Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan

**eMeasure Title**
Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan

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69

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6.1.000

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0421

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January 1, 20XX through December 31, 20XX

**Measure Steward**
Centers for Medicare & Medicaid Services (CMS)

**Measure Developer**
Quality Insights

**Endorsed By**
National Quality Forum

**Description**
Percentage of patients aged 18 years and older with a BMI documented during the current encounter or during the previous twelve months AND with a BMI outside of normal parameters, a follow-up plan is documented during the encounter or during the previous twelve months of the current encounter

Normal Parameters: Age 18 years and older BMI => 18.5 and < 25 kg/m2

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**Measure Scoring**
Proportion

**Measure Type**
Process

**Stratification**
None

**Risk Adjustment**
None

**Rate Aggregation**
None

**Rationale**
BMI Above Normal Parameters

Obesity is a chronic, multifactorial disease with complex psychological, environmental (social and cultural), genetic, physiologic, metabolic and behavioral causes and consequences. The prevalence of overweight and obese people is increasing worldwide at an alarming rate in both developing and developed countries. Environmental and behavioral changes brought about by economic development, modernization and urbanization have been linked to the rise in global obesity. The health consequences are becoming apparent (ICSI 2013. p.6).

Nationally, nearly 38 percent of adults are obese [NHANES, 2013-2014 data]. Nearly 8 percent of adults are extremely obese (BMI greater than or equal to 40.0); Obesity rates are higher among women (40.4 percent) compared to men (35.0 percent). Between 2005 and 2014, the difference in obesity among women was 5.1 percent higher among women and 1.7 percent higher among men. Women are also almost twice as likely (9.9 percent) to be extremely obese compared to men (5.5 percent); In addition, rates are the highest among middle-age adults (41 percent for 40- to 59-year-olds), compared to 34.3 percent of 20- to 39-year-olds and 38.5 percent of adults ages 60 and older (Flegal KM, Kruszon-Moran D, Carroll MD, et al, 2016, p.2286-2290). Obesity is one of the biggest drivers of preventable chronic diseases and healthcare costs in the United States. Currently, estimates for these costs range from $147 billion to nearly $210 billion per year Cawley J and Meyerhoefer C., 2012 & Finkelstein, Trogdon, Cohen, et al., 2009). There are significant racial and ethnic inequities [NHANES, 2013-2014 data]: Obesity rates are higher among Blacks (48.4 percent) and Latinos (42.6 percent) than among Whites (36.4 percent) and Asian Americans (12.6 percent).The inequities are highest among women: Blacks have a rate of 57.2 percent, Latinos of 46.9 percent, Whites of 38.2 percent and Asians of 12.4 percent. For men, Latinos have a rate of 37.9 percent, Blacks of 38.0 percent and Whites of 34.7 percent. Black women (16.8 percent) are twice as likely to be extremely obese as White women (9.7 percent) (Flegal KM, Kruszon-Moran D, Carroll MD, et al., 2016, pp. 2284-2291).

BMI continues to be a common and reasonably reliable measurement to identify overweight and obese adults who
may be at an increased risk for future morbidity. Although good quality evidence supports obtaining a BMI, it is important to recognize it is not a perfect measurement. BMI is not a direct measure of adiposity and as a consequence it can over- or underestimate adiposity. BMI is a derived value that correlates well with total body fat and markers of secondary complications, e.g., hypertension and dyslipidemia (Barlow, 2007).

In contrast with waist circumference, BMI and its associated disease and mortality risk appear to vary among ethnic subgroups. Female African American populations appear to have the lowest mortality risk at a BMI of 26.2-28.5 kg/m2 and 27.1-30.2 kg/m2 for women and men, respectively. In contrast, Asian populations may experience lowest mortality rates starting at a BMI of 23 to 24 kg/m2. The correlation between BMI and diabetes risk also varies by ethnicity (LeBlanc, 2011. p.2-3)

Screening for BMI and follow-up therefore is critical to closing this gap and contributes to quality goals of population health and cost reduction. However, due to concerns for other underlying conditions (such as bone health) or nutrition related deficiencies providers are cautioned to use clinical judgment and take these into account when considering weight management programs for overweight patients, especially the elderly (NHLBI Obesity Education Initiative, 1998, p. 91).

BMI below Normal Parameters

On the other end of the body weight spectrum is underweight (BMI <18.5 kg/m2), which is equally detrimental to population health. When compared to normal weight individuals(BMI 18.5-25 kg/m2), underweight individuals have significantly higher death rates with a Hazard Ratio of 2.27 and 95% confidence intervals (CI) = 1.78, 2.90 (Borrell & Lalitha (2014).

Poor nutrition or underlying health conditions can result in underweight (Fryer & Ogden, 2012). The National Health and Nutrition Examination Survey (NHANES) results from the 2007-2010 indicate that women are more likely to be underweight than men (2012). Therefore patients should be equally screened for underweight and followed up with nutritional counselling to reduce mortality and morbidity associated with underweight.

### Clinical Recommendation Statement

As cited in Fetch et al. (2013), The Institute for Clinical Systems Improvement (ICSI) Health Care Guideline, Prevention and Management of Obesity for Adults provides the Strength of Recommendation as Strong for the following:

- Clinicians should consider waist circumference measurement to estimate disease risk for patients who have normal or overweight BMI scores. For adult patients with a BMI of 25 to 34.9 kg/m2, sex-specific waist circumference cutoffs should be used in conjunction with BMI to identify increased disease risk.

Individuals who are overweight (BMI 25<30), and who do not have indicators of increased CVD risk (e.g., diabetes, pre-diabetes, hypertension, dyslipidemia, elevated waist circumference) or other obesity-related comorbidities and individuals who have a history of overweight and are now normal weight with risk factors at acceptable levels:

"Advise to frequently measure their own weight, and to avoid weight gain by adjusting their food intake if they start to gain more than a few pounds. Also, advice patients that engaging in regular physical activity will help them avoid weight gain." (2013 AHA/AAC/TOS Obesity Guideline, p. 20)

"Advise overweight and obese individuals who would benefit from weight loss to participate for >=6 months in a comprehensive lifestyle program that assists participants in adhering to a lower calorie diet and in increasing physical activity through the use of behavioral strategies... NHLBI Grade A (Strong)” (2013 AHA/AAC/TOS Obesity Guideline, p. 15)

USPSTF Clinical Guideline (Grade B Recommendation)

Individuals with a body mass index (BMI) of 30 kg/m2 or higher should be offered or referred to intensive, multicomponent behavioral interventions that include the following components:

- Behavioral management activities, such as setting weight-loss goals
- Improving diet or nutrition and increasing physical activity
- Addressing barriers to change
- Self-monitoring
- Strategizing how to maintain lifestyle changes

Nutritional safety for the elderly should be considered when recommending weight reduction. "A clinical decision to forego obesity treatment in older adults should be guided by an evaluation of the potential benefits of weight reduction for day-to-day functioning and reduction of the risk of future cardiovascular events, as well as the patient’s motivation for weight reduction. Care must be taken to ensure that any weight reduction program minimizes the likelihood of adverse effects on bone health or other aspects of nutritional status” Evidence Category D. (NHLBI Obesity Education Initiative, 1998, p. 91). In addition, weight reduction prescriptions in older persons should be accompanied by proper nutritional counseling and regular body weight monitoring. (NHLBI Obesity Education Initiative, 1998, p. 91).

The possibility that a standard approach to weight loss will work differently in diverse patient populations must be considered when setting expectations about treatment outcomes. Evidence Category B. (NHLBI Obesity Education Initiative, 1998).

### Improvement Notation

Higher score indicates better quality

### Reference


## Reference

<table>
<thead>
<tr>
<th>Reference</th>
<th>Barnes PM, &amp; Schoenborn CA (2012). Trends in adults receiving a recommendation for exercise or other physical activity from a physician or other health professional. Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS) Data Brief, No. 86: Feb 2012.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>Jensen, M.D., Ryan, D.H., Apovian, C.M., Ard, J.D., Comuzzie, A. G., Donato, K.A., ... Yanovski, S.Z. (2013).  Practice guidelines and the obesity health professional, or surgeon), pharmacological interventions, dietary supplements, exercise counseling or nutrition counseling. Follow-up plan may include, but is not limited to: documentation of education, referral (for example a registered dietitian, nutritionist, occupational therapist, physical therapist, primary care provider, exercise physiologist, mental health professional, or surgeon), pharmacological interventions, dietary supplements, exercise counseling or nutrition counseling.</td>
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## Definition

**BMI-** Body mass index (BMI) is a number calculated using the Quetelet index: weight divided by height squared (W/H2) and is commonly used to classify weight categories. BMI can be calculated using:

- Metric Units: BMI = Weight (kg) / (Height (m) x Height (m))
- OR
  - English Units: BMI = Weight (lbs.) / (Height (in) x Height (in)) x 703

**Follow-Up Plan -** Proposed outline of treatment to be conducted as a result of a BMI out of normal parameters. A follow-up plan may include, but is not limited to: documentation of education, referral (for example a registered dietitian, nutritionist, occupational therapist, physical therapist, primary care provider, exercise physiologist, mental health professional, or surgeon), pharmacological interventions, dietary supplements, exercise counseling or nutrition counseling.

**Guidance**

- There is no diagnosis associated with this measure.
- This measure is to be reported a minimum of once per reporting period for patients seen during the reporting period.
- This measure may be reported by eligible professionals who perform the quality actions described in the measure based on the services provided at the time of the qualifying visit and the measure-specific denominator coding.

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BMI Measurement Guidance:
* Height and Weight - An eligible professional or their staff is required to measure both height and weight. Both height and weight must be measured within twelve months of the current encounter and may be obtained from separate encounters. Self-reported values cannot be used.
* The BMI may be documented in the medical record of the provider or in outside medical records obtained by the provider.
* If the most recent documented BMI is outside of normal parameters, then a follow-up plan is documented during the encounter or during the previous twelve months of the current encounter.
* If more than one BMI is reported during the measurement period, the most recent BMI will be used to determine if the performance has been met.
* Review the exclusions criteria to determine those patients that BMI measurement may not be appropriate or necessary.

Follow-Up Plan Guidance:

1. The documented follow-up plan must be based on the most recent documented BMI, outside of normal parameters, example: "Patient referred to nutrition counseling for BMI above or below normal parameters."

(See Definitions for examples of follow-up plan treatments).
Variation has been noted in studies exploring optimal BMI ranges for the elderly (see Donini et al., (2012); Holme and Tonstad (2015); and Diehr et al. (2008). Notably however, all these studies have arrived at ranges that differ from the standard range for ages 18 and older, which is ≥18.5 and < 25 kg/m². For instance, both Donini et al. (2012) and Holme and Tonstad (2015) reported findings that suggest that higher BMI (higher than the upper end of 25kg/m²) in the elderly may be beneficial. Similarly, worse outcomes have been associated with being underweight (at a threshold higher than 18.5 kg/m²) at age 65 (Diehr et al. 2008). Because of optimal BMI range variation recommendations from these studies, no specific optimal BMI range for the elderly is used. However, it may be appropriate to exempt certain patients from a follow-up plan by applying the exception criteria. Review the following to apply the Medical Reason exception criteria:
The Medical Reason exception could include, but is not limited to, the following patients as deemed appropriate by the health care provider:
* Elderly Patients (65 or older) for whom weight reduction/weight gain would complicate other underlying health conditions such as the following examples:
  * Illness or physical disability
  * Mental illness, dementia, confusion
  * Nutritional deficiency such as Vitamin/mineral deficiency

* Patients in an urgent or emergent medical situation where time is of the essence and to delay treatment would jeopardize the patient's health status

**Table of Contents**
- Population Criteria
- Data Criteria (QDM Variables)
- Data Criteria (QDM Data Elements)
- Supplemental Data Elements
- Risk Adjustment Variables
Population Criteria

- **Initial Population**
  - AND: Age >= 18 year(s) at: "Occurrence A of Encounter, Performed: BMI Encounter Code Set"

- **Denominator**
  - AND: Initial Population

- **Denominator Exclusions**
  - OR: Union of:
    - "Encounter, Performed: Palliative care encounter" starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
    - "Intervention, Order: Palliative Care" starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
    - "Physical Exam, Performed not done: Patient Reason refused" for "BMI LOINC Value" during "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
    - "Diagnosis: Pregnancy Dx" overlaps "Measurement Period"

- **Numerator**
  - AND:
    - OR: "Physical Exam, Performed: BMI LOINC Value" satisfies all:
      - Most Recent: (result) <= 12 month(s) starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
      - (result) >= 18.5 kg/m2
      - (result) < 25 kg/m2
    - OR:
      - AND: Union of:
        - "Intervention, Order: Above Normal Follow-up"
        - "Intervention, Order: Referrals where weight assessment may occur (reason: Overweight)"
        - "Medication, Order: Above Normal Medications"
        - <= 12 month(s) starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
      - AND: "Physical Exam, Performed: BMI LOINC Value" satisfies all:
        - Most Recent: (result) <= 12 month(s) starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
        - (result) >= 25 kg/m2
    - OR:
      - AND: Union of:
        - "Intervention, Order: Below Normal Follow up"
        - "Intervention, Order: Referrals where weight assessment may occur (reason: Underweight)"
        - "Medication, Order: Below Normal Medications"
        - <= 12 month(s) starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
      - AND: "Physical Exam, Performed: BMI LOINC Value" satisfies all:
        - Most Recent: (result) <= 12 month(s) starts before or concurrent with end of "Occurrence A of Encounter, Performed: BMI Encounter Code Set"
        - (result) < 18.5 kg/m2

- **Numerator Exclusions**
  - None

- **Denominator Exceptions**
  - None

- **Stratification**
  - None

**Data Criteria (QDM Variables)**

- None

**Data Criteria (QDM Data Elements)**

- "Diagnosis: Pregnancy Dx" using "Pregnancy Dx Grouping Value Set (2.16.840.1.113883.3.600.1.1623)"
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- "Encounter, Performed: BMI Encounter Code Set" using "BMI Encounter Code Set Grouping Value Set (2.16.840.1.113883.3.600.1.1751)"
- "Encounter, Performed: Palliative care encounter" using "Palliative care encounter ICD10CM Value Set (2.16.840.1.113883.3.600.1.1575)"
- "Intervention, Order: Above Normal Follow-up" using "Above Normal Follow-up Grouping Value Set (2.16.840.1.113883.3.600.1.1525)"
- "Intervention, Order: Below Normal Follow up" using "Below Normal Follow up Grouping Value Set (2.16.840.1.113883.3.600.1.1528)"
- "Intervention, Order: Palliative Care" using "Palliative Care Grouping Value Set (2.16.840.1.113883.3.600.1.1579)"
- "Intervention, Order: Referrals where weight assessment may occur" using "Referrals where weight assessment may occur Grouping Value Set (2.16.840.1.113883.3.600.1.1527)"
- "Intervention, Order not done: Medical or Other reason not done" using "Medical or Other reason not done SNOMEDCT Value Set (2.16.840.1.113883.3.600.1.1502)"
- "Medication, Order: Above Normal Medications" using "Above Normal Medications RXNORM Value Set (2.16.840.1.113883.3.600.1.1498)"
- "Medication, Order: Below Normal Medications" using "Below Normal Medications RXNORM Value Set (2.16.840.1.113883.3.600.1.1499)"
- "Medication, Order not done: Medical or Other reason not done" using "Medical or Other reason not done SNOMEDCT Value Set (2.16.840.1.113883.3.600.1.1502)"
- "Physical Exam, Performed: BMI LOINC Value" using "BMI LOINC Value LOINC Value Set (2.16.840.1.113883.3.600.1.681)"
- "Physical Exam, Performed not done: Patient Reason refused" using "Patient Reason refused SNOMEDCT Value Set (2.16.840.1.113883.3.600.791)"
- Attribute: "Reason: Overweight" using "Overweight SNOMEDCT Value Set (2.16.840.1.113883.3.600.2387)"
- Attribute: "Reason: Underweight" using "Underweight SNOMEDCT Value Set (2.16.840.1.113883.3.600.2388)"

**Supplemental Data Elements**

- "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity CDCREC Value Set (2.16.840.1.114222.4.11.837)"
- "Patient Characteristic Payer: Payer" using "Payer SOP Value Set (2.16.840.1.114222.4.11.3591)"
- "Patient Characteristic Race: Race" using "Race CDCREC Value Set (2.16.840.1.114222.4.11.836)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex AdministrativeGender Value Set (2.16.840.1.113762.1.4.1)"

**Risk Adjustment Variables**

- None

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<th>Measure Set</th>
<th>None</th>
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