review of multiple tumor marker panels
         1. Three of the studies (Nolen *et al.,* 2010; Moore *et al.,* 2008; Abel-Azeez *et al.,* 2010) investigated panels combining three or more serum tumour markers. There was no evidence to suggest that multiple tumour markers were much better than the two marker combination of serum CA125 and HE4.

i. Conclusions
    2. At this time, there is ample evidence supporting the clinical utility of serum CA125 in diagnosing ovarian cancer. The GDG acknowledged that the methodological quality of the evidence was low, with most studies being case series and not designed as prospective diagnostic or prognostic studies. The GDG noted that although the preliminary data on HE4 showed it to have a relatively high sensitivity and specificity, it was not in routine clinical use and studies about its diagnostic performance had only recently been published. The GDG therefore did not feel the data on HE4 was substantial enough to enable it to be recommended instead of serum CA125 – the only serum tumour marker with widely accepted clinical utility in women with ovarian cancer. They therefore recommended the routine use of serum CA125.

b. Moore 2011
    i. Lead author receives direct funding from Abbott Diagnostics

c. **Bandiera 2011**
    i. prospective cohort study to determine the diagnostic and prognostic value of HE4 and ROMA
    ii. N=419
    iii. For the discrimination of benign masses from EOC, in premenopausal women, the sensitivity and specificity were 92.3% and 59.4% for CA125, 84.6% and 94.2% for HE4, and 84.6% and 81.2% for ROMA, whereas in postmenopausal women, the sensitivity and specificity were 94.3% and 82.3% for CA125, 78.2% and 99.0% for HE4, and 93.1% and 84.4% for ROMA. In patients with EOC, elevated CA125, HE4, and ROMA levels were associated with advanced Federation of Gynaecologists and Obstetricians (FIGO) stage, suboptimally debulking, ascites, positive cytology, lymph node involvement, and advanced age (all $P < 0.05$). Elevated HE4 and ROMA (both $P < 0.01$), but not CA125 ($P = 0.0579$), were associated with undifferentiated tumors. In multivariable analysis, elevated HE4 and ROMA (all $P<0.05$) were independent prognostic factors for shorter overall, disease-free, and progression-free survival.
    iv. Conclusions and Impact: This study underlines the high specificity of HE4 in discriminating endometriosis and ovarian benign cysts from EOC and the high sensitivity of CA125 in detecting EOC. We showed HE4 and ROMA as independent prognostic factors. Multicenter studies are needed to draw firm conclusions about the applicability of HE4 and ROMA in clinical practice.

v. One author employed by Abbott Diagnostics as Scientific Affairs Manager; study funded by NIH and other grants

d. Van Gorp 2012

i. Prospective cohort study comparing diagnostic accuracy of ROMA vs ultrasound methods for detecting ovarian cancer in women with pelvic masses

ii. N=432

iii. Subjective assessment had the highest area under the receiver operator characteristic curve (AUC) (0.968, 95% CI:0.945–0.984), followed by the RMI(0.931, 95% CI:0.901–0.955). The subjective assessment and RMI both had significantly higher AUCs than the ROMA (0.893, 95% CI:0.857–0.922; $P < 0.0001$ and $P = 0.0030$, respectively). The pre- and postmenopausal populations generated similar results.

iv. Conclusion: Although new tumour markers models are promising, they do not contribute significantly to the diagnosis of ovarian cancer. Ultrasound, especially subjective assessment by ultrasound, remains superior in discriminating malignant from benign ovarian masses.

5) Other policies

a. Aetna 2012

i. Aetna considers each of the following experimental and investigational. The peer reviewed medical literature does not support these tests as having sufficient sensitivity or specificity necessary to define their clinical role:

1. HE4 for ovarian cancer and other indications

6) Summary: the combination of CA-125 and HE4 is promising, but CA-125 with ultrasound appears to have better accuracy for detecting ovarian cancer. The other combination of CA-125 and other tumor markers has very little evidence to date. Both CA125 and pelvic ultrasound are available as Diagnostic

7) Recommendation:

a. Place both types of tumor marker algorithms (81500 and 81503) on the **Excluded** List

b. Experimental

<u>Algorithmic testing for risk of diabetes</u>

1) CPT 81506

2) Definition: Measures 7 substances: glucose, HbA1c, insulin, hs-CRP, adoponectin, ferritin, and interleukin 2-receptor alpha. Individual quantitative analyte values are

combined using a proprietary algorithm to calculate a diabetes risk score on the scale of 1-10 that correlates with the individual's risk for developing Type 2 diabetes over the next 5-year period. This test is proprietary and owned by

3) Evidence
    a. Abbasi 2012
        i. Large study of various models to predict diabetes risk
        ii. Found that most models work, best results with those with non-invasive types of measurements
4) Recommendation:
    a. **Excluded** List
    b. Current methods of prediction of risk (BMI, glucose, hemoglobin a1c, family history, etc) are equally or more useful

Galectin-3

1) CPT 82777
2) Definition: a protein marker recently FDA approved for the detection and following of heart failure. It has also been studied for diagnosis of various cancer conditions
3) Evidence
    a. **deCouto 2011**, Review of early detection of heart failure
        i. 1 study cited (N=599), PRIDE (Pro-BNP Investiation of Dyspnea in the Emergency Department) study
            1. serum levels of galectin- 3 were found to be the best predictor of short-term (60 day) mortality (odds ratio 10.3, P <0.01) as well as the composite of death and recurrent heart failure (odds ratio 14.3, P <0.001).75 Moreover, the combination of both galectin-3 and NT-proBNP seems to have the greatest predictive capacity for risk stratification
            2. "Novel markers such as protein ST2, galectin -3, and various prohormones are emerging and may provide prognostic information that is incremental to conventional clinical evaluation.
    b. **deBoer 2009**, review of galectin-3studies
        i. 4 clinical studies cited
            1. PRIDE as above, patients with acute dyspnea
            2. Study with N=240, patients with chronic stable heart failure followed for a mean of 3.4 years, plasma galectin-3 levels were strongly related to outcome (HR 1.95, 95% CI 1.24–3.09, P ¼ 0.004).

3. Study with N=55 patients with end stage heart failure found significantly elevated plasma galectin-3 levels at the time of mechanical circulatory support.
4. Conclusions: "Routine galectin-3 measurement in patients with HF may provide important novel clinical utility. In conjunction with BNP and NT-proBNP, galectin-3 may be used to identify those patients at highest risk for readmission or death"

4) Other policies
   a. Aetna 2012
      i. Aetna considers the galectin-3 test experimental and investigational for selection of individuals for cardiac resynchronization therapy and all other indications (e.g., prognosis of heart failure) because its effectiveness for these indications has not been established.
5) Recommendation: **Excluded List**
   a. Experimental

Gastrointestinal transit and pressure measurement

1) CPT 91112
   a. Similar procedures
      i. 91117 (Colon motility (manometric) study, minimum 6 hours continuous recording (including provocation tests, eg, meal, intracolonic balloon distension, pharmacologic agents, if performed), with interpretation and report) is Excluded
      ii. Capsule endoscopy is on the Prioritized List for very limited indications with a guideline
2) Definition: FDA approved for evaluating patients with suspected gastroparesis and for the evaluation of colonic transit in patients with chronic constipation, to aid in differentiating slow and normal transit constipation. Sensors on board an ingestible capsule measure pH and pressure as the capsule travels the length of the GI tract. Measurements are transmitted from the capsule within the GI tract via radiofrequency signal to a patient worn receiver and subsequently downloaded for analysis and review.
3) Evidence
   a. Approximately 12 studies were identified in MedLine
      i. Most studies are small (N<200) and retrospective. No RCTs identified
      ii. Most studies have one or more authors who are receiving significant funding from the device manufacturer and/or are on the board of directors for this corporation
      iii. Studies are not designed to provide comparison of the accuracy—including sensitivity, specificity, positive and negative predictive values—

of the SmartPill to conventional tests as the reference standard in same symptomatic patient population.

iv. One review identified—**Rao 2011**
    1. **Multiple authors received funding from the manufacturer of SmartPill, and the lead author is also on their advisory board**
    2. Significant evidence found for the validity and accuracy of the wireless motility capsule
    3. Cannot make conclusions based on this article due to significant conflict of interest of authors

4) Other guidelines
    a. American Gastroenterology Association (**Parkman 2004**)
        i. Diagnosis of gastroparesis
        ii. Motility capsule testing not mentioned
    b. American Society of Colon and Rectal Surgeons (**Ternant 2007**)
        i. Diagnosis of constipation
        ii. Motility capsule testing not mentioned
5) Other policies
    a. **Cigna 2012** considers wireless motility capsule testing investigational
    b. **Anthem BCBS 2012** considers wireless motility capsule testing investigational
6) Recommendation: **Excluded List**
    a. Limited evidence of effectiveness, appears to be still investigational
    b. Concerns for significant conflict of interest in specialty society position statement
    c. Established, cost-effective methods of diagnosis for gastroparesis and chronic constipation exist and are covered through OHP

Percutaneous coronary artherectomy/angioplasty/stenting

1) CPT: 92920-92944
2) Issue: these codes are replacing 92982-92996
    a. Currently on lines 12, 50, 51, 74, 76, 85, 90, 94, 95, 98, 99, 108, 109, 115, 116, 122, 129, 139, 141, 142, 145, 179, 184, 192, 194, 195, 226, 237, 239, 270, 274, 279, 293, 302, 304, 307, 309, 349, 350, 363, 367, 376, 385
    b. These lines include hypertension, congestive heart failure, ischemic heart disease, myocarditis, congentital heart lines, cardiomyopathy, valvular disease, arrythmias, coronary aneurysms
    c. The old CPT codes included codes for valve procedures and atrial septal procedures which are not included in the new codes
3) Similar codes are on multiple cardiac lines (see above lines)
    a. 92973 (Percutaneous transluminal coronary thrombectomy mechanical)

   b. 92975 (Thrombolysis, coronary; by intracoronary infusion, including selective coronary angiography)
   c. 92977 (Thrombolysis, coronary; by intravenous infusion)
4) Expert input: Dr. Howard Song, OHSU cardiothoracic surgeon
   a. "…really the main diagnosis for these is line 76: Acute and subacute ischemic heart disease, myocardial infarction. Another reasonable indication would be some coronary artery disease that is not acute. The rest do not really support doing angioplasty, atherectomy, and stenting, as long as we are talking strictly about interventions on the coronary arteries and not other arteries."
5) DMAP billing data:
   a. The current codes (92982-92996) were billed with diagnoses on the following lines: 76,108, 195, 279 (heart transplant line)
6) Recommendation:
   a. Limit new codes (92920-92938, 92943-92944) and existing codes (92973, 92975, 92977) to lines with coronary artery disease diagnoses (remove existing codes from all other lines)
      i. **51** CORONARY ARTERY ANOMALY
      ii. **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION
      iii. **108** HEART FAILURE
      iv. **195** CHRONIC ISCHEMIC HEART DISEASE
   b. 92941 will only be on line 76 as description limits to acute MI
   c. Remove 92973, 92975, 92977 from all other lines

Coronary brachytherapy (old code requiring revision)

1) Description: Intracoronary brachytherapy with gamma or beta radioactive ribbons for the management of in-stent restenosis of native coronary vessels following successful PTCA. Multiple contraindications exist, including acute MI, left ventricular ejection fraction <40%, and type of lesion.
2) Current list placement: code 92974 (Transcatheter placement of radiation delivery device for subsequent coronary intravascular brachytherapy) is currently on multiple lines (approximately 40). This is an existing code that was identified during review of the 2013 CPT codes as being on improper lines.
3) Recommendation:
   a. Remove 92974 from all current lines except
      i. **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION
      ii. **195** CHRONIC ISCHEMIC HEART DISEASE

MEDICAL POLICY

Endobronchial Valves

Number 7.01.128

Effective Date April 25, 2012

Revision Date(s) 04/10/12

Replaces N/A

Policy

[TOP]

Endobronchial valves are considered **investigational** as a treatment of prolonged air leaks.

Endobronchial valves are considered **investigational** as a treatment for patients with COPD or emphysema.

Related Policies

[TOP]

7.01.71 Lung Volume Reduction Surgery for Severe Emphysema

Policy Guidelines

[TOP]

Only one endobronchial valve device has approval from the U.S. Food and Drug Administration (FDA) through the Humanitarian Device Exemption (HDE) process for use in prolonged pulmonary air leaks.

Effective January 1, 2011, there are CPT codes for various aspects of this procedure:

> 0250T Airway sizing and insertion of bronchial valve(s), each lobe (List separately in addition to code for primary procedure)
>
> [Code 0250T would be reported with a bronchoscopy code like 31622 or 31634.]
>
> 0251T Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with removal of bronchial valve(s), initial lobe
>
> 0252T Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with removal of bronchial valve(s), each additional lobe (List separately in addition to code for primary procedure)

Description

[TOP]

Endobronchial valves are synthetic devices that are deployed with bronchoscopy into ventilatory airways of the lung for the purpose of controlling airflow. They have been investigated for use in patients who have prolonged broncho-pleural air leaks, as well as an alternative to lung volume reduction surgery (LVRS) in patients with lobar hyperinflation from severe emphysema.

Background

Proper lung functioning is dependent upon a separation between the air-containing parts of the lung and the small vacuum-containing space around the lung called the pleural space. When air leaks into the pleural space, the lung is unable to inflate resulting in

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL E□CELLENCE

INTERVENTIONAL PROCEDURES PROGRAMME

Interventional procedure overview of bronchoscopic lung volume reduction with airway valves for advanced emphysema

Emphysema is a chronic lung disease in which the walls of the smaller airways inside the lungs disintegrate, creating abnormally large spaces. These air-filled spaces compress the healthy parts of the lungs, blocking airflow in normal breathing.

The aim of lung volume reduction surgery is to help shrink the diseased parts of the lung so that as much air as possible can enter into the healthy parts. The procedure is carried out using a small flexible camera which is inserted down the wind pipe. A thin, hollow tube, called a catheter, is used to place small, one-way valves into the airways. Usually, 3 or 4 valves are inserted.

Introduction

The National Institute for Health and Clinical Excellence (NICE) has prepared this overview to help members of the Interventional Procedures Advisory Committee (IPAC) make recommendations about the safety and efficacy of an interventional procedure. It is based on a rapid review of the medical literature and specialist opinion. It should not be regarded as a definitive assessment of the procedure.

Date prepared

This overview was prepared in April 2009.

Procedure name

- Bronchoscopic lung volume reduction with airway valves
- Transbronchoscopic pulmonary emphysema treatment (TPET)

Specialty societies

- Society of Cardiothoracic Surgeons of Great Britain and Ireland
- British Thoracic Society.

Unique Identifier 19923790
Status MEDLINE
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Title A multicenter pilot study of a bronchial valve for the treatment of severe emphysema.
Comments Comment in: Respiration. 2010;79(3):191-2; PMID: 20093849
Source Respiration. 79(3):222-33, 2010.

Abstract **BACKGROUND:** Chronic obstructive pulmonary disease (COPD) affects millions of people and has limited treatment options. Surgical treatments for severe COPD with emphysema are effective for highly selected patients. A minimally invasive method for treating emphysema could decrease morbidity and increase acceptance by patients.

OBJECTIVE: To study the safety and effectiveness of the IBV(R) Valve for the treatment of severe emphysema. Methods: A multicenter study treated 91 patients with severe obstruction, hyperinflation and upper lobe (UL)-predominant emphysema with 609 bronchial valves placed bilaterally into ULs.

RESULTS: Valves were placed in desired airways with 99.7% technical success and no migration or erosion. There were no procedure-related deaths and 30-day morbidity and mortality were 5.5 and 1.1%, respectively. Pneumothorax was the most frequent serious device-related complication and primarily occurred when all segments of a lobe, especially the left UL, were occluded. Highly significant health-related quality of life (HRQL) improvement (-8.2 +/- 16.2, mean +/- SD change at 6 months) was observed. HRQL improvement was associated with a decreased volume (mean -294 +/- 427 ml, p = 0.007) in the treated lobes without visible atelectasis. FEV(1), exercise tests, and total lung volume were not changed but there was a proportional shift, a redirection of inspired volume to the untreated lobes. Combined with perfusion scan changes, this suggests that there is improved ventilation and perfusion matching in non-UL lung parenchyma.

CONCLUSION: Bronchial valve treatment of emphysema has multiple mechanisms of action and acceptable safety, and significantly improves quality of life for the majority of patients.

Publication Type Clinical Trial. Journal Article. Multicenter Study.
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GUIDELINE UPDATE

Summary of the British Thoracic Society Guidelines for advanced diagnostic and therapeutic flexible bronchoscopy in adults

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ABSTRACT

This new guideline covers the rapidly advancing field of interventional bronchoscopy using flexible bronchoscopy. It includes the use of more complex diagnostic procedures such as endobronchial ultrasound, interventions for the relief of central airway obstruction due to malignancy and the recent development of endobronchial therapies for chronic obstructive pulmonary disease and asthma. The guideline aims to help all those who undertake flexible bronchoscopy to understand more about this important area. It also aims to inform respiratory physicians and other specialists dealing with lung cancer of the procedures possible in the management and palliation of central airway obstruction. The guideline covers transbronchial needle aspiration and endobronchial ultrasound-guided transbronchial needle aspiration, electrocautery/diathermy, argon plasma coagulation and thermal laser, cryotherapy, cryoextraction, photodynamic therapy, brachytherapy, tracheobronchial stenting, electromagnetic navigation bronchoscopy, endobronchial valves for emphysema and bronchial thermoplasty for asthma.

This guideline is based on the best available evidence. The methodology used to write the guideline adheres strictly to the criteria as set by the Appraisal of Guidelines Research and Evaluation (AGREE) collaboration http://www.agree-collaboration.org/1/agreeguide/. Three hundred and eighty-seven papers were critically appraised using the Scottish Intercollegiate Guidelines Network (SIGN) critical appraisal checklists. A web-based guideline development tool (http://www.bronchoscopy-guideline.org/) enabled each pair of reviewers to collaborate online. The reliability of the evidence in each individual study was graded using the SIGN critical appraisal checklist. The body of evidence for each recommendation was summarised into evidence tables, formulated into evidence statements and graded using the SIGN grading system into recommendations.

DIAGNOSTIC TECHNIQUES

Conventional transbronchial needle aspiration

Conventional transbronchial needle aspiration (TBNA) is a safe and simple procedure mainly used to sample hilar and mediastinal lymph nodes in cases of suspected malignant involvement or sarcoidosis (Evidence level 2++). It should be used at the time of initial bronchoscopy to sample lymphadenopathy noted on CT scanning. The guideline includes a step-by-step guide for performing conventional TBNA.

Endobronchial ultrasound-guided transbronchial needle aspiration

Endobronchial ultrasound transbronchial needle aspiration (EBUS TBNA) has high sensitivity and specificity for identifying malignancy in mediastinal and hilar lymph nodes in patients with lung cancer (Evidence level 2++), and also has a high sensitivity for identifying malignancy when used for sampling paratracheal and peribronchial parenchymal lung masses (Evidence level 3). In cases where EBUS-TBNA results are negative for malignancy, a confirmatory surgical biopsy should be performed. EBUS-TBNA also has high sensitivity for identifying non-caseating granulomas in hilar and mediastinal lymph nodes in cases of suspected sarcoidosis (Evidence level 2++).

THERAPEUTIC TECHNIQUES

Debulking techniques

There are a number of effective debulking techniques for the removal of endobronchial tumour; the treatment of choice will depend largely on cost and availability. Rigid bronchoscopy techniques have advantages in terms of airway control, the ability to easily remove a large volume of tumour, to dilate the airway and to deploy silicone stents. In the UK there are, however, relatively few experienced practitioners in rigid bronchoscopy outside surgical units. This guideline therefore covers the use of interventional techniques which utilise the more widely available flexible bronchoscopy.

In patients with intrinsic central airway obstruction, with or without critical airway narrowing, immediate debulking using endobronchial diathermy, argon plasma coagulation, cryoextraction and thermal laser may all be considered (Evidence level 3). Brachytherapy, conventional cryotherapy and photodynamic therapy (PDT) may also be considered for debulking if there is time for their delayed effect to take place. These techniques are not generally useful for extrinsic compression. Endobronchial diathermy, argon plasma coagulation and cryoextraction are all relatively safe, simple and are much cheaper than laser, brachytherapy and PDT.

Table 1 Summary of the effectiveness of endobronchial debulking techniques

	Effectiveness in palliating symptoms (% patients)	Effectiveness to open airway (% patients)
PDT	100%[1]	80%[2]
Brachytherapy	69–90%[1 3 4]	78–85%[1 3 4]
Cryotherapy	70–93%[1 5–7]	77–79%[1 5–7]
Cryoextraction	>90%[8]	83–91%[8]
Laser	63–94%[9–11]	>90% in trachea[2] 60–70% for more distal lesions[2 9–11]
Diathermy	70–97%[11–13]	88%[11–13]
APC	100% of haemoptysis[14]	91%[1 14]

APC, argon plasma coagulation; PDT, photodynamic therapy.

These techniques are effective in alleviating symptoms of breathlessness and haemoptysis in patients with endobronchial malignancy (see table 1).

Treatment of early lung cancer

Many of these debulking techniques, including endobronchial diathermy, cryoextraction, brachytherapy and PDT, may also be used for the treatment of early central lung cancer with curative intent and for treating localised endobronchial disease in patients unfit for surgery or other radical therapy.

Stents

Following tumour debulking, self-expanding metal stents can effectively maintain airway patency and are also effective in the treatment of extrinsic compression (Evidence level 3). Non-removable stents should be used with caution, if at all, in non-malignant disease due to the potential for stent fracture and other long-term complications.

EMERGING APPLICATIONS FOR FLEXIBLE BRONCHOSCOPY

There are a number of recent diagnostic and therapeutic applications using the flexible bronchoscope which have not yet established a clear place in routine practice. These include electromagnetic navigation bronchoscopy, treatment of emphysema by lung volume reduction using valves and bronchial thermoplasty for asthma.

Electromagnetic navigation bronchoscopy

The use of electromagnetic navigation bronchoscopy to locate tumour not visible under direct vision using three-dimensional data from a CT scan has been shown to yield a diagnostic rate of between 59% and 80%, with greater accuracy for lesions >40 mm in diameter. It is a safe, effective but currently expensive modality for sampling peripheral lesions, and studies using virtual bronchoscopy alone have similar diagnostic rates.

Endobronchial valves

Endobronchial valves may be used in the treatment of emphysema with severe hyperinflation, in an attempt to reduce lung volume. The valves are inserted into the target area via flexible bronchoscopy under conscious sedation or general anaesthesia. In patients with severe emphysema and hyperinflation they have been shown to produce small improvements in lung function (Evidence level 2–). Sufficient efficacy has not yet been demonstrated to recommend their routine use.

Bronchial thermoplasty for asthma

Airway smooth muscle may also have a role in the pathogenesis of asthma by secreting proinflammatory cytokines and promoting airway remodelling. The goal of bronchial thermoplasty is to reduce airway smooth muscle by the application of radiofrequency-generated heat at 65°C. Although there is a high level of evidence for the effectiveness of this technique in reducing symptoms, adverse events and frequency of exacerbations (Evidence level 1), its place in the treatment of asthma remains to be established and we recommend that treatment should be limited to a few specialist centres in carefully selected patients.

AUDIT, RESEARCH, TRAINING AND STANDARDS OF CARE

The guideline provides audit, research and training recommendations, and also indicates recommended standards of care.

Competing interests None. A declaration of interest is available in Appendix 1 of the guideline.

Provenance and peer review Not commissioned; internal and external peer review undertaken by the Standards of Care Committee of the British Thoracic Society.

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Summary of the British Thoracic Society Guidelines for advanced diagnostic and therapeutic flexible bronchoscopy in adults

I A Du Rand, P V Barber, J Goldring, et al.

Thorax 2011 66: 1014-1015
doi: 10.1136/thoraxjnl-2011-201052

SUMMARY OF SAFETY AND PROBABLE BENEFIT

I. GENERAL INFORMATION

Device Generic Name:	Bronchial Valve
Device Trade Name:	IBV® Valve System
Applicant's Name and Address:	Spiration, Inc. 6675 - 185th Avenue NE Redmond, WA 98052 USA
Humanitarian Device Exemption Number:	H060002
Humanitarian Use Device Designation Number:	03-0127
Date of HUD Designation:	November 23, 2004
Date(s) of Panel Recommendation:	None
Date of Good Manufacturing Practice Inspection:	June 28, 2006
Date of Notice of Approval to Applicant:	October 24, 2008

II. INDICATIONS FOR USE

The Spiration IBV Valve System is a device to control prolonged air leaks of the lung, or significant air leaks that are likely to become prolonged air leaks, following lobectomy, segmentectomy, or lung volume reduction surgery (LVRS). An air leak present on post-operative day 7 is considered prolonged unless present only during forced exhalation or cough. An air leak present on day 5 should be considered for treatment if it is: 1) continuous, 2) present during normal inhalation phase of inspiration, or 3) present upon normal expiration and accompanied by subcutaneous emphysema or respiratory compromise. IBV Valve System use is limited to six weeks per prolonged air leak.

III. CONTRAINDICATIONS

Patient is unable to tolerate a flexible bronchoscopy procedure.

IV. WARNINGS AND PRECAUTIONS

See Warnings and Precautions in the final labeling (Instructions for Use).

13

Bronchial thermoplasty for severe asthma

Neil C. Thomson, Stephen Bicknell, and Rekha Chaudhuri

Purpose of review
Bronchial thermoplasty, which involves the delivery of radio frequency energy to the airways to reduce airway smooth muscle mass, has been recently introduced for the treatment of severe asthma. This review summarizes the preclinical development, efficacy and adverse effects of bronchial thermoplasty. In addition, the potential mechanisms of action and place in management of severe asthma are discussed.

Recent findings
The efficacy and adverse profile of bronchial thermoplasty has been assessed in three randomized controlled trials, the first two of which showed clinical benefits of bronchial thermoplasty compared with usual care in patients with moderate or severe asthma. The third trial reports the results of a comparison with sham bronchial thermoplasty in 288 adults with severe asthma. Bronchial thermoplasty improved asthma quality of life questionnaire scores compared with sham bronchial thermoplasty; in the posttreatment period, there were fewer severe exacerbations and emergency department visits. Bronchial thermoplasty causes short-term increases in asthma-related morbidity. Follow-up data to date support the long-term safety of the procedure.

Summary
Bronchial thermoplasty has a role in the management of patients with severe asthma who have uncontrolled symptoms despite current therapies. Future studies need to identify factors that predict a beneficial clinical response.

Keywords
asthma quality of life, bronchial thermoplasty, severe asthma

INTRODUCTION

The majority of adults with asthma have mild or moderate disease that can be controlled by inhaled corticosteroids alone or in combination with inhaled long-acting β_2 agonist (LABA) bronchodilators [1–3]. Five to 10% of patients have more severe asthma and often, despite maximal drug treatment, these individuals experience considerable morbidity and generate high healthcare costs [4]. There is an unmet need for new improved therapies for patients with severe asthma [5▪]. Bronchial thermoplasty, which involves the delivery of radio frequency energy to the airways to reduce airway smooth muscle mass, has been recently introduced for the treatment of severe persistent asthma. The review summarizes the preclinical development, efficacy and adverse effects of bronchial thermoplasty. In addition, the potential mechanisms of action and place in the management of severe asthma are discussed.

PRECLINICAL DEVELOPMENT

In experimental animals, bronchial thermoplasty has been shown to reduce airway smooth muscle mass [6], increase airway size [7,8] and decrease airway responsiveness to methacholine [6–8]. In a canine model, Danek *et al*. [6] examined the effects of bronchial thermoplasty on airway responsiveness to methacholine and airway wall histology. Bronchial thermoplasty treatments, to airways more than 3 mm in diameter, controlled to 65°C and 75, but not 55°C, reduced airway responsiveness to local methacholine challenge for at least 3 years posttreatment (Fig. 1a). Airway smooth muscle mass was reduced at 12 weeks (Fig. 1b) and by 3 years, the airway smooth muscle was partially replaced by a thin layer of mature collagen. The histology of the lung parenchyma, epithelium and mucous glands in the airway was not altered by bronchial

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Clinical Policy Bulletin:
Bronchial Thermoplasty
Number: 0744

Policy

Aetna considers bronchial thermoplasty experimental and investigational for the treatment of asthma and other indications (e.g., chronic obstructive pulmonary disease) because its effectiveness has not been established.

See also CPB 670 - Xolair (Omalizumab).

Background

Asthma is one of the most common chronic diseases in the United States, and its prevalence has been increasing since 1980. In 2000, asthma was responsible for 4,487 deaths, about 0.5 million hospitalizations, 1.8 million visits to the emergency room, and 10.4 million visits to the physician office among individuals of all ages. The Behavioral Risk Factor Surveillance System (BRFSS) collects data each year from the 50 states, the District of Columbia, and 3 United States territories to provide prevalence data for state and local health department asthma programs. Findings from BRFSS indicated that approximately 7.2 % of adults in the United States have current asthma (CDC, 2003). According to the National Heart, Lung and Blood Institute's (2002) global strategy for asthma management and prevention, the preferred therapy for patients with moderate persistent asthma is regular treatment with a combination of inhaled corticosteroids and a long-acting inhaled beta 2-agonist twice-daily. For patients with severe persistent asthma, the primary therapy includes inhaled corticosteroid at higher doses plus a long-acting inhaled beta 2-agonist twice-daily.

Bronchial thermoplasty is a bronchoscopic procedure that employs radiofrequency ablation to reduce the mass of airway smooth muscle (ASM), thus attenuating bronchoconstriction. It is being studied as a minimally invasive method to improve asthma control. Bronchial thermoplasty is performed on an out-patient basis with conscious sedation (i.e., no general anesthesia is needed), and it usually takes approximately one hour to complete. There are two assumptions that underlie the development of this procedure: (i) ASM is a vestigial tissue; and (ii) treatment directed at ASM alone will provide sustained symptomatic and physiological improvement in patients with asthma.

Cigna Medical Coverage Policy

Effective Date **6/15/2012**
Next Review Date **6/15/2013**
Coverage Policy Number **0502**

Subject **Bronchial Thermoplasty**

Table of Contents

Hyperlink to Related Coverage Policies

Exhaled and Exhaled Breath Condensate in the Management of Respiratory Disorders
Home Spirometry
Omalizumanb (Xolair®)
Oxygen for Home Use
Peak Flow Meters
Pulmonary Rehabilitation

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Coverage Policy

Cigna does not cover bronchial thermoplasty for any indication because it is considered experimental, investigational or unproven.

General Background

Asthma is a chronic inflammatory disorder of the airways characterized by recurrent episodes of wheezing, breathlessness, chest tightness, and coughing. Clinical studies have shown that asthma can be effectively controlled by intervening to suppress and reverse inflammation as well as treating the bronchoconstriction and related symptoms (Global Initiative for Asthma [GINA], 2010). The goal of the treatment of asthma is to achieve and maintain clinical control by eliminating symptoms during both the day and night, to normalize measures of lung function, and to reduce the risk of future exacerbations (California Technology Assessment Forum [CTAF], 2011; GINA, 2010). Asthma control can be reached in the majority of individuals with a pharmacologic intervention strategy developed in partnership between the patient/family and the doctor, involving assignment to a continuously evolving treatment plan based on current level of control (GINA, 2010).

Depending on level of control, standard treatment options may include stimulus avoidance and an as-needed reliever medication (e.g., rapid-acting short- or long acting inhaled beta$_2$ [B_2] agonist), reliever treatment with regular controller treatment (e.g., inhaled glucocorticosteroid, leukotriene modifier, theophylline, cromones), oral

Newer Radiation Therapies for Non-intracranial Malignancies

Evidence & Policy Summary
October 2011

Center for Evidence-based Policy
Medicaid Evidence-based Decisions Project (MED)
Oregon Health & Science University
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Mailstop SN-4N, Portland, OR 97239-2941
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Executive Summary

Background

Approximately half of all cancer patients receive some form of radiation therapy. Radiation utilizes high energy particles or waves to destroy or damage cancer cells. Patients may receive radiation therapy alone or in combination with other treatments. Radiation can cause acute and chronic side effects that depend on the area of the body radiated and dose of radiation given. There are three main modalities for delivering radiation: 1) externally by a machine (external beam radiation therapy, EBRT), 2) internally via radioactive material placed in the body (brachytherapy), or 3) systemically through the use of radiopharmaceuticals that are swallowed or injected into the blood stream.

Current conventional or standard EBRT uses three-dimensional (3D) imaging technology from computed tomography (CT), positron-emission tomography (PET), and/or magnetic resonance imaging (MRI) for planning purposes and delivers photon beams of uniform intensity to the target tumor using a medical linear accelerator (linac). Conformal refers to the ability to precisely conform the delivery of the EBRT to the shape and size of the tumor, so current conventional EBRT is often referred to as 3D conformal radiation therapy (3DCRT). Over the past ten years, significant advances have been made in the techniques available to deliver EBRT. The goal of these newer techniques is two-fold: to improve the targeting of the radiation to the tumor to minimize damage of normal tissue and increase the dose of radiation (fraction) delivered to improve outcomes and decrease the number of fractions and length of treatment.

The use of two newer techniques, stereotactic body radiation therapy (SBRT) and intensity modulated radiation therapy (IMRT), has increased dramatically over the past decade. Health care spending on these newer technologies is rising alongside their adoption, with the newer technologies being generally more expensive than existing ones. Between 2002 and 2008, for example, Medicare spending on IMRT grew from less than $50 million to over $800 million. Moreover, comparative trials including randomized controlled trials (RCTs) were not required for clearance of the devices that deliver these newer techniques for radiation therapy. For moderate risk new devices, the Food and Drug Administration (FDA) clears the device for sale under their 510(k) process that only requires a manufacturer to demonstrate that the new devices is substantially equivalent to a prior device(s) that has already been cleared for sale by the FDA. Because of the rapid diffusion of the technologies, their costs, and the uncertainty of their effectiveness and safety, we reviewed the evidence for the effectiveness, safety, and cost of SBRT and IMRT compared to conventional EBRT (i.e., 3DCRT). The following key questions are addressed in this report.

Key □uestions

1. Does Stereotactic Body Radiation Therapy (SBRT) or Intensity Modulated Radiation Therapy (IMRT) improve patient outcomes compared to conventional external beam radiation therapy (EBRT)?

Confocal laser endomicroscopy

The American Society for Gastrointestinal Endoscopy (ASGE) Technology Committee provides reviews of new or emerging endoscopic technologies that have the potential to have an impact on the practice of GI endoscopy. Evidence-based methodology is used, with a MEDLINE literature search to identify pertinent preclinical and clinical studies on the topic and a MAUDE (U.S. Food and Drug Administration Center for Devices and Radiological Health) database search to identify the reported complications of a given technology. Both are supplemented by accessing the "related articles" feature of PubMed and by scrutinizing pertinent references cited by the identified studies. Controlled clinical trials are emphasized, but in many cases, data from randomized, controlled trials are lacking. In such cases, large case series, preliminary clinical studies, and expert opinions are used. Technical data are gathered from traditional and Web-based publications, proprietary publications, and informal communications with pertinent vendors. For this review, the MEDLINE database was searched through January 2009 using the keywords "confocal," "confocal endoscopy," and "confocal laser endomicroscopy."

Reports on Emerging Technologies are drafted by 1 or 2 members of the ASGE Technology Committee, reviewed and edited by the committee as a whole, and approved by the Governing Board of the ASGE. These reports are scientific reviews provided solely for educational and informational purposes. Reports on Emerging Technologies are not rules and should not be construed as establishing a legal standard of care or as encouraging, advocating, requiring, or discouraging any particular treatment or payment for such treatment.

EMERGING TECHNOLOGY

Confocal laser endomicroscopy is a new endoscopic modality developed to obtain very high-resolution images of the mucosal layer of the GI tract. Confocal laser endomicroscopy is based on tissue illumination with a low-power laser with subsequent detection of the fluorescence light reflected from the tissue through a pinhole (Fig. 1).[1] The term *confocal* refers to the alignment of both illumination and collection systems in the same focal plane.[2,3] The laser light is focused at a selected depth in the tissue of interest and reflected light is then refocused onto the detection system by the same lens. Only returning light refocused through the pinhole is detected. The light reflected and scattered at other geometric angles from the illuminated object or refocused out of plane with the pinhole is excluded from detection. This dramatically increases the spatial resolution of confocal endomicroscopy, thus providing an "optical biopsy"—histological examination of the superficial layer of the GI tract.[4,5]

Confocal imaging can be based on tissue reflectance or tissue fluorescence.[6,7] The confocal devices based on tissue reflectance do not require any contrast agents, but available prototypes have had numerous technical problems and relatively low resolution, which significantly compromise in vivo imaging and clinical utility.[6-9]

In contrast, confocal endomicroscopy based on tissue fluorescence uses local and/or intravenous contrast agents and generates high-quality images comparable with traditional histological examination.[5,10] Most clinical studies reported to date used a confocal fluorescence microscope integrated into the distal tip of a conventional upper endoscope (EG-3870CIK; Pentax, Tokyo, Japan) or colonoscope (EC-3870CILK; Pentax). A smaller number of studies used a dedicated confocal miniprobe with laser microscope (Mauna Kea Technologies, Paris, France) inserted through the accessory channel of a traditional endoscope. These instruments have been cleared by the U.S. Food and Drug Administration, and all have different depths of imaging, field of views, and lateral resolutions.

The latest model of Cellvizio confocal miniprobes (Mauna Kea Technologies) created for GI tract applications include CholangioFlex, GastroFlex (ColoFlex), and GastroFlex^{UHD} (ColoFlex^{UHD}). CholangioFlex probes designed for use during ERCP require an endoscope accessory channel of at least 1.2 mm, whereas the other probes, which are designed for use in EGD and colonoscopy, require a channel larger than 2.8 mm. All probes generate dynamic (12 frames per second) images. The depth of imaging for CholangioFlex probes is 40 to 70 μm, 70 to 130 μm for GastroFlex (ColoFlex), and 55 to 65 μm for GastroFlex^{UHD} (ColoFlex^{UHD}). The maximal field of view for CholangioFlex probes is 325 μm, 600 μm for GastroFlex (ColoFlex), and 240 μm for GastroFlex^{UHD} (ColoFlex^{UHD}). The lateral resolution for CholangioFlex

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Clostridium difficile infection: an update on epidemiology, risk factors, and therapeutic options

Andrea Lo Vecchio[a] *and George M. Zacur*[b]

Purpose of review
The incidence and severity of *Clostridium difficile* infection (CDI) around the world has increased over the past 20 years due to the emergence of hypervirulent strains, increased use and misuse of antibiotics, and the increase of susceptible at-risk populations. Treatments currently available for CDI are inadequate to impede the increasing spread and virulence of the infection, avoid recurrence in chronic patients or prevent infection in at-risk populations.

Recent findings
New and promising evidence has been presented during the past year, focusing on two major points: preservation of gut microflora and optimization of immune response to CDI and toxins.

Summary
The review aims to summarize the most recent evidence available on the epidemiology, risk factors and treatment of CDI. New antibiotics with selected action on *C. difficile* and limited effect on microflora (fidaxomicin) and donor fecal transplantation seem to have a relevant efficacy in treating CDI and reducing its recurrence. The use of selected monoclonal antibodies directed against *C. difficile* toxins in addition to standard therapy is a new, promising approach for the treatment of recurrent cases. Vaccination could be an additional weapon against CDI. New robust data are needed before recommendations can be made to abandon current treatment based on vancomycin and metronidazole and move toward new frontiers.

Keywords
antibiotics, *Clostridium difficile* infection, diarrhea

INTRODUCTION

Clostridium difficile-associated diarrhea is the leading cause of diarrhea in the healthcare setting. It is also fast becoming a common cause of diarrhea in the community. Any medication or process that disrupts the normal bowel flora or bowel motility can predispose patients to a *C. difficile* infection (CDI). A higher morbidity and mortality has been described in recent years. It has been reported that 3% of healthy adults are asymptomatic carriers [1]. Symptomatic patients can present with a broad spectrum of disease severity ranging from a mild, watery, self-limiting diarrhea to life-threatening fulminant pseudomembranous colitis, toxic megacolon, bowel perforation, septic shock, and death.

Recurrence of symptoms, as a consequence of relapse of the original infection or reinfection, is one of the greatest challenges of CDI [2,3], occurring in 5–47% of cases [4▪▪,5▪,6▪,7]. More recently, a large European hospital-based survey reported a recurrence rate of 18% [8▪▪], and another study reported that patients with at least one recurrence of CDI had a risk of subsequent recurrence of 45% [9▪,10].

The cause of recurrent CDI is not well understood. Factors implicated in the development of recurrent CDI are disturbance of the normal bowel flora, decreased resistance to colonization through antibiotic usage, and defective immune response to *C. difficile* and/or its toxins [3,11,12]. An adequate and prompt immune response to *C. difficile* and/or

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NCGC National Clinical Guideline Centre

Final guidance

Urinary incontinence in neurological disease: management of lower urinary tract dysfunction in neurological disease

Clinical Guideline 148

Methods, evidence and recommendations

August 2012

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Urinary incontinence

the management of urinary incontinence in women

National Collaborating Centre for Women's and Children's Health

Commissioned by the National Institute for Health and Clinical Excellence

October 2006

RCOG Press

1. Introduction

1.1 Urinary incontinence

Urinary incontinence (UI) is a common symptom that can affect women of all ages, with a wide range of severity and nature. While rarely life-threatening, incontinence may seriously influence the physical, psychological and social wellbeing of affected individuals. The impact on the families and carers of women with UI may be profound, and the resource implications for the health service considerable.

The International Continence Society (ICS) has standardised terminology in lower urinary tract function: UI is defined as 'the complaint of any involuntary urinary leakage'.[1] This may occur as a result of a number of abnormalities of function of the lower urinary tract, or as a result of other illnesses, and these tend to cause leakage in different situations. Definitions for stress, mixed and urge UI and overactive bladder (OAB) are given in the glossary. Other types of UI may be described by the situations that provoke urine loss, for example during sexual intercourse, or on laughing or giggling. Some patients may simply report being 'wet all the time'. This may be a reflection of the severity of their condition, although may on occasions be due to other pathologies, for example fistula. There are currently approximately 80 cases of fistula between the urinary tract and genital tract treated each year in England and Wales and this condition is not considered further in this guideline. It is recognised that UI may be of a transient nature on occasion, reflecting acute health or environmental factors.

Prevalence and incidence

Urinary incontinence is an embarrassing problem to many women and thus its presence may be significantly underreported. In a UK community study, the prevalence of UI known to the health and social service agencies was 0.2% in women aged 15–64 years and 2.5% in those aged 65 and over.[2] A concurrent postal survey showed a prevalence of 8.5% in women aged 15–64 and 11.6% in those aged 65 and over. Incontinence was described as 'moderate' or 'severe' in one-fifth of those who reported it and, even among these, fewer than one-third were receiving health or social services for the condition.[2]

The Leicestershire MRC Incontinence Study, of individuals over 40 years of age, found that 33.6% of the population reported significant urinary symptoms but only 6.2% found these bothersome, and only 2.4% both bothersome and socially disabling. Of the population surveyed, 3.8% (one in nine of those with clinically significant symptoms) felt the need for help with their symptoms.[3,4] Some women may not see their UI as a major problem. For others, who do perceive a problem with which they would like help, there are often barriers to presentation. Women may take up to 10 years before seeking help.[5] They may be too embarrassed to seek advice, may not wish to bother their general practitioner (GP), may believe UI to be a normal consequence of the ageing process or may not appreciate that treatments are available.[6]

Differences in study populations, the definition and measurement of UI, and the survey method used result in a wide range of prevalence estimates.[7] Where the most inclusive definitions have been used ('ever', 'any', 'at least once in the last 12 months'), prevalence estimates in the general population range from 5% to 69% in women 15 years and older, with most studies in the range 25–45%.[7] There appears to be less variation in the prevalence of more severe UI and estimates in the general population range between 4% and 7% in women under 65 years, and between 4% and 17% in those over 65 for daily UI.[7] The Leicestershire MRC Incontinence Study found that, while 34.2% of women reported UI at times, only 3.5% experienced the symptom on a daily basis, 11.8% weekly, 7.3% monthly and 11.6% yearly.[8]

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European Association of Urology

Review – Neuro-urology

Botulinum Toxin Injections for Neurogenic and Idiopathic Detrusor Overactivity: A Critical Analysis of Results

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Abstract

Objective: In recent years there has been an increasing use of the botulinum neurotoxins for the management of conditions characterised by detrusor overactivity. Early studies showed promising results in an area where few options previously existed between pharmacotherapy and surgery. This has led to an urgent need to assess the wide range of techniques and therapies available, as well as the efficacy and tolerability of the treatment. We performed a critical analysis of the numerous clinical studies for this novel treatment option in the management of neurogenic and idiopathic detrusor overactivity, with a view to directing further research and assisting urologists in the management of these conditions.

Methods: A systematic review of the literature, as well as a search for abstracts presented to relevant peer-reviewed meetings, was performed. All articles from 1988 onwards were included, prior to which no articles describing urologic use of botulinum neurotoxins had been published, although the majority of the articles have been published since 2000.

Results and Conclusions: Although many of the studies were small, overwhelming evidence supports the efficacy, safety, and tolerability of the botulinum toxins, specifically serotype A, for the management of these conditions. Before this is accepted as a widespread treatment modality, good-quality evidence from large-scale randomised controlled trials is needed. These studies should identify not only the most appropriate patients to treat but also the best dose, administration technique, and frequency for treatment.

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BJUI
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Botulinum A toxin in the treatment of neurogenic detrusor overactivity: a consolidated field of application

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Several studies show promising results in terms of both clinical and urodynamic improvements, supporting the efficacy, safety and tolerability of botulinum toxin serotype A (BoNT-A) for managing neurogenic detrusor overactivity (DO). DO due to spinal cord injuries represents the most frequently treated dysfunction, where the efficacy appears to be high, with beneficial effects on quality of life. Data on the management of DO in patients with multiple sclerosis, cerebrovascular accidents and Parkinson's disease are scarce or absent; thus, the suitability of BoNT-A in the treatment neurogenic DO of other diseases of central nervous origin requires further investigation. Indeed, good quality, randomized controlled trials are still needed to identify not only the most appropriate patients to treat, but also the appropriate dose, administration technique, frequency of treatment and any eventual long-term complications. Thus, the use of intravesical BoNT-A in the control of neurogenic DO appears to be promising, but the drug is still in phase 3 clinical development, and further high-quality research is essential.

KEYWORDS

botulinum A toxin, detrusor overactivity, neurogenic disease

THE NEUROPHYSIOLOGY OF MICTURITION

The goal of treating detrusor overactivity (DO) is to reduce the reflex irritability of the overactive bladder (OAB), thereby prolonging the time between voids [1]. Many patients with neurogenic DO can be treated effectively with oral anticholinergic drugs, which act as competitive inhibitors of acetylcholine, blocking its muscarinic effects. However, they often have troublesome side-effects, e.g. dry mouth, constipation, dyspepsia, changes in visual accommodation, dizziness and somnolence, all of which reduce patient compliance. Doses insufficient to restore urinary continence are often used. Until recently, invasive surgery (mainly bladder augmentation) was the only available treatment option for patients with intractable DO. There might be other treatment options in selected groups of patients with spinal cord injury. Short-term maximum functional stimulation of the pudendal nerve afferents or implantation of a sacral root nerve stimulator might result in major benefits for urge incontinence [2,3]. However, the use of sacral rhizotomy is limited in male patients with suprasacral cord lesions, in view of the consequent loss of reflex erections [4]. Auto-augmentation, enterocystoplasty and the ileal conduit are major surgical interventions that can be considered as a last alternative. Recently, new alternative drugs and/or administration techniques have been introduced to control DO and to restore urinary continence in patients affected by neurogenic voiding dysfunction. Indeed, the efficiency of intravesical application of vanilloid-antagonists (capsaicin and resiniferatoxin) is controversially discussed or has still to be precisely evaluated [5,6]. Normal storage of urine depends on spinal reflex mechanisms that activate sympathetic and somatic pathways to the urethral outlet and detrusor muscle, and tonic inhibitory systems in the brain that suppress the parasympathetic excitatory outflow to the urinary bladder, leading to detrusor relaxation and bladder filling [1,2]. Mechanoreceptors trigger micturition reflexes, which consist of firing of the sacral parasympathetic pathways and inhibition of sympathetic and somatic pathways. Sensory information, including the feeling of bladder fullness or pain, is conveyed to the spinal cord via afferent axons in the pelvic and hypogastric nerves [1]. Acetylcholine, which interacts with muscarinic receptors on the detrusor muscle, is the predominant peripheral neurotransmitter responsible for bladder contraction. Acetylcholine interacts with the M3 receptor, initiating a cascade of events that results in contraction of the detrusor muscle.

Increasing attention has been paid to the role of sensory afferent nerves in normal voiding and in DO. The most important afferents for initiating micturition are those passing in the pelvic nerve to the sacral spinal cord. These afferents consist of small myelinated (A-δ) and unmyelinated C-fibres that convey impulses from tension receptors and nociceptors in the bladder wall [3]. Damage to the axonal pathways in the spinal cord leads to the emergence of primitive spinal bladder reflexes triggered by bladder afferent C-fibres, which are thought to serve a defence mechanism to eliminate irritants and bacteria in the normal bladder [1–3]. Several types of receptors have been identified on afferent nerves, including vanilloid receptors, which are activated by capsaicin and possibly by endogenous anandamide; purinergic receptors (P2X), which are activated by ATP, neurokinin receptors which respond to substance P and neurokinin A; and receptors for nerve growth factor (trk-A receptors) [7,8]. Other substances, including nitric oxide, calcitonin gene-related protein, and brain-derived neurotropic factor, might also have an important role in modulating the sensory afferents in the detrusor muscle [1,8,9].

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Prospects and limitations of treatment with botulinum neurotoxin type A for patients with refractory idiopathic detrusor overactivity

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In this review we summarize the recent innovation of botulinum-A neurotoxin (BoNT-A) injections in the bladder as a potential new treatment option for idiopathic detrusor overactivity, refractory to conventional anticholinergic medication. BoNT-A is produced by *Clostridium botulinum* and consists of a 150-kDa neurotoxic protein that has the ability to cleave proteins within the nerve terminal. BoNT-A is thereby able to prevent acetylcholine release at the presynaptic membrane, resulting in a chemodenervation of the detrusor muscle after intravesical injection; this can reduce symptoms in patients with refractory idiopathic detrusor overactivity. BoNT-A intradetrusor injections might be an alternative to invasive surgery for patients in whom conservative measures and anticholinergic treatment have failed. Clinical studies with different dosages and injection protocols show success rates of 60–96% for neurogenic and non-neurogenic detrusor overactivity, with wide variations in the duration of response. The drug is still under development for the indication of idiopathic detrusor overactivity, and is under ongoing investigation for long-term efficacy and safety.

KEYWORDS

botulinum neurotoxin type A, overactive bladder, urinary incontinence, urgency

INTRODUCTION

The physiologist Claude Bernard, in his classic work on experimental research, wrote that poisons not only destroy life, but that they can also be used to treat the sick [1]. In patients with refractory idiopathic (non-neurogenic) detrusor overactivity (DO), there is a gap in treatment between classic anticholinergic agents and surgical treatments (e.g. bladder augmentation or sacral neuromodulation). Administration of botulinum neurotoxin type A (BoNT-A) directly into the bladder wall is a new treatment concept, which has been increasingly researched and applied. Several studies have now documented a significant relief of symptoms in neurogenic and idiopathic DO [2–12]. The ICS defines the overactive bladder (OAB) syndrome as urgency with or without incontinence, usually associated with frequency and nocturia [13]. Obviously, in such cases, UTIs, metabolic diseases or malignancies such as carcinoma *in situ* of the bladder must be excluded. According to two large epidemiological studies, one from Europe and the other from the USA, the prevalence of OAB in the adult population is ≈17% [14,15]. The EPINCONT study showed an increase in the prevalence of OAB in postmenopausal women [16]. The frequency and severity of incontinence episodes, the use of incontinence devices (pads), and the inability to continue with sexual life are the main factors responsible for the compromised quality of life [17]; about two-thirds of these patients have stressed social and sexual relationships and a low self-esteem. The cost of consultations, medications, incontinence physiotherapy, surgery, incontinence devices, incontinence pads, undergarments, cleaners for carpet or furniture, catheters, and costs due to skin or UTIs was estimated to be ≈$US 32.1 billion in the year 2000 [18].

First-line treatments of OAB include change in lifestyle, bladder training or pelvic floor rehabilitation, and local oestrogen application if there is female genital atrophy. Anticholinergics are the main medical treatment, in combination with conservative measures, or as second-line therapy. The limiting factors for the use and the success rate are the side-effects, e.g. dry mouth, constipation, headache and nausea [19–22]. If unable to tolerate the drugs, or if failing to respond, many patients had to live with their OAB, or undergo more invasive treatments, e.g. sacral neuromodulation [23] or bladder augmentation [24].

BOTULINUM NEUROTOXIN: A SHORT HISTORICAL REVIEW

On 14 December 1895 in Ellezelles, Belgium, three persons died after consuming smoked ham sausages. Emile Pierre Van Ermengem, a student of Robert Koch, isolated the responsible organism and named it *Bacillus botulinus* [25], today known as *Clostridium botulinum*. The Napoleonic wars from 1795 until 1813 destroyed the European economy, leading to neglect of hygiene during the production of food. In the 19th century, food poisoning incidents became more frequent after the consumption of sausages. The government physician Justinus Kerner examined 155 cases of poisoning from sausages and published his monograph 'on the fat poison' in 1822 [26,27]. Kerner suspected a zoonotic poison, that grew in airless acidic surroundings, being lethal even in very small amounts. He could show that the poison, like rust in a conductor cable, could interrupt motor signals in peripheral somatic and autonomous nerve pathways. After experimenting on himself, he concluded that the fat poison could potentially be used for treatment purposes. In 1870, Mueller named this poisoning 'Botulismus', derived from the Latin word *botulus* for sausage. During the world wars, research in Fort Detrick, MD, USA

Clinical Policy Bulletin:
Botulinum Toxin
Number: 0113

Policy

1. OnabotulinumtoxinA (Botox Brand of Botulinum Toxin Type A): Aetna considers onabotulinumtoxinA (Botox) medically necessary for any of the following conditions:
    1. Strabismus, including gaze palsies accompanying diseases, such as:
        - Neuromyelitis optica;
        - Schilder's disease.

        Note: Strabismus repair is considered cosmetic in adults with uncorrected congenital strabismus and no binocular fusion.

    2. Blepharospasm, characterized by intermittent or sustained closure of the eyelids caused by involuntary contractions of the orbicularis oculi muscle.
    3. Post-facial (7th cranial) nerve palsy synkinesis (hemifacial spasms), characterized by sudden, unilateral, synchronous contractions of muscles innervated by the facial nerve.
    4. Laryngeal spasm.
    5. Cervical dystonia (spasmodic torticollis) of moderate or greater severity when all of the following criteria are met:
        1. There are clonic and/or tonic involuntary contractions of multiple neck muscles (e.g., sternocleidomastoid, splenius, trapezius and/or posterior cervical muscles); *and*
        2. There is sustained head torsion and/or tilt with limited range of motion in the neck; *and*
        3. The duration of the condition is greater than 6 months; *and*
        4. Alternative causes of the member's symptoms have been considered and ruled out, including chronic neuroleptic treatment, contractures, or other neuromuscular disorders.
    6. Focal dystonias, including:
        0. Adductor laryngeal dystonia;
        1. Focal dystonias in corticobasilar degeneration;
        2. Hand dystonia (i.e., organic writers cramp);
        3. Jaw-closing oromandibular dystonia, characterized by dystonic movements involving the jaw, tongue, and lower facial muscles;
        4. Lingual dystonia;
        5. Symptomatic torsion dystonia (but not lumbar torsion dystonia).
    7. Limb spasticity, including:
        0. Equinus varus deformity in children with cerebral palsy
        1. Hereditary spastic paraplegia;
        2. Limb spasticity due to multiple sclerosis;

Botulinum Toxin*

Medical Policy: 05.01.02
Original Effective Date: May 1991
Reviewed: March 2012
Revised: November 2010

Contact Information

New information or technology that would be relevant for Wellmark to consider when this policy is next reviewed may be submitted to:
Wellmark Blue Cross and Blue Shield
Medical Policy Analyst
P.O. Box 9232
Des Moines, IA 50306-9232

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This Medical Policy document describes the status of medical technology at the time the document was developed. Since that time, new technology may have emerged or new medical literature may have been published. This Medical Policy will be reviewed regularly and be updated as scientific and medical literature becomes available.

Description:

Botulinum toxin is a protein produced by the bacterium Clostridium Botulinum. There are seven distinct serotypes designated as type, A, B, C-1, D, E, F and G. Only Type A and Type B preparations are currently available in the United States. When administered intramuscularly, all botulinum toxins reduce muscle tone by interfering with the release of acetylcholine from nerve endings.

FDA-approved labeled indications are few, but botulinum toxin has been used for a wide variety of off-label indications.

Top

Prior Approval:

Prior approval is recommended. Submit a prior approval/treatment request now. (75KB)

Top

Botulinum Toxin A Treatment for Chronic Headache and Chronic Migraine

Brief Report
February 2012

Center for Evidence-based Policy
Medicaid Evidence-based Decisions Project (MED)

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Executive Summary

Background

Clinical overview
Chronic migraine (CM) and chronic tension-type headache (CTTH) are diagnosed when headaches last four hours per day or longer and occur on an average of 15 or more days per month for greater than three months, and include several additional criteria specific to each diagnosis according to the International Headache Society (IHS 2005). Chronic migraine prevalence is estimated at 1.3% of the US population (Natoli 2010), and around 2.2% of the US population is estimated to suffer from CTTH over the course of a year (Hayes 2011a). Both CM and CTTH occur more often in women (Hayes 2011b; Krishnan 2009).

Acute treatments for migraines include acetaminophen, caffeine, nasal lidocaine, isometheptene mucate/ dichloralphenazone/acetaminophen (Midrin®), nonsteroidal antiinflammatory drugs, triptans and ergotamine products (ICSI 2011). Prophylactic treatment is often considered for patients who have two or more migraines with three or more days of disability per month or use of acute medication more than twice per week (Modi 2006). Common prophylactic treatments for migraines include beta-blockers, tricyclic antidepressants (TCA), calcium channel blockers, antiepileptic drugs, lifestyle management, and alternative therapies such as biofeedback and relaxation (ICSI 2011). BOTOX® (onabotulinumtoxinA, onaBTX-A) is the only botulinum toxin (BTX) approved by the Food and Drug Administration (FDA) for the prophylactic treatment of chronic migraine at this time. Other common prophylactic treatments for CTTH include amitriptyline, other TCAs, Venlafaxine XR, and adjunctive therapy. The FDA has not approved any formulation of BTX for the prophylactic treatment of CTTH.

Cost information
The American Society for Aesthetic Plastic Surgery (ASAPS) reports that the national average cost of physician/surgeon fees for botulinum toxin A (BTX-A) (including BOTOX®, Dysport®) in 2010 was $398. According to Allergan, the manufacturer of BOTOX®, the cost/unit of BOTOX® in 2011 was $5.25, resulting in a total cost per approved dose of 155 units of $813.75. Allergan's dossier submission noted that administration costs were estimated at $250.50 per visit based on the 2011 Medicare Physician's Fee Schedule. The combined cost per dose and administration costs result in a total estimated cost of $1,064.25 per treatment cycle.

Key Questions

1. Does BTX-A reduce the frequency, severity, or duration of chronic headaches or migraines?
2. Does BTX-A improve quality of life in patients who have chronic headaches or migraines?
3. Is there a difference in efficacy among serotypes and BTX-A products?
4. How does efficacy of BTX-A compare with other standard treatments for chronic headaches or migraines?
5. What are the harms and complications associated with BTX-A treatment?
6. What are the costs of BTX-A treatment compared to standard treatments?

Methods

A full search of the MED clinical evidence primary sources was done to identify systematic reviews (SR), meta-analyses (MA), technology assessments (TA), and randomized controlled trials (RCT) using the terms botulinum toxin, botox, headache, and migraine. Searches of core sources were

State Policy Summary Update: Coverage of botulinum toxin type A for chronic headache and chronic migraine prophylaxis

Special Project
September 2012

Center for Evidence-based Policy
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Background

In October 2010, the US Food and Drug Administration (FDA) approved BOTOX® (BTX-A) injection for use to prevent headaches in adults with chronic migraines (≥ 15 days per month with headache lasting 4 hours per day or longer). The FDA has not approved BTX-A for prophylaxis of chronic migraines in patients under 18 years of age or for treatment of episodic migraine (14 headache days or fewer per month) (Allergan 2011). The approved dose for treating chronic migraine is 155 units administered intramuscularly into the muscles of the head and neck approximately every 12 weeks (Allergan 2011). The American Society for Aesthetic Plastic Surgery (ASAPS) reports that the national average cost of physician/surgeon fees for BTX-A in 2011 was $398. According to Allergan, the manufacturer of BTX-A, the cost/unit of BTX-A in 2011 was $5.25, resulting in a total cost per approved dose (155 units) of $813.75 (Allergan 2011).

In November 2011, the Medicaid Evidence-based Decisions (MED) Project elected to pilot test a review of evidence for two new Healthcare Common Procedure Coding System (HCPCS) codes. The MED Project invited the Medicaid Medical Directors Learning Network (MMDLN) states to participate in this process. The group selected Botulinum Toxin Type A (J0585 Injection, onabotulinumtoxina, 1 unit) as one of the codes for review. The evaluation was to include both a review of the evidence as well as related state coverage policies. The following policy summary is an update to a separate Participant Request done in December 2012 on the same topic.

Evidence Summary

In February 2012, MED staff produced the evidence report *Botulinum Toxin A Treatment for Chronic Headache and Chronic Migraine*, which addresses the use of BTX-A for chronic headache and chronic migraine (Little 2012). Overall, the evidence for the effectiveness of BTX-A on chronic migraine was inconsistent, with the studies that do show a benefit finding the improvement small and potentially clinically insignificant. Overall, seven studies found no beneficial effects of BTX-A compared with placebo in the treatment of chronic headache, while two small studies found a beneficial effect of BTX-A relative to placebo on headache frequency, intensity and/or duration. While BTX-A appears to be relatively safe for the treatment of both chronic migraine and chronic headache, with few serious adverse events, side effects in general are frequent occur in one to two-thirds of all patients.

NHS
National Institute for Health and Clinical Excellence

Botulinum toxin type A for the prevention of headaches in adults with chronic migraine

Issued: June 2012

NICE technology appraisal guidance 260

guidance.nice.org.uk/ta260

NHS Evidence has accredited the process used by the Centre for Health Technology Evaluation at NICE to produce technology appraisals guidance. Accreditation is valid for 5 years from September 2009 and applies to guidance produced since June 2008 using the processes described in NICE's 'The guide to the methods of technology appraisal' (2008). More information on accreditation can be viewed at www.evidence.nhs.uk

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1 Guidance

1.1 Botulinum toxin type A is recommended as an option for the prophylaxis of headaches in adults with chronic migraine (defined as headaches on at least 15 days per month of which at least 8 days are with migraine):

- that has not responded to at least three prior pharmacological prophylaxis therapies **and**
- whose condition is appropriately managed for medication overuse.

1.2 Treatment with botulinum toxin type A that is recommended according to 1.1 should be stopped in people whose condition:

- is not adequately responding to treatment (defined as less than a 30% reduction in headache days per month after two treatment cycles) **or**
- has changed to episodic migraine (defined as fewer than 15 headache days per month) for three consecutive months.

1.3 People currently receiving botulinum toxin type A that is not recommended according to 1.1 and 1.2 should have the option to continue treatment until they and their clinician consider it appropriate to stop.

Ovarian cancer:

the recognition and initial management of ovarian cancer

This guidance updates and replaces recommendation 1.7.4 in 'Referral guidelines for suspected cancer' (NICE clinical guideline 27; published June 2005).

Full Guideline

April 2011

Developed for NICE by the National Collaborating Centre for Cancer

List of all recommendations

Chapter 2: Detection in primary care

Awareness of symptoms and signs

- Refer the woman urgently[1] if physical examination identifies ascites and/or a pelvic or abdominal mass (which is not obviously uterine fibroids)[2].
- Carry out tests in primary care (see section 2.2 on page 21) if a woman (especially if 50 or over) reports having any of the following symptoms on a persistent or frequent basis – particularly more than 12 times per month[2]:
  - persistent abdominal distension (women often refer to this as 'bloating')
  - feeling full (early satiety) and/or loss of appetite
  - pelvic or abdominal pain
  - increased urinary urgency and/or frequency.
- Consider carrying out tests in primary care (see section 2.2 on page 21) if a woman reports unexplained weight loss, fatigue or changes in bowel habit.
- Advise any woman who is not suspected of having ovarian cancer to return to her GP if her symptoms become more frequent and/or persistent.
- Carry out appropriate tests for ovarian cancer (see section 2.2 on page 21) in any woman of 50 or over who has experienced symptoms within the last 12 months that suggest irritable bowel syndrome (IBS)[3], because IBS rarely presents for the first time in women of this age.

Asking the right question – first tests

- Measure serum CA125 in primary care in women with symptoms that suggest ovarian cancer (see section 2.1 on page 16).
- If serum CA125 is 35 IU/ml or greater, arrange an ultrasound scan of the abdomen and pelvis.
- If the ultrasound suggests ovarian cancer, refer the woman urgently[1] for further investigation[2].
- For any woman who has normal serum CA125 (less than 35 IU/ml), or CA125 of 35 IU/ml or greater but a normal ultrasound:
  - assess her carefully for other clinical causes of her symptoms and investigate if appropriate
  - if no other clinical cause is apparent, advise her to return to her GP if her symptoms become more frequent and/or persistent.

[1] An urgent referral means that the woman is referred to a gynaecological cancer service within the national target in England and Wales for referral for suspected cancer, which is currently 2 weeks.

[2] See also 'Referral guidelines for suspected cancer' (NICE clinical guideline 27; available at www.nice.org.uk/guidance/CG27) for recommendations about the support and information needs of people with suspected cancer.

[3] See 'Irritable bowel syndrome in adults' (NICE clinical guideline 61; available at www.nice.org.uk/guidance/CG61).

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Cancer Epidemiology, Biomarkers & Prevention

Serum Human Epididymis Protein 4 and Risk for Ovarian Malignancy Algorithm as New Diagnostic and Prognostic Tools for Epithelial Ovarian Cancer Management

Elisabetta Bandiera, Chiara Romani, Claudia Specchia, et al.

Cancer Epidemiol Biomarkers Prev 2011;20:2496-2506. Published OnlineFirst October 25, 2011.

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Cancer Epidemiology, Biomarkers & Prevention

Research Article

Serum Human Epididymis Protein 4 and Risk for Ovarian Malignancy Algorithm as New Diagnostic and Prognostic Tools for Epithelial Ovarian Cancer Management

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Abstract

Background: The aim of this work was to analyze the diagnostic and prognostic value of serum human epididymis protein 4 (HE4) and Risk for Ovarian Malignancy Algorithm (ROMA) in epithelial ovarian cancer (EOC).

Methods: Preoperative serum samples of 419 women (140 healthy controls, 131 ovarian benign cysts, 34 endometriosis, and 114 EOC) were tested for CA125 and HE4 using fully automated methods (Abbott ARCHITECT) and validated cutoff values.

Results: For the discrimination of benign masses from EOC, in premenopausal women, the sensitivity and specificity were 92.3% and 59.4% for CA125, 84.6% and 94.2% for HE4, and 84.6% and 81.2% for ROMA, whereas in postmenopausal women, the sensitivity and specificity were 94.3% and 82.3% for CA125, 78.2% and 99.0% for HE4, and 93.1% and 84.4% for ROMA. In patients with EOC, elevated CA125, HE4, and ROMA levels were associated with advanced Federation of Gynaecologists and Obstetricians (FIGO) stage, suboptimally debulking, ascites, positive cytology, lymph node involvement, and advanced age (all $P \leq 0.05$). Elevated HE4 and ROMA (both $P \leq 0.01$), but not CA125 ($P = 0.0579$), were associated with undifferentiated tumors. In multivariable analysis, elevated HE4 and ROMA (all $P \leq 0.05$) were independent prognostic factors for shorter overall, disease-free, and progression-free survival.

Conclusions and Impact: This study underlines the high specificity of HE4 in discriminating endometriosis and ovarian benign cysts from EOC and the high sensitivity of CA125 in detecting EOC. We showed HE4 and ROMA as independent prognostic factors. Multicenter studies are needed to draw firm conclusions about the applicability of HE4 and ROMA in clinical practice. *Cancer Epidemiol Biomarkers Prev; 20(12); 2496–506. ©2011 AACR.*

Introduction

Epithelial ovarian cancer (EOC) is the most frequent cause of death from gynecologic cancer. It has the highest fatality-to-case ratio of all gynecologic malignancies, being characterized by early widespread metastasis and high-grade malignancy at diagnosis. The 5-year survival rate is about 80% to 90% for patients with stage I disease and only 30% for patients with stage III or IV. Although survival has improved with the use of maximal cytoreductive surgery along with platinum- and taxol-based chemotherapy, nearly 80% of ovarian cancers relapse and patients inevitably succumb to the development of chemotherapy-resistant disease (1).

At the moment, serum CA125 is the commonly used biomarker for EOC diagnosis. Jacobs and colleagues (2) developed the widely used Risk of Malignancy Index (RMI), an algorithm that uses ultrasound findings, architectural features of pelvic mass, CA125 levels, and menopausal status to stratify patients into high- and low-risk groups. However, as CA125 is associated with a high false-positive rate among benign gynecologic conditions, such as endometriosis that affects mainly women in premenopause, its use for EOC detection is almost exclusively reserved for postmenopausal cases (3–6). Furthermore, CA125 has low sensitivity in identifying patients with early EOC disease, being increased in only 50% of patients with stage I (7). CA125 is also used to monitor response to therapy and in early detection of ovarian cancer recurrence after treatment (8–11), but the value of preoperative

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Subjective assessment by ultrasound is superior to the risk of malignancy index (RMI) or the risk of ovarian malignancy algorithm (ROMA) in discriminating benign from malignant adnexal masses

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KEYWORDS
HE4
CA125
Ultrasound
Ovarian neoplasm
Risk of malignancy index
Subjective assessment
Risk of ovarian malignancy algorithm
Sensitivity and specificity

Abstract *Purpose:* The combination of two tumour markers, CA125 and HE4, in the risk of ovarian malignancy assay (ROMA) has been shown to be successful in classifying patients into those who have a high or low risk of epithelial ovarian cancer. In the present study, the diagnostic accuracy of ROMA was assessed and compared to the diagnostic accuracy of the two most widely used ultrasound methods, namely the risk of malignancy index (RMI) and subjective assessment by ultrasound.
Methods: From August, 2005 to March, 2009, 432 women with a pelvic mass who were scheduled to have surgery were enrolled in a single-centre prospective cohort study. A preoperative ultrasound was performed and preoperative CA125 and HE4 serum levels were measured. Once the final surgical pathology reports were obtained, the diagnostic accuracy and performance indices of ROMA, RMI and subjective assessment were calculated.
Results: Of the 432 eligible patients, 374 could be analysed. Subjective assessment had the highest area under the receiver operator characteristic curve (AUC) (0.968, 95% CI:0.945–0.984),

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doi:10.1016/j.ejca.2011.12.003

Clinical Policy Bulletin:
Tumor Markers
Number: 0352

Policy

1. Aetna considers any of the following serum tumor markers for the stated indication medically necessary:
    1. Prostate-specific antigen (PSA) for prostate cancer screening (see CPB 521 - Prostate Cancer Screening), staging, monitoring response to therapy, and detecting disease recurrence.
    2. Carcinoembryonic antigen (CEA) for any of the following:
        1. As a preoperative prognostic indicator in members with known colorectal carcinoma or mucinous appendiceal carcinoma when it will assist in staging and surgical treatment planning; *or*
        2. To detect asymptomatic recurrence of colorectal cancer after surgical and/or medical treatment for the diagnosis of colorectal cancer (not as a screening test for colorectal cancer); *or*
        3. To monitor response to treatment for metastatic cancer.
    3. Cancer antigen 125 (CA 125) levels for any of the following:
        1. As a preoperative diagnostic aid in women with ovarian masses that are suspected to be malignant, such that arrangements can be made for intraoperative availability of a gynecological oncologist if the CA 125 is increased; *or*
        2. As a screening test for ovarian cancer when there is a history of hereditary cancer syndrome (a pattern of clusters of ovarian cancer within two or more generations); *or*
        3. Diagnosis of ovarian cancer in women with new symptoms (bloating, pelvic or abdominal pain, difficulty eating or feeling full quickly, or urinary frequency and urgency) that have persisted for three or more weeks, where the clinician has performed a pelvic and rectal examination and suspects ovarian cancer; *or*
        4. In members with adenocarcinoma of unknown primary, to rule out ovarian cancer; *or*
        5. In members with known ovarian cancer, as an aid in the monitoring of disease, response to treatment, detection of recurrent disease, or assessing value of performing second-look surgery.
    4. CA 19-9 to monitor the clinical response to therapy or detect early recurrence of

BMJ

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RESEARCH

Prediction models for risk of developing type 2 diabetes: systematic literature search and independent external validation study

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Abstract

Objective To identify existing prediction models for the risk of development of type 2 diabetes and to externally validate them in a large independent cohort.

Data sources Systematic search of English, German, and Dutch literature in PubMed until February 2011 to identify prediction models for diabetes.

Design Performance of the models was assessed in terms of discrimination (C statistic) and calibration (calibration plots and Hosmer-Lemeshow test).The validation study was a prospective cohort study, with a case cohort study in a random subcohort.

Setting Models were applied to the Dutch cohort of the European Prospective Investigation into Cancer and Nutrition cohort study (EPIC-NL).

Participants 38 379 people aged 20-70 with no diabetes at baseline, 2506 of whom made up the random subcohort.

Outcome measure Incident type 2 diabetes.

Results The review identified 16 studies containing 25 prediction models. We considered 12 models as basic because they were based on variables that can be assessed non-invasively and 13 models as extended because they additionally included conventional biomarkers such as glucose concentration. During a median follow-up of 10.2 years there were 924 cases in the full EPIC-NL cohort and 79 in the random subcohort. The C statistic for the basic models ranged from 0.74 (95% confidence interval 0.73 to 0.75) to 0.84 (0.82 to 0.85) for risk at 7.5 years. For prediction models including biomarkers the C statistic ranged from 0.81 (0.80 to 0.83) to 0.93 (0.92 to 0.94). Most prediction models overestimated the observed risk of diabetes, particularly at higher observed risks. After adjustment for differences in incidence of diabetes, calibration improved considerably.

Conclusions Most basic prediction models can identify people at high risk of developing diabetes in a time frame of five to 10 years. Models including biomarkers classified cases slightly better than basic ones. Most models overestimated the actual risk of diabetes. Existing prediction models therefore perform well to identify those at high risk, but cannot sufficiently quantify actual risk of future diabetes.

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Extra material supplied by the author (see http://www.bmj.com/content/345/bmj.e5900?tab=related#webextra)

Appendix 1: Supplementary tables A-D
Appendix 2: Supplementary text
Appendix 3: References of excluded studies
Appendix 4: Supplementary figure A
Appendix 5: Supplementary figure B

Early detection of myocardial dysfunction and heart failure

Geoffrey de Couto, Maral Ouzounian and Peter P. Liu

Abstract | The impact of cardiac dysfunction and heart failure is continuing to escalate in the developed world. Treatment of this heterogeneous condition has focused on the symptomatic stage, often after irreversible remodeling and functional impairment have occurred. Early identification of cardiac dysfunction would allow implementation of early intervention strategies to delay the progression or to prevent the onset of heart failure altogether. Although screening methods for asymptomatic cardiac dysfunction have yet to be optimized, a staged approach for patients with predisposing risk factors using serological biomarkers followed by noninvasive imaging techniques may be useful. Existing biomarkers for cardiac dysfunction include B-type natriuretic peptide, troponins, and C-reactive protein. Novel markers such as protein ST2, galectin-3, and various prohormones are emerging and may provide prognostic information that is incremental to conventional clinical evaluation. Monitoring myocardial mechanics and molecular processes through three-dimensional speckle tracking and hybrid imaging modalities, such as PET–CT, may provide insight into disease manifestation before overt structural and physiological abnormalities.

de Couto, G. *et al. Nat. Rev. Cardiol.* **7**, 334–344 (2010); published online 11 May 2010; doi:10.1038/nrcardio.2010.51

Introduction

Myocardial dysfunction leading to symptomatic heart failure is the convergent final common pathway for repeated stresses and injuries to the cardiovascular system. The aging population, environmental changes, and improved treatment for acute cardiac conditions, such as myocardial infarction and sudden deaths, have contributed to the rapid increase in the prevalence and incidence of heart failure in the developed and developing world. In North America, heart failure accounts for 50% of medical admissions to general hospitals, and is associated with an acute in-hospital mortality of 12% and a 1-year mortality of 20–35%.[1,2] More than 60% of patients discharged from hospital with heart failure will be readmitted within 1 year. Escalating medical costs are incurred as a combination of acute in-hospital care, ongoing medical and device-based treatments, and repeated hospital admissions. Large human costs, such as compromised quality of life, depression, and the inability to complete tasks at work or in daily life, are also incurred.[3] In this Review, we highlight the need for early detection of myocardial dysfunction and heart failure, and describe existing and emerging strategies for this detection.

Remodeling is key to HF progression

In general, the development of heart failure is a clinically silent process. Although incompletely understood, the silent progression of heart failure appears to manifest from continual hemodynamic stress that leads to extensive remodeling within the failing heart. During hypertrophy, the shape of the ventricle becomes more concentric; with dilatation, a more spherical shape develops. Eventually, when compensation has been exhausted, the change in geometry of the ventricle leads to the impairment of function and the development of symptoms.

Irrespective of disease etiology, remodeling leads to alterations in endogenous neurohormonal systems, most notably the renin–angiotensin–aldosterone and adrenergic systems, which adversely affect the structure and function of the heart.[4] Moreover, inflammation, an indicator of physiologically stressed systems, has a key role in this process. Following cardiac injury and stress, the innate immune response is activated. Proinflammatory cytokines, such as tumor necrosis factor, interleukin-1, and interleukin-6, are produced and not only mediate remodeling of the heart but also adversely contribute to insulin resistance, cachexia, and anorexia.[5] Cardiac dysfunction also leads to disruption of effective oxygen transport, which contributes to oxygen desaturation of peripheral tissues, causes increased release of norepinephrine, greater anxiety and depression, and worsens sympathetic derangement. Together, these complications lead to respiratory and skeletal muscle atrophy, which contribute to symptomatic fatigue, dyspnea, and general weakness.[6]

The need for early detection

Heart failure is a progressively debilitating disease that is complex and heterogeneous. This chronic disease is often diagnosed late during disease progression; therefore, the

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Competing interests
P. P. Liu declares associations with Roche Diagnostics GmbH. See the article online for full details of this relationship. The other authors declare no competing interests.

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REVIEW

Galectin-3: a novel mediator of heart failure development and progression

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Galectins are a family of soluble β-galactoside-binding lectins that play many important regulatory roles in inflammation, immunity, and cancer. Recently, a role for galectin-3 in the pathophysiology of heart failure (HF) has been suggested. Numerous studies have demonstrated the up-regulation of galectin-3 in hypertrophied hearts, its stimulatory effect on macrophage migration, fibroblast proliferation, and the development of fibrosis. The latter observation is particularly relevant as cardiac remodelling is an important determinant of the clinical outcome of HF and is linked to disease progression and poor prognosis. Because galectin-3 expression is maximal at peak fibrosis and virtually absent after recovery, routine measurement in patients with HF may prove valuable to identify those patients at highest risk for readmission or death, thus enabling physicians to tailor the level of care to individual patient needs. This review summarizes the most recent advances in galectin-3 research, with an emphasis on the role galectin-3 plays in the development and progression of HF.

Keywords Galectin 3 • Heart failure • Prognosis • Fibrosis • Macrophages • Biomarkers

Introduction

Heart failure (HF) remains one of the most prevalent and challenging medical conditions. Despite advances in treatment, morbidity and mortality remain high; 80% of men and 70% of women aged 65 years or older will die within 8 years after the initial diagnosis. Heart failure is also one of the most costly medical conditions.[1]

Perhaps best known for its role as a mediator of tumour growth, progression and metastasis,[2,3] a role for galectin-3 in the pathophysiology of HF has been suggested recently. Galectin-3 is a member of the galectin family involved in numerous physiological and pathological processes[4] some of which, inflammation and fibrosis, are pivotal contributing pathophysiological mechanisms to the development and progression of HF. The up-regulation of myocardial galectin-3 has been demonstrated in a rat model of HF-prone hypertensive hearts,[5] interferon γ-induced murine chronic active myocarditis and cardiomyopathy,[6] rat streptozotocin-induced diabetic cardiomyopathy,[7] and rat angiotensin II-induced hypertension;[8] in several studies, this up-regulation was associated with the concomitant activation of macrophages.[5,6,8] Galectin-3 was also found to be significantly up-regulated in hypertrophied hearts of patients with aortic stenosis[5] and in the plasma of patients with acute[9] and chronic[10,11] HF. Moreover, the involvement of galectin-3 in the development of fibrosis has also been demonstrated in the heart,[5,7,8] liver,[12] and kidney.[13] Taken together, these observations suggest that galectin-3 may be involved in the development of HF. It is speculated that blockade of galectin-3 may slow the progression of HF and possibly reduce HF-related morbidity and mortality.

This review summarizes the most recent advances in galectin-3 research, with an emphasis on the role galectin-3 plays in the development and progression of HF.

Biology of galectin-3

Structural and biochemical characteristics

Galectin-3 (Mac-2, CBP-35, ϵBP, RL-29, HL-29, L-34, LBP) is a 29–35 kDa chimaera-type galectin which is unique in that it is the only member of the galectin family with an extended N-terminal domain constituted of tandem repeats of short amino acid segments (a total of 110–130 amino acids) linked to a single C-terminal carbohydrate-recognition domain of about 130 amino acids. Whereas the C-terminal domain is responsible for lectin activity, the presence of the N-terminal domain is necessary for the full biological activity of galectin-3.[14,15] Members of the galectin family are presented in *Figure 1*.

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Clinical Policy Bulletin:
Biventricular Pacing (Cardiac Resynchronization Therapy)/Combination Resynchronization-Defibrillation Devices for Congestive Heart Failure
Number: 0610

Policy

1. Aetna considers Food and Drug Administration (FDA)-approved biventricular pacemakers (cardiac resynchronization therapy) medically necessary for the treatment of members with congestive heart failure (CHF) who are in sinus rhythm when either of the following criteria is met (A or B):
    1. New York Heart Association (NYHA) classification of heart failure III or IV (see Appendix) and *all* of the following criteria are met:
        1. Left ventricular ejection fraction (LVEF) less than or equal to 35 %; *and*
        2. QRS duration greater than or equal to 120 msec; *and*
        3. Member is on a stable pharmacologic regimen before implantation, which may include any of the following, unless contraindicated:

            1. Angiotensin-converting enzyme inhibitor; *or*
            2. Angiotensin receptor blocker; *or*
            3. Beta blocker; *or*
            4. Digoxin; *or*
            5. Diuretics.
    2. NYHA classification of heart failure II (see Appendix) and all of the following criteria are met:
        1. LVEF less than or equal to 30 %; and
        2. Left bundle branch block with QRS duration greater than or equal to 130 msec; and
        3. Member is on a stable pharmacologic regimen before implantation, which may include any of the following, unless contraindicated.

            1. Angiotensin-converting enzyme inhibitor; *or*
            2. Angiotensin receptor blocker; *or*
            3. Beta blocker; *or*
            4. Digoxin; *or*
            5. Diuretics.
2. Aetna considers biventricular pacemakers experimental and investigational for all other indications (e.g., atrial fibrillation, mild heart failure/NYHA functional class I, and anti-bradycardia pacing) because their effectiveness for these indications has not

Neurogastroenterology & Motility

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REVIEW ARTICLE

Evaluation of gastrointestinal transit in clinical practice: position paper of the American and European Neurogastroenterology and Motility Societies

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Abstract

Background *Disorders of gastrointestinal (GI) transit and motility are common, and cause either delayed or accelerated transit through the stomach, small intestine or colon, and affect one or more regions. Assessment of regional and/or whole gut transit times can provide direct measurements and diagnostic information to explain the cause of symptoms, and plan therapy.* ***Purpose*** *Recently, several newer diagnostic tools have become available. The American and European Neurogastroenterology and Motility Societies undertook this review to provide guidelines on the indications and optimal methods for the use of transit measurements in clinical practice. This was based on evidence of validation including performance characteristics, clinical significance, and strengths of various techniques. The tests include measurements of: gastric emptying with scintigraphy, wireless motility capsule, and ^{13}C breath tests; small bowel transit with breath tests, scintigraphy, and wireless motility capsule; and colonic transit with radioopaque markers, wireless motility capsule, and scintigraphy. Based on the evidence, consensus recommendations are provided for each technique and for the evaluations of regional and whole gut transit. In summary, tests of gastrointestinal transit are available and useful in the evaluation of patients with symptoms suggestive of gastrointestinal dysmotility, since they can provide objective diagnosis and a rational approach to patient management.*

Keywords *breath tests, dysmotility, gastrointestinal transit, radioopaque markers, scintigraphy, wireless motility capsule.*

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INTRODUCTION

Gastroparesis, constipation, irritable bowel syndrome, and functional dyspepsia affect over one-third of the population, consume significant health care resources, affect quality of life, and cause distress. They are associated with alterations in gastrointestinal (GI) transit of food, chyme, and residue. Assessment of regional (e.g., gastric, small intestinal, or colonic

American Gastroenterological Association Technical Review on the Diagnosis and Treatment of Gastroparesis

This literature review and the recommendations herein were prepared for the American Gastroenterological Association Clinical Practice Committee. The paper was approved by the Committee on May 16, 2004, and by the AGA Governing Board on September 23, 2004.

Normal gastric emptying reflects a coordinated effort between different regions of the stomach and the duodenum as well as extrinsic modulation by central nervous system (CNS) and distal gut factors. Important events related to normal gastric emptying include fundic relaxation to accommodate food, antral contractions for trituration of large food particles, pyloric relaxation to allow food to exit the stomach, and antropyloroduodenal coordination of motor events. Gastric dysmotility includes delayed gastric emptying (gastroparesis), rapid gastric emptying (as seen in dumping syndrome), and other motor dysfunctions such as impaired fundic distention most commonly found in functional dyspepsia. The importance of gastric dysrhythmias has not been clearly defined. Disorders of gastric motility may present with a spectrum of symptoms of variable severity. This technical review systematically assesses the clinical research literature and formulates recommendations for the diagnosis and management of patients with gastroparesis. The published peer-reviewed literature on gastroparesis was searched on PubMed using the key words gastroparesis, gastric motility, and gastric dysmotility. Referenced articles from published manuscripts, book chapters, and recent abstracts from national and international meetings were included in this review.

Symptoms and Clinical Presentation of Gastroparesis

Gastroparesis is a symptomatic chronic disorder of the stomach characterized by delayed gastric emptying in the absence of mechanical obstruction. Symptoms of gastroparesis are variable and include early satiety, nausea, vomiting, bloating, and upper abdominal discomfort. In 146 patients with gastroparesis, nausea was present in 92%, vomiting in 84%, abdominal bloating in 75%, and early satiety in 60%.[1] Complications of gastroparesis may contribute to patient morbidity and include esophagitis, Mallory–Weiss tear, and vegetable-laden bezoars.[2,3]

Symptoms of gastroparesis are nonspecific and may mimic structural disorders such as ulcer disease, partial gastric or small bowel obstruction, gastric cancer, and pancreaticobiliary disorders.[2] There also is an overlap between the symptoms of gastroparesis and functional dyspepsia. Functional dyspepsia is characterized by chronic or recurrent upper abdominal discomfort; however, many individuals report symptoms of dysmotility, including nausea, vomiting, and early satiety, and subsets of patients with functional dyspepsia exhibit delays in gastric emptying.[4,5] Indeed, idiopathic gastroparesis can be considered one of the causes of functional dyspepsia. Recently, a quantitative instrument for gastroparesis-related symptoms has been validated.[6]

Symptom correlation with delayed gastric emptying is variable for diabetic gastropathy, idiopathic gastroparesis, and functional dyspepsia.[7–9] In recent studies, early satiety, postprandial fullness, and vomiting have been reported to predict delayed emptying in patients with functional dyspepsia.[4,5] In patients with diabetes, abdominal fullness and bloating were found to predict delayed gastric emptying.[10] In some drug trials of prokinetic agents, the correlation between symptom improvement and acceleration of gastric emptying has been poor. In contrast, cisapride was reported to reduce epigastric pressure and bloating in association with improved emptying.[11] In individuals with symptoms of gastroparesis who have normal rates of gastric emptying, other motor, myoelectric, or sensory abnormalities may elicit symptoms.

Abdominal discomfort or pain is present in 46%–89% of patients with gastroparesis but is usually not the predominant symptom, in contrast to its prominence in functional dyspepsia.[1,12] Abdominal pain in gastroparesis responds poorly to treatment of gastroparesis.[12] Patients with functional dyspepsia exhibit heightened sensitivity to gastric distention suggestive of afferent neural dys-

Abbreviations used in this paper: CMV, cytomegalovirus; CNS, central nervous system; EGG, electrogastrography; FDA, Food and Drug Administration; GERD, gastroesophageal reflux disease; MMC, migrating motor complex.

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Diseases of the Colon & Rectum

Practice Parameters

Practice Parameters for the Evaluation and Management of Constipation

Charles A. Ternent, M.D., Amir L. Bastawrous, M.D., Nancy A. Morin, M.D., C. Neal Ellis, M.D., Neil H. Hyman, M.D., W. Donald Buie, M.D., and The Standards Practice Task Force of The American Society of Colon and Rectal Surgeons

The American Society of Colon and Rectal Surgeons is dedicated to ensuring high-quality patient care by advancing the science, prevention, and management of disorders and diseases of the colon, rectum, and anus. The Standards Committee is composed of Society members who are chosen because they have demonstrated expertise in the specialty of colon and rectal surgery. This Committee was created to lead international efforts in defining quality care for conditions related to the colon, rectum, and anus. This is accompanied by developing Clinical Practice Guidelines based on the best available evidence. These guidelines are inclusive, and not prescriptive. Their purpose is to provide information on which decisions can be made, rather than dictate a specific form of treatment. These guidelines are intended for the use of all practitioners, health care workers, and patients who desire information about the management of the conditions addressed by the topics covered in these guidelines.

It should be recognized that these guidelines should not be deemed inclusive of all proper methods of care or exclusive of methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding the propriety of any specific procedure must be made by the physician in light of all of the circumstances presented by the individual patient.

METHODOLOGY

An organized search of MEDLINE, PubMed, and the Cochrane Database of Collected Reviews was performed through October 2006. Key-word combinations included constipation, obstructed defecation, slow transit, surgery, rectocele, rectal intussuception, pelvic dyssynergia, anismus, paradoxical puborectalis, and related articles. Directed searches of the embedded references from the primary articles also were accomplished in selected circumstances.

STATEMENT OF THE PROBLEM

Constipation is a symptom-based disorder of unsatisfactory defecation that may be associated with infrequent stools, difficult stool passage, or both.[1] The diagnostic criteria for functional constipation according to the Rome III consensus include two or more of the following symptoms: straining, lumpy or hard stools, sensation of incomplete evacuation, sensation of anorectal obstruction, and manual maneuvers to facilitate defecation more than 25 percent of the

Reprints are not available.

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Published online: 31 July 2007

Cigna Medical Coverage Policy

Subject **Wireless Gastrointestinal Motility Monitoring System (SmartPill®)**

Effective Date **5/15/2012**
Next Review Date **5/15/2013**
Coverage Policy Number **0490**

Table of Contents

Hyperlink to Related Coverage Policies

Capsule Endoscopy
Gastric Pacing/Gastric Electrical Stimulation (GES)

INSTRUCTIONS FOR USE
*The following Coverage Policy applies to health benefit plans administered by Cigna companies including plans formerly administered by Great-West Healthcare, which is now a part of Cigna. Coverage Policies are intended to provide guidance in interpreting certain **standard** Cigna benefit plans. Please note, the terms of a customer's particular benefit plan document [Group Service Agreement, Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a customer's benefit plan document **always supercedes** the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. In certain markets, delegated vendor guidelines may be used to support medical necessity and other coverage determinations. Proprietary information of Cigna. Copyright ©2012 Cigna*

Coverage Policy

Cigna does not cover the use of a wireless gastrointestinal motility monitoring system (e.g., SmartPill®) for any indication because it is considered experimental, investigational or unproven.

General Background

Gastrointestinal (GI) motility is defined by the movements of the digestive system, and the transit of the contents within it. When nerves or muscles in any portion of the digestive tract do not function with their normal strength and coordination, a person develops symptoms related to motility problems. Tests of GI motility allow the assessment and identification of abnormal patterns and physiology. For each area of the GI tract, there are different GI motility tests that assess different functions and provide different types of information. Diagnostic testing typically begins with defining intestinal tract anatomy. The presence of structural problems are generally ruled out before proceeding to studies that evaluate GI tract functioning.

The SmartPill Gastrointestinal (GI) Monitoring System® (The SmartPill Corporation, Buffalo, NY) has been proposed as an alternative testing method for the diagnosis of gastric conditions and intestinal motility disorders such as gastroparesis and chronic constipation. The system records pH and pressure measurements from the entire length of the gastrointestinal tract for use by physicians to aid in the evaluation of gastrointestinal motility diseases and conditions. Sensors on board an ingestible capsule measure pH and pressure as the capsule travels the length of the GI tract. Measurements are transmitted from the capsule within the GI tract via radiofrequency signal to a patient worn receiver and subsequently downloaded for analysis and review. Next, software performs data analyses providing the physician with a printable report containing regional gut transit

Medical Policy

Subject:	Wireless Capsule for the Evaluation of Suspected Gastric and Intestinal Motility Disorders		
Policy #:	MED.00090	**Current Effective Date:**	10/09/2012
Status:	Reviewed	**Last Review Date:**	08/09/2012

Description/Scope

A wireless capsule for the evaluation of suspected gastric and intestinal motility disorders, the SmartPill GI Monitoring System® (SmartPill Corporation, Buffalo, NY) was designed to measure pH, temperature and pressure throughout the gastrointestinal tract. The measurements are transmitted via radio signals to an external recording device. In the stomach, the SmartPill has been used to assess gastric emptying in individuals with suspected gastroparesis. In the intestine, the SmartPill has been used to assess small and large bowel transit times in those with chronic constipation or other motility disorders. The device is also referred to in this document as a wireless motility capsule.

Note: Please see the following related documents for additional information:

- RAD.00030 Wireless Capsule Endoscopy for Esophageal and Small Bowel Imaging and the Patency Capsule

Position Statement

Investigational and Not Medically Necessary:

A wireless capsule for the evaluation of suspected gastric motility disorders (SmartPill GI Monitoring System) is considered **investigational and not medically necessary** for all conditions.

A wireless capsule for the evaluation of suspected intestinal motility disorders (SmartPill GI Monitoring System) is considered **investigational and not medically necessary** for all conditions.

Rationale

Wireless Motility Capsule for the Evaluation of Suspected Gastroparesis

The American Gastroenterological Association (AGA) (2004) has identified gastric emptying scintigraphy (GES) of a solid-phase meal as the gold standard for the diagnosis of gastroparesis. Scintigraphy studies involve the ingestion of a radiolabeled meal followed by serial images to identify the percentage of the meal retained at 2 and 4 hours. In contrast, the wireless motility capsule estimates the gastric emptying time (GET) based on the time from ingestion to an abrupt rise in the pH, signifying that the capsule has passed from the acid environment of the stomach to the alkaline duodenum. Validation of the wireless motility capsule as an alternative to scintigraphic gastric emptying studies requires directly comparative studies of individuals with a variety of symptoms which are interpreted in a blinded fashion.

Kuo and colleagues (2008) enrolled 87 healthy subjects and 61 with known gastroparesis who simultaneously ingested the wireless capsule and a radiolabeled meal, permitting a

2013 Genetic Testing CPT code review

81201-81203

1) Familial adenomatosis polyposis gene testing
2) Similar Prioritized List placements:
    a. Testing for Lynch syndrome (hereditary nonpolyposis colon cancer) (CPT 81292-81294) is covered as per National Comprehensive Cancer Network (NCCN) guidelines
3) **National Comprehensive Cancer Network (NCCN)** screening guideline for colon cancer
    a. Recommends screening for FAP in certain clinical situations.
4) Recommendation
    a. **Diagnostic** List
    b. See recommended changes to the Non-Prenatal Genetic Testing Guideline

81235

1) EGFR (epidermal growth factor receptor) testing
2) Used for predicting patient response to first-line therapy with EGFR tyrosine kinase inhibitors (TKIs; erlotinib or gefitinib) for patients with advanced non– small-cell lung cancer (NSCLC)
3) **American Society for Clinical Oncology (2011)** opinion
    a. "On the basis of the results of five phase III randomized controlled trials, patients with NSCLC who are being considered for first-line therapy with an EGFR TKI (patients who have not previously received chemotherapy or an EGFR TKI) should have their tumor tested for EGFR mutations to determine whether an EGFR TKI or chemotherapy is the appropriate first-line therapy."
4) Recommendation:
    a. **Diagnostic** List
    b. See recommended changes to the Non-Prenatal Genetic Testing Guideline

81252-81254

1) GJB2 (gap junction protein beta 2) for nonsyndromic hearing loss
2) DFNB1 nonsyndromic hearing loss and deafness is an inherited condition in which a person has mild to severe hearing loss from birth. It is caused by mutations in GJB2 (which encodes the protein connexin 26). The condition is not progressive and has no other symptoms or systems of the body involved with the disease. Unlike some other forms of hearing loss, DFNB1 nonsyndromic hearing loss and deafness does not affect balance. Roughly 1 in 33 people are carriers of the mutation that causes the condition.

3) Diagnosis with gene mutation does not appear to affect treatment, screening, or prognosis. Testing might be done for family planning purposes.
4) **Smith and Camp 2011**
    a. When the mutations causing DFNB1 are detected in one family member, carrier testing for at-risk family members and prenatal testing for at-risk pregnancies are possible
    b. *Testing of relatives at risk:* If both deafness-causing mutations have been identified in an affected family member, molecular genetic testing can clarify the genetic status of a child who may have DFNB1 so that appropriate early support and management can be provided.
5) Recommendation
    a. **Diagnostic** List
        i. Provides genetic counseling information
        ii. May affect management of at-risk children

81321-81323

1) PTEN (phosphatase and tensin homolog) for Cowden syndrome
2) Cowden syndrome results in various cancers (thyroid, breast, colon, skin, endometrial, other)
3) **National Comprehensive Cancer Network (NCCN) 2012**
    a. Recommends testing relatives
    b. Has screening recommendations for various types of cancer for those with known PTEN mutation
4) Recommendation
    a. **Diagnostic** List
    b. See recommended changes to the Non-Prenatal Genetic Testing Guideline

81323-81326

1) PMP22 (peripheral myelin protein 22) for Charcot-Marie Tooth
2) Charcot-Marie-Tooth neuropathy type 1 (CMT1) is a demyelinating peripheral neuropathy characterized by distal muscle weakness and atrophy, sensory loss, and slow nerve conduction velocity. It is usually slowly progressive and often associated with pes cavus foot deformity and bilateral foot drop. Affected individuals usually become symptomatic between age five and 25 years. Life span is not shortened. CMT1A (70%-80% of all CMT1) involves duplication of *PMP22*.
3) **Bird 2012**
    a. Genetic testing useful for diagnosis and for genetic counseling
4) Recommendation
    a. **Diagnostic** List

GAC Recommended Changes to the Diagnostic Guideline D1, Non-Prenatal Genetic Testing Guideline
December 13, 2012

Issues:

1) The Non-Prenatal Genetic Testing Algorithm has modifications suggested by the Genetics Advisory Committee. These suggestions have arisen out of the review of the 2013 CPT codes regarding specific genetic tests.

Recommendations:

1) Adopt the amended Diagnostic Guideline 1 as below

DIAGNOSTIC GUIDELINE D1, NON-PRENATAL GENETIC TESTING GUIDELINE

Coverage of genetic testing in a non-prenatal setting shall be determined by the algorithm shown in Figure C.1 unless otherwise specified below.

A) Related to genetic testing for patients with breast/ovarian and colon/endometrial cancer suspected to be hereditary, or patients at increased risk to due to family history.

1) Services are provided according to the Comprehensive Cancer Network Guidelines.

a) Lynch syndrome (hereditary colorectal and endometrial cancer) services (CPT 81292-81300, 81317-81319) and familial adenomatous polyposis (FAP) services (CPT 81201-81203) should be provided as defined by the NCCN Clinical Practice Guidelines in Oncology. Colorectal Cancer Screening. V.2.201~~1~~2 (~~10/22/10~~ 4/27/12). ***www.nccn.org***

b) BRCA1/BRCA2 testing services (CPT 81211-81217) for women without a personal history of breast and/or ovarian cancer should be provided to high risk women as defined in **GUIDELINE NOTE 3, PROPHYLACTIC TREATMENT FOR PREVENTION OF BREAST CANCER IN HIGH RISK WOMEN** or as otherwise defined by the US Preventive Services Task Force

c) BRCA1/BRCA2 testing services (CPT 81211-81217) for women with a personal history of breast and/or ovarian cancer and for men with breast cancer should be provided according to the NCCN Clinical Practice Guidelines in Oncology. Genetic/Familial High-Risk Assessment: Breast and Ovarian. V.1.2011 (4/7/11). ***www.nccn.org***

d) PTEN (Cowden syndrome) services (CPT 81321-81323) should be provided as defined by the NCCN Clinical Practice Guidelines in Oncology. Colorectal Cancer Screening. V.1.2012 (5/2/12). ***www.nccn.org***

2) Genetic counseling should precede genetic testing for hereditary cancer. Very rarely, it may be appropriate for a genetic test to be performed prior to genetic counseling for a patient with cancer. If this is done, genetic counseling should be provided as soon as practical.

a) Pre and post-test genetic counseling by the following providers should be covered.

i) Medical Geneticist (M.D.) - Board Certified or Active Candidate Status from the American Board of Medical Genetics

ii) Clinical Geneticist (Ph.D.) - Board Certified or Active Candidate Status from the American Board of Medical Genetics.

iii) Genetic Counselor - Board Certified or Active Candidate Status from the American Board of Genetic Counseling, or Board Certified by the American Board of Medical Genetics.

iv) Advance Practice Nurse in Genetics - Credential from the Genetic Nursing Credentialing Commission.

3) If the mutation in the family is known, only the test for that mutation is covered. For example, if a mutation for BRCA 1 has been identified in a family, a single site mutation analysis for that mutation is covered (CPT 81215), while a full sequence BRCA 1 and 2 (CPT 81211) analyses is not. There is one exception, for individuals of Ashkenazi Jewish ancestry with a known mutation in the family, the panel for Ashkenazi Jewish BRCA mutations is covered (CPT 81212).

4) Costs for rush genetic testing for hereditary breast/ovarian and colon/endometrial cancer is not covered.

B) Related to diagnostic evaluation of individuals with intellectual disability (defined as a full scale or verbal IQ < 70 in an individual > age 5), developmental delay (defined as a cognitive index <70 on a standardized test appropriate for children < 5 years of age), Autism Spectrum Disorder, or multiple congenital anomalies:

1) CPT 81228, Cytogenomic constitutional (genome-wide) microarray analysis; interrogation of genomic regions for copy number variants (eg, Bacterial Artificial Chromosome [BAC] or oligo-based comparative genomic hybridization [CGH] microarray analysis): Cover for diagnostic evaluation of individuals with intellectual disability/developmental delay; multiple congenital anomalies; or, Autism Spectrum Disorder accompanied by at least one of the following: dysmorphic features including macro or microcephaly, congenital anomalies, or intellectual disability/developmental delay in addition to those required to diagnose Autism Spectrum Disorder.
2) CPT 81229, Cytogenomic constitutional (genome-wide) microarray analysis; interrogation of genomic regions for copy number and single nucleotide polymorphism (SNP) variants for chromosomal abnormalities: Cover for diagnostic evaluation of individuals with intellectual disability/developmental delay; multiple congenital anomalies; or, Autism Spectrum Disorder accompanied by at least one of the following: dysmorphic features including macro or microcephaly, congenital anomalies, or intellectual disability/developmental delay in addition to those required to diagnose Autism Spectrum Disorder; ONLY IF consanguinity AND recessive disease is suspected, OR UPD (uniparental disomy) is suspected, OR other suspected mechanism that is not detected by the oligo microarrays (CPT 81228).
3) Array-based evaluation of multiple molecular probes (CPT 88384-88386) will be covered for diagnostic evaluation of individuals with intellectual disability/developmental delay; multiple congenital anomalies; or, Autism Spectrum Disorder for 2012.
4) CPT 81243, 81244, Fragile X genetic testing is covered for individuals with intellectual disability/developmental delay. Although the yield of Fragile X is 3.5-10%, this is included because of additional reproductive implications.
5) A visit with the appropriate specialist (often genetics, developmental pediatrics, or child neurology), including physical exam, medical history, and family history is covered. Physical exam, medical history, and family history by the appropriate specialist, prior to any genetic testing is often the most cost-effective strategy and is encouraged.

C) Related to other tests with specific CPT codes:

1). The following tests are not covered:

a. CPT 81225, CYP2C9 (cytochrome P450, family 2, subfamily C, polypeptide 9) (eg, drug metabolism), gene analysis, common variants (eg, *2, *3, *5, *6)
b. 81226, CYP2D6 (cytochrome P450, family 2, subfamily D, polypeptide 6) (eg, drug metabolism), gene analysis, common variants (eg, *2, *3, *4, *5, *6, *9, *10, *17, *19, *29, *35, *41, *1XN, *2XN, *4XN).
c. CPT 81227, CYP2C9 (cytochrome P450, family 2, subfamily C, polypeptide 9) (eg, drug metabolism), gene analysis, common variants (eg, *2, *3, *5, *6)
d. CPT 81291, MTHFR (5,10-methylenetetrahydrofolate reductase) (eg, hereditary hypercoagulability) gene analysis, common variants (eg, 677T, 1298C)
e. 81330, SMPD1(sphingomyelin phosphodiesterase 1, acid lysosomal) (eg, Niemann-Pick disease, Type A) gene analysis, common variants (eg, R496L, L302P, fsP330)
f. 81350, UGT1A1 (UDP glucuronosyltransferase 1 family, polypeptide A1) (eg, irinotecan metabolism), gene analysis, common variants (eg, *28, *36, *37)
g. CPT 81355, VKORC1 (vitamin K epoxide reductase complex, subunit 1) (eg, warfarin metabolism), gene analysis, common variants (eg, -1639/3673)

2) The following tests are covered only if they meet the criteria for the Non-Prenatal Genetic Testing Algorithm AND the specified situations:

a. CPT 81205, BCKDHB (branched-chain keto acid dehydrogenase E1, beta polypeptide) (eg, Maple syrup urine disease) gene analysis, common variants (eg, R183P, G278S, E422X): Cover only when the newborn screening test is abnormal and serum amino acids are normal
b. CPT 81223, CFTR (cystic fibrosis transmembrane conductance regulator) (eg, cystic fibrosis) gene analysis; full gene sequence: covered for patients who are symptomatic or who have positive newborn screening for CF AND genetic testing for common mutations is negative AND if the patients ethnicity has <90% coverage by common mutation panels.
c. CPT 81224, CFTR (cystic fibrosis transmembrane conductance regulator) (eg, cystic fibrosis) gene analysis; intron 8 poly-T analysis (eg, male infertility): Covered only after genetic counseling.

d. CPT 81235 (EGFR (epidermal growth factor receptor) (eg, non-small cell lung cancer) gene analysis, common variant): covered for patients with advanced non-small cell lung cancer who are being considered for first-line therapy with an EGFR tyrosine kinase inhibitor (TKI) (patients who have not previously received chemotherapy or an EGFR TKI)

e. CPT 81240, F2 (prothrombin, coagulation factor II) (eg, hereditary hypercoagulability) gene analysis, 20210G>A variant: Not covered for routine testing in the following circumstances: (1) adults with idiopathic venous thromboembolism. (2) Asymptomatic adult family members of patients with idiopathic venous thromboembolism and F5 mutation, for the purpose of considering primary prophylactic anticoagulation. Test may have clinical utility in other circumstances, e.g. family history of coagulopathy, deciding short range anticoagulation therapy, problems with anticoagulation therapy management, muliptle pregnancy losses.

f. CPT 81241, F5 (coagulation Factor V) (eg, hereditary hypercoagulability) gene analysis, Leiden variant: Not covered for routine testing in the following circumstances: (1) adults with idiopathic venous thromboembolism. (2) Asymptomatic adult family members of patients with idiopathic venous thromboembolism and F5 mutation, for the purpose of considering primary prophylactic anticoagulation. Test may have clinical utility in other circumstances, e.g. family history of coagulopathy, deciding short range anticoagulation therapy, problems with anticoagulation therapy management, muliptle pregnancy losses.

g. CPT 81256, HFE (hemochromatosis) (eg, hereditary hemochromatosis) gene analysis, common variants (eg, C282Y, H63D): Covered for diagnostic testing of patients with elevated transferrin saturation or ferritin levels. Covered for predictive testing ONLY when a first degree family member has treatable iron overload from HFE.

h. 81332 SERPINA1 (serpin peptidase inhibitor, clade A, alpha-1 antiproteinase, antitrypsin, member 1) (eg, alpha-1-antitrypsin deficiency), gene analysis, common variants (eg, *S and *Z): The alpha-1-antitrypsin protein level should be the first line test ofr a suspected diagnosis of AAT deficiency in symptomatic individuals with unexplained liver disease or obstructive lung disease that is not asthma or in a middle age individual with unexplained dyspnea. Generic testing or the anpha-1 phenotype test is appropriate is the protein test is abnormal or borderline. The genetic test is appropriate for siblings of people with AAT deficiency regardless of the AAT protein test results.

3) Do not cover a more expensive genetic test (generally one with a wider scope or more detailed testing) if a cheaper (smaller scope) test is available and has, in this clinical context, a substantially similar sensitivity. For example, do not cover CFTR gene sequencing as the first test in a person of Northern European Caucasian ancestry because the gene panels are less expensive and provide substantially similar sensitivity in that context.

National Comprehensive Cancer Network®

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

Colorectal Cancer Screening

Version 2.2012

NCCN.org

Continue

NCCN Guidelines Version 2.2012 Updates Colorectal Cancer Screening

NCCN Guidelines Index
Colorectal Screening TOC
Discussion

Updates to the 2.2012 version of the Colorectal Cancer Screening Guidelines from the 1.2012 version include:

- **The addition of the discussion to reflect the changes in the algorithm (MS-1).**

Updates in Version 1.2012 of the Colorectal Cancer Screening Guidelines from Version 2.2011 include:

CSCR-1

- Footnote was removed from the page: "A negative family history is not having a first-degree relative or two second-degree relatives with colorectal cancer (advanced adenoma) or multiple cases of Lynch syndrome/HNPCC-related cancers in the family."

CSCR-2

- Evaluation of positive screening findings, qualifiers were added after hyperplastic, "left-sided, non SSP, and <1 cm."
- Footnotes
  - Footnote "d" was added: "There is direct evidence from randomized controlled trials that fecal occult blood testing (Mandel JS, et al. NEJM 1993: 328:1365-1371; Hardcastle JD, et al. Lancet 1996; 348: 1472-77; Kronborg O, et al. Lancet 1996; 348: 1467-71) and flexible sigmoidoscopy (Atkin WS, et al. Lancet 2010; 375:1624-33) will reduce mortality from colorectal cancer. Given the available evidence from case control and cohort studies, however, it is the consensus opinion of the panel that colonoscopy should be the preferred method of screening, due to its potential ability to prevent colorectal cancer (with its associated morbidity), and cancer deaths (Kahi CJ, et al. Clin Gastro Hep 2009;7:710-715; Baxter NN, et al. Ann Intern Med. 2009;150:1-8)."
  - Footnote "f" was modified as: "If colonoscopy is incomplete *or preparation is suboptimal*, consider other screening modality..."
  - Footnote "j" was added: "There is controversy over whether SSP should be called "sessile serrated adenomas." These terms are equivalent and these guidelines will use "SSPs." However, any serrated lesions in the proximal colon should be followed similarly to adenomatous polyps."

CSCR-3

- Footnote "m" was added: "Shorter intervals may be necessary when there is uncertainty about completeness of removal in large and/or sessile polyps. Shorter intervals may be necessary if the colonic preparation was suboptimal."
- Footnote "n" was added: "The decision to choose a 5- or 10-year interval after a low-risk exam is a patient-specific one. The factors that can be taken into account to formulate this decision include: adequacy of the preparation and other technical considerations, the results of the prior examinations, and the presence of other co-morbid conditions. Generally the results of the first two screening examinations may predict the patient's overall colon cancer risk. (USPSTF, Screening for colorectal cancer: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2008;149:627-637)."

CSCR-4

- Footnote "p" was modified as: "Expert opinion supports repeat evaluation *every 6 mo x 5 y for patients' status post LAR* ~~every 3-6 months for the first 2-3 years of surveillance~~."

CSCR-5

- Initiation of screening was modified as, "8-10 y after onset of symptoms *of pancolitis*" and "*12 y after onset of left-sided colitis.*"
- Evaluation of positive screening findings, "Sporadic colorectal adenoma" was added with corresponding footnote "u," "Patients with ulcerative colitis develop sporadic colorectal adenomas at the same rate as the general population. Lesions that appear endoscopically and histologically similar to a sporadic adenoma, with no dysplasia in the flat mucosa in the surrounding area or elsewhere in the colon and without invasive carcinoma in the polyp, can be treated safely by polypectomy and continuous surveillance."
- Footnotes
  - Footnote "s," "Winawer S, Fletcher R, Rex D, et al. Gastroenterology 2003;124:544-560" was replaced with "Levin B, Lieberman DA, McFarland B, et al. Screening and surveillance for the early detection of colorectal cancer and adenomatous polyps, 2008: a joint guideline from the American Cancer Society, the US Multi-Society Task Force on Colorectal Cancer, and the American College of Radiology..."
  - Footnote "t" was added: "Biopsies can be better targeted to abnormal-appearing mucosa using chromoendoscopy, narrow-band imaging, autofluorescence, or confocal endomicroscopy. Targeted biopsies have been found to improve detection of dysplasia, and should be considered for surveillance colonoscopies in patients with ulcerative colitis."

CSCR-6

- "Increased risk based on positive family history" has been extensively revised.

Continued on next page

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

NCCN Guidelines Version 2.2012 Updates Colorectal Cancer Screening

NCCN Guidelines Index
Colorectal Screening TOC
Discussion

Updates in Version 1.2012 of the Colorectal Cancer Screening Guidelines from Version 2.2011 include:

CSCR-A 2 of 4
- 1st bullet was modified as: "*In the US*, colonoscopy is the primary method employed for colorectal cancer screening..."

CSCR-A 3 of 4
- FIT, 3rd bullet was modified from "Requires single stool annually" to "Many brands require only a single stool annually."
- Footnote "9" was added: "There is category 1 data that guaiac-based FOBT and flexible sigmoidoscopy reduce mortality from colorectal cancer."

CSCR-A 4 of 4
- Footnote "12" was modified by adding: "However, the data available suggests that if CT colonography is negative/no polyps, then repeat CT colonography in 5 years and if CT colonography is positive/polyps lesions *>5 mm*, colonoscopy should be performed."

Lynch Syndrome

LS-1
- Footnote "a" was modified by adding: "An infrastructure needs to be in place to handle the screening results."

LS-2
- Surveillance
  - Endometrial and ovarian cancer,
    - 2nd sub-bullet was modified from "Perform patient education which would include recommending prompt response to endometrial cancer symptoms" to "Patients must be aware that dysfunctional uterine bleeding warrants evaluation."
    - 3rd sub-bullet was modified as: "However, annual office endometrial sampling *is an option* ~~may be useful in select patients~~."
    - 4th sub-bullet has been modified as: "Transvaginal ultrasound for ovarian and endometrial cancer *has not been shown to be sufficiently sensitive or specific as to support a positive recommendation, but* may be considered at the clinician's discretion."
  - Gastric and small bowel cancer, sub-bullet was added, "There is no clear evidence to support screening for gastric and small bowel cancer for LS, may consider:" and the following was removed, "Preliminary data suggests other screening may be considered as follows: Baseline gastric biopsies to evaluate for chronic inflammation, atrophic gastropathy, and intestinal metaplasia and consider shorter screening intervals in persons with extensive histological change and longer intervals in persons with normal histology. Evaluate for H. pylori on the biopsies and by serology and treat those with evidence of infection. Consider enteroscopy at the time of EGD to evaluate the distal duodenum and jejunum."
  - Urothelial cancer was revised as: "Consider annual urinalysis starting at 25-30 y."
  - Central nervous system cancer was revised as: "Annual physical examination starting at 25-30 y."
- Footnote
  - Footnote "h" was added: "Since the average age of colon cancer onset for *MSH6* or *PMS2* mutation carriers is somewhat older than for *MLH1* and *MSH2* mutation carriers...depending on ages of cancers observed in family members."

LS-A 1 of 2
- Immunohistochemistry, 2nd bullet, 3rd sentence was changed from, "Genetic testing of peripheral blood DNA to find a disease causing mutation of one of the mismatch repair genes should then be done." to "Individuals with abnormal IHC or MSI results should preferably be referred for genetic counseling so that the appropriate follow-up testing can be offered to the patient. In some cases, this would include testing for abnormal methylation of the MLH1 promoter and in others, it would include germline genetic testing of one or more of the mismatch repair genes."

LS-A 2 of 2
- For the gene known as TACSTD1, "EPCAM" was added as an alternative name.

LS-B
- 2nd bullet was clarified as: "Presence of synchronous, or metachronous, *colorectal or other* Lynch syndrome-associated tumors, regardless of age."

LS-D
- The table has been updated.

Continued on next page

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

JOURNAL OF CLINICAL ONCOLOGY ASCO SPECIAL ARTICLE

American Society of Clinical Oncology Provisional Clinical Opinion: Epidermal Growth Factor Receptor (*EGFR*) Mutation Testing for Patients With Advanced Non–Small-Cell Lung Cancer Considering First-Line EGFR Tyrosine Kinase Inhibitor Therapy

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ABSTRACT

Purpose
An American Society of Clinical Oncology (ASCO) provisional clinical opinion (PCO) offers timely clinical direction to ASCO's membership following publication or presentation of potentially practice-changing data from major studies. This PCO addresses the clinical utility of using epidermal growth factor receptor (*EGFR*) mutation testing for patients with advanced non–small-cell lung cancer (NSCLC) to predict the benefit of taking a first-line EGFR tyrosine kinase inhibitor (TKI).

Clinical Context
Patients with *EGFR*-mutated NSCLC have a significantly higher rate of partial responses to the EGFR TKIs gefitinib and erlotinib. In the United States, approximately 15% of patients with adenocarcinoma of the lung harbor activating *EGFR* mutations. *EGFR* mutation testing is widespread at academic medical centers and in some locales in community practice. As of yet, there is no evidence of an overall survival (OS) benefit from selecting treatment based on performing this testing.

Recent Data
One large phase III trial (the Iressa Pan-Asia Study [IPASS] trial), three smaller phase III randomized controlled trials using progression-free survival as the primary end point, and one small phase III trial with OS as the primary end point, all involving first-line EGFR TKIs and chemotherapy doublets, form the basis of this PCO.

Provisional Clinical Opinion
On the basis of the results of five phase III randomized controlled trials, patients with NSCLC who are being considered for first-line therapy with an EGFR TKI (patients who have not previously received chemotherapy or an EGFR TKI) should have their tumor tested for* EGFR *mutations to determine whether an EGFR TKI or chemotherapy is the appropriate first-line therapy.

NOTE. ASCO's provisional clinical opinions (PCOs) reflect expert consensus based on clinical evidence and literature available at the time they are written and are intended to assist physicians in clinical decision making and identify questions and settings for further research. Because of the rapid flow of scientific information in oncology, new evidence may have emerged since the time a PCO was submitted for publication. PCOs are not continually updated and may not reflect the most recent evidence. PCOs cannot account for individual variation among patients and cannot be considered inclusive of all proper methods of care or exclusive of other treatments. It is the responsibility of the treating physician or other health care provider, relying on independent experience and knowledge of the patient, to determine the best course of treatment for the patient. Accordingly, adherence to any PCO is voluntary, with the ultimate determination regarding its application to be made by the physician in light of each patient's individual circumstances. ASCO PCOs describe the use of procedures and therapies in clinical practice and cannot be assumed to apply to the use of these interventions in the context of clinical trials. ASCO assumes no responsibility for any injury or damage to persons or property arising out of or related to any use of ASCO's PCOs, or for any errors or omissions.

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Nonsyndromic Hearing Loss and Deafness, DFNB1

Includes: *GJB2*-Related DFNB 1 Nonsyndromic Hearing Loss and Deafness, *GJB6*-Related DFNB 1 Nonsyndromic Hearing Loss and Deafness

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Summary

Disease characteristics. Nonsyndromic hearing loss and deafness (DFNB1) is characterized by congenital, non-progressive, mild-to-profound sensorineural hearing impairment. No other associated medical findings are present.

Diagnosis/testing. Diagnosis of DFNB1 depends on molecular genetic testing to identify deafness-causing mutations in *GJB2* and/or *GJB6* that alter the gap junction beta-2 protein (connexin 26) and the gap junction beta-6 protein (connexin 30), respectively. Clinically available molecular genetic testing of *GJB2* and *GJB6* detects more than 99% of deafness-causing mutations in these genes.

Management.*Treatment of manifestations:* Hearing aids; enrollment in appropriate educational programs; cochlear implantation may be considered for individuals with profound deafness.

Surveillance: Surveillance includes annual examinations and repeat audiometry to confirm stability of hearing loss.

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NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

Genetic/Familial High-Risk Assessment: Breast and Ovarian

Version 1.2012

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NCCN Guidelines Version 1.2012 Updates
Genetic/Familial High-Risk Assessment: Breast and Ovarian

NCCN Guidelines Index
Genetics Table of Contents
Discussion

Updates in Version 1.2012 of the NCCN Genetic/Familial High-Risk Assessment: Breast and Ovarian Guidelines from Version 1.2011 include:

Genetic/Familial High-Risk Assessment:

BR/OV-1

- Heading was modified as: "Criteria for Further *Genetic* Risk Evaluation."
- Bullets containing "ovarian/fallopian tube/primary peritoneal cancer" were revised to "ovarian cancer" with a corresponding footnote, "For the purposes of these guidelines, fallopian tube and primary peritoneal cancers are included." (Also for Hereditary Breast and Ovarian Cancer.)
- An affected individual,
  - 4th bullet, breast cancer at any age, the following bullet was added: "From a population at increased risk."
  - 5th bullet was modified as: "...diffuse gastric cancer, dermatologic manifestations *and/or macrocephaly*, or leukemia/lymphoma... *(especially if early onset)*." (Also for unaffected individual.)
- An unaffected individual,
  - 1st bullet was modified as: "≥ 2 breast primaries, *either in 1 individual or 2 different individuals* from the same side..."
  - 3rd bullet was added: "First- or second-degree relative with breast cancer ≤ 45 y."
  - Bullet was removed: "From a population at risk" and footnote "f" was modified and added to the heading, "For populations at *increased* risk, requirements for inclusion..."
- Footnotes,
  - Footnote "c" was modified as: "Two breast primaries *includes* ~~including~~ bilateral *(contralateral)* disease or ~~cases where there are~~ two or more clearly separate ipsilateral primary tumors *either synchronously or asynchronously*." (Also for footnote "g" on HBOC-1.)
  - Footnote"g" was modified as: "For lobular breast cancer ~~and~~ *with a family history of* diffuse gastric cancer, CDH1 gene testing *should* ~~can~~ be considered."

BR/OV-2

- Detailed family history,
  - 6th bullet was modified as: "Medical record documentation *as needed*, particularly pathology reports of primary cancers."
- Detailed medical and surgical history,
  - 6th bullet was added:"History of salpingo-oophorectomy."

Hereditary Breast and Ovarian Cancer:

HBOC-1

- A personal history of breast cancer + one or more of the following,
  - 7th subbullet was added: "Diagnosed at any age with ≥ 2 close blood relatives with pancreatic cancer at any age."
  - Subbullet was removed: "Personal history of epithelial ovarian/fallopian tube/primary peritoneal cancer."
- Family history only,
  - Text from a footnote was added as a statement under family history: "Testing of unaffected family members should only be considered when no affected family member is available and then the unaffected family member with the highest probability of mutation should be tested. Significant limitations of interpreting test results should be discussed."
- Footnotes,
  - Footnote "a" has been modified as: "...syndrome that warrants further ~~professional evaluation~~ *personalized risk assessment, genetic counseling and management.*"
  - Footnote "b" has been modified as: "...samples due to *unreliable test results from* contamination by donor DNA. *If available*, DNA should be extracted from a fibroblast culture. *If this source of DNA is not possible, buccal samples can be considered, subject to the risk of donor DNA contamination.*"

HBOC-2

- No known familial BRCA1/BRCA2 mutation, the genetic testing recommendation was modified as: "Consider *comprehensive* testing *of an* affected family member with highest likelihood of *a* BRCA1/BRCA2 mutation."
- Footnotes,
  - Footnote "j" was changed from "Certain mutations (ie, large rearrangements) are not detectable by the primary sequencing assay and supplementary testing may be necessary," to "Comprehensive genetic testing includes full sequencing of BRCA1/BRCA2 and detection of large genomic rearrangements."
  - Footnote "p" was changed from "If individual affected with breast cancer is < 30 y, consider p53 gene testing especially if there is a family history of sarcoma, brain tumor, or adrenocortical carcinoma," to "If no mutation is found, consider other hereditary breast cancer syndromes such as Li-Fraumeni and/or Cowden syndrome."

HBOC-A 1 of 2

- HBOC management for women,
  - 6th bullet was modified as: "...CA-125 (preferably after day 5 of menstrual cycle in premenopausal women), every 6 mo starting at age *30 y* ~~35 y~~ or 5-10 y before the earliest age of first diagnosis of ovarian cancer in the family."

Continued on next page

Updates in Version 1.2012 of the NCCN Genetic/Familial High-Risk Assessment: Breast and Ovarian Guidelines from Version 1.2011 include:

Li-Fraumeni Syndrome:

LIFR-1

- Li-Fraumeni syndrome testing criteria,
  - Chompret criteria was revised to be consistent with the reference: Tinat J, Bougeard G, Baert-Desurmont S, et al. 2009 version of the Chompret criteria for Li Fraumeni syndrome. J Clin Oncol 2009;27:e108-9.
  - Early onset breast cancer criteria was revised as: "Individual with breast cancer < 30 y with a negative BRCA1/BRCA2 test ~~especially if there is a family history of sarcoma, brain tumor, adrenocortical carcinoma, or chorid plexus carcinoma.~~"
- Footnote "f" was added: "Patients who have received an allogeneic bone marrow transplant should not have molecular genetic testing via blood or buccal samples due to unreliable test results from contamination by donor DNA. If available, DNA should be extracted from a fibroblast culture. If this source of DNA is not possible, buccal samples can be considered, subject to the risk of donor DNA contamination." (Also for footnote "g" on COWD-1.)

LIFR-2

- No known familial TP53 mutation, the genetic testing recommendation was modified as: "Consider *comprehensive* testing *of an* affected family member with highest likelihood of a TP53 mutation" with a corresponding footnote, "Comprehensive genetic testing includes full sequencing of TP53 and deletion/duplication analysis."
- Footnote "j" was added: "If no mutation is found, consider other hereditary breast cancer syndromes such as HBOC and/or Cowden syndrome."

LIFR-A

- Breast cancer risk,
  - 3rd bullet was modified as: "Annual mammogram and~~/or~~ breast MRI screening..." with a corresponding footnote "For patients age 20-30 y, MRI only screening may be sufficient based on physician's discretion."
- Other cancer risks,
  - 3rd bullet was modified as: "Therapeutic RT for ~~breast~~ cancer should be used with caution."
  - 6th bullet was modified as: "Discuss option to participate in novel screening approaches using technologies within clinical trials when possible, such as *whole-body MRI*, ~~PET scan~~, abdominal ultrasound, and brain MRI."
- A bullet regarding reproductive options was added: "For couples expressing the desire that their offspring not carry a familial TP53 mutation, advise about options for prenatal diagnosis and assisted reproduction, including pre-implantation genetic diagnosis. Discussion should include known risks, limitations, and benefits of these technologies" with a corresponding footnote, "See Discussion for details."
- Footnote, "Some centers are evaluating novel imaging techniques as investigational tools" was removed.

Cowden Syndrome:

COWD-2

- For no known familial PTEN mutation, the genetic testing recommendation was modified as: "Consider *comprehensive* testing *of an* affected family member with highest likelihood of a PTEN mutation." with a corresponding footnote, "Comprehensive genetic testing should include full sequence analysis and deletion/duplication analyses, and promoter analysis."
- Footnote "j" was added: "If no mutation is found, consider other hereditary breast cancer syndromes such as HBOC and/or Li Fraumeni syndrome."

COWD-A

- A bullet regarding reproductive options was added: "For couples expressing the desire that their offspring not carry a familial PTEN mutation, advise about options for prenatal diagnosis and assisted reproduction, including pre-implantation genetic diagnosis. Discussion should include known risks, limitations, and benefits of these technologies" with a corresponding footnote, "See Discussion for details."

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

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Pagon RA, Bird TD, Dolan CR, et al., editors. GeneReviews™ [Internet]. Seattle (WA): University of Washington, Seattle; 1993-.

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Charcot-Marie-Tooth Neuropathy Type 1

Synonyms: CMT1, HMSN1, Hereditary Motor and Sensory Neuropathy 1

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Summary

Disease characteristics. Charcot-Marie-Tooth neuropathy type 1 (CMT1) is a demyelinating peripheral neuropathy characterized by distal muscle weakness and atrophy, sensory loss, and slow nerve conduction velocity. It is usually slowly progressive and often associated with pes cavus foot deformity and bilateral foot drop. Affected individuals usually become symptomatic between age five and 25 years. Fewer than 5% of individuals become wheelchair dependent. Life span is not shortened.

Diagnosis/testing. CMT1A (70%-80% of all CMT1) involves duplication of *PMP22*. CMT1B (6%-10% of all CMT1) is associated with point mutations in *MPZ*. CMT1C (1%-2% of all CMT1) is associated with mutations in *LITAF,* and CMT1D (<2% of all CMT1) is associated with mutations in *EGR2*. CMT1E (<5% of all CMT1) is associated with point mutations in *PMP22*. CMT2E/1F (<5% of all CMT1) is associated with mutations in *NEFL*. Molecular genetic testing is clinically available for all of these genes.

Management.*Treatment of manifestations:* Treatment by a multidisciplinary team including a neurologist, physiatrists, orthopedic surgeons, physical and occupational therapist; special shoes and/or ankle/foot orthoses to correct foot drop and aid walking; surgery as needed for severe pes cavus; forearm crutches, canes, wheelchairs as needed for mobility; exercise as tolerated.

Prevention of secondary complications: Daily heel cord stretching to prevent Achilles' tendon shortening.

Surveillance: Regular foot examination for pressure sores.

Agents/circumstances to avoid: Obesity (makes ambulation more difficult); medications (e.g., vincristine, isoniazid, nitrofurantoin) known to cause nerve damage.

Genetic counseling. CMT1 is inherited in an autosomal dominant manner. About two thirds of probands with CMT1A have inherited the disease-causing mutation; about one third have CMT1A as

New CPT Code	New Code Description	Crosswalk Old CPT Code	Proposed List/Line New Code	Comments
90785	Interactive complexity (List separately in addition to the code for primary procedure)	90802, 90810-90814	**MHCD Lines (5,9,27,32,68,107,133,180,209,212,222,269,295,305,316,334,390,398,400,412,417,419,425,431,437,445,457,462,469,471,474,481,483,487,488,496,500,508,518,521,544,546,562,569,576,588,608,609,660)**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562 **6** TOBACCO DEPENDENCE Treatment: MEDICAL THERAPY/BRIEF COUNSELING NOT TO EXCEED 10 FOLLOW-UP VISITS OVER 3 MONTHS **70** SUBSTANCE-INDUCED DELIRIUM **400** DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT **562** ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT **681** MENTAL DISORDERS WITH NO OR MINIMALLY EFFECTIVE TREATMENTS OR NO TREATMENT NECESSARY Treatment: EVALUATION
90791	psychiatric diagnostic evaluation (no medical services)--done by nonphysician	90801 or 90802	**Diagnostic**	
90792	psychiatric diagnostic evaluation with medical services--done by physician	90801 or 90802	**Diagnostic**	
90832	psychotherapy, 30 minutes	90804 90810 90816 90823	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90833	30-minute psychotherapy add-on code	90805 90810 90817 90824	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562

New CPT Code	New Code Description	Crosswalk Old CPT Code	Proposed List/Line New Code	Comments
90834	psychotherapy, 45 minutes	90806 90812 90818 90826	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90836	45-minute psychotherapy add-on code	90807 90813 90827	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90837	psychotherapy, 60 minutes	90808 90814 90821 90828	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90838	60-minute psychotherapy add-on code	90809 90815 90822 90829	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90839	psychotherapy for crisis, first 60 minutes	No existing code	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90840	psychotherapy for crisis, each additional 30 minutes	No existing code	**MHCD lines**	MHCD lines (minus lines 6 and 681) + line 70 + line 400 + line 562
90863	Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services	No existing code	**Excluded**	Note: only to be used by psychologists in New Mexico and Louisiana who are permitted to prescribe.

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Notes: all lines have inpatient and outpatient E&M codes, except line 588 (Rumination disorder of infancy). These codes are now to be used for medication management. Previously, extended psychotherapy (beyond 60 minutes) was excluded from certain lines. The new codes do not have times beyond 60 minutes.

New psychiatric CPT codes are the series **90785** (interactive complexity), **90832-90840** (psychotherapy, crisis codes)

Line	**Line Title**	**Old psychiatric CPT codes present**	**Old psychiatric CPT codes not present**	**Add new psych CPT codes:**	**Comments**
5	ABUSE OR DEPENDENCE OF PSYCHOACTIVE SUBSTANCE	90804-90829		Yes	
6	TOBACCO DEPENDENCE Treatment: MEDICAL THERAPY/BRIEF COUNSELING NOT TO EXCEED 10 FOLLOW-UP VISITS OVER 3 MONTHS	None	90804-90829	No	No previous psychiatric CPT codes on line Need to remove 99224 (Subsequent observation care, problem focused)
9	MAJOR DEPRESSION, RECURRENT; MAJOR DEPRESSION, SINGLE EPISODE, SEVERE	90804-90829		Yes	
27	SCHIZOPHRENIC DISORDERS	90804-90829		Yes	
32	BIPOLAR DISORDERS	90804-90829		Yes	
68	SUBSTANCE-INDUCED DELUSIONAL AND MOOD	90804-90829		Yes	

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Line	Line Title	Old psychiatric CPT codes present	Old psychiatric CPT codes not present	Add new psych CPT codes:	Comments
	DISORDERS; INTOXICATION				
70	SUBSTANCE-INDUCED DELIRIUM	90816-90819, 90823-90827, 90862		Yes	Inpatient E&M codes only present on line Note: not previously considered a MHCD line
107	BORDERLINE PERSONALITY DISORDER	90804-90827	90828, 90829	Yes	
133	ATTENTION DEFICIT DISORDERS WITH HYPERACTIVITY OR UNDIFFERENTIATED	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient psychiatric codes on line Need to remove 99224, 99251-99255 (inpatient consultation)
180	POSTTRAUMATIC STRESS DISORDER	90804-90829		Yes	
209	CHRONIC ORGANIC MENTAL DISORDERS INCLUDING DEMENTIAS	90804-90807, 90816-90819, 90823-90827	90808-90815, 90821, 90822, 90828, 90829	Yes	
212	DEPRESSION AND OTHER MOOD DISORDERS, MILD OR MODERATE	90804-90829,		Yes	
222	PATHOLOGICAL GAMBLING	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes Need to remove 99224, 99251-99255
269	PSYCHOLOGICAL FACTORS AGGRAVATING PHYSICAL	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. 99251-99255 (inpatient consultation) are on

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Line	Line Title	Old psychiatric CPT codes present	Old psychiatric CPT codes not present	Add new psych CPT codes:	Comments
	CONDITION				line, but do not recommend removing Need to remove 99224-99226 (subsequent observation)
295	OTHER PSYCHOTIC DISORDERS	90804-90815, 90821,90822, 90828,90829	90816-90819, 90823-90827	Yes	
305	ANOREXIA NERVOSA	90804-90829		Yes	
316	ACUTE STRESS DISORDER	90804-90829		Yes	
334	AUTISM SPECTRUM DISORDERS	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224-99226
390	CONVERSION DISORDER, CHILD	90804-90815	90816-90829	Yes	No previous inpatient codes. 99251-99255 (inpatient consultation) are on line, but do not recommend removing Need to remove 99224
398	SOMATIZATION DISORDER; SOMATOFORM PAIN DISORDER	90804-90809, 90816-90829	90810-90815	Yes	
400	DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT	90804-90815	90816-90829	Yes	Added CPT codes October 2012 to allow for cognitive behavioral therapy for low back pain
412	BULIMIA NERVOSA	90804-90829		Yes	

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Line	Line Title	Old psychiatric CPT codes present	Old psychiatric CPT codes not present	Add new psych CPT codes:	Comments
417	SEPARATION ANXIETY DISORDER	90804-90829		Yes	
419	PANIC DISORDER; AGORAPHOBIA	90804-90829		Yes	
425	EATING DISORDER NOS	90804-90829		Yes	
431	DISSOCIATIVE DISORDERS	90804-90829		Yes	
437	SCHIZOTYPAL PERSONALITY DISORDERS	90804-90807, 90810-90813, 90816-90819, 90823-90827	90808, 90809, 90814, 90815, 90828, 90829	Yes	
445	OPPOSITIONAL DEFIANT DISORDER	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224, 99251-99255
457	CHRONIC DEPRESSION (DYSTHYMIA)	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224
462	STEREOTYPY/HABIT DISORDER AND SELF-ABUSIVE BEHAVIOR DUE TO NEUROLOGICAL DYSFUNCTION	90804-90807, 90810-90813, 90816-90819, 90823-90827	90808, 90809, 90814, 90815, 90828, 90829	Yes	
469	ADJUSTMENT DISORDERS	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224
471	TOURETTE'S DISORDER AND TIC DISORDERS	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224, 99251-99255

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Line	Line Title	Old psychiatric CPT codes present	Old psychiatric CPT codes not present	Add new psych CPT codes:	Comments
474	REACTIVE ATTACHMENT DISORDER OF INFANCY OR EARLY CHILDHOOD	90804-90829		Yes	
481	FACTITIOUS DISORDERS	90804-90807, 90816-90819, 90823-90827	90808-90815, 90821, 90822, 90828, 90829	Yes	
483	SIMPLE AND SOCIAL PHOBIAS	90804-90815	90816-90829	Yes	No previous inpatient codes. Need to remove 99224
487	OBSESSIVE-COMPULSIVE DISORDERS	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224, 99251-99255
488	OVERANXIOUS DISORDER; GENERALIZED ANXIETY DISORDER; ANXIETY DISORDER, UNSPECIFIED	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224 Consider adding inpatient codes
496	FUNCTIONAL ENCOPRESIS	90804-90807, 90810-90813, 90816-90819, 90823-90827	90808, 90809, 90814, 90815, 90921, 90822, 90828, 90829	Yes	
500	SELECTIVE MUTISM	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224
508	CONDUCT DISORDER, AGE 18 OR UNDER	90804-90807, 90810-90813,	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224, 99251-99255

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Line	Line Title	Old psychiatric CPT codes present	Old psychiatric CPT codes not present	Add new psych CPT codes:	Comments
518	CONVERSION DISORDER, ADULT	90804-90815	90816-90829	Yes	No previous inpatient codes. 99251-99255 (inpatient consultation) are on line, but do not recommend removing. Need to remove 99224
521	GENDER IDENTIFICATION DISORDER, PARAPHILIAS AND OTHER PSYCHOSEXUAL DISORDERS	90804-90815	90816-90829, **90862**	Yes	No previous inpatient codes or medication management codes Need to remove 99224
544	DELUSIONAL DISORDER	90804-90829		Yes	
546	SEXUAL DYSFUNCTION	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. . All hospital E&M codes on this line—need to remove. Remove 99217-99239, 99251-99255, 99281-99288 (ER), 99251-99380 (SNF, home health, etc), 99468-99480 (child hospital)
562	ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT	90804-90815	90816-90829	Yes	Added CPT codes October 2012 to allow for cognitive behavioral therapy for low back pain
569	IMPULSE DISORDERS EXCLUDING PATHOLOGICAL GAMBLING	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. . Need to remove 99224, 99251-99255

MHCD Lines with Suggested New Psychiatric CPT Code Placement

Line	Line Title	Old psychiatric CPT codes present	Old psychiatric CPT codes not present	Add new psych CPT codes:	Comments
576	SHYNESS DISORDER OF CHILDHOOD OR ADOLESCENCE	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224
588	RUMINATION DISORDER OF INFANCY		90804-90829, **90862** 99217-99239	Yes	No previous inpatient codes or medication management codes Missing E&M codes for outpatient visits: Need to add 99201-99215
608	ANTI-SOCIAL PERSONALITY DISORDER	90804-90807, 90846-90853	90808-90829, **90862**	Yes	No previous inpatient codes or medication management codes Need to remove 99224-99226
609	PERSONALITY DISORDERS EXCLUDING BORDERLINE, SCHIZOTYPAL AND ANTI-SOCIAL	90804-90807, 90810-90813	90808, 90809, 90814-90829	Yes	No previous inpatient codes. Need to remove 99224
660	PICA	90804-90807, 90810-90813	90808, 90809, 90814-90829, **90862**	Yes	No previous inpatient codes or medication management codes Need to remove 99224, 99251-99255
681	MENTAL DISORDERS WITH NO OR MINIMALLY EFFECTIVE TREATMENTS OR NO TREATMENT NECESSARY Treatment: EVALUATION	None	90804-90829, 90862	No	No previous psychiatric treatment codes. Need to remove 99224

MENTAL HEALTH CARE AND CHEMICAL DEPENDENCY SERVICES
EXTRACTED FROM THE PRIORITIZED LIST OF HEALTH SERVICES
OCTOBER 1, 2012

Line: **5**
Condition: ABUSE OR DEPENDENCE OF PSYCHOACTIVE SUBSTANCE (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 291.1,303.90-303.93,304.00-304.93,305.00-305.03,305.20-305.93
CPT: 90804-90829,90846-90862,90882,90887,96101,97810-97814,98966-98969,99051,99060,99201-99255,99366, 99408,99409,99441-99444,99605-99607
HCPCS: G0406-G0408,G0410,G0411,G0425-G0427,H0004-H0006,H0010-H0016,H0020,H0033-H0035,H0038,H0048, H2010,H2013,H2033,H2035,T1006,T1007,T1502

Line: **6**
Condition: TOBACCO DEPENDENCE (See Guideline Notes 1,4,64,65)
Treatment: MEDICAL THERAPY/BRIEF COUNSELING NOT TO EXCEED 10 FOLLOW-UP VISITS OVER 3 MONTHS
ICD-9: 305.1
CPT: 96150-96154,97810-97814,98966-98969,99078,99201-99215,99224,99366,99406,99407,99441-99444,99605-99607
HCPCS: D1320,G0425-G0427,G0436,G0437,G8402,G8453,G9016,H0038,S0270-S0274,S9075,S9453

Line: **9**
Condition: MAJOR DEPRESSION, RECURRENT; MAJOR DEPRESSION, SINGLE EPISODE, SEVERE (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 296.23-296.24,296.30-296.36,298.0
CPT: 90804-90829,90846-90862,90870,90882,90887,96101,98966-98969,99051,99060,99201-99285,99304-99318, 99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **27**
Condition: SCHIZOPHRENIC DISORDERS (See Guideline Notes 64,65,82)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 295.10-295.95,298.4,299.10-299.11,299.90-299.91
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99285,99304-99318,99366, 99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **32**
Condition: BIPOLAR DISORDERS (See Guideline Notes 64,65,82)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 296.00-296.16,296.40-296.89,296.99,301.13
CPT: 90804-90829,90846-90862,90870,90882,90887,96101,98966-98969,99051,99060,99201-99285,99304-99318, 99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,S9537,T1005,T1016

Line: **68**
Condition: SUBSTANCE-INDUCED DELUSIONAL AND MOOD DISORDERS; INTOXICATION (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 291.3-291.5,291.9,292.11-292.2,292.89-292.9,303.00-303.03
CPT: 90804-90829,90846-90862,90882,90887,96101,97810-97814,98966-98969,99051,99060,99201-99285,99291, 99292,99366,99441-99444,99605-99607
HCPCS: G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0005,H0010,H0011,H0013-H0016,H0020,H0033-H0035, H0045,H0048,H2013,T1006,T1007

Line: **107**
Condition: BORDERLINE PERSONALITY DISORDER (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 301.83
CPT: 90804-90827,90846,90847,90853-90862,90882,90887,96101,98966-98969,99051,99060,99201-99255,99366, 99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,H2033,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **133**
Condition: ATTENTION DEFICIT DISORDERS WITH HYPERACTIVITY OR UNDIFFERENTIATED (See Guideline Notes 20,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 314.00-314.9
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99251-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0023,H0032-H0038,H0045,H2010-H2014,H2021,H2022, H2027,H2032,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **180**
Condition: POSTTRAUMATIC STRESS DISORDER (See Guideline Notes 25,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 309.81,995.52-995.54
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99285,99304-99318,99366, 99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **209**
Condition: CHRONIC ORGANIC MENTAL DISORDERS INCLUDING DEMENTIAS (See Guideline Notes 1,6,64,65,86,90)
Treatment: CONSULTATION/MEDICATION MANAGEMENT/LIMITED BEHAVIORAL MODIFICATION
ICD-9: 290.0,290.10-290.9,291.2,292.82-292.84,293.81-293.89,294.0,294.10-294.9,310.1-310.2,310.89
CPT: 90804-90807,90816-90819,90823-90827,90846-90853,90862,90882,90887,96101,96118,97001-97004,97532, 98966-98969,99051,99060,99201-99255,99304-99318,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **212**
Condition: DEPRESSION AND OTHER MOOD DISORDERS, MILD OR MODERATE (See Guideline Notes 28,64,65,92)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 296.20-296.22,296.25-296.26,296.90,298.0,311
CPT: 90804-90829,90846-90862,90882,90887,96101,97810-97814,98966-98969,99051,99060,99201-99255,99366, 99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **222**
Condition: PATHOLOGICAL GAMBLING (See Guideline Notes 64,65) (Note: This line is not priced as part of the list as funding comes from non-OHP sources)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 312.31
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,H0004,H0017-H0019,H0023,H0032-H0034,H0036-H0039,H0045,H2010,H2011, H2013,H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **269**
Condition: PSYCHOLOGICAL FACTORS AGGRAVATING PHYSICAL CONDITION (EG. ASTHMA, CHRONIC GI CONDITIONS, HYPERTENSION) (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 316
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224-99226,99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0038,H0045,H2010-H2014, H2021-H2023,H2027,H2032,S0270-S0274,S9484,T1005,T1016

Line: **295**
Condition: OTHER PSYCHOTIC DISORDERS (See Guideline Notes 64,65,82)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 297.3,298.1-298.3,298.8-298.9,299.80-299.81
CPT: 90804-90815,90821,90822,90828,90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045,H2010-H2014, H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **305**
Condition: ANOREXIA NERVOSA (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.1
CPT: 90804-90829,90846-90862,90882,90887,96101,97802-97804,98966-98969,99051,99060,99201-99255,99304-99318,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045,H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **316**
Condition: ACUTE STRESS DISORDER (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 308.0-308.9
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99224,99231-99255,99366,99441-99444,99605-99607
HCPCS: G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0023,H0032-H0038,H0045,H2010-H2013,H2021-H2023,H2027,H2032,H2033,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **334**
Condition: AUTISM SPECTRUM DISORDERS (See Guideline Notes 1,64,65,75)
Treatment: CONSULTATION/MEDICATION MANAGEMENT/LIMITED BEHAVIORAL MODIFICATION
ICD-9: 299.00-299.91
CPT: 90804-90807,90810-90813,90846-90849,90862,90882,90887,96101,96118,98966-98969,99051,99060,99201-99215,99224-99226,99241-99245,99366,99441-99444
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0023,H0032,H0034,H0038,H2010,H2011,H2014,H2027,H2032,S0270,S0272-S0274,S9484,T1016

Line: **390**
Condition: CONVERSION DISORDER, CHILD (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.11
CPT: 90804-90815,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224,99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0023,H0032-H0038,H2010-H2014,H2021,H2022,H2027,H2032,S0270-S0274,S9484,T1016

Line: **398**
Condition: SOMATIZATION DISORDER; SOMATOFORM PAIN DISORDER (See Guideline Notes 64,65)
Treatment: CONSULTATION/BEHAVIORAL MANAGEMENT
ICD-9: 300.7,300.81-300.82,300.9,306.0-306.4,306.50-306.9,307.80,307.89
CPT: 90804-90809,90816-90829,90846,90847,90853,90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224,99241-99245,99366,99441-99444,99605-99607
HCPCS: G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0034,H0037,H0038,H2010,H2021-H2023,H2027,H2033,S0270-S0274,S9484,T1016

Line: **412**
Condition: BULIMIA NERVOSA (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.51,307.54
CPT: 90804-90829,90846-90862,90882,90887,96101,97802-97804,98966-98969,99051,99060,99201-99255,99304-99318,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045,H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **417**
Condition: SEPARATION ANXIETY DISORDER (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 309.21
CPT: 90804-90815,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224,99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0038,H0045,H2010-H2014,H2021,H2022,H2027,H2032,H2033,S0270-S0274,S9484,T1005,T1016

Line: **419**
Condition: PANIC DISORDER; AGORAPHOBIA (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.01,300.21-300.22
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99255,99366,99441-99444, 99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **425**
Condition: EATING DISORDER NOS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.50,307.54-307.59
CPT: 90804-90829,90846-90862,90882,90887,96101,97802-97804,98966-98969,99051,99060,99201-99255,99304-99318,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **431**
Condition: DISSOCIATIVE DISORDERS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.12-300.15,300.6
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99255,99366,99441-99444, 99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **437**
Condition: SCHIZOTYPAL PERSONALITY DISORDERS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 295.00-295.05,301.22
CPT: 90804-90807,90810-90813,90816-90819,90823-90827,90846-90862,90882,90887,96101,98966-98969,99051, 99060,99201-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **445**
Condition: OPPOSITIONAL DEFIANT DISORDER (See Guideline Notes 42,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 312.9,313.81
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0034,H0036-H0039,H0045, H2010-H2012,H2014,H2021,H2022,H2027,H2032,H2033,S0270-S0274,S5151,S9125,S9480,S9484,T1005, T1016

Line: **457**
Condition: CHRONIC DEPRESSION (DYSTHYMIA) (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.4-300.5
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032-H0034,H0036-H0039,H0045,H2010-H2012,H2014,H2021-H2023,H2027,H2032,H2033,S0270-S0274,S9480,S9484,T1016

Line: **462**
Condition: STEREOTYPY/HABIT DISORDER AND SELF-ABUSIVE BEHAVIOR DUE TO NEUROLOGICAL DYSFUNCTION (See Guideline Notes 1,64,65)
Treatment: CONSULTATION/MEDICATION MANAGEMENT/LIMITED BEHAVIORAL MODIFICATION
ICD-9: 307.3
CPT: 90804-90807,90810-90813,90816-90819,90823-90827,90846-90862,90882,90887,96101,98966-98969,99051, 99060,99201-99215,99224,99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0410,G0411,G0425-G0427,H0004,H0023,H0032,H0034-H0039,H2010-H2014,H2021-H2023, H2027,H2032,S0270-S0274,S9125,S9480,S9484,T1016

Line: **469**
Condition: ADJUSTMENT DISORDERS (See Coding Specification Below) (See Guideline Notes 45,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 309.0-309.1,309.23-309.4,309.82-309.9,V61.20,V62.82
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,H0004,H0023,H0032-H0038,H0045,H2010-H2012,H2014,H2021-H2023,H2027,H2032,H2033, S0270-S0274,S5151,S9125,S9484,T1005,T1016

ICD-9-CM codes V61.20, Counseling for Parent-Child Problem, Unspecified, and V62.82, Bereavement, Uncomplicated, are only included in this line when identified as secondary diagnoses with a primary diagnosis of 309.89, Other Specified Adjustment Reactions.

Line: **471**
Condition: TOURETTE'S DISORDER AND TIC DISORDERS (See Guideline Notes 1,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.20-307.23
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,96150-96154,98966-98969,99051,99060,99201-99215,99224,99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0023,H0032-H0034,H0036-H0038,H2010-H2014,H2021, H2022,H2027,H2032,S0270-S0274,S9484,T1016

Line: **474**
Condition: REACTIVE ATTACHMENT DISORDER OF INFANCY OR EARLY CHILDHOOD (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 313.89
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99255,99366,99441-99444, 99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0038,H0045, H2010-H2014,H2021,H2022,H2027,H2032,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **481**
Condition: FACTITIOUS DISORDERS (See Guideline Notes 64,65)
Treatment: CONSULTATION
ICD-9: 300.16-300.19,301.51
CPT: 90804-90807,90816-90819,90823-90827,90846,90847,90853,90862,90882,90887,96101,98966-98969,99051, 99060,99201-99215,99224,99241-99245,99366,99441-99444,99605-99607
HCPCS: G0410,G0411,G0425-G0427,H0004,H0023,H0032-H0037,H2010,H2011,H2013,H2021,H2022,H2033,S0270-S0274,S9484,T1016

Line: **483**
Condition: SIMPLE AND SOCIAL PHOBIAS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.23-300.29
CPT: 90804-90815,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224,99241-99245, 99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032-H0038,H2010-H2012,H2014,H2021-H2023,H2027,H2032, H2033,S0270-S0274,S9484,T1016

Line: **487**
Condition: OBSESSIVE-COMPULSIVE DISORDERS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.3
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0034,H0036-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S9480,S9484,T1005,T1016

Line: **488**
Condition: OVERANXIOUS DISORDER; GENERALIZED ANXIETY DISORDER; ANXIETY DISORDER, UNSPECIFIED (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.00,300.02-300.09,307.46,313.0
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0018,H0019,H0023,H0032-H0034,H0036-H0039,H0045,H2010-H2014, H2021-H2023,H2027,H2032,H2033,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **496**
Condition: FUNCTIONAL ENCOPRESIS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.7
CPT: 90804-90807,90810-90813,90816-90819,90823-90827,90846-90862,90882,90887,96101,98966-98969,99051, 99060,99201-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0038,H0045, H2010-H2014,H2021,H2022,H2027,H2032,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **500**
Condition: SELECTIVE MUTISM (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 313.23
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032-H0038,H2010-H2012,H2014,H2021,H2022,H2027,H2032, H2033,S0270-S0274,S9484,T1016

Line: **508**
Condition: CONDUCT DISORDER, AGE 18 OR UNDER (See Guideline Notes 54,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 312.00-312.23,312.4,312.81-312.89
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0034,H0036-H0039,H0045, H2010-H2012,H2014,H2021-H2023,H2027,H2032,H2033,S0270-S0274,S5151,S9125,S9480,S9484,T1005, T1016

Line: **518**
Condition: CONVERSION DISORDER, ADULT (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 300.10-300.11
CPT: 90804-90815,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224,99241-99255, 99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0023,H0032-H0039,H2010,H2011,H2013,H2014,H2021-H2023,H2027,H2032,S0270-S0274,S9484,T1016

Line: **521**
Condition: GENDER IDENTIFICATION DISORDER, PARAPHILIAS AND OTHER PSYCHOSEXUAL DISORDERS (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 302.0-302.4,302.50,302.6,302.85,302.9
CPT: 90804-90815,90846-90857,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224,99241-99245, 99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032,H0034,H0035,H2010,H2011,H2014,H2027,H2032,H2033, S0270-S0274,S9484,T1016

Line: **544**
Condition: DELUSIONAL DISORDER (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 297.0-297.2,297.8-297.9
CPT: 90804-90829,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99255,99304-99318,99366, 99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0410,G0411,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0039,H0045, H2010-H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9480,S9484,T1005,T1016

Line: **546**
Condition: SEXUAL DYSFUNCTION (See Guideline Notes 64,65)
Treatment: PSYCHOTHERAPY, MEDICAL AND SURGICAL TREATMENT
ICD-9: 302.70-302.79,607.84
CPT: 54400-54417,90804-90807,90810-90813,90846-90862,90882,90887,93980,93981,98966-98969,99051,99060, 99070,99078,99201-99360,99366,99374,99375,99379-99412,99429-99444,99468-99480,99605-99607
HCPCS: G0176,G0177,G0396,G0397,G0406-G0408,G0425-G0427,H0004,H0023,H0032-H0035,H0038,H2011,H2014, H2027,H2032,S0270-S0274,S9484,T1016

Line: **569**
Condition: IMPULSE DISORDERS EXCLUDING PATHOLOGICAL GAMBLING (See Guideline Notes 58,64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 312.32-312.39
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99255,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0406-G0408,G0425-G0427,H0004,H0017-H0019,H0023,H0032-H0034,H0036-H0039,H0045, H2010,H2011,H2013,H2014,H2021-H2023,H2027,H2032,S0270-S0274,S5151,S9125,S9484,T1005,T1016

Line: **576**
Condition: SHYNESS DISORDER OF CHILDHOOD OR ADOLESCENCE (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 313.21-313.22
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032-H0038,H2010-H2012,H2014,H2021,H2022,H2027,H2032, H2033,S0270-S0274,S9484,T1016

Line: **588**
Condition: RUMINATION DISORDER OF INFANCY (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.53
CPT: 90846,90849,90887,99051,99060,99217-99239,99251-99255
HCPCS: G0406-G0408,G0410,G0411,H0023,H0035,H0038,H2011,H2027,S9125,S9484

Line: **608**
Condition: ANTI-SOCIAL PERSONALITY DISORDER (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 301.7
CPT: 90804-90807,90846-90853,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224-99226,99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032,H0034,H2010,H2011,H2014,H2027,H2032,S0270-S0274, S9484,T1016

Line: **609**
Condition: PERSONALITY DISORDERS EXCLUDING BORDERLINE, SCHIZOTYPAL AND ANTI-SOCIAL (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 301.0,301.10-301.12,301.20-301.21,301.3-301.4,301.50,301.59-301.6,301.81-301.82,301.84-301.9
CPT: 90804-90807,90810-90813,90846-90862,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99245,99366,99441-99444,99605-99607
HCPCS: G0176,G0177,G0425-G0427,H0004,H0023,H0032-H0034,H0036-H0039,H0045,H2010,H2011,H2014,H2021-H2023,H2027,H2032,H2033,S0270-S0274,S5151,S9484,T1005,T1016

Line: **660**
Condition: PICA (See Guideline Notes 64,65)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-9: 307.52
CPT: 90804-90807,90810-90813,90846-90857,90882,90887,96101,98966-98969,99051,99060,99201-99215,99224, 99241-99255,99366,99441-99444,99605-99607
HCPCS: G0177,G0406-G0408,G0425-G0427,H0004,H0023,H0032,H0034,H0035,H2010,S0270-S0274,T1016

Line: **681**
Condition: MENTAL DISORDERS WITH NO OR MINIMALLY EFFECTIVE TREATMENTS OR NO TREATMENT NECESSARY (See Guideline Notes 64,65)
Treatment: EVALUATION
ICD-9: 313.1,313.3,313.82-313.83
CPT: 98966-98969,99201-99215,99224,99366,99441-99444,99605-99607
HCPCS: G0425-G0427,S0270-S0274

STATEMENT OF INTENT 3: INTEGRATED CARE

Recognizing that many individuals with mental health disorders receive care predominantly from mental health care providers, and recognizing that integrating mental and physical health services for such individuals promotes patient-centered care, the Health Evidence Review Commission endorses the incorporation of chronic disease health management support within mental health service systems. Although such supports are not part of the mental health benefit package, mental health organizations (MHOs) that elect to provide these services may report them using psychiatric rehabilitation codes which pair with mental health diagnoses. If MHOs choose to provide tobacco cessation supports, they should report these services using 99407 for individual counseling and S9453 for classes.

GUIDELINE NOTE 1, HEALTH AND BEHAVIOR ASSESSMENT/INTERVENTION

Lines 1,6,8,10-18,20-22,25,26,28,29,33-37,39-42,46,47,50,52,53,55,57,62,64,66,67,69,71,74,76,79,80,82,84,85,87,92,94,96,98,100-103,105,108-111,113,115,119,122-124,128,134,135,137,138,140,141,144,146,147,149-151,158,159,164-169,173,179,181-183,185,190,191,193,195-197,199,201,202,205,207-210,218,220,221,224,227-229,233,235-238,244,246,249,250,252-256,265-268,271-279,285,287,288,290,292,293,302,304,306,310-314,320,326,331,333,334,338-342,352,354,356,357,360,366,370,371,376,377,387,394,400,407,410,421-423,426,432,434,435,439,442,444,446,447,459,462,466,470-472,478,489,491,506

Health and behavior assessment and interventions (CPT codes 96150-96154) are included on these lines when provided subject to the Centers for Medicare and Medicaid (CMS) guidelines dated 2/1/06 located at:
http://www.cms.hhs.gov/mcd/viewlcd.asp?lcd_id=13492&lcd_version=48&basket=lcd%3A13492%3A48%3AHEALTH+AND+BEHAVIOR+ASSESSMENT%2FINTERVENTION%3ACarrier%3ANHIC%7C%7C+Corp%2E+%2831142%29%3A.

In addition, Managed Care Organizations may authorize employees of organizations holding certificates or letters of approval from DHS and a Medicaid vendor number to deliver these services (i.e., not delivering services as an independent practitioner).

GUIDELINE NOTE 4, TOBACCO DEPENDENCE

Line 6

Persons are eligible for tobacco dependence counseling if a documented quit date has been established.

GUIDELINE NOTE 6, REHABILITATIVE THERAPIES

Lines 12,50-52,64,74-76,78,80,85,89,90,94,95,98-101,108,109,115,116,122,129,139,141-143,145,146,158,161,167,179,184,185,189,190,192,194,195,201,202,208,209,216,226,237,239,270,271,273,274,279,288,289,293,297,302,304,307-309,318,336,342,349,350,363,367,369,375,376,378,382,384,385,387,400,406,407,434,441,443,448,455,467,478,489,507,516,549,562,580,597,619,638

Physical, occupational and speech therapy, and cardiac and vascular rehabilitation, are covered for diagnoses paired with the respective CPT codes, depending on medical appropriateness, for up to 3 months immediately following stabilization from an acute event.

Following the 3 month stabilization after an acute event, or, in the absence of an acute event, the following number of combined physical and occupational therapy visits are allowed per year, depending on medical appropriateness:

- Age < 8: 24
- Age 8-12: 12
- Age > 12: 2

And the following number of speech therapy visits are allowed per year, depending on medical appropriateness (with the exception of swallowing disorders, for which limits do not apply):

- Age < 8: 24
- Age 8-12: 12
- Age > 12: 2

Whenever there is a change in status, regardless of age, such as surgery, botox injection, rapid growth, an acute exacerbation or for evaluation/training for an assistive communication device, the following additional visits are allowed:

- 6 visits of speech therapy and/or
- 6 visits of physical or occupational therapy

No limits apply while in a skilled nursing facility for the primary purpose of rehabilitation, an inpatient hospital or an inpatient rehabilitation unit.

If the admission/encounter is for rehabilitation, a V code from V57.1-V57.3,V57.8 should be listed as the principle/first diagnosis. The underlying diagnosis for which rehab is needed should be listed as an additional diagnosis and this diagnosis must appear in the funded region of the Prioritized List for the admission/encounter to be covered.

GUIDELINE NOTE 20, ATTENTION DEFICIT AND HYPERACTIVITY DISORDERS IN CHILDREN AGE FIVE AND UNDER

Line 133

When using 314.9, Unspecified Hyperkinetic Syndrome, in children age 5 and under, it is appropriate only when the following apply:

- Child does not meet the full criteria for the full diagnosis because of their age.
- For children age 3 and under, when the child exhibits functional impairment due to hyperactivity that is clearly in excess of the normal activity range for age (confirmed by the evaluating clinician's observation, not only the parent/caregiver report), and when the child is very limited in his/her ability to have the sustained periods of calm, focused activity which would be expected for the child's age.

For children age 3 and under, it is especially important that psychosocial interventions, including parent skills training and/or parent-child therapy, and environmental modifications, be tried prior to medication. For children over the age of 3, psychosocial interventions are important, whether the child is on medications or not.

Use of 314.9 for children age five and younger is limited to pairings with the following procedure codes:

- Assessment and Screening: 90801, 90802, H0002, H0031, H0032, T1023
- Family interventions and supports: 90846, 90847, 90849, 90887, H0038, H0045, H2021, H2022, H2027, S5151, S9125, T1005
- Group therapy: 90853, 90857, H2032
- Medication management: 90862
- Case Management: 90882, T1016
- Interpreter Service: T1013

GUIDELINE NOTE 25, MENTAL HEALTH PROBLEMS IN CHILDREN AGE FIVE AND UNDER RELATED TO NEGLECT OR ABUSE

Line 180

995.52, Child Neglect (Nutritional), 995.53, Child Sexual Abuse, and 995.54, Child Physical Abuse, may be used in any children when there is evidence or suspicion of abuse or neglect. These codes are to be used when the focus of treatment is on the alleged child victim. This can include findings by child welfare of abuse or neglect; or statements of abuse or neglect by the child, the perpetrator, or a caregiver or collateral report. Although these diagnoses can be used preventively, i.e. for children who are not yet showing symptoms, presence of symptoms should be demonstrated for interventions beyond evaluation or a short-term child or family intervention.

The codes 995.52-995.54 may be used in children age five and younger and, in these instances only, is limited to pairings with the following procedure codes:

- Assessment and Screening: 90801, 90802, H0002, H0031, H0032, T1023
- Family interventions and supports: 90846, 90847, 90849, 90887, H0038, H0045, H2021, H2022, H2027, S5151, S9125, T1005
- Individual counseling and therapy: 90810, 90812
- Group therapy: 90853, 90857, H2032
- Case Management: 90882, T1016
- Interpreter Service: T1013
- Medication management, 90862, is not indicated for these conditions in children age 5 and under.

GUIDELINE NOTE 28, MOOD DISORDERS IN CHILDREN AGE EIGHTEEN AND UNDER

Line 212

The use of 296.90, Unspecified Episodic Mood Disorder, is appropriate only when the following apply:
For children 18 years old and under.
In the presence of significant difficulty with emotional regulation that causes functional impairment.

Use of 296.90 is limited to pairings with the following procedure codes:

- Assessment and Screening: 90801, 90802, H0002, H0031, H0032, T1023
- Family interventions and supports: 90846, 90847, 90849, 90887, H0038, H0045, H2021, H2022, H2027, S5151, S9125, T1005
- Individual Counseling and Therapy: 90804, 90806, 90810, 90812, H0004
- Group therapy: 90853, 90857, H2032
- Medication management: 90862
- Case Management: 90882, T1016
- Interpreter Service: T1013

GUIDELINE NOTE 42, DISRUPTIVE BEHAVIOR DISORDERS IN CHILDREN AGE FIVE AND UNDER

Line 445

The use of 312.9, Unspecified Disturbance of Conduct, is appropriate only for children five years old and under who display sustained patterns of disruptive behavior beyond what is developmentally appropriate.

- Interventions should prioritize parent skills training in effective behavior management strategies or focus on other relational issues.

GUIDELINE NOTE 42, DISRUPTIVE BEHAVIOR DISORDERS IN CHILDREN AGE FIVE AND UNDER (CONT'D)

Use of 312.9 is limited to pairings with the following procedure codes:

- Assessment and Screening: 90801, 90802, H0002, H0031, H0032, T1023
- Family interventions and supports: 90846, 90847, 90849, 90887, H0038, H0045, H2021, H2022, H2027, S5151, S9125, T1005
- Individual Counseling and Therapy: 90810, 90812, H0004
- Group therapy: 90853, 90857, H2032
- Case Management: 90882, T1016
- Interpreter Service: T1013
- Medication management, 90862, is not indicated for these conditions in children age 5 and under.

GUIDELINE NOTE 45, ADJUSTMENT REACTIONS IN CHILDREN AGE FIVE AND UNDER

Line 469

ICD-9-CM code 309.89 can be used for individuals of any age. However, when using it for children five years of age or younger, who have experienced abuse or neglect, the following must apply:

A) The child must demonstrate some symptoms of PTSD (such as disruption of his or her usual sleeping or eating patterns, or more increased irritability/lower frustration tolerance) but does not meet the full criteria for PTSD or any other disorder.
B) 309.89 is limited to pairings with the following procedure codes:
   - Assessment and Screening: 90801, 90802, H0002, H0031, H0032, T1023
   - Group Therapy: 90853, 90857, H2032
   - Family Interventions and Supports: 90846, 90847, 90849, 90887, H0038, H0045, H2021, H2022, H2027, S5151, S9125, T1005
   - Case Management: 90882, T1016
   - Interpreter Service: T1013
   - Individual Counseling and Therapy: 90810, 90812
   - Medication Management, 90862, is not indicated for this condition in children five years of age or younger.

   Note: Cessation of the traumatic exposure must be the first priority. Infants and toddlers may benefit from parental guidance regarding management of the child's symptoms, parental guidance around enhancing safety and stability in the child's environment, and therapeutic support for the parents.

Two V-codes, V61.20 (Counseling for Parent-Child Problem, Unspecified) and V62.82 (Bereavement, Uncomplicated), may only be used as secondary diagnoses to the primary diagnosis of 309.89, and only for children five years of age or younger.

A) When using V61.20, the following must apply:
   1) Service provision will have a clinically significant impact on the child.
   2) A rating of 40 or lower has been assessed on the PIR-GAS (Parent-Infant Relationship Global Assessment Scale).
   3) The same limitations in pairings to CPT and HCPCS codes as given for ICD-9-CM code 309.89 apply, with the only exception being that 90810 and 90812 cannot be used.
B) When using V62.82, the following must apply:
   1) The child exhibits a change in functioning subsequent to the loss of a primary caregiver;
   2) The child exhibits at least three of the following eight symptoms:
      a) Crying, calling and/or searching for the absent primary caregiver,
      b) Refusing attempts of others to provide comfort,
      c) Emotional withdrawal manifesting in lethargy, sad facial expression, and lack of interest in age-appropriate activities that do not meet mood disorder criteria,
      d) Disruptions in eating and sleeping that do not meet criteria for feeding and eating disorders of infancy or early childhood,
      e) Regression in or loss of previously achieved developmental milestones not attributable to other health or mental health conditions,
      f) Constricted range of affect not attributable to a mood disorder or PTSD,
      g) Detachment, seeming indifference toward, or selective "forgetting" of the lost caregiver and/or of reminders of the lost caregiver,
      h) Acute distress or extreme sensitivity in response to any reminder of the caregiver or to any change in a possession, activity, or place related to the lost caregiver;
   3) The symptoms in B(2) above are exhibited for most of the day and for more days than not, for at least 2 weeks.
   4) The same limitations in pairings to CPT and HCPCS codes as given for ICD-9-CM code 309.89 apply.

Note: Intervention should include persons significantly involved in the child's care and include psychoeducation and developmentally-specific guidance.

GUIDELINE NOTE 54, CONDUCT DISORDER

Line 508

Conduct disorder rarely occurs in isolation from other psychiatric diagnosis, the patient should have documented screening for attention deficit disorder (ADD); chemical dependency (CD); mood disorders such as anxiety and/or depression; and physical, sexual, and family abuse or other trauma (PTSD).

GUIDELINE NOTE 58, IMPULSE DISORDERS

Line 569

Impulse disorders rarely occur in isolation from other psychiatric diagnosis, thus the Patient should have documented screening for attention deficit disorder (ADD); chemical dependency (CD); mood disorders such as anxiety and/or depression; and physical, sexual, and family abuse or other trauma (PTSD).

GUIDELINE NOTE 64, PHARMACIST MEDICATION MANAGEMENT

Included on all lines with evaluation & management (E&M) codes

Pharmacy medication management services must be provided by a pharmacist who has:

1) A current and unrestricted license to practice as a pharmacist in Oregon.
2) Services must be provided based on referral from a physician or licensed provider or health plan.
3) Documentation must be provided for each consultation and must reflect collaboration with the physician or licensed provider. Documentation should model SOAP charting; must include patient history, provider assessment and treatment plan; follow up instructions; be adequate so that the information provided supports the assessment and plan; and must be retained in the patient's medical record and be retrievable.

GUIDELINE NOTE 65, TELEPHONE AND EMAIL CONSULTATIONS

Included on all lines with evaluation & management (E&M) codes

Telephone and email consultations must meet the following criteria:

1) Patient must have a pre-existing relationship with the provider as demonstrated by at least one prior office visit within the past 12 months.
2) E-visits must be provided by a physician or licensed provider within their scope of practice.
3) Documentation should model SOAP charting; must include patient history, provider assessment, and treatment plan; follow up instructions; be adequate so that the information provided supports the assessment and plan; must be retained in the patient's medical record and be retrievable.
4) Telephone and email consultations must involve permanent storage (electronic or hard copy) of the encounter.
5) Telephone and email consultations must meet HIPAA standards for privacy.
6) There needs to be a patient-clinician agreement of informed consent for E-visits by email. This should be discussed with and signed by the patient and documented in the medical record.

Examples of reimbursable telephone and email consultations include but are not limited to:

1) Extended counseling when person-to-person contact would involve an unwise delay.
2) Treatment of relapses that require significant investment of provider time and judgment.
3) Counseling and education for patients with complex chronic conditions.

Examples of non-reimbursable telephone and email consultations include but are not limited to:

1) Prescription renewal.
2) Scheduling a test.
3) Scheduling an appointment.
4) Reporting normal test results.
5) Requesting a referral.
6) Follow up of medical procedure to confirm stable condition, without indication of complication or new condition.
7) Brief discussion to confirm stability of chronic problem and continuity of present management.

GUIDELINE NOTE 75, AUTISM SPECTRUM DISORDERS

Line 334

There is limited evidence of the effectiveness of treatment (e.g., Applied Behavioral Analysis) for Autism Spectrum Disorders (ASD). However, effective treatments may be available for co-morbid conditions such as mood disorders. When treating co-morbid conditions, that condition, not an ASD diagnosis, should be the primary diagnosis for billing purposes. The treatment of co-morbid mental health conditions should be consistent with the treatment methods, frequency, and duration normally applied to those diagnoses. Treatment of neurologic dysfunctions that may be seen in individuals with an ASD diagnosis are prioritized according to the four dysfunction lines found on the Prioritized List (Lines 78, 318, 375 and 407). Treatment for associated behaviors, such as agitation, that do not meet the criteria for co-morbid mental health diagnoses should be limited in frequency to a maximum of 8 hours of behavioral health service per month, subject to utilization management review by the mental health organization (MHO) or other relevant payer.

GUIDELINE NOTE 82, EARLY INTERVENTION FOR PSYCHOSIS

Lines 27,32,295

These lines include "early intervention for psychosis," a multidisciplinary specialty team-based intervention that includes:

1) Psychiatric medication management
2) Individual counseling
3) Family group therapy
4) Family individual therapy

The goal of the early intervention is to minimize harms of a first outbreak of psychosis and improve long-term functioning.

GUIDELINE NOTE 86, ORGANIC MENTAL DISORDERS

Line 209

There is limited evidence of the effectiveness of mental health treatment of organic mental disorders. However, case management is can be critical. Effective treatments may be available for co-morbid conditions such as mood disorders. When treating co-morbid conditions associated with organic mental disorder, those conditions should be the primary diagnosis for billing purposes. The treatment of co-morbid mental health conditions should be consistent with the treatment methods, frequency, and duration normally applied to those diagnoses. Treatment of neurologic dysfunctions that may be seen in individuals with organic mental disorder are prioritized according to the four dysfunction lines found on the Prioritized List (Lines 78, 318, 375 and 407).

GUIDELINE NOTE 90, COGNITIVE REHABILITATION

Lines 101,185,201,209,308,342,375,407

Once physical stabilization from acute brain injury has occurred, as determined by an attending physician, cognitive rehabilitation is covered for three months. Whenever there is a major change in status as evidenced by significantly improved prognosis, for up to 3 years following the acute event, 6 additional visits of cognitive rehabilitation are covered. Cognitive rehabilitation is not covered for those in a vegetative state or for those who are unable or unwilling to participate in therapy.

GUIDELINE NOTE 92, ACUPUNCTURE

Lines 1,212,435,563

Line 1 PREGNANCY
Acupuncture (97810-97814) pairs on Line 1 for the following conditions and codes.

Hyperemesis gravidarum
ICD-9 codes: 643.00, 643.03, 643.10, 643.11, 643.13
Acupuncture for hyperemesis gravidarum is covered when a diagnosis is made by the maternity care provider and referred for acupuncture treatment. Up to 2 sessions of acupressure/acupuncture are covered.

Breech presentation
ICD-9 codes: 652.20, 652.23
Acupuncture (and moxibustion) for breech presentation is covered when a referral with a diagnosis of breech presentation is made by the maternity care provider, the patient is between 33 and 38 weeks gestation, for up to 2 visits.

Back and pelvic pain of pregnancy
ICD-9 codes: 648.70, 648.73
Acupuncture is covered for back and pelvic pain of pregnancy when referred by maternity care provider/primary care provider for up to 12 sessions.

Line 212 DEPRESSION AND OTHER MOOD DISORDERS, MILD OR MODERATE
Acupuncture is covered on this line for the treatment of post-stroke depression only. Treatments may be billed to a maximum of 30 minutes face-to-face time an limited to 15 total sessions, with documentation of meaningful improvement.

Line 435 MIGRAINE HEADACHES
Acupuncture pairs on Line 435 for ICD-9 346, when referred, for up to 12 sessions.

Line 563 TENSION HEADACHES
Acupuncture is covered for tension headaches on Line 563, when referred, for up to 12 sessions.

Birth to 10 Years

Interventions Considered and Recommended for the Periodic Health Examination

Leading Causes of Death

Conditions originating in perinatal period
Congenital anomalies
Sudden infant death syndrome (SIDS)
Unintentional injuries (non-motor vehicle)
Motor vehicle injuries

Interventions for the General Population

SCREENING

Height and weight
Blood pressure
Vision screen (3-4 yr)
Hemoglobinopathy screen (birth)[1]
Phenylalanine level (birth)[2]
T4 and/or TSH (birth)[3]
Effects of STDs
FAS, FAE, drug affected infants[4]
Hearing, developmental, behavioral and/or psychosocial screens[5]
Learning and attention disorders[6]
Signs of child abuse, neglect, family violence

COUNSELING

Injury Prevention

Child safety car seats (age <5 yr)
Lap-shoulder belts (age >5 yr)
Bicycle helmet; avoid bicycling near traffic
Smoke detector, flame retardant sleepwear
Hot water heater temperature <120-130F
Window/stair guards, pool fence, walkers
Safe storage of drugs, toxic substances, firearms and matches
Syrup of ipecac, poison control phone number
CPR training for parents/caretakers
Infant sleeping position

Diet and Exercise

Breast-feeding, iron-enriched formula and foods (infants and toddlers)
Limit fat and cholesterol; maintain caloric balance; emphasize grains, fruits, vegetables (age >2 yr)
Regular physical activity*

Substance User

Effects of passive smoking*
Anti-tobacco message*

Dental Health

Regular visits to dental care provider*
Floss, brush with fluoride toothpaste daily*
Advice about baby bottle tooth decay*

Mental Health/Chemical Dependency

Parent education regarding:
- Child development
- Attachment/bonding
- Behavior management
- Effects of excess TV watching
- Special needs of child and family due to:
  - Familial stress or disruption
  - Health problems
  - Temperamental incongruence with parent
  - Environmental stressors such as community violence or disaster, immigration, minority status, homelessness
- Referral for MHCD and other family support services as indicated

[1]Whether screening should be universal or targeted to high-risk groups will depend on the proportion of high-risk individuals in the screening area, and other considerations . [2]If done during first 24 hr of life, repeat by age 2 wk. [3]Optimally between day 2 and 6, but in all cases before newborn nursery discharge. [4]Parents with alcohol and/or drug use. Children with history of intrauterine addiction. Physical and behavioral indicators: hypertension, gastritis, esophagitis, hematological disorders, poor nutritional status, cardiac arrhythmias, neurological disorders, intrauterine growth retardation, mood swings, difficulty concentrating, inappropriateness, irritability or agitation, depression, bizarre behavior, abuse and neglect, behavior problems. [5]Screening must be conducted with a standardized, valid, and reliable tool. Recommended developmental, behavioral and/or psychosocial screening tools include and are not limited to: a) Ages and Stages Questionnaire (ASQ); b) Parent Evaluation of Developmental Status, (PEDS) plus/minus PEDS:Developmental Milestones (PEDS:DM); c) ASQ:Social Emotional (ASQ:SE); and d) Modified Checklist for Autism in Toddlers (M-CHAT). [6]Consider screening with full DSM-IV criteria for attention deficit disorder, inattentive or hyperactive types, in children with significant overall academic or behavioral difficulty including academic failure and/or learning difficulty, especially in reading, math or handwriting.

*The ability of clinical counseling to influence this behavior is unproven.

Birth to 10 Years (Cont'd)

Interventions for the General Population (Cont'd)

IMMUNIZATIONS
Diphtheria-tetanus-acellular pertussis (DTaP)
Inactivated poliovirus (OPV)
Measles-mumps-rubella (MMR)
H. influenzae type b (Hib) conjugate
Hepatitis B
Varicella
Pneumococcal
Hepatitis A
Influenza
Rotavirus
Human papillomavirus (HPV)[1]

CHEMOPROPHYLAXIS
Ocular prophylaxis (birth)

[1]HPV2 and HPV4 for females aged 9 to 26. HPV4 for males aged 9 through 26.

Interventions for the High-Risk Population

Hemoglobin/hematocrit (HR1)
HIV testing (HR2)
PPD (HR3)
Hepatitis A vaccine (HR4));
Pneumococcal polysaccharide vaccine (HR5)
Meningococcal vaccine (HR6)
Blood lead level (HR7)
Daily fluoride supplement (HR8)
Avoid excess/midday sun, use protective clothing* (HR9)
Screen for child abuse, neurological, mental health conditions
Increased well-child visits (HR10)

High-Risk Groups

HR1 = Infants age 6-12 mo who are: living in poverty, black, Native American or Alaska Native, immigrants from developing countries, preterm and low-birthweight infants, infants whose principal dietary intake is unfortified cow's milk.

HR2 = Infants born to high-risk mothers whose HIV status is unknown. Women at high risk include: past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual, or HIV-positive sex partners currently or in past; persons seeking treatment for STDs; blood transfusion during 1978-1985.

HR3 = Persons infected with HIV, close contacts of persons with known or suspected TB, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including homeless), residents of long-term care facilities.

HR4 = Persons >2 yr living in areas where the disease is endemic and where periodic outbreaks occur (e.g., certain Alaska Native, Pacific Island, Native American, and religious communities). Consider for institutionalized children aged >2 yr. Clinicians should also consider local epidemiology.

HR5 -- Children aged 2 years or older with certain underlying medical conditions, including a cochlear implant.

HR6 -- Children aged 2 through 10 years with persistent complement component deficiency, anatomic or functional asplenia, and certain other conditions placing them at high risk.

HR7 = Children about age 12 mo who: 1) live in communities in which the prevalence of lead levels requiring individual intervention, including residential lead hazard control or chelation, is high or undefined; 2) live in or frequently visit a home built before 1950 with dilapidated paint or with recent or ongoing renovation or remodeling; 3) have close contact with a person who has an elevated lead level; 4) live near lead industry or heavy traffic; 5) live with someone whose job or hobby involves lead exposure; 6) use lead-based pottery; or 7) take traditional ethnic remedies that contain lead.

HR8 = Children living in areas with inadequate water fluoridation (<O.6 ppm).

HR9 = Persons with a family history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color.

HR10 = Having a: chronically mentally ill parent; substance abusing parent; mother who began parenting as a teen. Living at or below poverty. Having: parents involved in criminal behavior; experienced an out-of-home placement(s), multiple moves, failed adoption(s). Being homeless. Having suffered physical, emotional or sexual abuse, or severe neglect. Having: a chronic health problem in the family; an absence of a family support system. Being substance affected at birth.

Ages 11-24 Years

Interventions Considered and Recommended for the Periodic Health Examination

Leading Causes of Death
- Motor vehicle/other unintentional injuries
- Homicide
- Suicide
- Malignant neoplasms
- Heart diseases

Interventions for the General Population

SCREENING
- Height and weight
- Blood pressure[1]
- High-density lipoprotein cholesterol (HDL-C) and total blood cholesterol (age 20-24 if high-risk)[2]
- Papanicolaou (Pap) test[3]
- Chlamydia screen[4] (females <25 yr)
- Rubella serology or vaccination hx[5] (females >12 yr)
- Learning and attention disorders[6]
- Signs of child abuse, neglect, family violence
- Alcohol, inhalant, illicit drug use[7]
- Eating disorders[8]
- Anxiety and mood disorders[9]
- Suicide risk factors[10]

COUNSELING

Injury Prevention
- Lap/shoulder belts
- Bicycle/motorcycle/ATV helmet*
- Smoke detector*
- Safe storage/removal of firearms*
- Smoking near bedding or upholstery

Substance Use
- Avoid tobacco use
- Avoid underage drinking and illicit drug use*
- Avoid alcohol/drug use while driving, swimming, boating, etc.*

Sexual Behavior
- STD prevention: abstinence*; avoid high-risk behavior*; condoms/female barrier with spermicide*
- Unintended pregnancy: contraception

Diet and Exercise
- Limit fat and cholesterol; maintain caloric balance; emphasize grains, fruits, vegetables
- Adequate calcium intake (females)
- Regular physical activity*

Dental Health
- Regular visits to dental care provider*
- Floss, brush with fluoride toothpaste daily*

Mental Health/Chemical Dependency

Parent education regarding:
- Adolescent development
- Behavior management
- Effects of excess TV watching
- Special needs of child and family due to:
  - Familial stress or disruption
  - Health problems
  - Temperamental incongruence with parent
  - Environmental stressors such as community violence or disaster, immigration, minority status, ..homelessness
- Referral for MHCD and other family support services as indicated

[1]Periodic BP for persons aged ≥ 18 yr. [2]High-risk defined as having diabetes, family history of premature coronary disease or familial hyperlipidemia, or multiple cardiac risk factors. [3]Screening to start at age 21; screening should occur at least every 3 years. [4]If sexually active. [5]Serologic testing, documented vaccination history, and routine vaccination against rubella (preferably with MMR) are equally acceptable alternatives. [6]Consider screening with full DSM-IV criteria for attention deficit disorder, inattentive or hyperactive types, in children with significant overall academic or behavioral difficulty including academic failure and/or learning difficulty, especially in reading, math or handwriting. [7]Persons using alcohol and/or drugs. Physical and behavioral indicators: liver disease, pancreatitis, hypertension, gastritis, esophagitis, hematological disorders, poor nutritional status, cardiac arrhythmias, alcoholic myopathy, ketoacidosis, neurological disorders: smell of alcohol on breath, mood swings, memory lapses or losses, difficulty concentrating, blackouts, inappropriateness, irritability or agitation, depression, slurry speech, staggering gait, bizarre behavior, suicidal indicators, sexual dysfunction, interpersonal conflicts, domestic violence, child abuse and neglect, automobile accidents or citation arrests, scholastic or behavior problems, secretiveness or vagueness about personal or medical history. [8]Persons with a weight >10% below ideal body weight, parotid gland hypertrophy or erosion of tooth enamel. Females with a chemical dependency. [9]In women who are at increased risk, diagnostic evaluation should include an assessment of history of sexual and physical violence, interpersonal difficulties, prescription drug utilization, medical and reproductive history. [10]Recent divorce, separation, unemployment, depression, alcohol or other drug abuse, serious medical illness, living alone, homelessness, or recent bereavement.

*The ability of clinical counseling to influence this behavior is unproven.

Ages 11-24 Years (Cont'd)

Interventions for the General Population (Cont'd)

IMMUNIZATIONS

TDaP (11-16 yr)
Hepatitis B[1]
MMR (11-12 yr)[2]
Varicella (11-12 yr)[3]
Rubella[4] (females >12 yr)
Influenza[5]
Polio[6]
Human papillomavirus (HPV)[7]
Meningococcal (11-12 yr) [8]

CHEMOPROPHYLAXIS
Multivitamin with folic acid (females planning/ capable of pregnancy)

[1]If not previously immunized: current visit, 1 and 6 mo later. [2]If no previous second dose of MMR. [3]If susceptible to chickenpox. [4]Serologic testing, documented vaccination history, and routine vaccination against rubella (preferably with MMR) are equally acceptable alternatives. [5]Yearly (6 mo through 18 yrs). [6]If not previously immunized. [7]HPV2 and HPV4 for females aged 9 to 26. HPV4 for males aged 9 through 26. [8]Children 13 through 18 if not previously vaccinated.

Interventions for the High-Risk Population

Screen for
- Syphilis RPR/VDRL (HR1);
- Gonorrhea (female) (HR2)
- HIV (HR3)
- Chlamydia (female) (HR4);
- Tuberculosis - PPD (HR3,5)

Advise to reduce infection risk (HR3,6)
Immunize with
- Meningococcal vaccine (HR 7)
- Pneumococcal polysaccharide vaccine (HR8)
- Influenza vaccine (HR9)
- Varicella vaccine (HR10)
- MMR (HR12)
- Hepatitis A vaccine (HR7)

Avoid excess/midday sun, use protective clothing* (HR12)
Folic acid 4.0 mg (HR13)
Daily fluoride supplement (HR14)
Screen for child abuse, neurological, mental health conditions
Increased well-child/adolescent visits (HR15)
Refer for genetic counseling and evaluation for BRCA testing by appropriately trained health care provider (HR16).

High-Risk Groups

HR1 = Persons who exchange sex for money or drugs, and their sex partners; persons with other STDs (including HIV); and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology.

HR2 = Females who have: two or more sex partners in the last year; a sex partner with multiple sexual contacts; exchanged sex for money or drugs; or a history of repeated episodes of gonorrhea. Clinicians should also consider local epidemiology.

HR3 = Males who had sex with males after 1975; past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual or HIV-positive sex partner currently or in the past; blood transfusion during 1978-85; persons seeking treatment for STDs. Clinicians should also consider local epidemiology.

HR4 = Sexually active females with multiple risk factors including: history of prior STD; new or multiple sex partners; age < 25; nonuse or inconsistent use of barrier contraceptives; cervical ectopy. Clinicians should consider local epidemiology of the disease in identifying other high-risk groups.

HR5 = HIV positive, close contacts of persons with known or suspected TB, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including homeless), alcoholics, injection drug users, and residents of long-term facilities.

HR6 = Persons who continue to inject drugs.

HR7 =. Children aged 11 through 12 years with persistent complement component deficiency, anatomic or functional asplenia, and certain other conditions placing them at high risk.

HR8 = Immunocompetent persons with certain medical conditions, including chronic cardiopulmonary disorders, diabetes mellitus, and anatomic asplenia. Immunocompetent persons who live in high-risk environments/social settings (e.g., certain Native American and Alaska Native populations).

HR9 = Annual vaccination of: residents of chronic care facilities; persons with chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression, or renal dysfunction.

HR10 = Healthy persons aged >13 yr without a history of chickenpox or previous immunization. Consider serologic testing for presumed susceptible persons aged >13 yr.

HR11 = Persons born after 1956 who lack evidence of immunity to measles or mumps (e.g., documented receipt of live vaccine on or after the first birthday, laboratory evidence of immunity, or a history of physician-diagnosed measles or mumps).

HR12 = Persons with a family or personal history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color.

HR13 = Women with prior pregnancy affected by neural tube defect planning a pregnancy.

HR14 = Persons aged <17 yr living in areas with inadequate water fluoridation (<0.6 ppm).

HR15 = Having a: chronically mentally ill parent; substance abusing parent; mother who began parenting as a teen. Living at or below poverty. Having: parents involved in criminal behavior; experienced an out-of-home placement(s), multiple moves, failed adoption(s). Being homeless. Having suffered physical, emotional or sexual abuse, or severe neglect. Having: a chronic health problem in the family; an absence of a family support system. Being substance affected at birth.

HR16 = A family history of breast or ovarian cancer that includes a relative with a known deleterious mutation in BRCA1 or BRCA2 genes; two first-degree relatives with breast cancer, one of whom received the diagnosis at age 50 years or younger; a combination of three or more first- or second-degree relatives with breast cancer regardless of age at diagnosis; a combination of both breast and ovarian cancer among first- and second-degree relatives; a first-degree relative with bilateral breast cancer; a combination of two or more first- or second-degree relatives with ovarian cancer regardless of age at diagnosis; a first- or second-degree relative with both breast and ovarian cancer at any age; and a history of breast cancer in a male relative. For women of Ashkenazi Jewish heritage, an increased risk family history risk includes any first-degree relative (or two second-degree relatives on the same side of the family) with breast or ovarian cancer.

Ages 25-64 Years

Interventions Considered and Recommended for the Periodic Health Examination

Leading Causes of Death
Malignant neoplasms
Heart diseases
Motor vehicle/other unintentional injuries
Human immunodeficiency virus infection
Suicide and homicide

Interventions for the General Population

SCREENING
Blood pressure
Height and weight
High-density lipoprotein cholesterol (HDL-C) and total blood cholesterol (men age 35-64, women age 45-64, all age 25-64 if high-risk[1])
Papanicolaou (Pap) test[2]
Fecal occult blood test (FOBT) and/or flexible sigmoidoscopy, or colonoscopy (>50 yr)[3]
Mammogram [5] (women 40-74 yrs)
Rubella serology or vaccination hx[5] (women of childbearing age)
Bone density measurement (women age 60-64 if high-risk)[6]
Fasting plasma glucose for patients with hypertension or hyperlipidemia
Learning and attention disorders[7]
Signs of child abuse, neglect, family violence
Alcohol, inhalant, illicit drug use[8]
Eating disorders[9]
Anxiety and mood disorders[10]
Suicide risk factors[11]
Somatoform disorders[12]
Environmental stressors[13]

COUNSELING
Substance Use
Tobacco cessation
Avoid alcohol/drug use while driving, swimming, boating, etc.*

Diet and Exercise
Limit fat and cholesterol; maintain caloric balance; emphasize grains, fruits, vegetables
Adequate calcium intake (women)
Regular physical activity*

Injury Prevention
Lap/shoulder belts
Bicycle/motorcycle/ATV helmet*
Smoke detector*
Safe storage/removal of firearms*
Smoking near bedding or upholstery

Sexual Behavior
STD prevention: abstinence*; avoid high-risk behavior*; condoms/female barrier with spermicide*
Unintended pregnancy: contraception

Dental Health
Regular visits to dental care provider*
Floss, brush with fluoride toothpaste daily*

IMMUNIZATIONS
TDaP boosters[14]
Human papillomavirus (HPV)[15]
Rubella[5] (women of childbearing age)
Zoster (60 or older)

CHEMOPROPHYLAXIS
Multivitamin with folic acid (females planning or capable of pregnancy)
Discuss aspirin prophylaxis for those at high-risk for coronary heart disease

[1]High-risk defined as having diabetes, family history of premature coronary disease or familial hyperlipidemia, or multiple cardiac risk factors. [2]Women who are or have been sexually active and who have a cervix: q < 3 yr. [3] FOBT: annually; flexible sigmoidoscopy: every 5 years; colonoscopy: every 10 years. [4]The screening decision for women 40-49 should be a mutual decision between a woman and her clinician. If a decision to proceed with mammography is made, it should be done every 2 years. [5] Between the ages of 50-74, screening mammography should be performed every 2 years. [6]Serologic testing, documented vaccination history, and routine vaccination (preferably with MMR) are equally acceptable. [6]High-risk defined as weight <70kg, not on estrogen replacement. [7]Consider screening with full DSM-IV criteria for attention deficit disorder, inattentive or hyperactive types, in children with significant overall academic or behavioral difficulty including academic failure and/or learning difficulty, especially in reading, math or handwriting. [8]Persons using alcohol and/or drugs. Physical and behavioral indicators: liver disease, pancreatitis, hypertension, gastritis, esophagitis, hematological disorders, poor nutritional status, cardiac arrhythmias, alcoholic myopathy, ketoacidosis, neurological disorders: smell of alcohol on breath, mood swings, memory lapses or losses, difficulty concentrating, blackouts, inappropriateness, irritability or agitation, depression, slurry speech, staggering gait, bizarre behavior, suicidal indicators, sexual dysfunction, interpersonal conflicts, domestic violence, child abuse and neglect, automobile accidents or citation arrests, scholastic or behavior problems, secretiveness or vagueness about personal or medical history. [9]Persons with a weight >10% below ideal body weight, parotid gland hypertrophy or erosion of tooth enamel. Females with a chemical dependency. [10]In women who are at increased risk, diagnostic evaluation should include an assessment of history of sexual and physical violence, interpersonal difficulties, prescription drug utilization, medical and reproductive history. [11]Recent divorce, separation, unemployment, depression, alcohol or other drug abuse, serious medical illness, living alone, homelessness, or recent bereavement. [12]Multiple unexplained somatic complaints. [13]Community violence or disaster, immigration, homelessness, family medical problems. [14] One time TDaP dose to substitute for Td booster; then boost with Td every 10 years. [15]HPV2 and HPV4 for females aged 9 to 26. HPV4 for males aged 9 through 26.

*The ability of clinical counseling to influence this behavior is unproven.

Ages 25-64 Years (Cont'd)

Interventions for the High-Risk Population

RPR/VDRL (HR1); screen for gonorrhea (female) (HR2), HIV (HR3), chlamydia (female) (HR4);

PPD (HR7)
advice to reduce Infection risk (HR8)
Hepatitis B vaccine (HR5); Hepatitis A vaccine (HR6); pneumococcal polysaccharide vaccine (HR9); influenza vaccine (HR10); MMR (HR11); varicella vaccine (HR12); meningococcal vaccine (HR16)
Avoid excess/midday sun, use protective clothing* (HR13)
Folic acid 4.0 mg (HR14)
Refer for genetic counseling and evaluation for BRCA testing by
appropriately trained health care provider (HR15)

High Risk Groups

HR1 = Persons who exchange sex for money or drugs, and their sex partners; persons with other STDs (including HIV); and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology.

HR2 = Women who exchange sex for money or drugs, or who have had repeated episodes of gonorrhea. Clinicians should also consider local epidemiology.

HR3 = Males who had sex with males after 1975; past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual or HIV-positive sex partner currently or in the past; blood transfusion during 1978-1985; persons seeking treatment for STDs. Clinicians should also consider local epidemiology.

HR4 = Sexually active women with multiple risk factors including: history of STD; new or multiple sex partners; nonuse or inconsistent use of barrier contraceptives; cervical ectopy. Clinicians should consider local epidemiology.

HR5 = Blood product recipients (including hemodialysis patients), men who have sex with men, injection drug users and their sex partners, persons with multiple recent sex partners, persons with other STDs (including HIV).

HR6 = Persons living in areas where the disease is endemic and where periodic outbreaks occur (e.g., certain Alaska Native, Pacific Island, Native American, and religious communities); men who have sex with men; injection or street drug users. Consider for institutionalized persons. Clinicians should also consider local epidemiology.

HR7 = HIV positive, close contacts of persons with known or suspected TB, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including homeless), alcoholics, injection drug users, and residents of long-term facilities.

HR8 = Persons who continue to inject drugs.

HR9 = Immunocompetent institutionalized persons >50 yr and immunocompetent with certain medical conditions, including chronic cardiac or pulmonary disease, diabetes mellitus, and anatomic asplenia. Immunocompetent persons who live in high-risk environments or social settings (e.g., certain Native American and Alaska Native populations).

HR10 = Annual vaccination of residents of chronic care facilities; persons with chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression or renal dysfunction.

HR11 = Persons born after 1956 who lack evidence of immunity to measles or mumps (e.g., documented receipt of live vaccine on or after the first birthday, laboratory evidence of immunity, or a history of physician-diagnosed measles or mumps).

HR12 = Healthy adults without a history of chickenpox or previous immunization. Consider serologic testing for presumed susceptible adults.

HR13 = Persons with a family or personal history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color.

HR14 = Women with previous pregnancy affected by neural tube defect who are planning pregnancy.

HR15 = A family history of breast or ovarian cancer that includes a relative with a known deleterious mutation in BRCA1 or BRCA2 genes; two first-degree relatives with breast cancer, one of whom received the diagnosis at age 50 years or younger; a combination of 3 or more first- or second-degree relatives with breast cancer regardless of age at diagnosis; a combination of both breast and ovarian cancer among first- and second-degree relatives; a first-degree relative with bilateral breast cancer; a combination of two or more first- or second-degree relatives with ovarian cancer regardless of age at diagnosis; a first- or second-degree relative with both breast and ovarian cancer at any age; and a history of breast cancer in a male relative. For women of Ashkenazi Jewish heritage, an increased risk family history risk includes any first-degree relative (or two second-degree relatives on the same side of the family) with breast or ovarian cancer.

HR16 = Adults with anatomic or functional asplenia or persistent complement component deficiencies; first year college students living in dormitories, military recruits

Age 65 and Older

Interventions Considered and Recommended for the Periodic Health Examination

Leading Causes of Death
- Heart diseases
- Malignant neoplasms (lung, colorectal, breast)
- Cerebrovascular disease
- Chronic obstructive pulmonary disease
- Pneumonia and influenza

Interventions for the General Population

SCREENING
Blood pressure
Height and weight
Fecal occult blood test (FOBT) and/or flexible sigmoidoscopy or colonoscopy t.[1]
Mammogram (women ages 65-74) [2]
Bone density measurement (women)
Fasting plasma glucose for patients with hypertension or hyperlipidemia
Vision screening
Assess for hearing impairment
Signs of elder abuse, neglect, family violence
Alcohol, inhalant, illicit drug use[3]
Anxiety and mood disorders[4]
Somatoform disorders[5]
Environmental stressors[6]
Abdominal aortic aneurysm (AAA) (men aged 65 to 75 who have ever smoked)[7]

COUNSELING
Substance Use
Tobacco cessation
Avoid alcohol/drug use while driving, swimming, boating, etc.*

Diet and Exercise
Limit fat and cholesterol; maintain caloric balance; emphasize grains, fruits, vegetables
Adequate calcium intake (women)
Regular physical activity*
Assess eating environment

Injury Prevention
Lap/shoulder belts
Motorcycle and bicycle helmets*
Fall prevention*
Safe storage/removal of firearms*
Smoke detector*
Set hot water heater to <120-130°F
CPR training for household members
Smoking near bedding or upholstery

Dental Health
Regular visits to dental care provider*
Floss, brush with fluoride toothpaste daily*
Sexual Behavior
STD prevention: avoid high-risk sexual behavior*; use condoms

IMMUNIZATIONS
Pneumococcal vaccine
Influenza[8]
Tetanus-diphtheria (Td) boosters
Zoster vaccine

CHEMOPROPHYLAXIS
Discuss aspirin prophylaxis for those at high-risk for coronary heart disease

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[1]FOBT: annually; flexible sigmoidoscopy: every 5 years; colonoscopy: every 10 years through age 75. [2]Screening mammography should be performed every 2 years. [3]Persons using alcohol and/or drugs. Physical and behavioral indicators: liver disease, pancreatitis, hypertension, gastritis, esophagitis, hematological disorders, poor nutritional status, cardiac arrhythmias, alcoholic myopathy, ketoacidosis, neurological disorders: smell of alcohol on breath, mood swings, memory lapses or losses, difficulty concentrating, blackouts, inappropriateness, irritability or agitation, depression, slurry speech, staggering gait, bizarre behavior, suicidal indicators, sexual dysfunction, interpersonal conflicts, domestic violence, child abuse and neglect, automobile accidents or citation arrests, scholastic or behavior problems, secretiveness or vagueness about personal or medical history. [4]In women who are at increased risk, diagnostic evaluation should include an assessment of history of sexual and physical violence, interpersonal difficulties, prescription drug utilization, medical and reproductive history. 5Multiple unexplained somatic complaints. [6]Community violence or disaster, immigration, homelessness, family medical problems. [7]One-time ultrasound. [8]Annually.

*The ability of clinical counseling to influence this behavior is unproven

Age 65 and Older (Cont'd)

Interventions for the High-Risk Population

PPD (HR1);
amantadine/rimantadine (HR4)

Fall prevention intervention (HR5)
Consider cholesterol screening (HR6)
Avoid excess/midday sun, use protective clothing* (HR7);
hepatitis A vaccine (HR2)

HIV screen (HR3); hepatitis B vaccine (HR8)
RPR/VDRL (HR9)
Advice to reduce Infection risk (HR10)
Varicella vaccine (HR11)
Refer to meal and social support resources
Refer for genetic counseling and evaluation for BRCA
testing by appropriately trained health care provider (HR12)

High Risk Groups

HR1 = HIV positive, close contacts of persons with known or suspected TB, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including homeless), alcoholics, injection drug users, and residents of long-term facilities.

HR2 = Persons living in areas where the disease is endemic and where periodic outbreaks occur (e.g., certain Alaska Native, Pacific Island, Native American, and religious communities); men who have sex with men; injection or street drug users. Consider for institutionalized. Clinicians should also consider local epidemiology.

HR3 = Men who had sex with males after 1975; past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual or HIV-positive sex partner currently or in the past; blood transfusion during 1978-1985; persons seeking treatment for STDs. Clinicians should also consider local epidemiology.

HR4 = Consider for persons who have not received influenza vaccine or are vaccinated late; when the vaccine may be ineffective due to major antigenic changes in the virus; to supplement protection provided by vaccine in persons who are expected to have a poor antibody response; and for high-risk persons in whom the vaccine is contraindicated.

HR5 = Persons aged 75 years and older; or aged 70-74 with one or more additional risk factors including: use of certain psychoactive and cardiac medications (e.g., benzodiazepines, antihypertensives); use of >4 prescription medications; impaired cognition, strength, balance, or gait. Intensive individualized home-based multifactorial fall prevention intervention is recommended in settings where adequate resources are available to deliver such services.

HR6 = Although evidence is insufficient to recommend routine screening in elderly persons, clinicians should consider cholesterol screening on a case-by-case basis for persons ages 65-75 with additional risk factors (e.g., smoking, diabetes, or hypertension).

HR7 = Persons with a family or personal history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color.

HR8 = Blood product recipients (including hemodialysis patients), men who have sex with men, injection drug users and their sex partners, persons with multiple recent sex partners, persons with other STDs (including HIV).

HR9 = Persons who exchange sex for money or drugs, and their sex partners; persons with other STDs (including HIV); and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology.

HR10 = Persons who continue to inject drugs.

HR11 = Healthy adults without a history of chickenpox or previous immunization. Consider serologic testing for presumed susceptible adults.

HR12 = A family history of breast or ovarian cancer that includes a relative with a known deleterious mutation in BRCA1 or BRCA2 genes; two first-degree relatives with breast cancer, one of whom received the diagnosis at age 50 years or younger; a combination of three or more first- or second degree relatives with breast cancer regardless of age at diagnosis; a combination of both breast and ovarian cancer among first- and second- degree relatives; a first-degree relative with bilateral breast cancer; a combination of two or more first- or second-degree relatives with ovarian cancer regardless of age at diagnosis; a first- or second-degree relative with both breast and ovarian cancer at any age; and a history of breast cancer in a male relative. For women of Ashkenazi Jewish heritage, an increased family history risk includes any first-degree relative (or two second degree relatives on the same side of the family) with breast or ovarian cancer.

Pregnant Women**

Interventions Considered and Recommended for the Periodic Health Examination

Interventions for the General Population

First visit
Blood pressure
Hemoglobin/hematocrit
Hepatitis B surface antigen (HBsAg)
RPR/VDRL
Chlamydia screen (<25 yr)
Rubella serology or vaccination history
D(Rh) typing, antibody screen
Offer CVS (<13 wk)[1] or amniocentesis (15-18 wk)[1] (age>35 yr)
Offer hemoglobinopathy screening
Assess for problem or risk drinking
HIV screening
Follow-up visits
Blood pressure
Urine culture (12-16 wk)
Screening for gestational diabetes[2]
Offer amniocentesis (15-18 wk)[1] (age>35 yr)
Offer multiple marker testing[1] (15-18 wk)
Offer serum α-fetoprotein[1] (16-18 wk)
COUNSELING
Tobacco cessation; effects of passive smoking
Alcohol/other drug use
Nutrition, including adequate calcium intake Encourage breastfeeding
Lap/shoulder belts
Infant safety car seats
STD prevention: avoid high-risk sexual behavior*; use condoms*
CHEMOPROPHYLAXIS
Multivitamin with folic acid[3]

[1]Women with access to counseling and follow-up services, reliable standardized laboratories, skilled high-resolution ultrasound, and, for those receiving serum marker testing, amniocentesis capabilities. [2]Universal screening is recommended for areas (states, counties, or cities) with an increased prevalence of HIV infection among pregnant women. In low-prevalence areas, the choice between universal and targeted screening may depend on other considerations (see Ch. 28). [3]Beginning at least 1 mo before conception and continuing through the first trimester..

*The ability of clinical counseling to influence this behavior is unproven.

**See tables for ages 11-24 and 25-64 for other preventive services recommended for women of these age groups.

Pregnant Women (Cont'd)

Interventions for the High-Risk Population

POPULATION	POTENTIAL INTERVENTIONS (See detailed high-risk definitions)
High-risk sexual behavior	Screen for chlamydia (1st visit) (HR1), gonorrhea (1st visit) (HR2), HIV (1st visit) (HR3); HBsAg (3rd trimester) (HR3); RPR/VDRL (3rd trimester) (HR4); advice to reduce infection risk (HR5)
Injection drug use	
Unsensitized D-negative women	D(Rh) antibody testing (24-28 wk) (HR6)
Risk factors for Down syndrome	Offer CVS[1] (1st trimester), amniocentesis[1] (15-18 wk) (HR7)
Previous pregnancy with neural tube defect	Offer amniocentesis[1] (15-18 wk), folic acid 4.0 mg[3] (HR8)
High risk for child abuse	Targeted case management

High Risk Groups

HR1 = Women with history of STD or new or multiple sex partners. Clinicians should also consider local epidemiology. Chlamydia screen should be repeated in 3rd trimester if at continued risk.

HR2 = Women under age 25 with two or more sex partners in the last year, or whose sex partner has multiple sexual contacts; women who exchange sex for money or drugs; and women with a history of repeated episodes of gonorrhea. Clinicians should also consider local epidemiology. Gonorrhea screen should be repeated in the 3rd trimester if at continued risk.

HR3 = Women who are initially HBsAg negative who are at high risk due to injection drug use, suspected exposure to hepatitis B during pregnancy, multiple sex partners

HR4 = Women who exchange sex for money or drugs, women with other STDs (including HIV), and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology

HR5 = Women who continue to inject drugs

HR6 = Unsensitized D-negative women

HR7 = Prior pregnancy affected by Down syndrome, advanced maternal age (>35 yr), known carriage of chromosome rearrangement

HR8 = Women with previous pregnancy affected by neural tube defect

American Psychiatric Association
CPT Coding Resources for APA Members

CPT Coding Changes for 2013

Initial Psychiatric Evaluation (formerly 90801 or new patient E/M code)
90791, Psychiatric diagnostic evaluation (no medical services)
90792, Psychiatric diagnostic evaluation (with medical services) (New patient E/M codes may be used in lieu of 90792)
Psychotherapy (formerly 90804-90808, 90816-90821) For use in all settings; time is with patient and/or family)
90832, psychotherapy, 30 minutes
90834, psychotherapy, 45 minutes
90837, psychotherapy, 60 minutes
Evaluation Management (E/M) and Psychotherapy (formerly 90805-90809, 90817-90822)
Appropriate E/M code (not selected on basis of time), and **+90833, 30-minute psychotherapy add-on code**
Appropriate E/M code (not selected on basis of time), and **+90836, 45-minute psychotherapy add-on code**
Appropriate E/M code (not selected on basis of time), and **+90838, 60-minute psychotherapy add-on code**
Medication Management (formerly 90862 or E/M code)
Appropriate E/M code (99xxx series)
Interactive Psychotherapy (formerly 90802, 90810-90815, 90823-90829, 90857) For use with the psychiatric evaluation codes, the psychotherapy and psychotherapy add-on codes, and the group (non-family) psychotherapy code
+90785, interactive psychotherapy
Crisis Psychotherapy (new)
90839, psychotherapy for crisis, first 60 minutes (Appropriate E/M code may be used in lieu of 90839)
+90840, psychotherapy for crisis, **each additional 30 minutes**

These changes take effect January 1, 2013. Questions – Go to http://www.psychiatry.org/practice, or call 800-343-4671 or send an email to hsf@psych.org. To purchase a copy of the 2013 CPT manual call the AMA at 800-621-8335 or go to https://catalog.ama-assn.org/Catalog/home.jsp .

HCPCS Code	Code Description	List	Recommended Line Placement	Notes
C9600	Percutaneous transcatheter placement of drug eluting intracoronary stent(s), with coronary angioplasty when performed;ßsingle major coronary artery or branch	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9601	Percutaneous transcatheter placement of drug-eluting intracoronary stent(s), with coronary angioplasty when performed;ß each additional branch of a major coronary artery (list separately in addition to code for primary procedure)	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9602	Percutaneous transluminal coronary atherectomy, with drug eluting intracoronary stent, with coronary angioplasty when performed;ßsingle major coronary artery or branch	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9603	Percutaneous transluminal coronary atherectomy, with drug-eluting intracoronary stent, with coronary angioplasty when performed;ßeach additional branch of a major coronary artery (list separately in addition to code for primary procedure)	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9604	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed;	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document

HCPCS Code	Code Description	List	Recommended Line Placement	Notes
C9605	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed;	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9606	Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9607	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty;ßsingle vessel	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9608	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty;ß each additional coronary a	Prioritized	**51** CORONARY ARTERY ANOMALY **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION **108** HEART FAILURE **195** CHRONIC ISCHEMIC HEART DISEASE	See Issues Document
C9733	Non-ophthalmic fluorescent vascular angiography	Excluded		See Issues Document
G0452	Molecular pathology procedure; physician interpretation and report	Suspend for Review		Only covered on a per cases basis after manual review

HCPCS Code	Code Description	List	Recommended Line Placement	Notes
G0453	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby), per patient, (attention directed exclusively to one patient) each 15 minutes (list in addition to primary procedure)	Ancillary		See CPT 95940-3
G0454	Physician documentation of face-to-face visit for durable medical equipment determination performed by nurse practitioner, physician assistant or clinical nurse specialist	Ancillary		
G0455	Preparation with instillation of fecal microbiota by any method, including assessment of donor specimen	Excluded		See fecal transplantation CPT code 44705 discussion
G0456	Negative pressure wound therapy, (e. G. Vacuum assisted drainage collection) using a mechanically-powered device, not durable medical equipment, including provision of cartridge and dressing(s), topical application(s), wound assessment, and instructions f	Ancillary		Negative pressure wound therapy was eviewed by HSC December 2010 and added to the Ancillary List.
G0457	Negative pressure wound therapy, (e. G. Vacuum assisted drainage collection) using a mechanically-powered device, not durable medical equipment, including provision of cartridge and dressing(s), topical application(s), wound assessment, and instructions f	Ancillary		Negative pressure wound therapy was eviewed by HSC December 2010 and added to the Ancillary List.
G0458	Low dose rate (ldr) prostate brachytherapy services, composite rate	Prioritized	**356** CANCER OF PROSTATE GLAND	Used to treat prostate cancer. General brachytherapy CPT codes are on line 356

HCPCS Code	Code Description	List	Recommended Line Placement	Notes
S0353	Treatment planning and care coordination management for cancer, initial treatment	Ancillary		General chemotherapy and other general cancer treatment CPT codes are on the Ancillary List
S0354	Treatment planning and care coordination management for cancer, established patient with a change of regimen	Ancillary		
S3721	Prostate cancer antigen 3 (pca3) testing	Excluded		See Issues Document

HCPCS Code	Code Description	List	Recommended Line Placement	Notes
S8930	Electrical stimulation of auricular acupuncture points; each 15 minutes of personal one-on-one contact with the patient	Prioritized	**1** PREGNANCY **5** ABUSE OR DEPENDENCE OF PSYCHOACTIVE SUBSTANCE **6** TOBACCO DEPENDENCE **15** HIV DISEASE (INCLUDING ACQUIRED IMMUNODEFICIENCY SYNDROME) AND RELATED OPPORTUNISTIC INFECTIONS **68** SUBSTANCE-INDUCED DELUSIONAL AND MOOD DISORDERS; INTOXICATION **70** SUBSTANCE-INDUCED DELIRIUM **212** DEPRESSION AND OTHER MOOD DISORDERS, MILD OR MODERATE **400** DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT **435** MIGRAINE HEADACHES **562** ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT **563** TENSION HEADACHES	Lines with acupuncture CPT codes Roger Batchelor, DAOM, LAc stated that elecro-auricular-acupuncture is appropriate for all the conditions listed, and that it is very safe and that there would be no contraindications to addressing these conditions with electro-acupuncture.
S9110	Telemonitoring of patient in their home, including all necessary equipment; computer system, connections, and software; maintenance; patient education and support; per month	Ancillary		

2013 HCPCS Code Issues

Drug eluting cardiac stents

1) HCPCS codes: C9600-C9608
2) Definition: Drug-eluting stents (DES) reduce the rate of restenosis and, accordingly, target lesion revascularization compared to bare metal stents (BMS). DES consist of a standard metallic stent, a polymer coating, and an anti-restenotic drug (eg, sirolimus or a derivative of sirolimus or paclitaxel) that is mixed within the polymer and is released over a period as short as days to as long as one year after implantation to reduce the local proliferative healing response. Four types of DES are currently approved: sirolimus-eluting, paclitaxel-eluting, zotarolimus-eluting, and everolimus- stents
3) Evidence
    a. **Greenhalgh 2011**, Cochrane review of drug eluting vs bare metal cardiac stents
        i. N=more than 14,500 patients in 47 RCTs
        ii. There were no statistically significant differences in death, AMI or thrombosis between drug eluting stents (DES) and bare metal stents (BMS). Total reduction was seen in the need for repeat revascularization with use of sirolimus, paclitaxel, everolimus, dexamethasone, zotarolimus and (to a limited extent) tacrolimus-eluting stents. These effects are demonstrated in the longer term follow up. Subgroup analyses (e.g. diabetics) largely mirrored these findings.
        iii. Authors' conclusions: Drug-eluting stents releasing sirolimus, paclitaxel, dexamethasone and zotarolimus reduce composite cardiac events. However, this reduction is due largely to reductions in repeat revascularisation rates as there is no evidence of a significant effect on rates of death, MI or thrombosis. The increased cost of drug-eluting stents and lack of evidence of their cost-effectiveness means that various health funding agencies are having to limit or regulate their use in relation to price premium.
    b. **NICE 2003,** guidance on coronary stenting
        i. It is recommended that when considering the use of a bare-metal stent (BMS) or a drug-eluting stent (DES) the decision should be based on the anatomy of the target vessel for stenting and the symptoms and mode of presentation of the disease.
    c. **DeLuca 2012**, meta-analysis
        i. N=6298 patients in 11 trials
        ii. At long-term follow-up (mean [SD], 1201 [440] days), DES implantation significantly reduced the occurrence of target-vessel revascularization (12.7% vs 20.1%; hazard ratio [95% CI], 0.57 [0.50-0.66]; $P<0.001$, P value for heterogeneity, .20), without any significant difference in terms of mortality, reinfarction, and stent thrombosis. However, DES implantation

was associated with an increased risk of very late stent thrombosis and reinfarction.

4) Other guidelines
    a. **American Heart Association, 2011**
        i. meta-analyses have failed to show that the introduction of bare-metal stents (BMS) confers a survival advantage over balloon angioplasty405–407 or that the use of drug-eluting stents (DES) confers a survival advantage over BMS.
5) Summary: Controversy exists over whether drug eluting stents confer survival advantage compared to drug eluting stents. However, drug eluting stents appear to reduce the need for revascularization procedures. Increased cost of drug eluting stents compared to bare metal stents should be taken into consideration when determining coverage.
6) Recommendation:
    a. Place on same lines as new Percutaneous coronary artherectomy/angioplasty/stenting CPT codes (CPT 92920-92944)
        i. **51** CORONARY ARTERY ANOMALY
        ii. **76** ACUTE AND SUBACUTE ISCHEMIC HEART DISEASE, MYOCARDIAL INFARCTION
        iii. **108** HEART FAILURE
        iv. **195** CHRONIC ISCHEMIC HEART DISEASE

Non-ophthalmic fluorescent vascular angiography

1) HCPCS: C9733
2) Description: Procedure combines the use of the florescent properties of generic dye with high speed digital infrared photography. Used in coronary artery bypass procedures and other vascular surgeries. Currently, the only system available to do this procedure is The device used for laser angiography is the LifeCell/Novadaq SPY Elite System. The technology was first used in ophthalmic surgery, then CABG procedures. It has recently been studied for a variety of vascular procedures. SPY imaging has been approved by the FDA for use during coronary artery bypass and cardiovascular, plastic, reconstructive and organ transplant procedures.
3) Other guidelines
    a. **American Heart Association 2011**
        i. Fluorescent vascular angiography is listed under “Future Research Directions”
        ii. “intraoperative imaging may help to delineate technical from nontechnical issues. Because coronary angiography is rarely available intraoperatively, other techniques have been developed to assess graft integrity at this time,

most often the transit-time flow and intraoperative fluorescence imaging…Intraoperative fluorescence imaging, which is based on the fluorescent properties of indocyanine green, provides a "semiquantitative" assessment of graft patency with images that provide some details about the quality of coronary anastomoses. Although both methods are valuable in assessing graft patency, neither is sufficiently sensitive or specific to allow identification of more subtle abnormalities."

4) Recommendation: **Excluded** List
    a. Experimental

PSA3

1) HCPCS code: S3721
2) Definition: novel urine protein used for confirmation of diagnosis of prostate cancer
3) Evidence:
    a. **Auprich 2011** review
        i. prostate cancer antigen 3 (PCA3) is superior to prostate-specific antigen (PSA) and percent free PSA in the early detection of prostate cancer. PCA3 improves the diagnostic accuracy of externally validated nomograms among men with an elevated PSA undergoing biopsy. PCA3 independently predicts low-volume disease and pathologically insignificant prostate cancer but is not associated with locally advanced disease and is limited in the prediction of aggressive cancer. Preliminary data demonstrate that combining PCA3 with other new biomarkers further improves diagnostic and prognostic accuracy.
        ii. Conclusions: PCA3, integrated in novel biopsy nomograms or risk stratification tools, can be used to counsel or confirm biopsy indications. If confirmed in further studies, using PCA3 together with established staging risk factors could assist clinicians in specific pretreatment decision making. So far no evidence for the usefulness of PCA3 in active surveillance programs has been presented.
    a. **Roopol 2011** review
        a. Studies investigating the value of PCA3 as a diagnostic test virtually all show a beneficial effect as compared to PSA with respect to specificity. Beside the fact that most of these studies are subject to potential bias, the observed increased specificity was accompanied by relatively low sensitivities. Two studies, attempting to avoid selection bias as much as possible, show a marginal beneficial effect of the PCA3 test. Data on PCA3 as a staging tool for prostate cancer remain inconclusive.

   b. Summary: The PCA3 test is not capable of replacing the PSA test in clinical practice and an appropriate cut-off level with acceptable performance characteristics is hard to define. Its value as a first-line diagnostic test is limited. The addition of PCA3 to risk assessment tools leads to an increase in predictive capability. Data relating to the accuracy of PCA3 on prostate cancer staging are contradictory and PCA3 as prognostic test should be subject of future studies.

4) Other policies
   a. Cigna 2011
      i. Does not cover as experimental
5) Recommendation: Excluded
   a. Experimental

Drug-eluting stents versus bare metal stents for angina or acute coronary syndromes (Review)

Greenhalgh J, Hockenhull J, Rao N, Dundar Y, Dickson RC, Bagust A

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2011, Issue 1

http://www.thecochranelibrary.com

[Intervention Review]

Drug-eluting stents versus bare metal stents for angina or acute coronary syndromes

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ABSTRACT

Background

Coronary artery stents are tiny tubular devices used to 'scaffold' vessels open during percutaneous transluminal coronary angioplasty (PTCA). Restenosis (re-narrowing) of vessels treated with stents is a problem; in order to reduce restenosis, stents that elute drugs over time are now available. However these drug-eluting stents are more expensive and there is a need to assess their clinical benefits prior to recommending their use.

Objectives

To examine evidence from randomised controlled trials (RCTs) to assess the impact of drug eluting stents (DES) compared to bare metal stents (BMS) in the reduction of cardiac events.

Search strategy

The Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* 2008, Issue 4), MEDLINE (1990 - April 2009) and EMBASE (1980 - January 2009) were searched. We carried out handsearching (electronic and manual) up to January 2008.

Selection criteria

We included RCTs comparing DES with BMS used in conjunction with PTCA techniques in the review. Participants were adults with stable angina or acute coronary syndrome (ACS). We considered published and unpublished sources and included them if they reported outcome data of interest.

Data collection and analysis

Three review authors independently extracted data, assessed trial quality assessment and checked decisions within the group. Data extraction included composite event rates (major adverse cardiac event, target vessel failure); death; acute myocardial infarction (AMI); target lesion revascularisation (TLR); target vessel revascularisation (TVR) and thrombosis. Data synthesis included meta-analysis of composite event rate, death, AMI and revascularisation rates, presented as odds ratios with 95% confidence intervals (CI) using a fixed-effect model. We assessed heterogeneity between trials.

NHS

National Institute for Clinical Excellence

Guidance on the use of coronary artery stents

Technology Appraisal 71

October 2003

1 Guidance

1.1 Stents should be used routinely where percutaneous coronary intervention (PCI) is the clinically appropriate procedure for patients with either stable or unstable angina or with acute myocardial infarction (MI).

1.2 It is recommended that when considering the use of a bare-metal stent (BMS) or a drug-eluting stent (DES) the decision should be based on the anatomy of the target vessel for stenting and the symptoms and mode of presentation of the disease.

1.3 The use of either a Cypher (sirolimus-eluting) or Taxus (paclitaxel-eluting) stent is recommended in PCI for patients with symptomatic coronary artery disease (CAD), in whom the target artery is less than 3 mm in calibre (internal diameter) or the lesion is longer than 15 mm. This guidance for the use of DES does not apply to people who have had an MI in the preceding 24 hours, or for whom there is angiographic evidence of thrombus in the target artery.

1.4 If more than one artery is considered clinically appropriate for stenting then the considerations in Section 1.3 apply to each artery.

1.5 This guidance specifically relates to the present clinical indications for PCI and excludes conditions (such as many cases of stable angina) that are adequately managed with standard drug therapy.

Drug-Eluting vs Bare-Metal Stents in Primary Angioplasty

A Pooled Patient-Level Meta-analysis of Randomized Trials

Giuseppe De Luca, MD, PhD; Maurits T. Dirksen, MD; Christian Spaulding, MD; Henning Kelbæk, MD; Martin Schalij, MD; Leif Thuesen, MD; Bas van der Hoeven, MD; Marteen A. Vink, MD; Christoph Kaiser, MD; Carmine Musto, MD; Tania Chechi, MD; Gaia Spaziani, MD; Luis Salvador Díaz de la Llera, MD; Vincenzo Pasceri, MD; Emilio Di Lorenzo, MD; Roberto Violini, MD; Giuliana Cortese, PhD; Harry Suryapranata, MD; Gregg W. Stone, MD; for the Drug-Eluting Stent in Primary Angioplasty (DESERT) Cooperation

Background: Concerns have emerged regarding a higher risk of stent thrombosis after drug-eluting stent (DES) implantation, especially in the setting of ST-segment elevation myocardial infarction (STEMI). Our objective was to perform a meta-analysis using individual patient data to evaluate the long-term safety and effectiveness of DES compared with bare-metal stents (BMS) in patients undergoing primary percutaneous coronary intervention for STEMI.

Data Sources: Formal searches of electronic databases (MEDLINE and CENTRAL) and scientific session presentations from January 2000 to June 2011.

Study Selection: We examined all completed randomized trials of DES for STEMI.

Data Extraction: Individual patient data.

Data Synthesis: Individual patient data were obtained from 11 of 13 trials identified, including a total of 6298 patients (3980 [63.2%] randomized to DES [99% sirolimus-eluting or paclitaxel-eluting stents] and 2318 [36.8%] randomized to BMS). At long-term follow-up (mean [SD], 1201 [440] days), DES implantation significantly reduced the occurrence of target-vessel revascularization (12.7% vs 20.1%; hazard ratio [95% CI], 0.57 [0.50-0.66]; $P < .001$, P value for heterogeneity, .20), without any significant difference in terms of mortality, reinfarction, and stent thrombosis. However, DES implantation was associated with an increased risk of very late stent thrombosis and reinfarction.

Conclusions: The present pooled patient-level meta-analysis demonstrates that among patients with STEMI undergoing primary percutaneous coronary intervention, sirolimus-eluting and paclitaxel-eluting stents compared with BMS are associated with a significant reduction in target-vessel revascularization at long-term follow-up. Although there were no differences in cumulative mortality, reinfarction, or stent thrombosis, the incidence of very late reinfarction and stent thrombosis was increased with these DES.

Arch Intern Med. 2012;172(8):611-621

THE EARLY ADMINISTRATION of pharmacological and/or mechanical reperfusion therapies[1,2] and improvements in antiplatelet and anticoagulation agents[3-6] have greatly contributed to the reduction in mortality achieved over the last 2 decades in patients with ST-segment elevation myocardial infarction (STEMI). In randomized trials, bare-metal stents (BMS) have been shown to reduce target-vessel revascularization (TVR) in STEMI, with rates of death and/or reinfarction comparable to balloon angioplasty.[7-9] However, these benefits may not be as profound in unselected patients with STEMI.[8]

Drug-eluting stents (DES) have shown a further significant reduction in restenosis and TVR in patients without acute coronary syndromes compared with BMS.[10-14] Initial meta-analyses showed the efficacy and safety of DES at short-term follow-up in the setting of STEMI,[15-17] with no safety issues. However, concerns have emerged regarding a potentially higher risk of stent thrombosis (ST) with DES[18,19] that might be

See Invited Commentary at end of article

even more pronounced among patients with STEMI, as suggested by a prospective registry.[20-22] Therefore, the aim of the Drug-Eluting Stents in Primary Angioplasty (DESERT) Cooperation was to perform a pooled patient-level meta-analysis of randomized trials to evaluate the risks and benefits of DES compared with BMS in patients undergoing primary percutaneous coronary intervention (PCI) for STEMI.

Author Affiliations are listed at the end of this article.
Group Information: The DESERT Cooperation members are listed in the byline.

2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery

A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the American Association for Thoracic Surgery, Society of Cardiovascular Anesthesiologists, and Society of Thoracic Surgeons

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This document was approved by the American Heart Association Science Advisory and Coordinating Committee in July 2011, and by the American College of Cardiology Foundation Board of Trustees in July 2011.

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(*Circulation*. 2011;124:e652–e735.)

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1, which also provides suggested phrases for writing recommendations within each COR. A new addition to this methodology is separation of the Class III recommendations to delineate if the recommendation is determined to be of "no benefit" or is associated with "harm" to the patient. In addition, in view of the increasing number of comparative effectiveness studies, comparator verbs and suggested phrases for writing recommendations for the comparative effectiveness of one treatment or strategy versus another have been added for COR I and IIa, LOE A or B only.

In view of the advances in medical therapy across the spectrum of cardiovascular diseases, the Task Force has designated the term *guideline-directed medical therapy (GDMT)* to represent optimal medical therapy as defined by ACCF/AHA guideline–recommended therapies (primarily Class I). This new term, GDMT, will be used herein and throughout all future guidelines.

Because the ACCF/AHA practice guidelines address patient populations (and healthcare providers) residing in North America, drugs that are not currently available in North America are discussed in the text without a specific COR. For studies performed in large numbers of subjects outside North America, each writing committee reviews the potential influence of different practice patterns and patient populations on the treatment effect and relevance to the ACCF/AHA target population to determine whether the findings should inform a specific recommendation.

The ACCF/AHA practice guidelines are intended to assist healthcare providers in clinical decision making by describing a range of generally acceptable approaches to the diagnosis, management, and prevention of specific diseases or conditions. The guidelines attempt to define practices that meet the needs of most patients in most circumstances. The ultimate judgment regarding the care of a particular patient must be made by the healthcare provider and patient in light of all the circumstances presented by that patient. As a result, situations may arise for which deviations from these guidelines may be appropriate. Clinical decision making should involve consideration of the quality and availability of expertise in the area where care is provided. When these guidelines are used as the basis for regulatory or payer decisions, the goal should be improvement in quality of care. The Task Force recognizes that situations arise in which additional data are needed to inform patient care more effectively; these areas will be identified within each respective guideline when appropriate.

Prescribed courses of treatment in accordance with these recommendations are effective only if followed. Because lack of patient understanding and adherence may adversely affect outcomes, physicians and other healthcare providers should make every effort to engage the patient's active participation in prescribed medical regimens and lifestyles. In addition, patients should be informed of the risks, benefits, and alternatives to a particular treatment and be involved in shared decision making whenever feasible, particularly for COR IIa and IIb, where the benefit-to-risk ratio may be lower.

The Task Force makes every effort to avoid actual, potential, or perceived conflicts of interest that may arise as a result of industry relationships or personal interests among the members of the writing committee. All writing committee members and peer reviewers of the guideline are required to disclose all such current relationships, as well as those existing 12 months previously. In December 2009, the ACCF and AHA implemented a new policy for relationships with industry and other entities (RWI) that requires the writing committee chair plus a minimum of 50% of the writing committee to have no relevant RWI (Appendix 1 for the ACCF/AHA definition of relevance). These statements are reviewed by the Task Force and all members during each conference call and meeting of the writing committee and are updated as changes occur. All guideline recommendations require a confidential vote by the writing committee and must be approved by a consensus of the voting members. Members are not permitted to write, and must recuse themselves from voting on, any recommendation or section to which their RWI apply. Members who recused themselves from voting are indicated in the list of writing committee members, and section recusals are noted in Appendix 1. Authors' and peer reviewers' RWI pertinent to this guideline are disclosed in Appendixes 1 and 2, respectively. Additionally, to ensure complete transparency, writing committee members' comprehensive disclosure information—including RWI not pertinent to this document—is available as an online supplement. Comprehensive disclosure information for the Task Force is also available online at www.cardiosource.org/ACC/About-ACC/Leadership/Guidelines-and-Documents-Task-Forces.aspx. The work of the writing committee was supported exclusively by the ACCF and AHA without commercial support. Writing committee members volunteered their time for this activity.

In an effort to maintain relevance at the point of care for practicing physicians, the Task Force continues to oversee an ongoing process improvement initiative. As a result, in response to pilot projects, evidence tables (with references linked to abstracts in PubMed) have been added.

In April 2011, the Institute of Medicine released 2 reports: *Finding What Works in Health Care: Standards for Systematic Reviews* and *Clinical Practice Guidelines We Can Trust*.[2,3] It is noteworthy that the ACCF/AHA guidelines are cited as being compliant with many of the proposed standards. A thorough review of these reports and of our current methodology is under way, with further enhancements anticipated.

The recommendations in this guideline are considered current until they are superseded by a focused update or the full-text guideline is revised. Guidelines are official policy of both the ACCF and AHA.

Alice K. Jacobs, MD, FACC, FAHA
Chair ACCF/AHA Task Force on Practice Guidelines

1. Introduction

1.1. Methodology and Evidence Review

Whenever possible, the recommendations listed in this document are evidence based. Articles reviewed in this guideline revision covered evidence from the past 10 years through January 2011, as well as selected other references through April 2011. Searches were limited to studies, reviews, and other evidence conducted in human subjects that were published in English. Key search words included but were not limited to the following: *analgesia*, *anastomotic techniques*, *antiplatelet*

agents, *automated proximal clampless anastomosis device*, *asymptomatic ischemia*, *Cardica C-port*, *cost effectiveness*, *depressed left ventricular (LV) function*, *distal anastomotic techniques*, *direct proximal anastomosis on aorta*, *distal anastomotic devices*, *emergency coronary artery bypass graft (CABG) and ST-elevation myocardial infarction (STEMI)*, *heart failure*, *interrupted sutures*, *LV systolic dysfunction, magnetic connectors*, *PAS-Port automated proximal clampless anastomotic device*, *patency*, *proximal connectors*, *renal disease*, *sequential anastomosis*, *sternotomy*, *symmetry connector*, *symptomatic ischemia*, *proximal connectors*, *sequential anastomosis*, *T grafts*, *thoracotomy*, *U-clips*, *Ventrica Magnetic Vascular Port system*, *Y grafts*. Additionally, the committee reviewed documents related to the subject matter previously published by the ACCF and AHA. References selected and published in this document are representative but not all-inclusive.

To provide clinicians with a comprehensive set of data, whenever deemed appropriate or when published, the absolute risk difference and number needed to treat or harm are provided in the guideline, along with confidence interval (CI) and data related to the relative treatment effects such as odds ratio (OR), relative risk (RR), hazard ratio (HR), or incidence rate ratio.

The focus of these guidelines is the safe, appropriate, and efficacious performance of CABG.

1.2. Organization of the Writing Committee

The committee was composed of acknowledged experts in CABG, interventional cardiology, general cardiology, and cardiovascular anesthesiology. The committee included representatives from the ACCF, AHA, American Association for Thoracic Surgery, Society of Cardiovascular Anesthesiologists, and Society of Thoracic Surgeons (STS).

1.3. Document Review and Approval

This document was reviewed by 2 official reviewers, each nominated by both the ACCF and the AHA, as well as 1 reviewer each from the American Association for Thoracic Surgery, Society of Cardiovascular Anesthesiologists, and STS, as well as members from the ACCF/AHA Task Force on Data Standards, ACCF/AHA Task Force on Performance Measures, ACCF Surgeons' Scientific Council, ACCF Interventional Scientific Council, and Southern Thoracic Surgical Association. All information on reviewers' RWI was distributed to the writing committee and is published in this document (Appendix 2).

This document was approved for publication by the governing bodies of the ACCF and the AHA and endorsed by the American Association for Thoracic Surgery, Society of Cardiovascular Anesthesiologists, and STS.

2. Procedural Considerations

2.1. Intraoperative Considerations

2.1.1. Anesthetic Considerations: Recommendations

Class I

1. **Anesthetic management directed toward early postoperative extubation and accelerated recovery of low- to medium-risk patients undergoing uncomplicated CABG is recommended.[4–6] *(Level of Evidence: B)***
2. **Multidisciplinary efforts are indicated to ensure an optimal level of analgesia and patient comfort throughout the perioperative period.[7–11] *(Level of Evidence: B)***
3. **Efforts are recommended to improve interdisciplinary communication and patient safety in the perioperative environment (eg, formalized checklist-guided multidisciplinary communication).[12–15] *(Level of Evidence: B)***
4. **A fellowship-trained cardiac anesthesiologist (or experienced board-certified practitioner) credentialed in the use of perioperative transesophageal echocardiography (TEE) is recommended to provide or supervise anesthetic care of patients who are considered to be at high risk.[16–18] *(Level of Evidence: C)***

Class IIa

1. **Volatile anesthetic-based regimens can be useful in facilitating early extubation and reducing patient recall.[5,19–21] *(Level of Evidence: A)***

Class IIb

1. **The effectiveness of high thoracic epidural anesthesia/analgesia for routine analgesic use is uncertain.[22–25] *(Level of Evidence: B)***

Class III: HARM

1. **Cyclooxygenase-2 inhibitors are not recommended for pain relief in the postoperative period after CABG.[26,27] *(Level of Evidence: B)***
2. **Routine use of early extubation strategies in facilities with limited backup for airway emergencies or advanced respiratory support is potentially harmful. *(Level of Evidence: C)***

See Online Data Supplement 1 for additional data on anesthetic considerations.

Anesthetic management of the CABG patient mandates a favorable balance of myocardial oxygen supply and demand to prevent or minimize myocardial injury (Section 2.1.8). Historically, the popularity of several anesthetic techniques for CABG has varied on the basis of their known or potential adverse cardiovascular effects (eg, cardiovascular depression with high doses of volatile anesthesia, lack of such depression with high-dose opioids, or coronary vasodilation and concern for a "steal" phenomenon with isoflurane) as well as concerns about interactions with preoperative medications (eg, cardiovascular depression with beta blockers or hypotension with angiotensin-converting enzyme [ACE] inhibitors and angiotensin-receptor blockers [ARBs][28–30]) (Sections 2.1.8 and 4.5). Independent of these concerns, efforts to improve outcomes and to reduce costs have led to shorter periods of postoperative mechanical ventilation and even, in some patients, to prompt extubation in the operating room ("accelerated recovery protocols" or "fast-track management").[5,31]

High-dose opioid anesthesia with benzodiazepine supplementation was used commonly in CABG patients in the United States in the 1970s and 1980s. Subsequently, it became clear that volatile anesthetics are protective in the setting of myocardial ischemia and reperfusion, and this, in

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Collaborative Review – Prostate Cancer

Contemporary Role of Prostate Cancer Antigen 3 in the Management of Prostate Cancer

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Abstract

Context: Newly discovered biomarkers ideally should prove clinical usefulness, provide additional detection, staging, and prognosis information to improve individual risk assessment, and potentially permit targeted cancer therapy.
Objective: To review, display, and evaluate the current evidence regarding the biologic and analytic approach of urinary prostate cancer gene 3 (PCA3) in prostate cancer (PCa) detection, staging, and prognosis, and its therapeutic potential.
Evidence acquisition: A systematic and comprehensive Medline search was performed using the Medical Subject Headings search terms *PCA3, DD3, UPM3, prostate cancer, cell-lines, prostate tissue, prostate biopsy, detection, diagnosis, radical prostatectomy, staging, grading, progression,* and *gene therapy*. Results were restricted to English-language papers published within the period 1999–2011.
Evidence synthesis: The *PCA3* gene is highly overexpressed in specific PCa cell lines and prostatic tumours. In 2006, a simple and robust urine test (Progensa) became commercially available. Despite its costs, prostate cancer antigen 3 (PCA3) is superior to prostate-specific antigen (PSA) and percent free PSA in the early detection of PCa. PCA3 improves the diagnostic accuracy of externally validated nomograms among men with an elevated PSA undergoing biopsy. PCA3 independently predicts low-volume disease and pathologically insignificant PCa but is not associated with locally advanced disease and is limited in the prediction of aggressive cancer. Preliminary data demonstrate that combining PCA3 with other new biomarkers further improves diagnostic and prognostic accuracy. Finally, findings of the first PCA3-Gene-ViroTherapy study suggest therapeutic potential by exploiting PCA3 overexpression.
Conclusions: PCA3, integrated in novel biopsy nomograms or risk stratification tools, can be used to counsel or confirm biopsy indications. If confirmed in further studies, using PCA3 together with established staging risk factors could assist clinicians in specific pretreatment decision making. So far no evidence for the usefulness of PCA3 in active surveillance programs has been presented.

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Contemporary role of prostate cancer gene 3 in the management of prostate cancer

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Purpose of review

With increasing evidence that prostate-specific antigen (PSA)-based screening can reduce disease-specific mortality but coincides with unacceptable levels of unnecessary testing and the diagnosis of potentially nonlife-threatening disease, the need for new, more specific biomarkers is urgent. Within this context the role of the prostate cancer gene 3 (PCA3) test is evaluated.

Recent findings

Studies investigating the value of PCA3 as a diagnostic test virtually all show a beneficial effect as compared to PSA with respect to specificity. Beside the fact that most of these studies are subject to potential bias, the observed increased specificity was accompanied by relatively low sensitivities. Two studies, attempting to avoid selection bias as much as possible, show a marginal beneficial effect of the PCA3 test. Data on PCA3 as a staging tool for prostate cancer remain inconclusive.

Summary

The PCA3 test is not capable of replacing the PSA test in clinical practice and an appropriate cut-off level with acceptable performance characteristics is hard to define. Its value as a first-line diagnostic test is limited. The addition of PCA3 to risk assessment tools leads to an increase in predictive capability. Data relating to the accuracy of PCA3 on prostate cancer staging are contradictory and PCA3 as prognostic test should be subject of future studies.

Keywords

detection, prostate cancer, prostate cancer gene 3, prostate-specific antigen, staging

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Introduction

Despite the fact that it is commonly known that the serum prostate-specific antigen (PSA) test does not represent the ideal tumor marker, it is still the most frequently used test in the diagnosis and management of prostate cancer. Especially now, with convincing evidence available that PSA-based screening can reduce disease-specific mortality [1••,2••], a diagnostic test capable of distinguishing men with prostate cancer from those without the disease with greater specificity and at the same time precisely identifying those men with potentially aggressive prostate cancer is urgently needed. Various PSA-related derivatives and subforms (i.e., PSA velocity, PSA density, free PSA, hK2) have provided some improvement in terms of specificity [3]. Since the identification, characterization [4] and commercialization (Progensa, Genprobe San Diego, California, USA) of the prostate cancer gene 3 (PCA3), numerous studies have been published to investigate the performance of the PCA3 test as a prebiopsy diagnostic test and to compare its performance with the serum PSA test.

In the present review, studies published in the year 2010 investigating the value of the PCA3 test will be summarized. The first part of this review discusses studies on the PCA3 test as a diagnostic tool. The second part reviews studies that assessed the potential of the PCA3 test in prostate cancer staging.

The prostate cancer gene 3 test as a diagnostic tool

Very often the presented research focuses on the accuracy of the PCA3 test in men selected for prostate biopsy on the basis of a PSA test result. However, this exactly indicates the origin for potential bias in such studies, because frequently men are included based on a PSA test result (often in the so-called grey zone: 2.0 or 4.0 to 10.0 ng/ml) or based on a previous negative biopsy, which was initially indicated by an elevated PSA level. Comparison of performance characteristics in these types of studies should always be interpreted with caution, because the predictive capability of the serum PSA test (used as the golden standard) is flawed, due to PSA-based

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Cigna Medical Coverage Policy

Subject **Gene-Based Testing for Prostate Cancer Screening, Detection and Disease Monitoring**

Effective Date **4/15/2012**
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Coverage Policy Number **0332**

Table of Contents

Hyperlink to Related Coverage Policies

Circulating Tumor Cells Testing
Prostate-Specific Antigen (PSA) Screening for Prostate Cancer
Tumor Markers for Diagnosis and Management of Cancer

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Coverage Policy

Cigna does not cover gene-based testing for screening, detection and/or disease monitoring of prostate cancer because it is considered experimental, investigational or unproven. Testing includes, but is not limited to the following:

- PCA3/PROGENSA PCA3©
- TMPRSS2:ERG fusion genes
- Kallikrein-related peptidase 2 (hK2)
- Single-nucleotide polymorphisms (SNPs)
- Candidate gene panels
- Gene hypermethylation/DNA methylation

General Background

The expression and function of numerous genes have been shown to be altered in prostate cancer. Many of these genes are involved in cell cycle regulation, steroid hormone metabolism or regulation of gene expression. Analysis of changes in the levels of expression of large numbers of genes during prostate cancer progression has provided a better understanding of the basis of the disease, yielding new molecular markers with potential use in diagnosis and prognosis (Foley, et al., 2004).

Although serum prostate-specific antigen (PSA) measurement is regarded as the best conventional serum tumor marker available for prostate cancer, it has great limitations as well. Despite its adequate sensitivity, the use of PSA is limited by significant lack of specificity. Consequently, the clinical assessment of patients with an elevated PSA value will result in the performance of unnecessary prostatic biopsies in a substantial number of men. This can be explained by the fact that PSA is not specific for prostate cancer. One proposed approach to improve diagnostic accuracy of tests for prostate cancer and to reduce the number of biopsies is to identify prostate cancer-specific genes (Hessels, et al., 2003).

Prostate Cancer Gene 3 (PCA3)
One such gene is prostate cancer gene 3 (PCA3), which is also known by the symbol DD3, a prostate-specific gene that is highly overexpressed in prostate cancer tissue. Investigators pursued the analysis of urine obtained after digital rectal examination (DRE). Ribonucleic acid (RNA) was extracted from the samples and tested by reverse transcription-polymerase chain reaction (RT-PCR) assay for PCA3. PCA3 testing in clinical practice focuses on the detection of the PCA3 in urine samples following a digital rectal exam.

One proposal is to use the PCA3 assay in conjunction with serum PSA measurements and digital rectal examination (DRE) to assist in decision making regarding the need for biopsy in men undergoing evaluation for prostate cancer. A ratio of the PCA3 mRNA and PSA mRNA in the urine are calculated to provide a PCA score. It is proposed that the PCA score provides the expression of PCA3 corrected for the background of prostate cells present in the specimen. It is also thought that this measurement may serve to validate that the yield of prostate specific RNA is sufficient to generate a valid or informative test.

U.S. Food and Drug Administration (FDA)
February 2012, the PROGENSA PCA3© (Gen-Probe, San Diego, CA) assay received FDA Premarket Approval (PMA). The PMA notes that the progensa pca3 assay is indicated for use in conjunction with other patient information to aid in the decision for repeat biopsy in men 50 years of age or older who have had one or more previous negative prostate biopsies and for whom a repeat biopsy would be recommended by a urologist based on current standard of care, before consideration of progensa pca3 assay results. A pca3 score <25 is associated with a decreased likelihood of a positive biopsy. Prostatic biopsy is required for diagnosis of cancer.

The FDA approval includes a Black Box warning: The PROGENSA PCA3 Assay should not be used for men with atypical small acinar proliferation (ASAP) on their most recent biopsy. Men with ASAP on their most recent biopsy should be treated in accordance with current medical guidelines.

A warning is included in the FDA approval: The Clinical Study of the PROGENSA PCA3 assay only included men who were recommended for a repeat biopsy. Therefore, the performance of the PROGENSA PCA3 Assay has not been established in men for whom a repeat biopsy was not already recommended.

Literature Review—Prostate Cancer Gene 3 (PCA3)
de la Taille et al. (2011) reported on a prospective, multicenter, observational study that evaluated the clinical utility of the PCA3 assay in guiding initial biopsy decisions. The study included 516 men with a serum total prostate specific antigen of 2.5–10 ng/ml scheduled for initial biopsy. The patients PCA3 scores were determined using the PROGENSA PCA3 assay and compared to biopsy outcome. The diagnostic accuracy of PCA3 was compared to total prostate specific antigen, prostate specific antigen density and %free prostate specific antigen. The performance of the PCA3 assay was evaluated for sensitivity and specificity by comparing the PCA3 score to biopsy outcome. The positive biopsy rate was 40%. An increasing PCA3 score corresponded with an increasing probability of a positive biopsy. The mean PCA3 score was higher in men with a positive as compared to a negative biopsy (69.6 vs 31.0, median 50 vs 18, $p<0.0001$). The PCA3 score was independent of age, total prostate specific antigen and prostate volume. The PCA3 score (cutoff of 35) had a sensitivity of 64% and specificity of 76%. The ROC analysis showed a significantly higher AUC for the PCA3 score vs total prostate specific antigen, prostate specific antigen density and %free prostate specific antigen. The PCA3 score was significantly higher in men with biopsy Gleason score 7 or greater vs less than 7, greater than 33% vs 33% or fewer positive cores and significant vs indolent prostate cancer. Inclusion of PCA3 in multivariable models increased their predictive accuracy by up to 5.5%. The authors concluded that the PROGENSA PCA3 assay may improve the prediction of initial biopsy outcome. While the PCA3 score appears to be more accurate for predicting biopsy outcomes, it is still unknown what the appropriate cutoff for PCA3 score and the utility of this test for biopsy decisions. It should be further studied whether the PCA3 score may also be indicative of prostate cancer aggressiveness and if it can aid in the selection of men who can be treated with active surveillance.

CDT Code Changes for 2013

Code	Code Description	October 2012 Placement	Proposed April 2013 Placement	Notes
D0190	Screening of a patient - a screening, including state or federally mandated screenings, to determine an individual's need to be seen by a dentist for diagnosis.		DMAP Excluded File	Too high a prospective utilization, unclear who could perform service.
D0191	Assessment of a patient - a limited clinical inspection that is performed to identify possible signs of oral or systemic disease malformation or injury and the potential need for referral for diagnosis and treatment.		58 PREVENTIVE DENTAL SERVICES	Probably used by midlevel providers for assessment in a medical office or similar setting. Current guideline on preventive care limits to 1 visit a year for adults and 2 visits a year for children up to age 19. See suggested guideline changes to GN 17
D0220-D0330	*Change to descriptions, replacing "film" or "bitewings" with radiographic image. 14 codes*	DMAP Diagnostic Procedure File	Same	
D0340	Cephalometric radiographic image ~~film~~	647 DENTAL CONDITIONS (EG. MALOCCLUSION)	Same	
~~D0360~~	~~Cone beam CT - craniofacial data capture~~	DMAP Excluded File	None	
~~D0362~~	~~Cone beam two dimensional image recontrustruction using existing data, includes multiple images.~~	DMAP Excluded File	None	
D0364	Cone beam CT capture and interpretation with limited field of view less than one whole jaw		DMAP Excluded File	
D0365	Cone beam CT capture and interpretation with field of view of one full dental arch - mandible		DMAP Excluded File	
D0366	Cone beam CT capture and interpretation with field of view one full dental arch – maxilla with or without cranium		DMAP Excluded File	
D0367	Cone beam CT capture and interpretation with field of view of both jaws with or without cranium		DMAP Excluded File	
D0368	Cone beam CT capture and interpretation for TMJ series including two or more exposures		DMAP Excluded File	
D0369	Maxillofacial MRI capture and interpretation		DMAP Excluded File	
D0370	Maxillofacial ultrasound, capture and interpretation		DMAP Excluded File	
D0371	Sialoendoscopy –capture and interpretation		DMAP Exclude File	
D0380	Cone beam CT image capture with limited field of view – less than one whole jaw		DMAP Excluded File	
D0381	Cone beam CT image capture with field of view of one full dental arch – mandible		DMAP Excluded File	
D0382	Cone beam CT image capture with field of view one full dental arch – maxilla, with and without cranium		DMAP Excluded File	
D0383	Cone beam CT image capture with field of view of both jaws, with or without cranium.		DMAP Excluded File	
D0384	Cone beam CT capture images for TMJ series including two or more exposures		DMAP Excluded File	
D0385	Maxillofacial MRI image capture		DMAP Excluded File	
D0386	Maxillofacial ultrasound image capture		DMAP Excluded File	
D0391	Interpretation of diagnostic image by a practitioner not associated with capture of the image, including report		DMAP Excluded File	
~~D1203~~	~~Topical application of fluoride - child~~	58 PREVENTIVE DENTAL SERVICES	None	

~~D1204~~	~~Topical application of fluoride - adult~~	58 PREVENTIVE DENTAL SERVICES	None	
D1206	Topical fluoride varnish; ~~therapeutic application for moderate to high cares risk patients~~	58 PREVENTIVE DENTAL SERVICES	Same	
D1208	Topical application of fluoride		58 PREVENTIVE DENTAL SERVICES	
D2710	Crown resin-based composite (indirect) ~~Unfilled or non reinforced resin crows should be reported by using D2999~~	494 ADVANCED RESTORATIVE DENTAL SERVICES (I.E. BASIC CROWNS)	Same	
D2799	Provisional Crown –~~crown utilized as an interim restoration of at least six months duration during restorative treatment to all adequate time for healing or completion of other procedures. This includes, but is not limited to changing the vertical dimension, completing periodontal therapy or crack tooth syndrome. This is not to be used as a temporary crown for routine prosthetic restoration.~~ Further treatment or completion of a diagnosis necessary prior to final impression. Not to be used as a temporary crown for a routine prosthetic restoration.	494 ADVANCED RESTORATIVE DENTAL SERVICES (I.E. BASIC CROWNS)	676 DENTAL CONDITIONS WHERE TREATMENT RESULTS IN MARGINAL IMPROVEMENT	Covered now for under 21 or pregnant adults. D2970 covers temporary crowns--therefore this code is not needed and should not be covered.
D2929	Prefabricated porcelain/ceramic crown- primary tooth		621 ELECTIVE ADVANCED RESTORATIVE (INLAYS,ONLAYS,GOLD FOIL AND HIGH NOBLE METAL RESTORATIONS)	Other porcelain/ceramic crowns are on line 621
D2940	Protective restoration Direct placement of a ~~temporary~~ restorative material to protect tooth and/or tissue form. This procedure may be used to relieve pain, promote healing, or prevent further deterioration. Not to be used for endodontic access closure, or as a base or liner under restoration.	283 URGENT DENTAL SERVICES	Same	
D2955	Post removal (~~not in conjunction with endodontic therapy) for removal of posts (e.g., fractured posts);not to be used in conjunction with endodontic retreatment (D3346,D3347,D3348).~~	283 URGENT DENTAL SERVICES	676 DENTAL CONDITIONS WHERE TREATMENT RESULTS IN MARGINAL IMPROVEMENT	
D2980	Crown repair, ~~by report~~, necessitated by restorative material failure	372 BASIC RESTORATIVE DENTAL SERVICES	Same	
D2981	Inlay repair, necessitated by restorative material failure.		621 ELECTIVE ADVANCED RESTORATIVE (INLAYS,ONLAYS,GOLD FOIL AND HIGH NOBLE METAL RESTORATIONS)	

D2982	Onlay repair, necessitated by restorative material failure		621 ELECTIVE ADVANCED RESTORATIVE (INLAYS,ONLAYS,GOLD FOIL AND HIGH NOBLE METAL RESTORATIONS)	
D2983	Veneer repair, necessitated by restorative material failure		675 DENTAL CONDITIONS WHERE TREATMENT IS CHOSEN PRIMARILY FOR AESTHETIC CONSIDERATIONS	
D2990	Resin infiltration of incipient smooth surface lesions – placement of an infiltrating resin restoration for strengthening, stabilizing and/or limiting the progression of the lesion		676 DENTAL CONDITIONS WHERE TREATMENT RESULTS IN MARGINAL IMPROVEMENT	New technology, HERC staff to review and bring back at a future date for further discussion
D3352	Apexifaction/recalcification/pulpal regeneration) - interim medication replacement (apical closure/calcific repair of perforations, root resorption, pulp space disinfection, etc.) For visits in which the intra-canal medication is replaced with new medication ~~and~~ includes any necessary radiographs."	283 URGENT DENTAL SERVICES	Same	
D4210	Gingivectomy or gingivoplasty - four or more contiguous teeth or bounded teeth spaces per quadrant – ~~Involved the excision of the soft tissue wall of the periodontal pocket by either an external or an internal bevel.~~ It is performed to eliminate suprabony pockets after adequate initial preparation ~~to allow access for restorative dentistry in the presence of suprabony pockets,~~ or to restore normal architecture when gingival enlargements or asymmetrical or unaesthetic topography is evident with normal bony configuration.	232 BASIC PERIODONTICS	Same	Guideline Note 53 applies
D4211	Gingivectomy or gingivoplasty -one to three contiguous teeth or bounded teeth spaces per quadrant – ~~Involves the excision of the soft tissue wall of the periodontal pocket by either an external or an internal bevel.~~ It is performed to eliminate suprabony pockets after adequate initial preparation ~~to allow access for restorative dentistry in the presence of suprabony pockets,~~ or to restore normal architecture when gingival enlargements or asymmetrical or unaesthetic topography is evident with normal bony configuration.	232 BASIC PERIODONTICS	Same	Guideline Note 53 applies
D4212	Gingivectomy or gingivoplasty - to allow access for restorative procedures - per tooth		232 BASIC PERIODONTICS	See suggested addition to Guideline Note 53

D4260	Osseous surgery - (including flap entry & closure - four or more contiguous teeth or tooth bonded spaces per quadrant. The procedure modifies the bony support of teeth by reshaping the alveolar process to achieve a more physiologic form. This ~~may~~ must include the removal of supporting bone (ostectomy) and/or non-supporting bone (osteoplasty). Other procedures may be required concurrent to D4260 and should be reported using their own unique codes.	522 ADVANCED PERIODONTICS	Same	
D4261	Osseous surgery - one to three contiguous teeth or tooth bonded spaces per quadrant. The procedure modifies the bony support of teeth by reshaping the alveolar process to achieve a more physiologic form. This ~~may~~ must include the removal of supporting bone (ostectomy) and/or non-supporting bone (osteoplasty). Other procedures may be required concurrent to D4261 and should be reported using their own unique codes	523 ADVANCED PERIODONTICS	Same	
D4266	Guided tissue regeneration -- resorbable barrier, per site This procedure does not include flap entry or closure, or, when indicated, wound debridement, osseous contouring, bone replacement grafts, and placement of biologic materials to aid in osseous regeneration. This procedure can be used for periodontal and peri-implant defects. ~~A membrane is placed over the root surfaces or defect area following surgical exposure and debridement. The mucoperiosteal flaps are then adapted over the membrana and sutured. The membrane is placed to exclude epithelium and gingival connective tissue from the healing wound. This procedure may require subsequent surgical procedures to correct the gingival contours. Guided tissue regeneration may also be carried out in conjunction with bone replacement grafts or to correct deformities resulting from inadequate faciolingual bone width in an endentulous area. When guided tissue regeneration is used in association with a tooth, each site on a specific tooth should be reported separately. Other separate procedures may be required~~	DMAP Excluded File	Same	

D4267	Guided tissue regeneration -- non-resorbable barrier, per site (includes membrane removal) This procedure does not include flap entry or closure, or, when indicated, wound debridement, osseous contouring, bone replacement grafts, and placement of biologic materials to aid in osseous regeneration. This procedure can be used for periodontal and peri-implant defects. ~~This procedure is used to regenerate lost or injured peridontal tissue by directing differential tissue responses. A membrane is placed ovfer the root surfaces or defect area following surgical exposure and debridement. The mucoperiosteal flaps are then adapted over the membrane and sutured. This procedure does not include flap entry and closure, wound debridement, osseous contouring, bone replacement grafts, or the placement of biologic materials to aid in osseous tissue regeneration. The membrane is placed to exclude epithelium and gingival connective tissue from the healing wound. This procedure requires subsequent surgical procedures to remove the membrane and/or to correct the gingival contours. Guided tissue regeeration may be used in conjunction with bone replacement grafts or to correct deformities resulting from inadeequate faciolingual bone width in an edentulous area. When guided tissue regeration is used in association with a tooth, each site on a specific tooth should be reported separately with this code. When no tooth is present, each site should be reported separately. Other separate procedures may be reported concurrent to D4267 and should be reported using their own unique codes.~~	DMAP Excluded File	Same	
~~D4271~~	~~Free soft tissue graft procedure including donor site.~~	522 ADVANCED PERIODONTICS	None	
D4277	Free soft tissue graft procedure (including donor site surgery) - first tooth or edentulous tooth site in graft		522 ADVANCED PERIODONTICS (E.G. SURGICAL PROCEDURES AND SPLINTING)	
D4278	Free soft tissue graft procedure (including donor site surgery) - each additional contiguous tooth position in same graft site		522 ADVANCED PERIODONTICS (E.G. SURGICAL PROCEDURES AND SPLINTING)	
D4381	D4381 - localized delivery of antimicrobial agents via ~~a~~ controlled release vehicle into diseased crevicular tissue, per tooth, ~~by report~~ FDA approved subgingival delivery devices containing antimicrobial medication(s) are inserted into periodontal pockets to suppress the pathogenic microbiota. These devices slowly release the pharmacological agents so they can remain at the intended site of action in a therapeutic concentration for a sufficient length of time	522 ADVANCED PERIODONTICS	Same	
D6051	Interim abutment - includes placement and removal. A healing cap is not an interim abutment		648 IMPLANTS (I.E. IMPLANT PLACEMENT AND ASSOCIATED CROWN OR PROSTHESIS)	

D6056	Prefabricated abutment - includes placement ~~– A connection to an implant that is a manufactured component usually made of machined high noble metal, titanium, titanium alloy or ceramic.~~ Modification of a prefabricated abutment may be necessary ~~and is accomplished by altering its shape using dental burrs/diamonds.~~	648 IMPLANTS	Same	
D6057	Custom fabricated abutment - includes placement ~~– A connection to an implant that is a fabricated component, usually by laboratory, specific for an individual application. A custom abutment is typically fabricated using a cating process and usually is made of noble or high noble metal. A UCLA is an example of this type abutment.~~ Created by a laboratory process specific for individual application	648 IMPLANTS	Same	
D6101	Debridement of a periimplant defect and surface cleaning of exposed implant surfaces, including flap entry and closure		648 IMPLANTS	
D6102	Debridement and osseous contouring of a periimplant defect; includes surface cleaning of exposed implant surfaces and flap entry and closure		648 IMPLANTS	
D6103	Bone graft for repair of periimplant defect – not including flap entry and closure or when indicated, placement of a barrier membrane or biologic materials to aid in osseous regeneration		648 IMPLANTS	
D6104	Bone graft at time of implant placement – placement of a barrier membrane, or biologic materials at aid in osseous regeneration are reported separately		648 IMPLANTS	
D6253	Provisional Pontic ~~– pontic utilized as an interim of at least six months duration during restorative treatment to allow adequate time for healing or completion of other procedures. This is not to be used as a temporary pontic for routine prosthetic fixed partial dentures~~. Further treatment or completion of a diagnosis necessary prior to final impression. Not be used as a temporary pontic for routine prosthetic fixed partial dentures	621 ELECTIVE ADVANCED RESTORATIVE (INLAYS, ONLAYS, GOLD FOIL AND HIGH NOBLE METAL RESTORATIONS)	Same	
~~D6254~~	~~Interim pontic~~	DMAP Excluded File	None	
D6793	Provisional Retainer Crown ~~– Retainer crown utilized as an interim of at least six months duration during restorative treatment to allow adequate time for healing or completion of other procedures. This is not to be used as a temporary retainer crown for routine prosthetic fixed partial dentures.~~ Further treatment of completion or a diagnosis necessary prior to final impression. Not be used as a temporary retainer crown for routine prosthetic fixed partial dentures	621 ELECTIVE ADVANCED RESTORATIVE (INLAYS, ONLAYS, GOLD FOIL AND HIGH NOBLE METAL RESTORATIONS)	Same	
~~D6795~~	~~Interim retainer crown~~	DMAP Excluded File	None	
~~D6970~~	~~Post and core in addition to fixed partial denture retainer, indirectly fabricated~~	372 BASIC RESTORATIVE DENTAL WORK	None	
~~D6972~~	~~Prefabricated post and core in addition to fixed partial denture retainer~~	372 BASIC RESTORATIVE DENTAL WORK	None	

~~D6973~~	~~Core buildup for retainer;including pins~~	372 BASIC RESTORATIVE DENTAL WORK	None	
D6975	Coping - ~~metal~~	631 COMPLEX PROSTHODONTICS	Same	
~~D6976~~	~~Each additional indirectly fabricated post – same tooth~~	621 ELECTIVE ADVANCED RESTORATIVE (INLAYS, ONLAYS, GOLD FOIL AND HIGH NOBLE METAL RESTORATIONS)	None	
~~D6977~~	~~Each additional prefabricated post – same tooth~~	372 BASIC RESTORATIVE DENTAL WORK	None	
D6980	Fixed partial denture repair, ~~by report~~ repair necessitated by restorative material failure	372 BASIC RESTORATIVE DENTAL WORK	Same	
D7921	Collection and application of autologous blood concentrate product		DMAP Exluded File	
D7951	Sinus augmentation with bone or bone substitutes via a lateral open approach - The augmentation of the sinus cavity to increase alveolar height for reconstruction of edentulous portions of the maxilla. This procedure is performed via a lateral open approach. This includes obtaining the bone or bone substitutes. Placement of a barrier membrane if used should be reported separately.	No placement	648 DENTAL CONDITIONS (EG. MISSING TEETH)	
D7952	Sinus augmentation via a vertical approach - The augmentation of the sinus to increase alveolar height by vertical access through the ridge crest by raising the floor of the sinus and grafting as necessary. This includes obtaining the bone or bone substitutes.		649 IMPLANTS AND ASSOCIATED TREATMENTS FOR DENTAL CONDITIONS SUCH AS MISSING TEETH	
D9972	External bleaching per arch - performed in office	675 COSMETIC DENTAL SERVICES	Same	
D9975	External bleaching - external bleaching system for applications - per arch includes materials and fabrication of custom trays		675 COSMETIC DENTAL SERVICES	

Dental Guideline Changes for 2013 CDT Code Review

GUIDELINE NOTE 17, PREVENTIVE DENTAL CARE
Line 58
Dental cleaning and fluoride treatments are limited to once per 12 months for adults and twice per 12 months for children up to age 19 (D1110, D1120, D1203, D1204, D1206). More frequent dental cleanings and/or fluoride treatments may be required for certain higher risk populations. Additionally, assessment (D0191) may be performed once per 12 months for adults and twice per 12 months for children up to age 19.

GUIDELINE NOTE 53, BASIC PERIODONTICS
Line 232
Only for the treatment of severe drug-induced hyperplasia (D4210, D4211, D4212). Payable only when there are pockets of 5 mm or greater (D4341).

GN 91 is not needed. The code D2391 limits use to posterior surface alone. Surfaces cannot be identified in the current MMIS system. The Dental Advisory Committee recommended deleting the guideline for administrative simplicity. D2391 is not a new code.

~~**GUIDELINE NOTE 91, ONE SURFACE POSTERIOR COMPOSITE RESTORATIONS**~~
~~*Line 372*~~
~~HCPCS code D2391 is only included on this line for one surface posterior composite restorations on occlusal surfaces and class V surfaces in the esthetic zone (buccal surfaces of teeth 3,4,5,12,13,14,19,20,21,28,29,30,A,B,I,J,K,L,S,T).~~

Section 5

New Discussion Items

Silver Compounds For Dental Caries

Question: Should coverage for silver compounds (silver nitrate plus topical fluoride or silver diamine fluoride) to prevent and treat dental caries be added to the Prioritized List?

Question source: Senator Bates

Issue: There is significant debate in the dental community about the use of silver nitrate (in combination with topical fluoride) as a treatment for dental caries. A single agent, silver diamine fluoride (SDF), that is used internationally to treat caries, is currently not FDA approved. Some in the US are using silver nitrate plus topic fluoride as a proxy. Both methods are inexpensive, requires no anesthetic but does leave black spots on the teeth, which could be an issue with anterior (especially permanent) teeth.

Evidence Summary

MED, 2012

1) Silver diamine fluoride appears to be effective at preventing and treating caries.
2) Limitations:
    a. No studies have been performed in the US
    b. Studies were compared to sodium fluoride, sealants, interim restorative treatment, or nothing. Use of toothpaste and toothbrushing may not be comparable to US populations.
    c. No comparative efficacy data on standard fluoride prevention and treatment such as fluoridated water and varnish were included.
3) There is no evidence on the effectiveness of silver nitrate plus topical fluoride.

Summary

There is evidence of effectiveness of silver diamine fluoride, however, there are significant limitations to the data. The external validity is very limited, given that populations studied have very different prevalent rates of the standard prevention/treatments in the U.S. (e.g. tooth brushing, varnish, community water fluoridation). The long-term efficacy of arresting caries arresting with silver compounds (+/- restorative care) compared to usual care of restorative treatment is unknown. There is a significant risk of permanent tooth discoloration. Frequent application is required and restorative treatment may (always) be indicated. There is no evidence on the effectiveness of silver nitrate plus topical fluoride.

Recommendations:

1) Do not add silver treatments to the Prioritized List

2) Add a guideline to indicate that neither this treatment (Silver diamine fluoride) nor a proxy (silver nitrate plus fluoride) are included on the Prioritized List

Guideline Note XX Silver compounds for dental caries

Lines 58, 372, 373, 494, 621

Silver compounds for dental caries prevention and treatment are not included on these or any lines on the Prioritized List for coverage consideration.

Steve Duffin, D.D.S.

11631 Lausanne St.

Wilsonville, OR 97070

November 30, 2012

Silver Nitrate Use In Dentistry

HERC

Value Based Benefits Subcommittee

Ladies and Gentlemen:

The founders of the modern dental profession, WD Miller (1890), GV Black(1908) and Percy Howe(1917) all used and taught the use of silver nitrate to arrest caries with remarkable success. Fluoride came on the scene in the 1950's and its success overshadowed the earlier use of silver nitrate. Today we have water fluoridation, fluoride tooth paste and fluoride varnish. In spite of this situation, dental cares is making a comeback. It is not known why this is, but the likely reason is changing dietary patterns and new types and quantities of sugars in processed foods.

I knew that something different needed to be brought to bear on the current epidemic of caries in high risk populations. I learned about a protocol to arrest caries using silver nitrate described in 1908 by G. V. Black. I then developed a simple method that consists of a combination therapy using silver nitrate (one drop) + fluoride varnish. The results were stunning. Essentially all of the cavities that were carefully treated with this technique became arrested and new cavities did not form in these patients. This methodology is described in "Back the Future, Medical Management of Caries" Published in the November 2012 issue of the Journal of the California Dental Association. In addition, I am including a recent review paper covering the historical use of silver compounds in dentistry by Peng. Efficacy and safety are addressed well in this paper.

By combining wisdom from the past together with modern fluoride varnish products we now have a cost effective tool using minimum intervention to halt dental caries in its tracks. Over the past year I have had the opportunity to provide training in this protocol to many dental offices and in universities across the country. In Oregon, this training has been largely within the Advantage Dental provider network. Evidence suggests that similar outcomes are beginning to be seen in this patient population. I hope that everyone who is involved with delivering oral health services might become aware of this new/old tool that has come back to us.

Sincerely,

Steve Duffin steveduffin8@gmail.com

CDA JOURNAL, VOL 40, Nº11

Back to the Future: The Medical Management of Caries Introduction

STEVEN DUFFIN, DDS

ABSTRACT Based on the literature, a protocol was developed involving the application of 25 percent silver nitrate directly to cavitated caries lesions, immediately followed by 5 percent sodium fluoride varnish. This protocol results in arrest of active caries lesions. This minimally invasive treatment is well-accepted by patients and reduces anxieties related to dental office visits.

AUTHOR

Steve Duffin, DDS, owner of Shoreview Dental LLC, practiced general dentistry for 30 years. He obtained a microbiology degree from the University of California, Los Angeles, in 1979 and his DDS degree from Emory School of Dentistry in 1983. *Conflict of Interest Disclosure: Steven Duffin, DDS, is owner of Shoreview Dental, LLC.*

In the late 1970s, it looked like the dental profession might be close to finding the cure for caries—the world's most prevalent disease. Initiation of community water system fluoridation programs in the 1950s plus the introduction of fluoridated toothpaste substantially cut caries rates across many demographics in America. And there was talk of a caries vaccine that would be available in 10 years or so that would essentially eliminate the disease.[1]

Thirty-something years later, in many ways, things have not changed that much. Even today, there is still talk about a possible caries vaccine that would be available in 10 years. In more affluent populations within the United States, caries is a relatively minor health concern. Multiple studies show that 20 percent of the population have 80 percent of dental caries. Those high caries rate populations are characterized by lower socioeconomic status. Contributing factors for high disease rates may be increased exposure to dietary sugars, lower dental IQ, and ineffective oral hygiene practices.[2]

What has changed is that we now have a much greater awareness that despite good oral health for a large proportion of Americans, there are great disparities among different populations within the United States; some continue to have a high prevalence of caries, and a correspondingly high morbidity from the disease. This is especially true for the children of some racial and ethnic minority populations, as was pointed out in the Surgeon General's report on Oral Health in America in the years 2000 and

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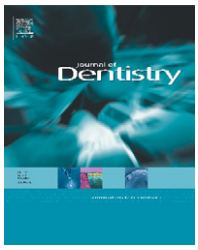

Review

Silver compounds used in dentistry for caries management: A review

J.J.-Y. Peng [a], M.G. Botelho [a,*], J.P. Matinlinna [b]

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Silver
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ABSTRACT

Objective: Silver compounds have been used for their medical properties for centuries and in dentistry for more than a century. The aim of this review is to examine the evidence supporting the therapeutic use of silver in dentistry and the outcomes from the clinical trials, as well as mode of action and biocompatibility.

Data sources: Literature was searched using the PubMed database between the year 1966 and 2011, with principle key terms such as ''Silver Nitrate'', ''Silver Fluoride'', ''Silver Diammine Fluoride'', ''Silver compounds'' and ''Dental caries''. Hand searching was performed for relevant papers cited in the indices back to the year 1905.

Results: *In vitro*, *in vivo* and clinical evidence have demonstrated that silver compounds are viable agents for preventing and arresting caries both in the primary and permanent dentition; however they are associated with adverse tooth discolouration and some reports that pulp irritation may occur. Further research has investigated its effectiveness as a dentine desensitiser, root canal disinfectant and even in silver impregnated restorative materials. The mode of action of silver compounds on carious tooth tissues is thought to include inhibition of the demineralization process, as well as an anti-bacterial effect by interference of bacterial cell membranes, cytoplasmic enzymes and inhibition of bacterial DNA replication.

Conclusion: Silver compounds have been shown to be an effective anti-caries agent; however, there is an incomplete understanding of how silver compounds prevent caries. Further research is required to help identify its most efficacious use and limitations.

1. Introduction

Since the 1800s, silver (Ag) has been used both in dentistry and medicine for its anticaries, antimicrobial and antirheumatic properties. In the 1900s, silver compounds were popular regimens for treating tetanus and rheumatism and before antibiotics were invented, clinicians attempted to treat colds and gonorrhoea by utilizing silver compounds before antibiotics were invented.[1] In the 1930s, penicillin and other antibiotics emerged and health professionals discovered that antibiotics were superior to silver compounds for their efficacy of combating infections and their easy of manufacture.[2] Owing to these reasons, research and clinical interest in silver greatly reduced. However, in the 1970s, interest in silver compounds reappeared, due to the emergence of antibacterial

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0300-5712/$ – see front matter
http://dx.doi.org/10.1016/j.jdent.2012.03.009

Pseudobulbar Affect

Question: Should pseudobulbar affect (ICD-9 310.81) be moved to a higher priority line on the Prioritized List?

Question source: Avanir Pharmaceuticals

Issue: Currently, pseudobulbar affect is on line 687 NEUROLOGIC CONDITIONS WITH NO OR MINIMALLY EFFECTIVE TREATMENTS OR NO TREATMENT NECESSARY. Avanir Pharmaceuticals is requesting that this condition be reviewed for higher placement, as they believe that their product NUEDEXTA™ (dextromethorphan hydrobromide and quinidine sulfate) capsules is an effective treatment for this condition (see letter).

Pseudobulbar affect (PBA) refers to a neurologic disorder characterized by involuntary crying or uncontrollable episodes of crying and/or laughing, or other emotional displays. PBA occurs secondary to neurologic disease or brain injury. PBA is also known as emotional lability or labile affect. Traditionally, antidepressants such as fluoxetine, citalopram, or amitriptyline have been prescribed with moderate efficacy. In 2010, a combination of dextromethorphan and quinidine was approved by the U.S. Food and Drug Administration (FDA) for the treatment of PBA. The drug, Nuedexta, was developed and created by Avanir Pharmaceuticals and became available on January 31, 2011.

The placement of PBA was discussed at the HOSC meeting in August, 2011 when the new ICD-9 code was reviewed. Per the HOSC minutes: "310.81 (Pseudobulbar affect)…[was]…placed on line 674 NEUROLOGIC CONDITIONS WITH NO OR MINIMALLY EFFECTIVE TREATMENTS OR NO TREATMENT NECESSARY rather than the dysfunction lines. Saha felt that these conditions did not have effective treatments and should not be paired with all of the treatments available on the dysfunction lines."

PBA caused by other conditions, such as MS or strokes, is supposed to be billed first with the underlying diagnosis if one is known.

Note that both components of Nuedexta are available in inexpensive, generic form (estimated to be about $20 a month). However, the cost of Nuedexta is estimated to be between $400 to $483 a month.

Pseudobulbar Affect

Evidence:

1) **Pioro 2011**, review of pharmacologic treatments for PBA
    a. 7 RCTs identified for use of antidepressants
        i. Only 2 trials had more than 30 patients (N=106, 123)
        ii. One 1 trial (N=28) used a validated scale of symptom severity
    b. 3 RCTs identified for use of dextromethorphan plus quinidine (N=129, 150 and 326 subjects). Among these studies, two were placebo-controlled and all three used a validated severity scale.
    c. Across all placebo-controlled trials, response to active treatment (antidepressant or dextromethorphan/quinidine) has in general been significantly greater than response to placebo, but placebo response has sometimes been substantial, suggesting caution in interpreting uncontrolled findings.
    d. No studies exist which compare dextromethorphan/quinidine to antidepressants.
    e. Among types of adverse events reported by at least 5% of the recipients of dextromethorphan/quinidine dosed at 20/10 mg, the FDA-approved level, dizziness and diarrhoea were more frequent than for placebo
    f. Review supported by Avanir Pharmaceuticals

Articles submitted by Avanir Pharmaceuticals

1) Articles included in Pioro 2011 review: Brooks 2004, Panich 2006, Pioro 2010
2) **Miller 2011**, review article
    a. Selective serotonin reuptake inhibitors, serotonin/norepinephrine reuptake inhibitors (SNRIs) and tricyclic antidepressants are used off-label to treat PBA, with evidence of efficacy based on findings from case studies, open-label trials and placebo-controlled trials, most of which have been small.
    b. In large, well-controlled trials, DMQ has demonstrated efficacy versus either of its components (DM or Q) and versus placebo. The recent approval of DMQ for PBA makes it the first medication with this indication and offers a needed treatment option.

Recommendation:

1) Do not change current prioritization of pseudobulbar affect
    a. Limited evidence of effective treatments for PBA exists
    b. Concomitant depression or other conditions are covered on the Prioritized List

REVIEW ARTICLE

Drugs 2011; 71 (9): 1193-1207
0012-6667/11/0009-1193/$55.55/0

Current Concepts in the Pharmacotherapy of Pseudobulbar Affect

Erik P. Pioro

Cleveland Clinic, Cleveland, OH, USA

Contents

Abstract

Arising in settings of CNS insult, pseudobulbar affect (PBA) consists of uncontrollable episodes of crying or laughter incongruent to the patient's mood. The syndrome has been described by a plethora of names, including pathological laughing and crying, emotional lability, emotionalism and emotional incontinence, which hampers efforts to survey published assessments of pharmacological intervention. Still, until quite recently, all treatment has unavoidably been off-label, chiefly involving antidepressants. Using PBA and other syndrome names as search terms, a PubMed search for English-language case reports and therapeutic trials involving at least five patients identified 22 such publications from 1980 through to 2010. Among the seven randomized, double-blind, antidepressant studies with placebo control, two trials assessed 106 and 123 subjects, respectively. However, the other five assessed only 12–28 subjects, and only one of these seven trials (with 28 subjects) measured change in syndrome severity using a validated scale. The three randomized, double-blind studies of dextromethorphan plus quinidine assessed 129, 150 and 326 subjects. Among these studies, two were placebo-controlled and all three used a validated severity scale. Across all placebo-controlled trials, response to active treatment – either an antidepressant or dextromethorphan/quinidine – has in general been significantly greater than response to placebo, but placebo response has sometimes been substantial, suggesting caution in interpreting uncontrolled findings. In October 2010, dextromethorphan/quinidine received approval from the US FDA as first-in-class PBA pharmacotherapy. Advocates of a continuing role for antidepressants, notably selective serotonin

EXPERT REVIEWS

Pseudobulbar affect: the spectrum of clinical presentations, etiologies and treatments

Expert Rev. Neurother. 11(7), 1077–1088 (2011)

Ariel Miller[†1], Hillel Pratt[2] and Randolph B Schiffer[3]

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Pseudobulbar affect (PBA) consists of uncontrollable outbursts of laughter or crying inappropriate to the patient's external circumstances and incongruent with the patient's internal emotional state. Recent data suggest disruption of cortico–pontine–cerebellar circuits, reducing the threshold for motor expression of emotion. Disruption of the microcircuitry of the cerebellum itself may likewise impair its ability to act as a gate-control for emotional expression. Current evidence also suggests that serotonergic and glutamatergic neurotransmission play key roles. Although antidepressants have shown benefit, the supportive clinical data have often derived from small numbers of patients and unvalidated measures of PBA severity. Dextromethorphan/quinidine, the first FDA-approved PBA medication, is a novel therapy with antiglutamatergic actions. As life expectancy lengthens and the neurologic settings of PBA become more common, the need for treatment can be expected to increase.

Keywords: cerebellum • cortico–pontine–cerebellar circuit • dextromethorphan/quinidine • event-related potentials • involuntary emotional expression disorder • pseudobulbar affect • selective serotonin reuptake inhibitors • tricyclic antidepressants

Pseudobulbar affect (PBA) is a disorder of emotional expression characterized by uncontrollable outbursts of laughter or crying that lack an appropriate environmental trigger and may be exaggerated or incongruent with the underlying emotional state. It is a distinct neurologic condition associated with various neurologic diseases or brain injuries [1,2]. Although reported prevalence rates vary greatly, it may be most common in patients with amyotrophic lateral sclerosis (ALS) [3] and stroke [4], where rates as high as 50% or more have been estimated. PBA is also reported in patients with multiple sclerosis (MS; 10–29%) [5,6], Parkinson's disease (5–17%) [7–9], Alzheimer's disease (39%) [10] and traumatic brain injury (5–11%) [11,12].

Pseudobulbar affect is an added burden to patients who may already be disabled or experiencing a reduced quality of life due to their underlying neurologic disorder. Because of the embarrassment associated with an inappropriate outburst of emotion, patients' social interaction may be impaired [12]. The risk of depression and anxiety symptoms may be increased, and quality of life is often decreased [9,12]. PBA can also interfere with rehabilitation [13]. Although PBA continues to be underdiagnosed and undertreated [14], understanding of the condition has been advancing in recent years. This review will summarize the established knowledge in PBA, as well as recent findings related to its presentation, etiology, underlying mechanisms and emerging treatments.

Taxonomy of emotional expression disorders

The terminology associated with the naming and description of disorders of emotion has been unclear and confusing, and may contribute to the under- and mis-diagnosis of these disorders. The problem is twofold, in that the same or similar disorders have been given multiple names, and the language used to describe the disorders has been inconsistent or misleading. In addition to PBA, symptomatology has been described as affective instability, compulsive laughing or weeping, emotional or affective lability, emotional incontinence, emotionalism, excessive

 10.1586/ERN.11.68

From: Hope Murphy [mailto:hmurphy@consonushealth.com]
Sent: Monday, December 03, 2012 10:39 AM
To: Dorothy.e.allen@state.or.us
Subject: letter regarding Nuedexta

Good morning:

My name is Hope Murphy, and I am a consultant pharmacist with Consonus pharmacy (located in Milwaukie, OR). Schearon Stewart of Avanir requested that I contact you regarding my experience with Nuedexta in the residential care setting.

The first thing you should know is that I own stock in nothing. I do not support Avanir, and they do not support me. The second thing is, I do not support new drugs for older people.

Those things being said, I DO appreciate and have requested Nuedexta for some of my residents. I have only a small number of residents on this drug (despite my efforts to expand this number), but those few have demonstrated really remarkable improvements in behavior and comfort. Safety and comfort are the most important issues I address in the population I work with. I have seen these people go from continuous tearfulness and confusion to calm in a matter of a few days. They can enjoy their families and fellow residents again. They are not snowed by a drug. They are just clear eyed and peaceful. It's quite remarkable.

Getting the drug has been difficult secondary to the need for documentation for efficacy and on label use, as well as a prior authorization.

I support the ability to obtain this drug without the 'speed bump' of a prior authorization. I believe it will reduce costs further down the care stream (fewer adverse drug event hospitalizations, etc). I know it has helped my residents, and I would like to see more of my residents on Nuedexta. Streamlining the process for approval will help improve their lives, as well as the lives of those around them.

Thank you very much for your consideration of this medication.

Kind regards,

Hope Murphy

Hope Murphy
Consultant Pharmacist
Consonus
(c) 360 640 9897
(f) 503 652 0383
hmurphy@consonushealth.com

From: Debbie Larson [mailto:LarsenD@gracelenterrace.com]
Sent: Monday, December 03, 2012 2:16 PM
To: dorothy.e.allen@state.or.us
Subject: Nuedexta

12/3/12

Dear Dorothy Allen & The Health Evidence Review Commission,

Hello. My name is Debbra Larson, and I am a RN care manager at a long term care geri-psych nursing care facility (Gracelen Terrace) in Portland Oregon. I am writing to you to express my thoughts on Pseudobulbar affect (PBA) and the role of Nuedexta in treating patients with this condition.

I have been working in my current facility for the past 10 years. Gracelen Terrace specializes in providing cares to geriatric patients with mood and behavioral disturbances secondary to psychiatric & cognitive disease processes. In the past year I have treated three of these patients with Nuedexta to manage their PBA. I cannot express clearly enough to you, the benefit this medication has made in the lives of these patients. Each of these patients has utilized mood stabilizers, antidepressants, anti-anxiety, and antipsychotic medications in an attempt to manage their PBA symptoms. Despite multiple medication trials each of them continued to experience significant episodes of crying, screaming, and inappropriate laughing multiple times daily. Additionally their behavioral expressions were so severe that they often were unable to participate in activities and/or their daily cares. With use of Nuedexta each of these patients experienced significant decline in their level of distress without experiencing many of the side effects identified with use of antipsychotic medications. 2/3 of these patients were also able to have their psychoactive medications reduced.

Given my exposure and experience with PBA, I highly encourage you to add Nuedexta to your list of approved medications as there are no other medications dedicated to the management of PBA symptoms.

Sincerely,

Debbra Larson, RN RCM

Section 6

Cover Guidance Review

CG – Viscosupplementation for the Knee

Question: How should the HERC approved Coverage Guidance – Viscosupplementation for the knee—be incorporated into the Prioritized List?

Question source: Health Evidence Review Commission

Issue: HERC approved the Coverage Guidance: Viscosupplementation for the knee in October, 2012. This coverage guidance needs to be evaluated for application within the Prioritized List.

HERC Coverage Guidance

> Viscosupplementation should not be covered for the treatment of pain associated with Osteoarthritis (OA) of the knee.

Current Prioritized List status:
CPT 20610 (Arthrocentesis, aspiration, and/or injection; major joint or bursa (e.g. shoulder, hip, knee joint) is used to for viscosupplementation of the knee. This CPT code is found on lines 52, 84, 151, 161, 308, 384, 406, 443, 455, 489, 529, 531, 549, 619, 623, and 634. Osteoarthritis of the knee (715.16, .26, .36, .96) is found on lines 384 RHEUMATOID ARTHRITIS, OSTEOARTHRITIS, OSTEOCHONDRITIS DISSECANS, AND ASEPTIC NECROSIS OF BONE and 489 OSTEOARTHRITIS AND ALLIED DISORDERS. Internal derangement of the knee (ICD-9 716) is located on lines 455 INTERNAL DERANGEMENT OF KNEE AND LIGAMENTOUS DISRUPTIONS OF THE KNEE, POTENTIALLY RESULTING IN SIGNIFICANT INJURY/IMPAIRMENT and 638 SPRAINS AND STRAINS OF ADJACENT MUSCLES AND JOINTS, MINOR.

Recommendations:

1. Add the following Guideline to lines 384, 455, and 489.

   GUILDELINE XXX, VISCOSUPPLEMENTATION OF THE KNEE
   Lines 384, 455, 489
   Viscosupplementation of the knee (CPT 20610) is not covered for treatment of osteoarthritis of the knee.

HEALTH EVIDENCE REVIE COMMISSION (HERC)

COVERAGE GUIDANCE: VISCOSUPPLEMENTATION FOR OSTEOARTHRITIS OF THE KNEE

DATE: 10 11 2012

HERC COVERAGE GUIDANCE

Viscosupplementation should not be covered for the treatment of pain associated with Osteoarthritis (OA) of the knee.

RATIONALE FOR GUIDANCE DEVELOPMENT

The HERC selects topics for guideline development or technology assessment based on the following principles:

- Represents a significant burden of disease
- Represents important uncertainty with regard to efficacy or harms
- Represents important variation or controversy in clinical care
- Represents high costs, significant economic impact
- Topic is of high public interest

Coverage guidance development follows to translate the evidence review to a policy decision. In addition to an evidence-based guideline developed by the Evidence-based Guideline Subcommittee and a health technology assessment developed by the Heath Technology Assessment Subcommittee, coverage guidance may utilize an existing evidence report produced in the last 5 years by the Agency for Healthcare Research and Quality, the Medicaid Evidence-based Decisions Project or the Washington Health Technology Assessment Program.

EVIDENCE SOURCES

Hayes, Inc. (2010). *Hyaluronic Acid/Viscosupplementation.* Produced for the Medicaid Evidence-based Decisions Project and the Washington Health Technology Assessment Program. Portland, OR: Center for Evidence-based Policy, Oregon Health and Science University. Retrieved September 10, 2012, from http://www.hta.hca.wa.gov/documents/ha final report 042610.pdf

Hayes, Inc. (2010). *Viscosupplementation for osteoarthritis of the knee.* Produced for the Medicaid Evidence-based Decisions Project. Portland, OR: Center for Evidence-based Policy, Oregon Health and Science University. Retrieved September 10, 2012, from http://www.ohsu.edu/xd/research/centers-institutes/evidence-based-policy-center/med/index.cfm

Samson, D. J., Grant, M. D., Ratko, T. A., Bonnell, C. J., □iegler, K. M., □ Aronson, N. (2007). *Treatment of primary and secondary osteoarthritis of the knee.* AHRQ Evidence Report/Technology Assessment No. 157. AHRQ Publication No. 107-E012. Evidence Report/Technology Assessment, (157), 1-157. Retrieved September 10, 2012, from http://www.ncbi.nlm.nih.gov/books/NBK38385/

The summary of evidence in this document is derived directly from these evidence sources, and portions are extracted verbatim.

SUMMARY OF EVIDENCE

Clinical Background

Osteoarthritis (OA) is the most common form of chronic articular disease, affecting approximately 27 million adults in the United States. The most commonly affected joint is the knee, with prevalence estimates ranging from 12% to 16%. To date, there is no known cure for OA nor is there a disease-modifying agent. Optimal management generally requires a combination of both nonpharmacological and pharmacological therapies, and joint replacement surgery or a joint salvage procedure may be considered for selected patients with severe symptomatic OA who have not obtained adequate pain relief and functional improvement from medical therapy. Pharmacological therapy generally begins with acetaminophen, followed by nonsteroidal anti-inflammatory drugs (NSAIDs) if sufficient pain relief is not obtained. There is a small risk of systemic adverse effects with NSAIDs. Aspiration of fluid followed by intraarticular injection of a corticosteroid ameliorates pain in some patients, but duration of relief is usually limited to one to three weeks. Additionally, repeated intraarticular injections of corticosteroids have the potential to cause postinjection flare, infection, and progressive, long-term cartilage damage.

Recently, viscosupplementation with hyaluronan has been introduced as an alternative intraarticular injection therapy for OA. Hyaluronans are also known as sodium hyaluronate or hyaluronic acid (HA). Hyaluronic acid is a normal component of synovial fluid and cartilage. The viscous nature of the compound allows it to act as a joint lubricant, whereas its elasticity allows it to act as a shock absorber. Hyaluronic products are characterized by their molecular weight, which varies according to the source of the compound and method of preparation. Five HA products are currently marketed in the United States: Euflexxa□ (Ferring), Hyalgan□ (Sanofi-Aventis), Orthovisc□ (Anika

Therapeutics), Supartz (Seikagaku Corporation), and Synvisc (Genzyme). Synvisc is a derivative of HA that consists of cross-linked polymers; the compound is referred to as Hylan G-F 20. Hyaluronate preparations have been approved by the Food and Drug Administration (FDA) for treatment of pain associated with OA of the knee in patients who have not had an adequate response to nonpharmacological, conservative treatment and simple analgesics. Recent systematic reviews have come to contradictory conclusions regarding the effectiveness of viscosupplementation, and national guidelines vary in their recommendations.

Evidence Review

There is consistent evidence demonstrating that viscosupplementation results in lower mean pain scores and improves mean function scores a few weeks after treatment. However, the magnitude of benefit may be too small to be clinically important. This evidence is derived from a quantitative synthesis of six meta-analyses performed by the Agency for Healthcare Research and Quality in 2007 which included 42 randomized placebo controlled trials and over 5000 patients (Samson 2007). The authors found that the average change in pain score, although consistent and statistically significant, was small, with weighted mean differences in the range of 1.0 to 22.5 on a 100 point visual acuity scale. While there is no definitive definition of clinical significance, several authors, including Sampson, consider a 20 to 40 point improvement on 100 point pain scales to be clinically significant. The authors also reviewed the five previously published study-level meta-analyses that came to a variety of conclusions regarding the efficacy of viscosupplementation. These ranged from negative to moderately positive to strongly positive. The authors of the Samson review considered only one meta-analysis to have reported data and analysis that fully supported the meta-analysis authors' conclusion. This was also the metaanalysis with a negative conclusion—that the *clinical* effectiveness of viscosupplementation has not been proven and that viscosupplementation may be associated with a higher risk of adverse events.

There is a much greater volume of evidence regarding impact on pain than on function, and many studies did not follow patients beyond three months. Therefore, the impact of viscosupplementation on eventual recovery of function is uncertain. Compared with intraarticular corticosteroid injection, viscosupplementation appears to confer longer-lasting benefit, but the evidence was considered low quality. For comparisons with other treatments, there was insufficient evidence to allow any conclusion. Adverse events occur at a frequency of approximately 2% in single courses of treatment and are primarily transient local reactions, although rare, serious reactions are possible. The rate of adverse events per patient has been shown to increase with repeat courses of treatment, but the only available data were for hylan (high-molecular weight HA).

Evidence pertaining to issues other than efficacy and safety is of low quality:

- Available evidence suggests that viscosupplementation may be as effective as NSAIDs (four RCTs) and results in fewer systemic adverse events (two RCTs); in comparison with intraarticular corticosteroids, it has a delayed onset and longer lasting benefit (nine RCTs plus meta-analysis).
- Hylan may have a superior benefit compared with that of non–cross-linked HA, but the magnitude of difference is very uncertain and hylan poses a small increase in the risk of adverse events.
- To date, there is no evidence of a difference in benefit between low and medium molecular weight HA.
- Younger age may be associated with greater efficacy; evidence pertaining to effectiveness by other patient characteristics and history is lacking.

Overall Summary

While the evidence demonstrates that viscosupplementation results in lower mean pain scores and improved mean function scores a few weeks after treatment, the magnitude of benefit may be too small to be clinically important.

PROCEDURE

Viscosupplementation

DIAGNOSES

Osteoarthritis of the knee

APPLICABLE CODES

CODES	DESCRIPTION
ICD Diagnosis Codes	
715	Osteoarthrosis and allied disorders Note: Localized, in the subcategories below, includes bilateral involvement of the same site. Includes: arthritis or polyarthritis: degenerative hypertrophic degenerative joint disease osteoarthritis
715.16	Osteoarthrosis localized primary involving lower leg
715.26	Osteoarthrosis localized secondary involving lower leg

CODES	DESCRIPTION
715.36	Osteoarthrosis localized not specified whether primary or secondary involving lower leg
715.96	Osteoarthrosis unspecified whether generalized or localized involving lower leg
717	Internal derangement of knee Includes: degeneration of articular cartilage or meniscus of knee; rupture, old of articular cartilage or meniscus of knee; tear, old of articular cartilage or meniscus of knee
ICD Volume 3 (procedure codes)	
81.92	Injection of therapeutic substance into joint or ligament as an ICD-9 procedure
ICD 10 Diagnosis Codes	
M15	Polyarthrosis Includes: arthrosis with mention of more than one site Excludes: bilateral involvement of single joint (M16-M19)
M15.0	Primary generalized (osteo)arthrosis
M15.3	Secondary multiple arthrosis
M15.4	Erosive (osteo)arthrosis
M15.8	Other polyarthrosis
M15.9	Polyarthrosis, unspecified
M17	Gonarthrosis (arthrosis of knee)
M17.0	Primary gonarthrosis, bilateral
M17.1	Other primary gonarthrosis
M17.2	Post-traumatic gonarthrosis, bilateral
M17.3	Other post-traumatic gonarthrosis
M17.4	Other secondary gonarthrosis, bilateral
M17.5	Other secondary gonarthrosis
M17.9	Gonarthrosis, unspecified
M19	Other arthrosis
CPT Codes applicable to viscosupplementation	
20610	Arthrocentesis, aspiration, and/or injection; major joint or bursa (e.g. shoulder, hip, knee joint)
CPT Codes applicable to total knee replacement (TKR)	
27440	Arthroplasty, knee tibial plateau
27441	Arthroplasty, knee tibial plateau; with debridement and partial synovectomy
27442	Arthroplasty, femoral condyles, or tibial plateau(s) knee
27443	Arthroplasty, femoral condyles, or tibial plateau(s) knee; with debridement and partial synovectomy
27445	Arthroplasty, knee, hinge prosthesis (e.g., Walldius type)
27446	Arthroplasty, knee condyle and plateau; medial or lateral compartment
27437	Arthroplasty, patella; without prosthesis
27438	Arthroplasty, patella; with prosthesis
27447	Arthroplasty, knee condyle and plateau; medial and lateral compartments with or without patella resurfacing (total knee arthroplasty)
HCPCS Level II Codes for viscosupplementation	
J7321	Hyaluronan or derivative, Hyalgan or Supartz, for intra-articular injection, per dose

CODES	DESCRIPTION
J7323	Hyaluronan or derivative, Euflexxa, for intraarticular injection, per dose
J7324	Hyaluronan or derivative, Orthovisc, for intraarticular injection
J7325	Hyaluronan or derivative, Synvisc or Synvisc-One, for intraarticular injection, 1 mg
HCPCS Level II Codes for intraarticular cortisone injection	
J0702	Injection betamethasone acetate 3 mg and betamethasone sodium phosphate, 3 mg
J0704	Injection, betamethasone sodium phosphate per 4 mg
J1020	Injection, methylprednisone acetate, 20 mg
J1030	Injection, methylprednisone acetate, 40 mg
J1040	Injection, methylprednisone acetate, 80 mg
J1094	Injection, dexamethasone acetate, 1 mg
J1100	Injection, dexamethasone sodium phosphate, 1 mg
J1700	Injection, hydrocortisone acetate, up to 25 mg
J1710	Injection, hydrocortisone sodium phosphate, up to 50 mg
J1720	Injection, hydrocortisone sodium succinate, up to 100 mg
J2650	Injection, prednisolone acetate, up to 1 mL
J2920	Injection methylprednisone sodium succinate up to 40 mg
J2930	Injection methylprednisone sodium succinate up to 125 mg
J3302	Injection triamcinolone diacetate, per 5 mg
J3303	Injection triamcinolone hexacetonide, per 5 mg

Note: Inclusion on this list does not guarantee coverage

CG – Percutaneous Interventions for Low Back Pain

Question: How should the HERC approved Coverage Guidance – Percutaneous interventions for low back pain—be incorporated into the Prioritized List?

Question source: Health Evidence Review Commission

Issue: HERC approved the Coverage Guidance: Percutaneous interventions for low back pain in October, 2012. This coverage guidance needs to be evaluated for application within the Prioritized List.

HERC Coverage Guidance

For radicular low back pain, Epidural steroid injections should be covered for patients with persistent radiculopathy due to herniated lumbar disc; it is recommended that shared decision-making regarding epidural steroid injection include a specific discussion about inconsistent evidence showing moderate short-term benefits, and lack of long-term benefits. If an epidural steroid injection does not offer benefit, repeated injections should not be covered.

Epidural steroid injections should NOT be covered for spinal stenosis.

For radicular low back pain, the following treatments should NOT be covered:
- coblation nuceleoplasty
- radiofrequency denervation

For nonradicular low back pain, the following treatments should NOT be covered:
- facet joint corticosteroid injection
- prolotherapy
- intradiscal corticosteroid injection
- local injections
- botulinum toxin injection
- epidural steroid injection
- intradiscal electrothermal therapy (IDET)
- therapeutic medial branch block
- radiofrequency denervation
- sacroiliac joint steroid injection
- coblation nucleoplasty
- percutaneous intradiscal radiofrequency thermocoagulation

CG – Percutaneous Interventions for Low Back Pain

Current Prioritized List status:

CPT code	Code description	Current List/Line(s)	Recommended Changes
20552-20553	Injection, single or multiple trigger point(s)	529,531,619,623	
20600	Arthrocentesis, aspiration and /or injection; small joint or bursa (eg, fingers, toes)	52,84,161,308,443,489,529,531,619,623,634	Remove 720.1 (Spinal enthesopathy) from line 52
20605	intermediate joint or bursa (eg, temporomandibular, acromioclavicular, wrist, elbow or ankle, olecranon bursa)	52,84,161,308,326,443,489,531,561,619,623,634	Remove 720.1 from line 52
20610	major joint or bursa (eg, shoulder, hip, knee joint, subacromial bursa)	52,84,151,161,308,384,406,443,455,489,529,531, 549, 619, 623, 634	Remove 720.1 from line 52
22521-22522	Percutaneous vertebroplasty (bone biopsy included when performed), 1 vertebral body, unilateral or bilateral injection; lumbar	Excluded	
22526-22527	Percutaneous intradiscal electrothermal annuloplasty, unilateral or bilateral including fluoroscopic guidance; single level	Excluded	
27096	Injection procedure for sacroiliac joint, anesthetic steroid, with image guidance (fluoroscopy or CT) including arthrography when performed	Diagnostic	Excluded
62292	Injection procedure, arterial, for occlusion of arteriovenous malformation, spinal	Excluded	
62310	Injection(s), of diagnostic or therapeutic substance(s) (including anesthetic, antispasmodic, opioid, steroid, other solution), not including neurolytic substances, epidural or subarachnoid; cervical or thoracic	Ancillary	
62311	**lumbar**, sacral (caudal)	Ancillary	Add to line 400
64412	Injection, anesthetic agent; spinal accessory nerve	Ancillary	

CG – Percutaneous Interventions for Low Back Pain

64479	Injection(s), anesthetic agent and/or steroid, transforaminal epidural, with imaging guidance (fluoroscopy or CT); cervical or thoracic, single level	Excluded	
64480	each additional level	Excluded	
64483	Injection(s), anesthetic agent and/or steroid, transforaminal epidural, with imaging guidance (fluoroscopy or CT); **lumbar** or sacral, single level	164 HERPES ZOSTER; HERPES SIMPLEX AND WITH NEUROLOGICAL AND OPHTHALMOLOGICAL COMPLICATIONS	Remove from line 164 Add to line 400
64484	each additional level	164	Remove from line 164 Add to line 400
64490-64495	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint)	Excluded	
64633-64636	Destruction by neurolytic agent, paravertebral facet join nerve(s), with imaging guidance (fluoroscopy or CT)	Excluded	
96372	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); subcutaneous or intramuscular	Ancillary	

Diagnosis codes (ICD-9) included in the HERC guidance are found on lines:
52 RHEUMATOID ARTHRITIS AND OTHER INFLAMMATORY POLYARTHROPATHIES
400 DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT
434 SPINAL DEFORMITY, CLINICALLY SIGNIFICANT
562 ACUTE AND CHRONIC DISORDERS OF SPINE WITHOUT NEUROLOGIC IMPAIRMENT
607 SPINAL DEFORMITY, NOT CLINICALLY SIGNIFICANT
638 SPRAINS AND STRAINS OF ADJACENT MUSCLES AND JOINTS, MINOR

Recommendations:

1) Move 720.1 (Spinal enthesopathy) [M46.0 in ICD-10] from line 52 RHEUMATOID ARTHRITIS AND OTHER INFLAMMATORY POLYARTHROPATHIES to lines 516 PERIPHERAL ENTHESOPATHIES --MEDICAL THERAPY and 531 PERIPHERAL ENTHESOPATHIES--SURGICAL THERAPY
    a. Consistent with other enthesopathies
    b. Will no longer pair with treatment codes for radicular low back pain
2) Add lumbar epidural steroid injections (CPT 62311, 64483, 64484) to line 400 DISORDERS OF SPINE WITH NEUROLOGIC IMPAIRMENT with the guideline below

a. Rationale: Line 400 contains radicular back pain diagnoses and disk displacement diagnoses

GUIDELINE NOTE XXX, EPIDURAL STEROID INJECTIONS, OTHER PERCUTANEOUS INTERVENTIONS FOR LOW BACK PAIN
Lines 52, 400, 434, 562, 607, 638
Epidural steroid injections (CPT 62311, 64483, 64484) are covered for patients with persistent radiculopathy due to a herniated lumbar disc; it is recommended that shared decision-making regarding epidural steroid injection include a specific discussion about inconsistent evidence showing moderate short-term benefits, and lack of long-term benefits. If an epidural steroid injection does not offer benefit, repeated injections should not be covered. Epidural steroid injections are not covered for spinal stenosis or for patients with low back pain without radiculopathy.

The following interventions are not covered for low back pain, with or without radiculopathy: facet joint corticosteroid injection, prolotherapy, intradiscal corticosteroid injection, local injections, botulinum toxin injection, intradiscal electrothermal therapy, therapeutic medial branch block, radiofrequency denervation, sacroiliac joint steroid injection, coblation nucleoplasty, percutaneous intradiscal radiofrequency thermocoagulation, and radiofrequency denervation.

HEALTH EVIDENCE REVIE COMMISSION (HERC)

COVERAGE GUIDANCE: PERCUTANEOUS INTERVENTIONS FOR LO BACK PAIN

DATE: 10 11 2012

HERC COVERAGE GUIDANCE

For radicular low back pain, Epidural steroid injections should be covered for patients with persistent radiculopathy due to herniated lumbar disc; it is recommended that shared decision-making regarding epidural steroid injection include a specific discussion about inconsistent evidence showing moderate short-term benefits, and lack of long-term benefits. If an epidural steroid injection does not offer benefit, repeated injections should not be covered.

Epidural steroid injections should NOT be covered for central spinal canal stenosis.

For radicular low back pain, the following treatments should NOT be covered:

- coblation nucleoplasty
- radiofrequency denervation

For nonradicular low back pain, the following treatments should NOT be covered:

- facet joint corticosteroid injection
- prolotherapy
- intradiscal corticosteroid injection
- local injections (including trigger point injections)
- botulinum toxin injection
- epidural steroid injection
- intradiscal electrothermal therapy (IDET)
- medial branch block
- radiofrequency denervation
- sacroiliac joint steroid injection
- coblation nucleoplasty
- percutaneous intradiscal radiofrequency thermocoagulation

Coverage guidance for non-pharmacologic interventions, pharmacologic interventions, and imaging for low back pain are addressed in separate documents.

Oregon Health Authority

RATIONALE FOR GUIDANCE DEVELOPMENT

The HERC selects topics for guideline development or technology assessment based on the following principles:

- Represents a significant burden of disease
- Represents important uncertainty with regard to efficacy or harms
- Represents important variation or controversy in clinical care
- Represents high costs, significant economic impact
- Topic is of high public interest

Coverage guidance development follows to translate the evidence review to a policy decision. Coverage guidance may be based on an evidence-based guideline developed by the Evidence-based Guideline Subcommittee or a health technology assessment developed by the Heath Technology Assessment Subcommittee. In addition, coverage guidance may utilize an existing evidence report produced by one of HERC's trusted sources, generally within the last three years.

EVIDENCE SOURCES

Livingston, C., Little, A., King, V., Pettinari, C., Thielke, A., Pensa, M., Vandegriff, S., Gordon, C. (2012). *State of Oregon Evidence-based Clinical Guidelines Project. Percutaneous interventions for low back pain: A clinical practice guideline based on the 2009 American Pain Society Guideline (Interventional Therapies, Surgery, and Interdisciplinary Rehabilitation for Low Back Pain).* Salem: Office for Oregon Health Policy and Research. Retrieved from http://www.oregon.gov/OHA/OHPR/HERC/Evidence-Based-Guidelines.shtml

Chou, R., Loesser, J.D., Owens, D.K., Rosenquist, R.W., Atlas, S.J., Baisden, J., et al. (2009). Interventional therapies, surgery, and interdisciplinary rehabilitation for low back pain: An evidence-based clinical practice guideline from the American Pain Society. *Spine, 34*(10), 1066-1077. – *Accompanied by:*

Chou, R., Atlas, S.J., Stanos, S.P., Rosenquist, R.W. (2009). Nonsurgical interventional therapies for low back pain: A review of the evidence for an American Pain Society clinical practice guideline. *Spine, 34*(10), 1078-1094.

The summary of evidence in this document is derived directly from these evidence sources, and portions are extracted verbatim.

SUMMARY OF EVIDENCE

Clinical Background

Low back pain is the fifth most common reason for all physician visits in the United States. Approximately one quarter of US adults reported having low back pain lasting at least one whole day in the past three months, and 7.6% reported at least one episode of severe acute low back pain within a 1-year period. Low back pain is also very costly. Total incremental direct health care costs attributable to low back pain in the US were estimated at □26.3 billion in 1998. In addition, indirect costs related to days lost from work are substantial, with approximately 2% of the US work force compensated for back injuries each year.

Many patients have self-limited episodes of acute low back pain and do not seek medical care. Among those who do seek medical care, pain, disability, and return to work typically improve rapidly in the first month. However, up to one third of patients report persistent back pain of at least moderate intensity one year after an acute episode, and one in five report substantial limitations in activity. Approximately 5% of the people with back pain disability account for 75% of the costs associated with low back pain.

Many options are available for evaluation and management of low back pain. However, there has been little consensus, either within or between specialties, on appropriate clinical evaluation and management of low back pain. Numerous studies show unexplained, large variations in use of diagnostic tests and treatments. Despite wide variations in practice, patients seem to experience broadly similar outcomes, although costs of care can differ substantially among and within specialties.

Evidence Review

Recommendation #1: In patients with persistent radiculopathy due to herniated lumbar disc, it is recommended that clinicians discuss risks and benefits of epidural steroid injection as an option (weak recommendation, moderate-quality evidence). It is recommended that shared decision-making regarding epidural steroid injection include a specific discussion about inconsistent evidence showing moderate short-term benefits, and lack of long-term benefits. There is insufficient evidence to adequately evaluate benefits and harms of epidural steroid injection for spinal stenosis.

For radiculopathy due to herniated lumbar disc, evidence on benefits of epidural steroid injection is mixed. Although some higher-quality trials found epidural steroid injection associated with moderate short-term (through up to 6 weeks) benefits in pain or function, others found no differences *versus* placebo injection. Reasons for the discrepancies between trials is uncertain, but could be related to the type of comparator treatment, as trials that compared an epidural steroid injection to an epidural saline or local anesthetic injection tended to report poorer results than trials that compared an

epidural steroid injection to a soft-tissue (usually interspinous ligament) placebo injection. Regardless of the comparator intervention, there is no convincing evidence that epidural steroids are associated with long-term benefits and most trials found no reduction in rates of subsequent surgery. Although serious complications following epidural steroid injection are rare in clinical trials, there are case reports of paralysis and infections. There is insufficient evidence on clinical outcomes to recommend a specific approach for performing epidural steroid injection, or on use of fluoroscopic guidance. In addition, insufficient evidence exists to recommend how many epidural injections to perform, though one higher-quality trial found that if an initial epidural steroid injection did not result in benefits, additional injections over a 6-week period did not improve outcomes.

Decisions regarding use of epidural steroid injection should be based on a shared decision-making process that includes a discussion of the inconsistent evidence for short-term benefit, lack of long-term benefit, potential risks, and costs. Patient preferences and individual factors should also be considered. For example, epidural steroid injection may be a reasonable option for short-term pain relief in patients who are less optimal surgery candidates due to comorbidities. There is insufficient evidence to guide specific recommendations for timing of epidural steroid injection, though most trials enrolled patients with at least subacute (greater than 4 weeks) symptoms.

Evidence on efficacy of epidural steroid injection for spinal stenosis is sparse and shows no clear benefit, though more trials are needed to clarify effects. Although chymopapain chemonucleolysis is effective for radiculopathy due to herniated lumbar disc, it is less effective than discectomy and is no longer widely available in the United States, in part due to risk of severe allergic reactions. Three trials suggest that intradiscal steroid injection has similar efficacy to chemonucleolysis, although none were placebo controlled.

Recommendation #2: In patients with persistent nonradicular low back pain, facet joint corticosteroid injection, prolotherapy, and intradiscal corticosteroid injection are not recommended (strong recommendation, moderate-quality evidence).

Injections and most interventional therapies for nonradicular low back pain target specific areas of the back that are potential sources of pain, including the muscles and soft tissues (botulinum toxin injection, prolotherapy, and local injections), facet joints (facet joint steroid injection, therapeutic medial branch block, and radiofrequency denervation), degenerated intervertebral discs (intradiscal steroid injection, IDET, and related procedures), and sacroiliac joints (sacroiliac joint injection). There is no convincing evidence from randomized trials that injections and other interventional therapies are effective for nonradicular low back pain. Facet joint steroid injection,

prolotherapy and intradiscal steroid injections are not recommended because randomized trials consistently found them to be no more effective than sham therapies.

Recommendation #3: There is insufficient evidence to adequately evaluate benefits of local injections, botulinum toxin injection, epidural steroid injection, intradiscal electrothermal therapy (IDET), therapeutic medial branch block, radiofrequency denervation, sacroiliac joint steroid injection, coblation nucleoplasty, percutaneous intradiscal radiofrequency thermocoagulation …. or other medications for nonradicular low back pain.

For local injections[1], there is insufficient evidence to accurately judge benefits because available trials are small, lower-quality, and evaluate heterogeneous populations and interventions. Trials of IDET and radiofrequency denervation reported inconsistent results. There were a small number of higher quality trials, and in the case of radiofrequency denervation, the trials had technical or methodologic shortcomings, making it difficult to reach conclusions about benefits For other interventional therapies, data are limited to one to two small placebo-controlled randomized trials (botulinum toxin injection, epidural steroid injection for nonradicular low back pain, PIRFT and sacroiliac joint steroid injection), or there are no placebo-controlled randomized trials (therapeutic medial branch block, coblation nucleoplasty….or other medications).

[Evidence Source]

Overall Summary

For radiculopathy due to herniated lumbar disc, evidence on benefits of epidural steroid injection is mixed, with some trials finding moderate short-term benefits and others finding no differences. There is no convincing evidence that epidural steroids are associated with long-term benefits and most trials found no reduction in rates of subsequent surgery. For nonradicular low back pain, there is likewise no convincing evidence that injections and other interventional therapies are effective, while there is consistent evidence that facet joint steroid injection, prolotherapy and intradiscal steroid injections are no more effective than sham therapies.

PROCEDURE

Epidural steroid injection
Botulinum toxin injection
Local injections
Facet joint steroid injection

[1] Defined as placement of a local anesthetic into the muscles or soft tissues of the back via a catheter. One type of local injection is trigger point injection.

Therapeutic medial branch block
Radiofrequency denervation
Intradiscal steroid injection
Intradiscal electrothermal therapy (IDET)
Sacroiliac joint injection
Chymopapain chemonucleolysis
Coblation nucleoplasty
Percutaneous intradiscal radiofrequency thermocoagulation (PIRFT)

DIAGNOSES

Low back pain

APPLICABLE CODES

CODES	DESCRIPTION
ICD Diagnosis Codes	
720.1	Spinal enthesopathy
720.2	Sacroiliitis, not elsewhere classified
721.3	Lumbosacral spondylosis without myelopathy
721.42	Spondylosis with myelopathy, lumbar region
721.5	Kissing spine
721.6	Ankylosing vertebral hyperostosis
721.7	Traumatic spondylopathy
721.8	Other allied disorders of spine
721.9	Spondylosis of unspecified site
722.1	Displacement of thoracic or lumbar intervertebral disc without myelopathy
722.2	Displacement of intervertebral disc, site unspecified, without myelopathy
722.32	Schmorl's nodes, lumbar region
722.39	Schmorl's nodes, other region
722.5	Degeneration of thoracic or lumbar intervertebral disc
722.6	Degeneration of intervertebral disc, site unspecified
722.70	Intervertebral disc disorder with myelopathy, unspecified region
722.72	Intervertebral disc disorder with myelopathy, thoracic region
722.73	Intervertebral disc disorder with myelopathy, lumbar region
722.80	Postlaminectomy syndrome, unspecified region
722.82	Postlaminectomy syndrome, thoracic region
722.83	Postlaminectomy syndrome, lumbar region
722.90	Other and unspecified disc disorder, unspecified region
722.92	Other and unspecified disc disorder, thoracic region
722.93	Other and unspecified disc disorder, lumbar region
724	Other and unspecified disorders of back
724.0	Spinal stenosis other than cervical
724.00	Spinal stenosis, unspecified region
724.01	Spinal stenosis, thoracic region
724.02	Spinal stenosis, lumbar region, without neurogenic claudication
724.03	Spinal stenosis, lumbar region, with neurogenic claudication
724.09	Spinal stenosis, other region
724.1	Pain in thoracic spine

CODES	DESCRIPTION
724.2	Lumbago
724.3	Sciatica
724.4	Thoracic or lumbosacral neuritis or radiculitis, unspecified
724.5	Backache, unspecified
724.6	Disorders of sacrum
724.7	Disorders of coccyx
724.70	Unspecified disorder of coccyx
724.71	Hypermobility of coccyx
724.79	Other disorders of coccyx
724.8	Other symptoms referable to back
724.9	Other unspecified back disorders
730.2	Unspecified osteomyelitis
732.0	Juvenile osteochondrosis of spine
733.0	Osteoporosis
737.2	Lordosis (acquired)
737.30	Scoliosis [and kyphoscoliosis], idiopathic
737.39	Other kyphoscoliosis and scoliosis
737.4	Curvature of spine associated with other conditions
737.8	Other curvatures of spine
737.9	Unspecified curvature of spine
738.4	Acquired spondylolisthesis
738.5	Other acquired deformity of back or spine
739.2	Nonallopathic lesions, thoracic region
739.3	Nonallopathic lesions, lumbar region
739.4	Nonallopathic lesions, sacral region
754.2	Congenital musculoskeletal deformities of spine
756.1	Congenital anomalies of spine
846	Sprains and strains of sacroiliac region
847.1	Sprain of thoracic
847.2	Sprain of lumbar
847.3	Sprain of sacrum
847.4	Sprain of coccyx
847.9	Sprain of unspecified site of back
ICD Volume 3 (procedure codes)	
87.24	Other x-ray of lumbosacral spine
88.38	Other computerized axial tomography
88.93	-ray, other and unspecified
CPT	
0216T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance; lumbar or sacral, single level
0217T	second level
0218T	third and any additional level(s)
20552	Injection, single or multiple trigger point(s), 1 or 2 muscle(s)
20553	Injection, single or multiple trigger point(s), 3 or more muscle(s)
20600	Arthrocentesis, aspiration and /or injection; small joint or bursa (eg, fingers, toes)
20605	intermediate joint or bursa (eg, temporomandibular, acromioclavicular, wrist, elbow or ankle, olecranon bursa)
20610	major joint or bursa (eg, shoulder, hip, knee joint, subacromial bursa)
22526	Percutaneous intradiscal electrothermal annuloplasty, unilateral or bilateral including

CODES	DESCRIPTION
	fluoroscopic guidance; single level
22527	1 or more additional levels
27096	Injection procedure for sacroiliac joint, anesthetic steroid, with image guidance (fluoroscopy or CT) including arthrography when performed
62292	Injection procedure, arterial, for occlusion of arteriovenous malformation, spinal
64412	Injection, anesthetic agent; spinal accessory nerve
64483	Injection(s), anesthetic agent and/or steroid, transforaminal epidural, with imaging guidance (fluoroscopy or CT); lumbar or sacral, single level
64484	Injection(s), anesthetic agent and/or steroid, transforaminal epidural, with imaging guidance (fluoroscopy or CT); lumbar or sacral, each additional level
64493	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT); lumbar or sacral, single level
64494	second level
64495	third and any additional level(s)
64635	Destruction by neurolytic agent, paravertebral facet join nerve(s), with imaging guidance (fluoroscopy or CT); lumbar or sacral, single facet joint
64636	Destruction by neurolytic agent, paravertebral facet join nerve(s), with imaging guidance (fluoroscopy or CT); lumbar or sacral, each additional facet joint
76942	Ultrasonic guidance for needle placement (eg, biopsy, aspiration, injection, localization device), imaging supervision and interpretation
77002	Fluoroscopic guidance for needle placement (eg, biopsy, aspiration, injection, localization device), imaging supervision and interpretation
77003	Fluoroscopic guidance and localization of needle or catheter tip for spine or paraspinous diagnostic or therapeutic injection procedures (epidural or subarachnoid)
77021	Magnetic resonance guidance for needle placement (eg, for biopsy, needle aspiration, injection, or placement of localization device) radiological supervision and interpretation
96372	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); subcutaneous or intramuscular
HCPCS Codes	
M0076	Prolotherapy
S2348	Decompression procedure, percutaneous, of nucleus pulposus of intervertebral disc, using radiofrequency energy, single or multiple levels, lumbar

Note: Inclusion on this list does not guarantee coverage

CG – Management of Chronic Otitis Media with Effusion in Children

Question: How should the HERC approved Coverage Guidance – Management of chronic otitis media with effusion in children—be incorporated into the Prioritized List?

Question source: Health Evidence Review Commission

Issue: HERC approved the Coverage Guidance: Management of chronic otitis media with effusion in children in October, 2012. This coverage guidance needs to be evaluated for application within the Prioritized List.

HERC Coverage Guidance

Antibiotic and other medication therapy (including antihistamines, decongestants, and nasal steroids) should not be covered for children with children with otitis media with effusion (OME) (without another appropriate diagnosis).

There should be a 3 to 6 month watchful waiting period after diagnosis of otitis media with effusion, and if documented persistent hearing loss is greater than or equal to 25dB in the better hearing ear, referral for tympanstomy surgery may be covered, given short, but not long-term, improvement in hearing.

Formal audiometry should be covered for children with chronic OME present for 3 months or longer. Children with language delay, learning problems, or significant hearing loss should have hearing testing covered initially upon diagnosis. Children with chronic OME who are not at risk for language or developmental delay should be reexamined at 3- to 6-month intervals until the effusion is no longer present, significant hearing loss is identified, or structural abnormalities of the eardrum or middle ear are suspected.

Adenoidectomy should not be covered at the time of the first pressure equalization tube insertion.

Patients with craniofacial anomalies, Down's syndrome, cleft palate, and patients with speech and language delay along with hearing loss should have coverage based on an individualized treatment plan.

CG – Management of Chronic Otitis Media with Effusion in Children

Current Prioritized List status: chronic otitis media is included on line 502 CHRONIC OTITIS MEDIA Treatment: PE TUBES/ADENOIDECTOMY/TYMPANOPLASTY, MEDICAL THERAPY. Currently, guideline note 51 applies to this line.

GUIDELINE NOTE 51, CHRONIC OTITIS MEDIA WITH EFFUSION

Line 502

Antibiotic and other medication therapy are not indicated for children with chronic otitis media with effusion (OME). Children with chronic OME present for 3 months or longer or with language delay, learning problems, or significant hearing loss at any time should have hearing testing. Children with chronic OME who are not at risk should be reexamined at 3- to 6-month intervals until the effusion is no longer present, significant hearing loss is identified, or structural abnormalities of the eardrum or middle ear are suspected.

For the child who has had chronic OME and who has a hearing deficiency in the better-hearing ear of 25 dB or greater, myringotomy with tube insertion recommended after a total of 4 to 6 months of effusion with a documented hearing deficit.

Adenoidectomy is an appropriate surgical treatment for chronic OME in children over 3 years with their second set of tubes. First time tubes are not an indication for an adenoidectomy.

HERC Staff Recommendations:

1. Make the following changes to Guideline Note 51

GUIDELINE NOTE 51, CHRONIC OTITIS MEDIA WITH EFFUSION
Line 502
Antibiotic and other medication therapy (including antihistamines, decongestants, and nasal steroids) are not indicated for children with chronic otitis media with effusion (OME) (without another appropriate diagnosis).

There should be a 3 to 6 month watchful waiting period after diagnosis of otitis media with effusion, and if documented hearing loss is greater than or equal to 25dB in the better hearing ear, tympanostomy surgery may be indicated given short but not long term improvement in hearing. Formal audiometry is indicated for c~~C~~hildren with chronic OME present for 3 months or longer. ~~or~~ Children with language delay, learning problems, or significant hearing loss ~~at any time~~ should have hearing testing upon diagnosis.

CG – Management of Chronic Otitis Media with Effusion in Children

Children with chronic OME who are not at risk for language or developmental delay should be reexamined at 3- to 6-month intervals until the effusion is no longer present, significant hearing loss is identified, or structural abnormalities of the eardrum or middle ear are suspected.

~~For the child who has had chronic OME and who has a hearing deficiency in the better-hearing ear of 25 dB or greater, myringotomy with tube insertion recommended after a total of 4 to 6 months of effusion with a documented hearing deficit.~~

Adenoidectomy is not indicated at the time of first pressure equalization tube insertion. It may be indicated in ~~is an appropriate surgical treatment for chronic OME~~ in children over 3 years ~~with~~ who are having their second set of tubes. ~~First time tubes are not an indication for an adenoidectomy.~~

Patients with craniofacial anomalies, Down's syndrome, cleft palate, and patients with speech and language delay along with hearing loss should have coverage based on an individualized treatment plan.

HEALTH EVIDENCE REVIEW COMMISSION (HERC)

COVERAGE GUIDANCE: MANAGEMENT OF CHRONIC OTITIS MEDIA WITH EFFUSION IN CHILDREN

DATE: 10/11/2012

HERC COVERAGE GUIDANCE

Antibiotic and other medication therapy (including antihistamines, decongestants, and nasal steroids) should not be covered for children with children with otitis media with effusion (OME) (without another appropriate diagnosis).

There should be a 3 to 6 month watchful waiting period after diagnosis of otitis media with effusion, and if documented persistent hearing loss is greater than or equal to 25dB in the better hearing ear, referral for tympanstomy surgery may be covered, given short, but not long-term, improvement in hearing.

Formal audiometry should be covered for children with chronic OME present for 3 months or longer. Children with language delay, learning problems, or significant hearing loss should have hearing testing covered initially upon diagnosis. Children with chronic OME who are not at risk for language or developmental delay should be reexamined at 3- to 6-month intervals until the effusion is no longer present, significant hearing loss is identified, or structural abnormalities of the eardrum or middle ear are suspected.

Adenoidectomy should not be covered at the time of the first pressure equalization tube insertion.

Patients with craniofacial anomalies, Down's syndrome, cleft palate, and patients with speech and language delay along with hearing loss should have coverage based on an individualized treatment plan.

Note: Coverage guidance for recurrent acute otitis media is addressed in a separate document.

RATIONALE FOR GUIDANCE DEVELOPMENT

The HERC selects topics for guideline development or technology assessment based on the following principles:

- Represents a significant burden of disease
- Represents important uncertainty with regard to efficacy or harms
- Represents important variation or controversy in clinical care
- Represents high costs, significant economic impact
- Topic is of high public interest

Coverage guidance development follows to translate the evidence review to a policy decision. Coverage guidance may be based on an evidence-based guideline developed by the Evidence-based Guideline Subcommittee or a health technology assessment developed by the Heath Technology Assessment Subcommittee. In addition, coverage guidance may utilize an existing evidence report produced by one of HERC's trusted sources, generally within the last three years.

EVIDENCE SOURCES

Effros, R., & Little, A. (2010). *Pressure equalization tubes in children.* (Produced for the Medicaid Evidence-based Decision Project). Portland, OR: Center for Evidence-based Policy, Oregon Health & Science University.

Key Sources Cited in MED Report:

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Lous, J., Burton, M.J., Felding, J., Ovesen, T., Rovers, M., & Williamson, I. (2005). Grommets (ventilation tubes) for hearing loss associated with otitis media with effusion in children. *Cochrane Database of Systematic Reviews*, *1* (CD001801), 1-58.

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Simpson, S.A., Thomas, C.L., van der Linden, M., MacMillan, H., van der Wouden, J.C., & Butler, C.C. (2007). Identification of children in the first four years of life for early treatment for otitis media with effusion. *Cochrane Database of Systemic Reviews*, *1*(CD004163), 1-24.

Thomas, C.L., Simson, S., Butler, C., & van der Voort, J. (2006). Oral or topical nasal steroids for hearling loss associated with otitis media with effusion in children. *Cochrane Database of Systemic Reviews*, *3*(CD001935), 1-26.

The summary of evidence in this document is derived directly from these evidence sources, and portions are extracted verbatim.

SUMMARY OF EVIDENCE

Clinical Background

Otitis media is one of the most frequent infections in children and is a leading cause of both visits to the physician and use of antibiotics in this population. The direct costs of otitis media are estimated at $3 to 5 billion per year in the US. Recurrent infections or chronic fluid in the middle ear can cause hearing deficits, and there is concern that in a rapidly developing child, this could lead to language and other developmental problems.

Pressure equalization (PE) tubes are small plastic or metal tubes that are surgically inserted into the tympanic membrane to allow for drainage of the fluid from the middle ear with the goal of improved hearing. The hope is that if hearing is improved, then language and other developments can be optimized. One of the challenges of determining which children require PE tube placement is that not all middle ear disease is associated with hearing loss, and even the presence of a mild to moderate hearing loss from a middle ear effusion does not necessarily translate into later speech or language delays in children. Further, the high rates of spontaneous resolution of both acute otitis media and middle ear effusions, and the fact that most PE tubes only remain in the ear drum for 6-12 months, may lessen the potential benefit of PE tube insertion.

Evidence Review

There is evidence that PE tubes decrease the duration of otitis media with effusion (OME) over the first year. In addition, PE tubes provide short-term (three to six month)

improvements in hearing, but this advantage dissipates by 12 months. Overall, there do not seem to be consistent benefits in language and development as a result of PE tube placement for OME. The most common complication of PE tubes appears to be otorrhea, which can result in increased use of oral or topical antibiotics. Tympanosclerosis and retraction pockets of the tympanic membrane are also complications of PE tubes, but their clinical significance remains uncertain. Limited evidence suggests that children with PE tubes sustain higher costs in follow-up, in addition to the costs of the procedure itself, without consistent, measurable benefits in language and development.

There are no clear risk factors that identify children who should have PE tubes placed. Some evidence suggests that children with poor baseline hearing (i.e., >25 dB) and those in daycare obtain more of a hearing benefit from PE tubes. In addition, there is limited evidence that children with baseline language or other developmental delays and hearing loss may benefit from earlier PE tube placement.

Overall, the literature suggests that watchful waiting for at least three months is an appropriate initial step in the management of OME. The literature is less clear on management following this initial three months, with some evidence suggesting that even waiting as long as six months may not have deleterious effects on language and development in many children. In terms of other treatment options, there is no evidence that antihistamines, decongestants or nasal steroids are effective treatments for OME.

Adenoidectomy may improve middle ear effusions at six months but does not lead to significant improvements in hearing or in recurrent acute otitis media. Autoinflation may have some benefits in terms of resolution of effusion but may be difficult to use in young patients who might not be cooperative with the treatment. Oral steroids show short-term benefits for OME but fail to sustain these improvements over the longer term. Oral antibiotics may also improve OME in the short term, but the low quality of the evidence does not allow for definitive conclusions. Prophylactic antibiotics are also modestly effective at decreasing the number of episodes of acute otitis media in children with recurrent disease. There is concern for the development of antibiotic resistance with their chronic use, and despite the modest benefits, their use for recurrent acute otitis media and OME has declined.

Guidelines

Two guidelines that address the surgical management of OME (a joint guideline produced by the American Academy of Family Physicians, American Academy of Otolaryngology – Head and Neck Surgery, and American Academy of Pediatrics [AAFP/AAOHNS/AAP]; a National Institute for Health and Clinical Excellence [NICE] guideline produced by the National Collaborating Centre for Women’s and Children’s

Health) provide similar but slightly different recommendations regarding the management of children with OME. Both recommend monitoring children for the first three months of middle ear effusion and evaluating the child's hearing if the effusion remains at three months. However, NICE recommends hearing testing both at the time of initial diagnosis, and after three months, while the AAFP/ AAOHNS/AAP guideline recommends hearing testing only after OME has been present for three months, unless there is language delay, learning problems or hearing loss is suspected. In addition, language testing is recommended for any child with a documented hearing loss by the AAFP/ AAOHNS/AAP guideline, but not mentioned by the NICE guideline. In addressing this, the text of the evidence review states the following: "A proportion of children referred with suspected OME will also have underlying sensorineural or permanent conductive hearing loss. The GDG [Guideline Development Group] wished to emphasize the need to identify any such component."

Regarding surgical management, the NICE guideline suggests that any child with persistent OME at three months who has a hearing threshold worse than 25 dB should be referred for PE tubes, and if tubes are contraindicated or not desired, then the child should be offered hearing aids and other educational/behavioral interventions. They note that surgical intervention for some children at hearing loss less than 25 to 30 dB may be considered if hearing loss would be expected to significantly impact behavior or development. They specifically identify children with Down syndrome and cleft palate as needing comprehensive specialty care and hearing evaluation, but do not make specific recommendations regarding the timing or use of PE tubes. With regard to the hearing loss level, the text of the evidence review states the following: "Persistent and/or fluctuating OME, resulting in a hearing loss of 25–30 dBHL or greater may have adverse effects on a child's speech and language development, behaviour, emotional development and school progress. *This 25–30 dBHL value is of necessity somewhat notional.* (italics added) Hearing levels fluctuate with time and would not predict the impact precisely even if the hearing history over time were known, because of differing susceptibilities."

In contrast, the AAFP/ AAOHNS/AAP guideline recommends a risk-based approach, in which children at risk for or with language or other developmental delay should be referred more promptly for PE tubes. In children at low risk for delays, the guidelines recommend watchful waiting and monitoring every three to six months until the effusion disappears and referral if significant hearing loss develops or if language or other developmental delays appear. They divide hearing loss into three classes with different actions recommended for each level:

Hearing Level	Recommended Action
≥ 40 dB (moderate hearing loss)	Comprehensive audiologic exam and if hearing loss persists at this level, surgery recommended.
21-39 dB (mild hearing loss)	Comprehensive audiologic exam. Individualize based on effusion duration, severity of hearing loss, parent/caregiver preference: can include optimizing listening and learning environment. Repeat hearing testing in 3-6 months if otitis media with effusion persists and tympanostomy tubes have not been placed.
≤ 20 dB (normal hearing)	Repeat hearing test in 3-6 months if otitis media with effusion persists.

The guideline states this recommendation is based on RCTs and observational studies, with a preponderance of benefit over harm. However, specific citations are not provided that pertain directly to the hearing levels noted above. The text of the guideline does provide citations for the following:

"Asymptomatic OME usually resolves spontaneously, but resolution rates decrease the longer the effusion has been present and relapse is common. Risk factors that make spontaneous resolution less likely include:

- Onset of OME in the summer or fall season,
- Hearing loss more than 30-dB HL in the better hearing ear,
- History of prior tympanostomy tubes, and
- Not having had an adenoidectomy."

Overall Summary

Pressure equalization tubes likely decrease the duration of middle ear effusion over the first year. They also provide short-term improvement in hearing that dissipates by 12 months, resulting in no long-term benefits in language and development as a result of PE tube placement for OME. There are no clear risk factors that identify children who should have PE tubes placed. Some evidence suggests that children with poor baseline hearing (i.e., >25 dB) obtain more of a hearing benefit from PE tubes. Watchful waiting for at least three months and possibly up to six is an appropriate initial step in the management of OME. There is no evidence that antihistamines, decongestants or nasal steroids are effective treatments for OME. Adenoidectomy may improve middle ear effusions at six months but does not lead to significant improvements in hearing or in recurrent acute otitis media. Autoinflation may have some benefits in terms of resolution of effusion, while oral steroids and antibiotics show short-term benefit for OME, but longer term improvement is either not sustained or is uncertain. Prophylactic antibiotics

modestly decrease the number of episodes of acute otitis media in children with recurrent disease.

PROCEDURE

Placement of pressure equalization tubes
Pharmacotherapy
Autoinsufflation

DIAGNOSES

Acute otitis media
Chronic otitis media with effusion

APPLICABLE CODES

CODES	DESCRIPTION
ICD-9 Diagnosis Codes	
381.1	Chronic serous otitis media
381.10	… simple or unspecified
381.19	Other chronic serous otitis media
381.2	Chronic mucoid otitis media
381.20	… simple or unspecified
381.29	Other chronic mucoid otitis media
381.3	Other and unspecified chronic nonsuppurative otitis media
381.4	Nonsuppurative otitis media, not specified as acute or chronic
382.1	Chronic tubotympanic suppurative otitis media
382.2	Chronic atticoantral suppurative otitis media
382.3	Unspecified chronic suppurative otitis media
382.4	Unspecified suppurative otitis media
382.9	Unspecified otitis media
315.34	Speech and language developmental delay due to hearing loss
389.00	Conductive hearing loss unspecified
389.03	Conductive hearing loss middle ear
389.05	Conductive hearing loss unilateral
389.06	Conductive hearing loss bilateral
389.08	Conductive hearing loss of combined types
389.2	Mixed conductive and sensorineural hearing loss
389.20	Mixed hearing loss, unspecified
389.21	Mixed hearing loss, unilateral
389.22	Mixed hearing loss, bilateral
389.9	Unspecified hearing loss
ICD-9 Volume 3 (Procedure Codes)	
None	
CPT Codes	
42820	Tonsillectomy and adenoidectomy; younger than age 12

CODES	DESCRIPTION
42821	Tonsillectomy and adenoidectomy; age 12 and over
42830	Adenoidectomy, primary; younger than age 12
42831	Adenoidectomy, primary; age 12 and over
42835	Adenoidectomy, secondary; younger than age 12
42836	Adenoidectomy, secondary; age 12 and over
69433	Tympanostomy (requiring insertion of ventilating tube, local or topical anesthesia)
69436	Tympanostomy (requiring insertion of ventilating tube, general anesthesia)
69424	Ventilating tube removal requiring general anesthesia
HCPCS Codes	
None	

Note: Inclusion on this list does not guarantee coverage

Coverage guidance is prepared by the Health Evidence Review Commission (HERC), HERC staff, and subcommittee members. The evidence summary is prepared by the Center for Evidence-based Policy at Oregon Health & Science University (the Center). This document is intended to guide public and private purchasers in Oregon in making informed decisions about health care services.

The Center is not engaged in rendering any clinical, legal, business or other professional advice. The statements in this document do not represent official policy positions of the Center. Researchers involved in preparing this document have no affiliations or financial involvement that conflict with material presented in this document.

Section 7

Previously Discussed Items

Puberty Suppression Therapy for Transgender Youth

Question: What is the evidence supporting the use of puberty suppression therapy for transgender youth?

Question Source: VbBS

Issue: The HSC considered the evidence supporting the use of puberty suppression therapy for transgendered youth in August, 2011. This discussion was continued at the VbBS in March, 2012 and again in August, 2012.

During the ICD-10 review, gender dysphoria was separated from several inappropriate diagnoses and made into its own line which is in a covered area of the Prioritized List. Currently, the only treatments on this line are psychotherapy. Advocacy groups for transgendered persons has requested that puberty suppressing therapy be added to this line.

The evidence for the benefits of puberty suppression therapy was reviewed at the October, 2011 and March, 2012 meetings. The decision at the March meeting was to add coverage for puberty suppressing therapy for youth; however, later questions from committee members about the safety of this therapy put this decision on hold. At the August, 2012 VbBS meeting, evidence regarding the safety of this type of treatment was reviewed. The decision at that meeting was to have HERC staff summarize all of the evidence of effectiveness for this therapy, and represent this topic at a later meeting for a more informed discussion.

There was discussion at the March and the August VbBS meetings about a guideline for puberty suppressing therapy, to include psychiatric evaluation prior to initiation, and ongoing psychiatric care while receiving such treatment.

Description:
Puberty suppressing therapy is started in a child at the onset of biologic puberty to suppress the natural increase in birth-sex hormones which would lead to physical changes which are not consistent with the child's perceived gender. The goal of this therapy is to delay puberty until the adolescent can clarify which gender he/she identifies with (with the help of psychotherapy).

Expert Testimony
In August, 2011, TransActive submitted extensive testimony regarding the need for, benefits of, and harms of puberty suppressing therapy. At the October, 2011 HSC meeting and at the March and August 2012 VbBS meetings, testimony was heard from various advocates and experts regarding the need for and effectiveness of this therapy.

Further written testimony has been received from TransActive, in response to HERC staff proposed guideline.

> "TransActive staff and advisors have reviewed the evidence summary and the proposed recommendations pertaining to inclusion of coverage for pubertal suppression treatment in transgender adolescents and we have concerns about only one aspect of the proposed guidelines for pubertal suppression coverage on OHP. We object to the requirement that

youth continue psychiatric treatment as a prerequisite for receiving pubertal suppression with GnRH analogues.

The degree of counseling, physical examinations, and laboratory evaluations should be individualized to a patient's needs.

To summarize our concerns, we believe that requiring transgender youth to be under psychiatric care in order to receive puberty suppressing treatment exceeds existing professional guidelines, intrudes on the patient/doctor, client/therapist relationship and subjects youth who may have no need for psychiatric care to suffer from the assumption that they are, in some way, "psychologically disordered" even though neither they nor their therapist may be of that opinion. It also subjects the youth and their parents to (potentially) unnecessary financial burden."

Evidence summary

No evidence from NICE, SIGN, or Cochrane available

1) Evidence based reviews
    - **a. MED 2012**
        - **i. Puberty suppression in gender-questioning children/adolescents**
            - **1.** Our core sources did not identify any systematic reviews or technology assessments addressing puberty suppression in children or adolescents with gender identity disorder (GID). However, the identified guideline by The Endocrine Society (Hembree 2009) does make recommendations on this point.
    - **b. Murad, 2010**
        - i. Systematic review and meta-analysis of impact of hormonal therapy and sex reassignment on health outcomes
        - ii. Included 28 observational studies, N = 1833 participants with GID (1093 male-to-female, 801 female-to male) who underwent sex reassignment that included hormonal therapies.
        - iii. Results: after sex reassignment, 80% of individuals with GID reported significant improvement in gender dysphoria (95% CI = 68–89%; 8 studies; I2 = 82%); 78% reported significant improvement in psychological symptoms (95% CI = 56–94%; 7 studies; I2 = 86%); 80% reported significant improvement in quality of life (95% CI = 72–88%; 16 studies; I2 = 78%); and 72% reported significant improvement in sexual function (95% CI = 60–81%; 15 studies; I2 = 78%).
        - iv. Conclusions: Very low quality evidence suggests that sex reassignment that includes hormonal interventions in individuals with GID likely improves gender dysphoria, psychological functioning and co-morbidities, sexual function and overall quality of life.
        - v. Limitations – uncontrolled studies, all subjective outcomes, co-administered interventions of sex reassignment surgery, psychotherapy, and hormonal therapy.

c. Elamin, 2010

i. Systematic review of harms of hormone therapy in transgender persons
ii. N = 16 uncontrolled studies (very low quality)
iii. Conclusions: cross-sex hormone therapies increase serum triglycerides in MF and FM and have a trivial effect on HDL-cholesterol and systolic blood pressure in FM. Data about patient important outcomes are sparse and inconclusive.

2) Clinical guidelines

a. Endocrine Society, 2009

i. 1.1 We recommend that the diagnosis of gender identity disorder (GID) be made by a mental health professional (MHP). For children and adolescents the MHP should also have training in child and adolescent developmental psychopathology.
ii. 1.2 Given the high rate of remission of GID after the onset of puberty, we recommend against a complete social role change and hormone treatment in prepubertal children with GID.
iii. 1.3. We recommend that physicians evaluate and ensure that applicants understand the reversible and irreversible effects of hormone suppression (*e.g.*, GnRH analogue treatment) and cross-sex hormone treatment before they start hormone treatment.
iv. 1.4. We recommend that all transsexual individuals be informed and counseled regarding options for fertility prior to initiation of puberty suppression in adolescents and prior to treatment with sex hormones of the desired sex in both adolescents and adults.
v. 2.1. We recommend that adolescents who fulfill eligibility and readiness criteria for gender reassignment initially undergo treatment to suppress pubertal development.
vi. 2.2. We recommend that suppression of pubertal hormones start when girls and boys first exhibit physical changes of puberty (confirmed by pubertal levels of estradiol and testosterone, respectively), but no earlier than Tanner stages 2–3.
vii. 2.3. We recommend that GnRH analogues be used to achieve suppression of pubertal hormones.
viii. 2.4. We suggest that pubertal development of the desired opposite sex be initiated at about the age of 16 years, using a gradually increasing dose schedule of cross-sex steroids.
ix. 2.5. We recommend referring hormone-treated adolescents for surgery when 1) the real-life experience (RLE) has resulted in a satisfactory social role change; 2) the individual is satisfied about the hormonal effects; and 3) the individual desires definitive surgical changes.
x. 2.6. We suggest deferring surgery until the individual is at least 18 years old.

Puberty Suppression Therapy for Transgender Youth

Summary
There is very poor evidence of the benefit of puberty suppressing therapy for transgendered youth, based on the existing literature. Use of puberty suppressing therapy is based on expert opinion. The Endocrine Society recommends treatment of transgendered youth be treated with puberty suppressing medications at the first physical changes of puberty with GnRH analogues.

HSC Staff Recommendations

1) Cover puberty suppressing therapy on the new Gender Dysphoria line with the following guideline
    a. These changes will be effective with the **October, 2014 ICD-10 Prioritized List**

GUIDELINE XXX GENDER DYSPHORIA

Line XXX

Hormone treatment is included on this line only for use in delaying the onset of puberty and/or continued pubertal development with GnRH analogues for gender questioning children and adolescents. This therapy should be initiated at the first physical changes of puberty, confirmed by purbertal levels of estradiol or testosterone, but no earlier than Tanner stages 2-3. Prior to initiation of puberty suppression therapy, adolescents must fulfill eligibility and readiness criteria, and must have a full psychiatric evaluation. Ongoing psychological care is strongly encouraged for continued puberty suppression therapy.

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THURSDAY, DECEMBER 06, 2012

TRANSACTIVE RESPONSE TO PUBERTY SUPPRESSION EVIDENCE SUMMARY & RECOMMENDATIONS

TransActive staff and advisors have reviewed the evidence summary and the proposed recommendations pertaining to inclusion of coverage for pubertal suppression treatment in transgender adolescents and we have concerns about only one aspect of the proposed guidelines for pubertal suppression coverage on OHP.

We object to the requirement that youth continue psychiatric treatment as a prerequisite for receiving pubertal suppression with GnRH analogues. Our objection is based on the following:

1. The decision whether or not to begin or continue psychiatric therapy should reside with the youth and their therapist. It should not be a "quid pro quo" for puberty blocking treatment.

2. This requirement presumes that all transgender youth require ongoing psychiatric care or that ongoing psychiatric care will provide some benefit to them, even if there are no therapist-identified conditions (morbid or co-morbid) present.

3. It places another unnecessary financial strain on families without health insurance coverage for what will be, in many cases, clinically unnecessary and in some cases, detrimental treatment.

4. It establishes a "ransom" (psychiatric counseling) in return for which the adolescent will receive their physician recommended puberty blocking treatment.

5. It creates treatment criteria which exceeds that of the DSM-V (due for release in early 2013), The Endocrine Society and the World Professional Association of Transgender Health (WPATH) Standards of Care 7th Versoin.

The World Professional Association for Transgender Health (WPATH) released a statement in May, 2010. It said, in part:

"… the expression of gender characteristics, including identities, that are not stereotypically associated with one's assigned sex at birth is a common and culturally-diverse human phenomenon [that] should not be judged as inherently pathological or negative."

Imposing this requirement on transgender youth would, in effect, perpetuate the notion (in opposition to professional ethical guidelines and care standards) that transgender identity is *"inherently pathological or negative."*

WPATH's Criteria for Puberty Suppressing Hormones[1]:

1. The adolescent has demonstrated a long-lasting and intense pattern of gender nonconformity or gender dysphoria (whether suppressed or expressed);

2. Gender dysphoria emerged or worsened with the onset of puberty;

3. Any co-existing psychological, medical, or social problems that could interfere with treatment (e.g., that may compromise treatment adherence) have been addressed, such that the adolescent's situation and functioning are stable enough to start treatment;

   This criteria addresses the need for psychiatric evaluation PRIOR to therapist referral to a pediatric endocrinologist for assessment and treatment administration. There is no criteria which mandates ongoing psychiatric care while the youth is receiving pubertal suppression treatment. That decision should, ethically, be one made by the therapist and the client.

   The only recommended ongoing monitoring or supervision for all youth receiving this treatment is that of a pediatric endocrinologist so they can adjust the treatment as necessary and indicated by the individual developmental needs of the youth.

4. The adolescent has given informed consent and, particularly when the adolescent has not reached the age of medical consent, the parents or other caretakers or guardians have consented to the treatment and are involved in supporting the adolescent throughout the treatment process.

WPATH Standards of Care, 7th Version: Tasks Related to Psychotherapy

1. Psychotherapy is not an absolute requirement for hormone therapy and surgery

   "A mental health screening and/or assessment is needed for referral to hormonal and surgical treatments for gender dysphoria. In contrast, ***psychotherapy – although highly recommended – is not a requirement.****"*

[1] World Professional Association for Transgender Health: Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People, 7th Version, July 2012. http://www.wpath.org

WPATH Standards of Care, 7th Version: Responsibilities of Hormone-Prescribing Physicians

In general, clinicians who prescribe hormone therapy should engage in the following tasks:

1. Perform an initial evaluation that includes discussion of a patient's physical transition goals, health history, physical examination, risk assessment, and relevant laboratory tests.

2. Discuss with patients the expected effects of feminizing/masculinizing medications and the possible adverse health effects. These effects can include a reduction in fertility. Therefore, reproductive options should be discussed with patients before starting hormone therapy.

3. Confirm that patients have the capacity to understand the risks and benefits of treatment and are capable of making an informed decision about medical care.

4. Provide ongoing medical monitoring, including regular physical and laboratory examination to monitor hormone effectiveness and side effects.

5. Communicate as needed with a patient's primary care provider, mental health professional, and surgeon.

6. If needed, provide patients with a brief written statement indicating that they are under medical supervision and care that includes feminizing/masculinizing hormone therapy. Particularly during the early phases of hormone treatment, a patient may wish to carry this statement at all times to help prevent difficulties with the police and other authorities.

Depending on the clinical situation for providing hormones (see below), some of these responsibilities are less relevant. Thus**, the degree of counseling, physical examinations, and laboratory evaluations should be individualized to a patient's needs.**

To summarize our concerns, we believe that requiring transgender youth to be under psychiatric care in order to receive puberty suppressing treatment exceeds existing professional guidelines, intrudes on the patient/doctor, client/therapist relationship and subjects youth who may have no need for psychiatric care to suffer from the assumption that they are, in some way, "psychologically disordered" even though neither they nor their therapist may be of that opinion. It also subjects the youth and their parents to (potentially) unnecessary financial burden.

Sincerely,

Jenn Burleton
Executive Director
TransActive Education & Advocacy

Sheryl Rindel, LPC, NCC
Program Manager
TransActive Education & Advocacy

Carol Blenning, MD
Member - TransActive Advisory Board

Treatments for Gender Identity Disorder

Participant Request

March 2012

Center for Evidence-based Policy
Medicaid Evidence-based Decisions Project (MED)
Oregon Health & Science University
3455 SW US Veterans Hospital Road
Mailstop SN-4N, Portland, OR 97239-2941
Phone: 503.494.2182
Fax: 503.494.3807
http://www.ohsu.edu/ohsuedu/research/policycenter/med/index.cfm

About the Center for Evidence-based Policy and the Medicaid Evidence-based Decisions (MED) Project

The Center for Evidence-based Policy (Center) is recognized as a national leader in evidence-based decision making and policy design. The Center understands the needs of policymakers and supports public organizations by providing reliable information to guide decisions, maximize existing resources, improve health outcomes, and reduce unnecessary costs. The Center specializes in ensuring diverse and relevant perspectives are considered, and appropriate resources are leveraged to strategically address complex policy issues with high-quality evidence and collaboration. The Center is based at Oregon Health & Science University in Portland, Oregon.

The Medicaid Evidence-based Decisions (MED) Project is housed at the Center. Its mission is to create an effective collaboration among Medicaid programs and their state partners for the purpose of making high quality evidence analysis available to support benefit design and coverage decisions made by state programs. Further information about the MED project and the Center is available at www.ohsu.edu/policycenter.

Nature and Purpose of Participant Requests

MED Participant Requests provide a brief description of evidence and/or policy in response to participant state inquiries. These inquiries are on topics that have not been prioritized for full reports through the formal topic selection process. Research for a Participant Request is based on a limited search of high-quality health care and academic journals, as well as policy core sources relevant to the topic. Participant Requests do not reflect a comprehensive search of literature, nor a formal review, critical appraisal, or synthesis of evidence.

Suggested citation:
Bunker, K. and Kriz, H. (2011). *Treatments for Gender Identity Disorder.* Portland, OR: Center for Evidence-based Policy, Oregon Health and Science University.

Date of Request: February 22, 2012

State Requesting Information: Oregon

State Contact: Cat Livingston, MD MPH

Prepared by: Kendra Bunker, MPH

Request:

Oregon requested evidence on the following treatments for gender identity disorder:

1) Puberty suppression in gender-questioning children/adolescents;
2) Cross sex hormone treatment; and
3) Sex reassignment surgery.

Outcomes needed would be quality of life impacts of each treatment, and harms.

MED Project Response:

MED core sources were scoped, and the following scoping results were provided to Oregon. Oregon opted not to proceed with a larger report at that time.

Evidence Scoping – Treatments for Gender Identity Disorder – March 2012

Inclusion criteria: English
Exclusion criteria: Publication prior to 2002

1) Puberty suppression in gender-questioning children/adolescents

Our core sources did not identify any systematic reviews or technology assessments addressing puberty suppression in children or adolescents with gender identity disorder (GID). However, the identified guideline by The Endocrine Society (Hembree 2009) does make recommendations on this point.

2) Cross sex hormone treatment

- Evidence identified by core sources
    - Systematic reviews
        - Murad (2010), commissioned by The Endocrine Society to inform clinical practice guideline (Hembree 2009)
    - Technology assessments
        - Hayes (2004) – 2009 search update available

- Populations
    - Primarily adult populations > 30 years old
    - Some data on individuals in late adolescence and young adulthood
- Outcomes
    - Resolution of gender dysphoria
    - Quality of life
    - Sexual function
    - Psychiatric comorbidities pre-treatment and post-treatment
- Other notes
    - Few of the studies included in the reviews are controlled

3) Sex reassignment surgery

- Evidence identified by core sources
    - Systematic reviews
        - Murad (2010), commissioned by The Endocrine Society to inform clinical practice guideline (Hembree 2009)
    - Technology assessments
        - Hayes (2004) – 2009 search update available
        - Day (2002), New Zealand Health Technology Assessment
- Populations
    - Primarily adult populations > 30 years old
    - Some data on individuals in late adolescence and young adulthood
        - Day (2002) TA excluded studies with participants under age 16
- Outcomes
    - Resolution of gender dysphoria
    - Quality of life
    - Sexual function
    - Psychiatric comorbidities pre-treatment and post-treatment
- Other notes
    - Few of the studies included in the reviews are controlled

References:

Day, P. (2002). *Trans-gender reassignment surgery*. Christchurch: New Zealand Health Technology Assessment (NZHTA).

Hayes, Inc. (2004). *Sex reassignment surgery and associated therapies for the treatment of gender identify disorder.* Lansdale, PA: Hayes, Inc. [Directory - Search updated through 2009]

Hassan Murad, M., Elamin, M.B., Zumaeta Garcia, M., Mullan, R.J., Murad, A., Erwin, P.J., et al. (2010). Hormonal therapy and sex reassignment: A systematic review and meta-analysis of quality of life and psychosocial outcomes. *Clinical Endocrinology*, *72*(2), 214-231.

Hembree, W.C., Cohen-Kettenis, P., Delemarre-van de Waal, H.A., Gooren, L.J., Meyer, W.J. III, Spack, N.P., et al. (2009). Endocrine treatment of transsexual persons: An Endocrine Society clinical practice guideline. *Journal of Clinical Endocrinology and Metabolism, 94*(9), 3132-54.

Clinical Endocrinology (2010) **72**, 214–231 doi: 10.1111/j.1365-2265.2009.03625.x

ORIGINAL ARTICLE

Hormonal therapy and sex reassignment: a systematic review and meta-analysis of quality of life and psychosocial outcomes

Mohammad Hassan Murad*,†, Mohamed B. Elamin*, Magaly Zumaeta Garcia*, Rebecca J. Mullan*, Ayman Murad‡, Patricia J. Erwin*,§ and Victor M. Montori*,¶

*Knowledge and Encounter Research Unit, †Division of Preventive Medicine, Mayo Clinic, Rochester, MN, USA, ‡Department of Psychiatry, Centre Hospitalier de Rouffach, France, §Mayo Clinic Libraries and ¶Division of Endocrinology, Diabetes, Metabolism, Nutrition, Mayo Clinic, Rochester, MN, USA

Summary

Objective To assess the prognosis of individuals with gender identity disorder (GID) receiving hormonal therapy as a part of sex reassignment in terms of quality of life and other self-reported psychosocial outcomes.

Methods We searched electronic databases, bibliography of included studies and expert files. All study designs were included with no language restrictions. Reviewers working independently and in pairs selected studies using predetermined inclusion and exclusion criteria, extracted outcome and quality data. We used a random-effects meta-analysis to pool proportions and estimate the 95% confidence intervals (CIs). We estimated the proportion of between-study heterogeneity not attributable to chance using the I^2 statistic.

Results We identified 28 eligible studies. These studies enrolled 1833 participants with GID (1093 male-to-female, 801 female-to-male) who underwent sex reassignment that included hormonal therapies. All the studies were observational and most lacked controls. Pooling across studies shows that after sex reassignment, 80% of individuals with GID reported significant improvement in gender dysphoria (95% CI = 68–89%; 8 studies; I^2 = 82%); 78% reported significant improvement in psychological symptoms (95% CI = 56–94%; 7 studies; I^2 = 86%); 80% reported significant improvement in quality of life (95% CI = 72–88%; 16 studies; I^2 = 78%); and 72% reported significant improvement in sexual function (95% CI = 60–81%; 15 studies; I^2 = 78%).

Conclusions Very low quality evidence suggests that sex reassignment that includes hormonal interventions in individuals with GID likely improves gender dysphoria, psychological functioning and comorbidities, sexual function and overall quality of life.

(Received 18 April 2009; returned for revision 4 May 2009; finally revised 6 May 2009; accepted 7 May 2009)

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Introduction

Therapy with cross-sex hormones is used as a primary sex reassignment intervention or as an adjunct to sex reassignment surgery in individuals with gender identity disorder (GID). Hormonal therapies clearly exert a rapid and direct effect on gender specific behaviours such as aggressiveness, arousal, verbal fluency and visuospatial abilities.[1] Several studies have reported sex reassignment to be associated with favourable changes in family, psychological and social life, sexual relationships and gender dysphoria, defined as the distress that originates from the difference between one's biological sex and one's basic sense of being a male or a female.[2–4]

Despite these putative benefits, individuals with GID who undergo this transition continue to have high prevalence of psychiatric comorbidities such as depression and anxiety disorders, as well as a suicide rate that is higher than that of the general population.[2,5] Hormonal therapies may also be associated with adverse effects that should be considered in addition to other costs and burdens of treatments. These adverse events have improved with the use of newer transdermal preparations and the routine administration of lower doses,[6,7] but may continue to be of concern to patients and providers.

We sought to systematically review the literature for the best available evidence regarding the benefits and risks of hormonal therapy administered in this context. In this manuscript, we summarize the available evidence about benefits in terms of self-reported outcomes such as the resolution of gender dysphoria and the effects on sexual function, psychiatric comorbidities and quality of life.

Methods

The report of this protocol-driven systematic review adheres to the standards for reporting Meta-analysis Of Observational Studies in Epidemiology (MOOSE).[8]

Eligibility criteria

We considered studies to be eligible for this review if they enrolled male-to-female (MF) or female-to-male (FM) individuals

Clinical Endocrinology (2010) **72**, 1–10 doi: 10.1111/j.1365-2265.2009.03632.x

REVIEW ARTICLE

Effect of sex steroid use on cardiovascular risk in transsexual individuals: a systematic review and meta-analyses

Mohamed B. Elamin*, Magaly Zumaeta Garcia*, Mohammad Hassan Murad*,†, Patricia J. Erwin*,‡ and Victor M. Montori*,§

*Knowledge and Encounter Research Unit, †Division of Preventive Medicine, ‡Mayo Clinic Libraries and §Division of Endocrinology, Diabetes, Metabolism, Nutrition, Mayo Clinic, Rochester, MN, USA

Summary

Objective To summarize the available evidence on the cardiovascular effects of cross-sex steroid use in transsexuals.

Methods We searched relevant electronic databases and sought additional references from experts. Eligible studies reported on cardiovascular events, venous thromboembolism, blood pressure and fasting serum lipids. Data were extracted in duplicate. We used the random-effects model to estimate the pooled weighted mean difference (WMD) and 95% confidence intervals (CIs).

Results We found 16 eligible studies, mostly uncontrolled cohorts of varied follow-up durations (1471 male-to-female (MF) and 651 female-to-male (FM) individuals). In the MF individuals, cross-sex hormone use was associated with a statistically significant increase in fasting serum triglycerides without changes in the other parameters (WMD = 23·39 mg/dl; 95% CI = 4·82–41·95). In the FM individuals, there was a similar increase of triglycerides (WMD = 31·35 mg/dl; 95% CI = 7·53–55·17) and a reduction of high density lipoprotein (HDL)-cholesterol (WMD = −6·09 mg/dl; 95% CI = −11·44 to −0·73). There was a statistically significant but clinically trivial increase in systolic blood pressure (WMD = 1·74 mmHg; 95% CI = 0·21–3·27). Analyses were associated with significant heterogeneity across studies. There were very few reported cardiovascular events (deaths, strokes, myocardial infarctions or venous thromboembolism), more commonly among MF individuals.

Conclusions Very low quality evidence, downgraded due to methodological limitations of included studies, imprecision and heterogeneity, suggests that cross-sex hormone therapies increase serum triglycerides in MF and FM and have a trivial effect on HDL-cholesterol and systolic blood pressure in FM. Data about patient important outcomes are sparse and inconclusive.

(Received 20 April 2009; returned for revision 4 May 2009; finally revised 8 May 2009; accepted 11 May 2009)

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Introduction

Gender identity disorder (GID) affects individuals preoccupied with their wish to live as members of the opposite sex. Such individuals intensely desire to adopt the social role of the other sex or to acquire the physical appearance of the other sex through hormonal or surgical manipulation.[1] Sex reassignment therapy seeks to achieve this transition using a multi-modality approach that often includes psychological, hormonal and surgical interventions.[2] Men seeking transition to the female sex (MF) generally use oestrogen, antiandrogens (cyproterone acetate, spironolactone) or a gonadotropin-releasing hormone agonist (GnRH agonists). Women seeking transition to the male sex (FM) generally use testosterone.[3]

It is plausible that sex steroid use may be associated with potential adverse effects such as acne, venous thromboembolism, atherosclerosis, hypertension, hyperlipidemia, prostate hyperplasia; and may cause or exacerbate neoplasia of the prostate, breast and ovaries.[3,4] Two large randomized trials characterized the effect of oestrogen-containing hormonal use on cardiovascular risk in women,[5,6] and the Coronary Drug Project evaluated this therapy in men post-myocardial infarction.[7] A recent review reported on the weak available evidence linking testosterone use with cardiovascular risk in hypogonadal and eugonadal men,[8] a finding that was echoed in the recently published Endocrine Society guidelines for androgen use in women, in which the panel described limited evidence regarding the cardiovascular safety of low-dose testosterone use in women with presumed androgen deficiency.[9] The different characteristics of the patients and of the hormone schedule in these trials mean these studies apply only indirectly to sexual steroid use in transsexual individuals.

In this systematic review, we sought to summarize the available evidence of the effects of cross-sex hormone use on the cardiovascular risk of transsexual individuals. Outcomes of interest were cardiovascular events, venous thromboembolism, fasting serum lipid fractions and blood pressure.

Methods

This report adheres to the standards of reporting of Meta-analysis Of Observational Studies in Epidemiology.[10]

The Endocrine Society's
CLINICAL GUIDELINES

Endocrine Treatment of Transsexual Persons:

An Endocrine Society Clinical Practice Guideline

The Endocrine Society®

The Journal of Clinical Endocrinology & Metabolism

Authors: Wylie C. Hembree, Peggy Cohen-Kettenis, Henriette A. Delemarre-van de Waal, Louis J. Gooren, Walter J. Meyer III, Norman P. Spack, Vin Tangpricha, and Victor M. Montori

Co-Sponsoring Associations: European Society of Endocrinology, European Society for Paediatric Endocrinology, Lawson Wilkins Pediatric Endocrine Society, and World Professional Association for Transgender Health

Affiliations: Columbia University and New York Presbyterian Hospital (W.C.H.), New York, New York; VU Medical Center (P.C-K., H.A.D.-v.d.W.), Amsterdam, The Netherlands; Leiden University Medical Center (H.A.D-v.d.W.), Leiden, The Netherlands; Andro-consult (L.J.G.) ChaingMai, Thailand; University of Texas Medical Branch (W.J.M.), Galveston, Texas; Harvard Medical School (N.P.S.), Boston, Massachusetts; Emory University School of Medicine (V.T.), Atlanta, Georgia; and Mayo Clinic (V.M.M.), Rochester, Minnesota.

Disclaimer Statement: Clinical Practice Guidelines are developed to be of assistance to endocrinologists by providing guidance and recommendations for particular areas of practice. The Guidelines should not be considered inclusive of all proper approaches or methods, or exclusive of others. The Guidelines cannot guarantee any specific outcome, nor do they establish a standard of care. The Guidelines are not intended to dictate the treatment of a particular patient. Treatment decisions must be made based on the independent judgment of health care providers and each patient's individual circumstances.

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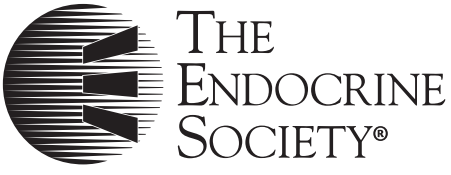
Evidence-based reviews for this guideline were prepared under contract with The Endocrine Society.

First published in the *Journal of Clinical Endocrinology & Metabolism*, September 2009, 94(9): 3132–3154



THE JOURNAL OF
CLINICAL
ENDOCRINOLOGY
& METABOLISM

Abstract

Objective: The aim was to formulate practice guidelines for endocrine treatment of transsexual persons.

Participants: An Endocrine Society-appointed Task Force of experts, a methodologist, and a medical writer.

Evidence: This evidence-based guideline was developed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system to describe the strength of recommendations and the quality of evidence, which was low or very low.

Consensus Process: Committees and members of The Endocrine Society, European Society of Endocrinology, European Society for Paediatric Endocrinology, Lawson Wilkins Pediatric Endocrine Society, and World Professional Association for Transgender Health commented on preliminary drafts of these guidelines.

Conclusions: Transsexual persons seeking to develop the physical characteristics of the desired gender require a safe, effective hormone regimen that will 1) suppress endogenous hormone secretion determined by the person's genetic/biologic sex and 2) maintain sex hormone levels within the normal range for the person's desired gender. A mental health professional (MHP) must recommend endocrine treatment and participate in ongoing care throughout the endocrine transition and decision for surgical sex reassignment. The endocrinologist must confirm the diagnostic criteria the MHP used to make these recommendations. Because a diagnosis of transsexualism in a prepubertal child cannot be made with certainty, we do not recommend endocrine treatment of prepubertal children. We recommend treating transsexual adolescents (Tanner stage 2) by suppressing puberty with GnRH analogues until age 16 years old, after which cross-sex hormones may be given. We suggest suppressing endogenous sex hormones, maintaining physiologic levels of gender-appropriate sex hormones and monitoring for known risks in adult transsexual persons.

(J Clin Endocrinol Metab 94: 3132–3154, 2009)

Abbreviations: BMD, Bone mineral density; FTM, female-to-male; GID, gender identity disorder; MHP, mental health professional; MTF, male-to-female; RLE, real-life experience.

Section 8

Guidelines

Menstrual Bleeding Disorders

Question: Should guideline note 44, menstrual bleeding disorders, be modified?

Question source: DMAP

Issue:
From DMAP:

> This is feedback from DMAP regarding the use of the Hysterectomy Guideline Note 44. I'm following up on the use of the Hysterectomy Guideline Note 44 when reviewing requests for prior authorizations. Many of these cases must be reviewed at the Administrative level through the Medical Management Committee because the medical documentation does not meet the coverage criteria for patient history of anemia as defined as having a hemoglobin less than 10 prior to iron therapy. Quite often we find that the client may have been started on iron supplements before they drop below a hemoglobin of 10 because they are "at risk" related to chronic blood loss. It is rare to find a medical record that the client had an acute blood loss resulting in a hemoglobin of less that 10 that was related to just a menstrual bleeding disorder. Most of the cases that are presented before the Medical Management Committee for admin review meet all other criteria in that guideline and the medical justification is present for approval. At some point in the future when these guidelines are re-reviewed and/or updated can the criteria for a hemoglobin of less than 10 be revisited?
>
> As a side question for clarification…That guideline note includes the need for additional documentation to show B) Negative preoperative pregnancy test unless patient has been previously sterilized and C) Nonmalignant cervical cytology, if cervix is present. I am wondering what the intent of those requirements are in the Guideline Note. I have not found them to be necessary in my reviews for authorization of hysterectomies related to menstrual bleeding disorders. While I realize that there are occasions when a woman may experience bleeding during a pregnancy wouldn't the criteria in (A) of this guideline suggest that the client would not be pregnant (particularly after a 6 month trial of hormonal treatment)? Would a practitioner perform endometrial sampling if the client was suspected of being pregnant? Is there a history to the requirement of a preoperative pregnancy test? As for the cytology requirement, are there circumstances in which the uterus is present (thus the request for hysterectomy) and the cervix is not present? Is there a reason to not perform a hysterectomy if the cervical cytology is malignant (in which case, I would assume that the condition falls on another line and does not have a Guideline Note for coverage criteria)? Clarification re: the history and intent of those requirements in the guideline note will help me provide information and training to providers, plans, and DMAP staff.

Expert input:

Drs. Michelle Berlin and Sally Wentross (OB/Gyn consultants for the ICD-10 conversion)

Both agreed that "evidence of anemia" without a specific number would be fine in the guideline, and probably an improvement as most providers would start iron therapy before the hemoglobin level fell to 10. However, both felt that the pregnancy test requirement was prudent and standard of care. Additionally, the requirement for negative cervical cytology was considered necessary, as it would determine the type of procedure done (e.g. simple vs. radical hysterectomy).

Recommendation:

1) Change guideline note 44 to read as below:

GUIDELINE NOTE 44, MENSTRUAL BLEEDING DISORDERS

Line 446

Endometrial ablation or hysterectomy for abnormal uterine bleeding in premenopausal women may be indicated when all of the following are documented (A-C):

A) Patient history of (1, 2, 3, 4, and 5):

1) Excessive uterine bleeding evidence by (a and b):

a) Profuse bleeding lasting more than 7 days and repetitive periods at less than 21-day intervals

b) Anemia due to acute or chronic blood loss ~~(hemoglobin less than 10)~~ prior to iron therapy

2) Failure of hormonal treatment for a six-month trial period or contraindication to hormone use (oral contraceptive pills or patches, progesterone-containing IUDs, injectable hormone therapy, or similar)

3) No current medication use that may cause bleeding, or contraindication to stopping those medications

4) Endometrial sampling performed

5) No evidence of treatable intrauterine conditions or lesions by (a, b or c):

a) Sonohysterography

b) Hysteroscopy

c) Hysterosalpingography

B) Negative preoperative pregnancy test result unless patient has been previously sterilized

C) Nonmalignant cervical cytology, if cervix is present

Prenatal Genetic Testing Issue Summary

Question: What types of prenatal testing should be covered on the Prioritized List?

Question source: OHP Managed Care Medical Directors, HERC Staff

Issue: New microarray testing has been proposed for routine testing for women with positive maternal serum screening or advanced maternal age for prenatal diagnosis. This topic has come up at various Medicaid managed care plans and was also brought to the HERC's attention by Kerry Silvey, chair of the Genetics Advisory Committee. Ms. Silvey has indicated that publications supporting this type of testing are not yet published.

Currently, on the Prioritized List there is an algorithm and test guideline for non-prenatal genetic testing, but nothing for prenatal genetic testing.

This offered the opportunity to review what are appropriate genetic tests to offer in the prenatal setting. The Medicaid Evidence-based Decisions (MED) project staff were asked to complete a Participant Request to assist Oregon in determining the level of evidence available for prenatal genetic testing. They produced 2 reports, the first identified high quality evidence based guidelines for prenatal care, the second looked at more specific questions and newer diagnostic services.

Phase 1 found the following

Table 1. Summary of NICE (2008), VA/DoD (2009), and ICSI (2012) Prenatal Genetic Testing Guideline Recommendations

Indication/test	NICE	VA/DoD	ICSI
Genetic risk assessment	Validated questionnaire	Validated questionnaire	Validated questionnaire
Hemoglobinopathies	Screen all high-risk ethnic groups, complete blood count, hemoglobin electrophoresis	Screen all high-risk ethnic groups, complete blood count, hemoglobin electrophoresis	Screen all high-risk ethnic groups, complete blood count, hemoglobin electrophoresis
Cystic fibrosis	Addressed in separate guideline – testing not recommended	Carrier test/counseling	Carrier test/counseling
Tay-Sachs disease	-	-	Leukocyte hexosaminidase A test for high-risk ethnic groups

Prenatal Genetic Testing Issue Summary

Indication/test	NICE	VA/DoD	ICSI
Aneuploidy screening	**First choice (for women who enter care in the first trimester)**: nuchal translucency, beta- human chorionic gonadotropin (beta-hCG), and pregnancy-associated plasma protein A (PAPP-A) (11 weeks 0 days and 13 weeks 6 days); **Second choice (for women who present later in the pregnancy)**: triple or quadruple test (15 weeks 0 days and 20 weeks 0 days).	**Any of the following, based on the woman's choice**: First- or second-trimester serum marker assessment, first-trimester nuchal translucency measurement, basic and comprehensive second-trimester ultrasound assessment, first-trimester chorionic villus sampling and second-trimester amniocentesis. **If first trimester screening is elected:** second-trimester serum AFP screening and/or US should be offered to screen for open neural tube defects. **For second trimester serum screening:** Quad Marker Screen should be used rather than the Triple Marker Screen.	Any of four screening strategies (integrated, serum integrated, stepwise sequential, and contingency).
Structural abnormality screen	Between 18 weeks 0 days and 20 weeks 6 days	Optional - only as needed	Optional 18-20 weeks

Phase 2 compiled evidence for the following

- Microarray testing,

- Tay-Sachs disease,
- Cystic Fibrosis,
- Fragile X syndrome,
- Quantitative Fluorescent-Polymerase Chain Reaction (QF-PCR) aneuploidy testing,
- Heritable thrombophilia, and
- Fetal skeletal dysplasia.

HERC Staff Recommendations

1) Convene a taskforce of obstetrical and genetics experts to craft a prenatal genetic testing guideline
    a. Discussion of taskforce representation
    b. Discussion of type of guideline envisioned
2) Bring the suggested guideline back to a future meeting for further discussion

Trisomy 21 DNA Test (MaterniT21) for Detecting Down Syndrome in the First Trimester

A summary of ECRI Institute's Health Technology Forecast Report

EDITOR'S NOTE:

Managed care leaders are striving to make evidence-based decisions about new and emerging health technology. MANAGED CARE and ECRI Institute have joined in a collaboration to bring bi-monthly summaries of either an ECRI Institute Emerging Technology Evidence Report or a Health Technology Forecast profile. ECRI Institute is an independent nonprofit organization that researches the best approaches to improving patient care. It does its work by analyzing the research literature and data on clinical procedures, medical devices, and drug therapies.

ECRI Institute
The Discipline of Science. The Integrity of Independence.

Current clinical guidelines recommend first-trimester screening for Down syndrome using a battery of biomarker blood tests in combination with nuchal transparency testing by ultrasound imaging. Upon receiving a positive result (i.e., high risk) from these first-trimester tests, the woman may be counseled to undergo a similar biomarker test, which, if positive, may be followed by amniocentesis (sampling amniotic fluid surrounding the fetus in utero) or chorionic villus sampling (harvesting placental tissue cells in utero), depending on the week of gestation, to confirm the result.

Invasive testing carries a risk of miscarriage. Women and their physicians have great interest in a more effective noninvasive test.

Sequenom, Inc. located in San Diego, Calif. has developed the MaterniT21 test (formerly called the SensiGene Trisomy 21 test), a DNA-based, first-trimester screening assay for Down syndrome. The test uses what the company calls "fetal nucleic acid technology" to detect and isolate circulating fetal DNA from a maternal blood sample. Repeated parallel sequencing can detect an excess of chromosome 21 DNA of fetal origin, which indicates trisomy 21.

The company asserts that circulating fetal DNA can be obtained from a maternal blood sample very early in pregnancy (as early as 10 weeks, though the window for administering the test is broad) and could benefit pregnant women by helping rule out trisomy 21 abnormalities and thereby avoid more invasive testing. Therefore, women on whom the blood test was performed could have better information much earlier in pregnancy and without risk of miscarriage to enable earlier informed decision making.

Perspectives and predictions

According to the manufacturer, the MaterniT21 assay detects and isolates circulating fetal DNA from a maternal blood sample to screen for trisomy 21 (Down syndrome) as early as 10 weeks into pregnancy with purportedly very high sensitivity and specificity.

The test could enable women with a negative result to avoid further invasive screening with its attendant risk of miscarriage, which could have great appeal to patients and their clinicians.

This test has potential to become a standard screening procedure; however, to date, clinical trials have studied the test only in high-risk populations (women over the age of 35). To evaluate the true benefit of this blood test as a screening test for trisomy 21, trials are needed to evaluate the test in a cross-section of the population at large (e.g., women with normal risks and low risks as well as high risk; women of varying ages).

The company launched the MaterniT21 test in late 2011 as a laboratory-developed test and initially focused on dissemination in more than 20 major metropolitan markets; the test could be available as a commercial test kit by early 2013.

Other entities are developing a similar test, but none of these tests are expected to be on the market before 2014.

A general search of published codes revealed Current Procedural Terminology codes that ad-

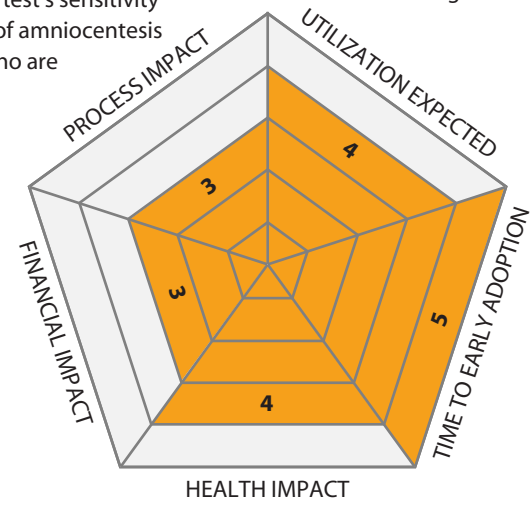
Reprinted from the April 2012 issue of MANAGED CARE.
Published by MediMedia USA.

Technology impact ratings

Process impact:
(3 – Moderate)
Adoption and diffusion of the MaterniT21 test will likely have no major impact on hospital operations but will have some impact on outpatient clinical services of obstetric practices and clinical laboratories if the test's sensitivity and specificity are equivalent to those of amniocentesis or chorionic villus sampling. Women who are screened and receive a negative result could elect to not undergo invasive testing, thereby reducing the demand for amniocentesis and chorionic villus sampling testing.

Financial impact:
(3 – Moderate)
The company expressed its intention to price the test between $1,500 and $3,000, in keeping with the price for invasive trisomy 21 testing, according to the developer. As an add-on test to existing screening tests, it will add to costs for women who test positive and require confirmatory testing. If it helps to avoid invasive testing in women whose test result is negative, however, it may be cost neutral.

Utilization expected:
(4 – 60 percent to 80 percent of patients)
The number of pregnant women electing to be screened might increase if the test eliminates the need for invasive testing. In addition, the MaterniT21 test is not associated with the same risk of miscarriage as standard screening procedures.



Health impact: *(4 – Substantial)*
This test could benefit pregnant women by helping rule out a trisomy 21 abnormality, and a negative result could help women avoid more invasive testing (i.e., chorionic villus sampling, amniocentesis) that poses a risk of miscarriage. Therefore, women in whom the blood test is performed could receive better information much earlier in pregnancy without risk of miscarriage to enable earlier informed decision making about whether to undergo additional invasive testing.

Time to early adoption:
(5 – Adoption occurring now)
The MaterniT21 test is currently performed as a laboratory-developed test through Sequenom, Inc. located in San Diego, Calif. The company launched the MaterniT21 laboratory-developed version of the test in late 2011 and plans to apply for premarket approval to the U.S. Food and Drug Administration in mid-2012.

dress the use of several prenatal tests for trisomy 21, as well as codes relevant to the diagnosis of Down syndrome, including amniocentesis, chorionic villus sampling, and karyotyping.

Reimbursement issues

Typically, the U.S. Centers for Medicare & Medicaid Services (CMS) does not permit coverage of screening tests unless Congress passes a separate statute for coverage of a specific screening test. In 2006, however, Medicaid services for pregnant women were extended; CMS required states to provide pregnancy-related services, including prenatal care and services for conditions that might complicate pregnancy or medical conditions that might threaten the carrying of the fetus to full term or safe delivery. Mandatory services that Medicaid must provide include laboratory tests and various imaging tests, as well as family planning services. Individual states may decide to cover other services that are important to prenatal health; thus, the scope of what is provided depends on the state in which a woman on Medicaid resides.

Thus, the trisomy 21 test might be considered for coverage under that statute. Medicaid payment rates are, however, typically lower than Medicare national average payment rates. CMS does have coding in place for all the screening tests currently used for prenatal screening. MC

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