CENTER FOR PREVENTION AND HEALTH PROMOTION
Oral Health Program
Kate Brown, Governor

Oregon Health Authority

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www.healthoregon.org/dpp

Quarterly Dental Pilot Project Meeting: DPP 200 Meeting Minutes

Date: Monday, August 10, 2020
Time: 1:00 PM – 2:00 PM
Location: Virtual Meeting of the OHA Public Health Division
800 NE Oregon Street
Portland, OR 97232
Conference Room 900 – Ninth Floor

Committee Members Present:
Fred Bremner, Leslee Harbison, Jennifer Lewis-Goff

Committee Members Absent:
Todd Beck

OHA Staff:
Kelly Hansen, Fred King, Sarah Kowalski, Jon McElfresh, Marc Overbeck, Cate Wilcox, Amy Umphlett

Consultant to OHA: Rose McPharlin

Project Attendees:
Richie Kohlie, Sharity Ludwig, Kenny McLemore, Linda Mann, Eli Schwarz

Public Attendees:
Jo Bell, 4 additional attendees

Summary of Meeting

Agenda Item: Official Introductions, Agenda Review

Topic: Agenda Review
Summary of Discussion: Agenda Review
Decision: No decisions made.
Action: Move on to next agenda item.

Agenda Item: Pilot Project Updates, Timeline Update, Request for Modification

Topic: Presentation by Eli Schwarz, DDS, MPH, PhD
Summary of Discussion: Dr. Schwarz reviewed the timeline of DPP#200, project activities, concerns related to the school closures due to COVID-19.

- *Funding***:** The Ford Family Foundation and OCF have provided funding for the past three years for the pilot project.
- *Sponsors*: Project is a collaboration between Capitol Dental and OHSU Department of Community Dentistry.
- *Goals of the Project*: Demonstrate that EPDH (dental hygienist) can place Interim Therapeutic Restoration (ITR) in a community setting. Project is based off concepts developed by Dr. Paul Glassman at U of Pacific School of Dentistry, their ITR and Virtual Dental Home Pilot Project through the State of California.
    - Goals are to reach children who are not receiving dental care in their community.
    - Demonstrate that most children's oral health can be maintained in a school based setting, keeping children healthy in the community.

- *Populations Served*:
    - Primarily Caucasian children and Hispanic children
    - 2399 patients seen, Data indicates that 42% of children could be treated in the community by the EPDH (dental hygienist) 58% had treatment needs that were too complex to be treated by the EPDH or out of their scope of practice and required a referral to a dentist.
    - 7 out of 10 children in the project were either on Medicaid or uninsured.
    - Only 50% of children had seen a dentist in the past year, many had never been at all.
    - 163 ITR's were planned which represented 6.8% of patients seen, only 72 were placed which represented 3% of patients.
    - Barriers to placement of ITRs, consent form is required to be completed once the need for the ITR has been made and the dentist confirms the diagnosis; the patient is required to return with a completed consent form. It is a two-step process and having parents sign the consent form has been a challenge which is responsible for a low response.
    - Satisfaction surveys sent to parents, 80% of parents indicate that they would utilize the same treatment or school based dental program for future dental needs.
    - Most parents are extremely satisfied, a few were not but survey did not indicate why unsatisfied.
    - Barriers to care are asked in consent form, cost of care, takes too long, difficult to take off of work, anxiety/fear of dentist, transportation issues, lack of knowledge of providers who accept their insurance.
    - Perceived benefits of project, 8/10 parents indicated it was convenient for their children to access the dental care through the school setting.

- Legislative: Bill introduced in 2020 session
    - Senate Bill 1550, heard in both committees, approved by both committees and due to the House walkout it was not passed. Looking at introducing in 2021.
    - Question by Ms. Harbison, Does the Senate Bill require that a dentist must diagnose before the ITR is place? Answer, yes, the bill would require the dentist to diagnose prior to the ITR being placed.

Decision: No decisions made.
Action: Move on to next agenda item.

Agenda Item: Request for modification

Topic: Timeline extension request
Summary of Discussion: DPP#200 has submitted a request to modify the timeline of DPP#200. Request to extend length of pilot project to March 2022.

- Future of Project:
    - Plans to expand, were planning to expand to Gilliam and Sherman County with Advantage Dental.
    - Project on hold to implement due to COVID-19 and delayed due to circumstances.
    - Sent letter to request modification of approved timeline to OHA for approval in August 2019.
    - Integration of oral health with physical health is a goal of the pilot project. There are trainees co-located at a pediatrician's office in Salem as well as plans to have other trainees in similar locations.
    - In 2019, a training was held and 7 additional individuals were trained as trainees under DPP#200. Most have not been implemented in the project due to COVID-19 issues and closures. There were contract negotiations prior to the COVID-19 closures between OHSU, Capitol and Advantage Dental that prevented the trainees from starting.
    - The projects timeline has been interrupted for 6 months as of today. Unknown when schools will reopen due to COVID-19.
    - EPDH trainees are at some locations, extremely limited. Most of the project sites are school sites with a few other medical sites where the EPDH is collocated.
    - Capitol Dental is no longer an active part of the ITR portion of the project. OHA will maintain the list.

Decision: No decisions made. Committee will review modification materials.
Action: OHA will follow up with the committee over email. OHA will edit the

employment/utilization site list.

**Subsequent action taken on September 22, 2020 approved modification request. See Page 8 of Minutes for details on post-meeting action.*

Agenda Item: Oregon Administrative Rule Changes

Topic: OAR 333-010-0750 proposed rule changes. Reviewed recent OAR rules changes effective June 1, 2020.

Summary of Discussion: SB738 states: (a) Operate for three to five years or a sufficient amount of time to evaluate the validity of the pilot project;

- Current OAR 333-010-0750 states projects may operate from three to five years.
- Proposed language changes will read (d) The length of time the project can operate - from between three to five years or a sufficient amount of time to evaluate the validity of the project.
- OARS were amended and effective June 1, 2020 which requires projects to serve a certain underserved population requirement, as defined in the approved project application.
- Discussed revised reporting requirements around underserved populations.
- Marc Overbeck described HPSA designations in Sherman and Gilliam counties.

Decision: OHA will send information on revised reporting requirements to comply with OARs. OHA will notify DPP#200 and committee when the public comment period occurs for the OARs.
Action: Move on to next agenda item.

Agenda Item: Site Visit, Future Meeting Dates

Topic: Future site visits and meeting dates
Summary of Discussion: Site visits are on hold until the project resumes activities.

- Site visits will resume once patient care resumes.
- Site visits may be held virtually.
- Future Advisory Committee meetings will be scheduled for 2021.
- Todd Beck has resigned from the Advisory Committee due to other obligations. OHA will be reviewing staffing of the Advisory Committee and make a determination as to when to do a call out for applications.
- Dr. Schwarz thanked OHA and others for their collaboration in the project, they have enjoyed the partnership between all of the organizations and people involved in the project.

Decision: No decisions made.
Action: Move on to next agenda item.

Next Meeting Date: To be determined in 2021.

Public Comment: OHA received one public comment at the conclusion of the meeting.

Ms. Jo Bell, government relations for Capitol Dental Care let the committee know that they [Capitol Dental] are planning to move SB1550 forward in 2021 session, just exactly as the language was in the final amended bill from last session.

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AGENDA

Dental Pilot Project #200 “Training Dental Hygienists to Place ITR"
Annual Dental Pilot Project Program Advisory Committee Meeting DPP #200
August 10, 2020, 1:00pm – 2:00pm

Location: Virtual Meeting https://www.zoomgov.com/j/1617852125?pwd=Sm5nbkVkZ2xUOGhJMUFWYWFFa2FEQT09		
1:00-1:10	Official Introductions, Agenda Review	Sarah Kowalski, MS, RDH
1:10-1:25	Pilot Project Updates, Timeline Update, Request for Modification	Eli Schwarz, DDS, MPH, Phd
1:25-1:35	Discussion, Review Request for Modification	Sarah Kowalski, MS, RDH
1:35-1:45	Update to Quarterly Reporting Requirements	Kelly Hansen
1:45 – 1:55	Follow Up Items, Future Meeting Dates, Next Site Visit, Closing	Sarah Kowalski, MS, RDH
1:55-2:00	Public comments are limited to 2 minutes per individual; Public comments are accepted via in-person oral testimony or submission of written comments via email to oral.health@state.or.us or US Mail.	Public Comment Period

August 6, 2020

Oregon Health Authority
Sarah Kowalski, Operations & Policy Analyst 3
Dental Pilot Project Program
800 NE Oregon Street, Suite 930
Portland, OR 97232

School of Dentistry
Department of Community Dentistry

Professor & Chair
Eli Schwarz KOD
DDS, MPH, PhD, FHKAM, FCDSHK, FACD, FRACDS

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3030 S Moody Avenue,
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Portland, OR 97201-4869
tel 503 494-7603
fax 503 494-8839

Dear Sarah,

Re: Dental Pilot Project #200 request for modification – extension of time to complete project

As will surely be discussed at our upcoming Advisory Board meeting, this year has been most unusual. Due to the COVID-19 pandemic implications, our project was stopped on a short notice in February 2020, where our last data were collected from the school based dental program in collaboration with our Capitol Dental field team.

At the same time, our preparations to initiate the part of the project that should take place in Eastern Oregon in collaboration with Advantage Dental were delayed due to protracted negotiations between OHSU and Advantage Dental's legal teams and subsequently the COVID-19 closures. These activities have been slowly starting in July.

The project was scheduled to finish in September 2020. However, due to the delays and in order to have sufficient time to restart, follow up and evaluate, I should like to request an extension of the project until August 2022.

For your information, the Ford Family Foundation, which has been funding part of this project has allowed us a no-cost extension of the project. Additional funding from HRSA in collaboration with OHA Workforce office is also secured through 2022.

Yours Sincerely,

Eli Schwarz KOD, DDS, MPH, PhD

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September 22, 2020

Eli Schwarz DDS, MPH, PhD
3030 SW Moody Avenue, Suite 135
Portland, Oregon 97201

Dear Dr. Schwarz,

The Oregon Health Authority (OHA) Dental Pilot Project Program has reviewed the modification request submitted on August 6, 2020 to extend the timeline of Dental Pilot Project #200 (DPP#200) "Training Dental Hygienists to Place Interim Therapeutic Restorations" (Appendix A).

Due to factors beyond the project sponsor's control, there have been several quarters where trainees were unable to provide services due to COVID-19 and will continue to be unable to provide services in schools until they reopen. DPP#200 has not been allowed enough time to implement the pilot project as intended in the original application and modification request approved by OHA August 6, 2019. (Please see Appendix B for more information on the modification approved in 2019.)

Under current Oregon Administrative Rule (OAR) 333-010-0750, an approved dental pilot project can operate from between three to five years. DPP#200 was originally approved to operate beginning on March 14, 2016. Due to the limitations under current administrative rule, OHA can only approve DPP#200 to operate until March 14, 2021.

As you may be aware, OHA is in the process of permanently amending the OARs. A notice of proposed rulemaking[1] was submitted to the Oregon Secretary of State's Office in August 2020, and OARs 333-010-0700 through 333-010-0820[2] are currently under public comment. As stated in the notice:

> *The Oregon Health Authority (Authority), Public Health Division, Oral Health Program is proposing to permanently amend administrative rules in chapter 333, division 10 "Dental*

[1] Notice of Proposed Rulemaking, Office of the Secretary of State, State of Oregon, CHAPTER 333 OREGON HEALTH AUTHORITY Public Health Division, https://www.oregon.gov/oha/PH/PREVENTIONWELLNESS/ORALHEALTH/DENTALPILOTPROJECTS/Documents/333-010-Notice-of-Proposed-Rulemaking.pdf.
Also available in the Oregon Bulletin for September 2020, Executive Orders and Other Notices of Proposed Rulemaking September 2020 Bulletin, https://secure.sos.state.or.us/oard/displayBulletin.action;JSESSIONID_OARD=foVPqhltpBxmxdMkChX4aR3TxGZUnUWNafotbrGIWtfZ_PiKPdv6!741274694?bulltnRsn=568

[2] Oregon Administrative Rules, 333-010-0700 through 333-010-0820, Oregon Health Authority, Public Health Division, Chapter 333, Division 10, Health Promotion and Chronic Disease Prevention: https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1225

Pilot Projects" to clarify the rules so that they are in alignment with statutory authority under Oregon Revised Statutes (ORS) Chapter 716, Oregon Laws 2011.[3]The statute states that "The authority may approve a pilot project that is designed to: (a) Operate for three to five years or a sufficient amount of time to evaluate the validity of the pilot project." Oregon Administrative Rule (OAR) 333-010-0750 states that projects may operate "from between three to five years." Clarification to the rule is needed so that dental pilot projects who require additional time to evaluate the validity of their pilot project may apply to the Authority for an extension of their approved timeline.

Upon conclusion of the public comment period, OHA will reexamine the modification request and determine if a further extension is allowed under the revised OARs. Public comment closed on September 21, 2020, and final rule language should be effective in early Winter 2020.

Next Steps:

1. OHA approves DPP#200 to operate under the OHA Dental Pilot Project Program until March 14, 2021, effective immediately.

2. OHA will reexamine this request upon the effective date of the amended OARs for dental pilot projects. Amended rules are expected to be effective in early Winter 2020.

3. OHA will institute a process whereby dental pilot projects may apply for an extension to their approved pilot project timeline, provided the project demonstrates sufficient need for additional time to evaluate the validity of the project.

4. OHA will extend pilot projects in one-year increments. For example, if a project was originally approved to operate for five years, then the project may apply to extend the timeline of the project into a sixth year. OHA may grant the project a one-year extension. The project may then reapply again for another year.

We thank you for your continued patience as we work together through the challenges of the COVID-19 pandemic and its effects on the public health of Oregonians and programs that have been immensely affected by this unprecedented situation.

Sincerely,

Cate Wilcox, MPH

Sarah Kowalski, RDH, MS

[3] SB 738 (Oregon Laws 2011, chapter 716): https://olis.leg.state.or.us/liz/2011R1/Downloads/MeasureDocument/SB738/Enrolled

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August 6, 2019

Eli Schwarz DDS, MPH, PhD
3030 SW Moody Avenue, Suite 135
Portland, Oregon 97201

Dear Dr. Schwarz,

In response to the request for project modification originally submitted on April 5, 2019 and revised and resubmitted on July 23, 2019 by the project sponsor for DPP #200 to the Oregon Health Authority (OHA):

- The project modification request proposal to add 6 additional sites to Dental Pilot Project #200 complies with Oregon Administrative Rules, Dental Pilot Project Program, 333-010-0800 and is therefor approved.

- The project modification request proposal to extend the timeline of the project to operate until September 30, 2020 under Dental Pilot Project #200 complies with Oregon Administrative Rules, Dental Pilot Project Program, 333-010-0800 and is therefor approved.

Approved modifications include the addition of the following 6 sites under the approved Dental Pilot Project Program DPP #200:	
Sites	**Locations Under Sites**
WIC – Salem, Oregon Site – Capitol Dental Site	• WIC (Women, Infant and Children) Program 3180 Center St NE Salem, OR 97301
Grants Pass – Capitol Dental Site	• Grants Pass Clinic 495 SW Ramsey Ave Grants Pass, OR 97527 • Options for Southern Oregon – Hillside Center 1545 Harbeck Rd Grants Pass, OR 97527
McMinnville – Capitol Dental Site	• Champion Team 1275 NW Adams St McMinnville, OR 97128 • Physicians Medical Center (PMC)

333-010-0800 Dental Pilot Projects: Project Modifications

(1) Any modifications to an approved project shall be submitted in writing to program staff, except as specified in section (4) of this rule. All modifications require Authority approval. Modifications include, but are not limited to the following:

(a) Changes in selection criteria for trainees, supervisors, or employment/utilization sites;

(b) Addition of employment/utilization sites; and

(c) Changes in the scope of practice for trainees.

(2) Upon receipt of a request for a modification approval, the Authority will inform the project sponsor in writing on the timeline for review of the request and decision response deadline.

(3) If the Authority has convened an advisory committee for an approved project, the Authority may confer with the advisory committee regarding the proposed modification.

(4) Changes in project staff or instructors are not considered a modification and do not require prior approval by program staff, but shall be reported to the program staff within two weeks after the change occurs along with the curriculum vitae for the new project staff and instructors.

(5) The Authority may approve or deny a request for modification. A modification may be denied if:

(a) It does not demonstrate that the project can meet the minimum standards or other provisions in these rules;

(b) The modification would result in a substantial change to underlying purpose and scope of the pilot project as originally approved;

(c) As a result of the modification, the project would no longer demonstrate that each of the project's trainees or employment/utilization sites shall provide services to the underserved populations identified in the application at a rate of at least 51 percent of the individuals served by the trainee or employment/utilization site on a quarterly basis; or

(d) The Authority has previously approved a similar project.

(6) Projects are not permitted to implement the proposed modification until approval has been rendered by the Authority.

Statutory/Other Authority: 2011 OL Ch. 716 Statutes/Other

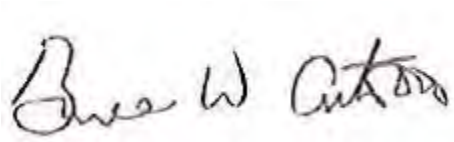
	2435 NE Cumulus Ave McMinnville, OR 97128 • Valley Women's Health 2700 SE Stratus Ave, #301 McMinnville, OR 97128
Medford – Capitol Dental Site	• Starting Strong 702 W. Main Street Medford, OR 97501
Sherman County & Gilliam County Public Health – Advantage Dental Site	• North Gilliam County Public Health District Arlington Medical Center 110 On The Mall PO Box 176 Arlington OR 97812 • Sherman County Medical Clinic 110 Main Street Moro, OR 97039
Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon School District 25J, Sherman County School District	• Arlington Community Charter School K-12 1400 Main Street Arlington, OR 97812 • Condon Elementary School 220 S East Street Condon, OR 97823 • Condon High School 210 E Bayard St Condon, OR 97823 • Sherman County School Pre-K-12 65912 High School Loop Moro, OR 97039

Existing Approved Sites Operating Under DPP#200: Utilization Phase	
Sites	**Locations Under Sites**
Childhood Health Associates of Salem – Capitol Dental Site	• Childhood Health Associates of Salem 891 23rd Street NE Salem, OR 97301
Community Action Head Start – Capitol Dental Site	• Community Action Head Start Community Action Head Start Independence Site 246 I Street Independence, OR 97351
Polk County – Capitol Dental Site Central School District 13J & Falls City School District 57	• Ash Creek Elementary School 1360 North 16th Street Monmouth, Oregon 97361

	• Falls City Elementary School 177 Prospect Ave Falls City, OR 97344 • Independence Elementary 150 South 4th Street Independence, Oregon 97351 • Monmouth Elementary 958 East Church Street Monmouth, Oregon 97361
Oregon Child Development Coalition – Capitol Dental Site	• Oregon Child Development Coalition Concordia – Salem Lancaster Migrant, Seasonal, Early Head Start 4611 Lancaster Drive NE Salem, OR 97305 • Oregon Child Development Coalition Independence Migrant, Seasonal, Early Head Start 535 G Street Independence, OR 97351

DPP#200 is required to continue to comply with OAR 333-010-0700 through 333-010-0820.

Sincerely,



Bruce Austin
Statewide Dental Director

"Training Dental Hygienists to Place Interim Therapeutic Restorations"

DPP#200 Modification Request 2019

TABLE OF CONTENTS

MODIFICATION REQUEST LETTER 1

OHSU LETTER 1-4

ADDENDUM TO MODIFICATION REQUEST 5

TARGETED POPULATION DESCRIPTIONS 5-11

EMPLOYMENT/UTILIZATION SITES 12

CURRENT LOCATIONS 12-14
PROPOSED LOCATIONS 14-18

SUPPORTING INFORMATION 19

"A SCHOOL-LEVEL PROXY MEASURE FOR INDIVIDUAL POVERTY USING SCHOOL-LEVEL ELIGIBILITY FOR FREE AND REDUCED-PRICE MEALS 19-29
OREGON DEPARTMENT OF EDUCATION SCHOOL FACT SHEETS 30-45
OREGON AREAS OF UNMET HEALTH CARE NEED REPORT 46-80
OREGON HEALTH AUTHORITY OLDER ADULT FACT SHEET 81
SPECIAL CARE DENTISTRY: SENIORS' ORAL HEALTH AND QUALITY OF LIFE 82-89

OREGON HEALTH & SCIENCE UNIVERSITY
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April 5, 2019

Bruce Austin, DMD
State Dental Director
Dental Pilot Projects
Center for Prevention and Health Promotion
Oral Health Program
800 NE Oregon Street
Portland, OR 97232

Dear Dr. Austin,

Re: Modification Request for Dental Pilot Project #200, "Training Dental Hygienists to Place Interim Therapeutic Restorations (ITR)"

The purpose of this letter is to kindly request modification for our Dental Pilot Project #200, "Training Dental Hygienists to Place Interim Therapeutic Restorations." This modification includes the following requested changes:

1. Addition of new partners and sites
2. Staff modifications
3. Updated project timeline

Specifically, we wish to include an additional 13 pilot sites managed by two organizations: 1) Advantage Dental Care (6 sites); and 2) Capitol Dental (7 sites). In addition, we also seek approval to train eight additional Expanded Practice Dental Hygienists (EPDH) for providing onsite services of ITRs for this project.

1. Addition of new partners and sites

The rationale for adding these sites is that 1) all the proposed locations are designated as Dental Health Professional Shortage Areas (HPSAs); 2) additional EPDHs will be trained and will provide services at the added sites. Please see below details on currently approved sites as well as the sites requested for approval.

Current Sites	
Ash Creek Elementary School 1360 North 16th Street Monmouth, Oregon 97361	**Childhood Health Associates of Salem** 891 23rd Street NE Salem, OR 97301
Independence Elementary 150 South 4th Street Independence, Oregon 97351	**Community Action Head Start-Independence** 246 I Street Independence, OR 97351
Monmouth Elementary 958 East Church Street Monmouth, Oregon 97361	**Oregon Child Development Coalition (OCDC)** **Location 1: Concordia – Salem Lancaster** 4611 Lancaster Drive NE Salem, OR 97305 **Location 2: Independence** 535 G Street Independence, OR 97351

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Capitol Dental Care – Additional Sites	
WIC (Women, Infant and Children) program 3180 Center St NE Salem, OR 97301 Eligible: WIC clients who are pregnant or children 0-5	**In a Dental Health HPSA: Yes** HPSA Name: Marion County ID: 6414940200 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017
Physicians Medical Center (PMC) 2435 NE Cumulus Ave McMinnville, OR 97128 Eligible: PMC patients	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017
Valley Women's Health 2700 SE Stratus Ave, #301 McMinnville, OR 97128 Eligible: VWH patients	
Champion Team 1275 NW Adams St McMinnville, OR 97128 Eligible: Clients of Champion Team	
Starting Strong 702 W. Main Street Medford, OR 97501 Eligible: JCCO members who are pregnant or children 0-4	**In a Dental Health HPSA: Yes** HPSA Name: Jackson County ID: 6417694621 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 18 Designation Date: 12/26/2017 Last Update Date: 12/26/2017
Grants Pass Clinic 495 SW Ramsey Ave, Grants Pass, OR 97527 Eligible: Patients of GPC	**In a Dental Health HPSA: Yes** HPSA Name: Josephine County ID: 6414221673 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 17 Designation Date: 05/06/2004 Last Update Date: 10/28/2017
Options 1545 Harbeck Rd Grants Pass, OR 97527 Eligible: Clients of Options	

Advantage Dental Care – New Partner
Advantage Dental, an independent practice association founded in 1994, is geographically the largest dental care organization in the state of Oregon and is contracted to provide dental care in 35 of Oregon's 36 counties. The corporate office is located in Redmond, Oregon. Advantage Dental has a network of approximately 150 primary care dental practices to serve the OHP Medicaid population, as well as 28 EPDHs affiliated with its company-owned clinics and owns and operates 41 staff model clinics located throughout the State, particularly in rural counties. Advantage has a strong commitment to improve the access to dental care The Advantage Dental community outreach program closely resembles the Virtual Dental Home model by utilizing EPDHs to provide oral health education, assessments, triage, sealants and other services throughout the state. Advantage is already in schools, WIC, Head Start and long-term care facilities.

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North Gilliam County Health District Arlington Medical Center 110 On The Mall PO Box 176 Arlington OR 97812	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018
Sherman County School Pre-K-12 65912 High School Loop Moro, OR 97039 Sherman County School District	
Sherman County Medical Clinic 110 Main Street Moro, OR 97039	
Arlington Community Charter School K-12 1400 Main Street Arlington, OR 97812 Arlington School District 3	
Condon High School 210 E Bayard St Condon, OR 97823 Condon School District 25J	
Condon Elementary School 220 S East Street Condon, OR 97823 Condon School District 25J	

2. Staff Modifications

Current Staff
Meagan Newton, EPDH
Kristin Hockema, EPDH
Brittany Trujillo, EPDH
Dr. Jennifer Clemens, Supervising teledentist
Dr. Eli Schwarz
Dr. Richie Kohli

New Staff

Capitol	**Advantage**
Kelli Beaumont, EPDH Jessica Grapentine, EPDH Kyle Johnstone, EPDH Chelsea Montgomery, EPDH Karla Smith, EPDH Andrea Stutzman, EPDH Dr. Katelyn Nichols, Supervising Dentist Dr. Audrey Mikkelson, Supervising Dentist	Ashley Danielson, EPDH Jessica Crew, EPDH Dr. Monte Junker, Supervising Dentist Dr. Joseph Sharon, Supervising Dentist
	OHSU
	Dr. Neda Modaresi, External Evaluator

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Activity	**Timeline Quarters/Year 2019-2020**							**Key Staff Responsible**
	1st 2019	2nd 2019	3rd 2019	4th 2019	1st 2020	2nd 2020	3rd 2020	
1. Hold didactic, laboratory, and clinical training for new participants	■							Paul Glassman; Neda Modaresi, Eli Schwarz
2. Submit modification to OHA		■						Eli Schwarz
3. OHSU IRB to approve modifications to the study		■						Eli Schwarz, Richie Kohli
4. Trainees place ITRs; teledentist reviews placements		■	■	■	■	■	■	Katie Nichols
5. Evaluation of ITRs by external evaluator	■	■	■	■	■	■	■	Neda Modaresi
6. Disseminate and collect satisfaction surveys	■	■	■	■	■	■	■	Meagan Kintz
7. Analysis and reporting of satisfaction survey data			■				■	Richie Kohli
8. Project Steering Group	■		■		■		■	All partners
9. OHA Site Visit		■				■		Eli Schwarz, Richie Kohli

3. Updated Timeline

Please let us know if you need more information. We appreciate your consideration to approve this request.

Yours Sincerely,

Eli Schwarz KOD, DDS, MPH, PhD

Addendum Dental Pilot Project Modification:
Dental Pilot Project #200
"Training Dental Hygienists to Place Interim Therapeutic Restorations"

DPP#200 has targeted utilization sites with a high percentage of individuals who are from populations identified as evidence-based groups of individuals with the highest disease rates and the least access to dental care.

Since the inception of the pilot project, combined billing data for all DPP#200 sites are as follows:

Medicaid (Oregon Health Plan)	**81.0 %**
Uninsured	**9.5 %**
Privately Insured	**9.5 %**

It is the goal of DPP#200 to continue to see as many of the individuals identified from the targeted populations groups as possible.

- Currently, 75% of the locations served by DPP#200 are defined by HRSA as rural.
- 69% of proposed additional locations are defined as rural by HRSA.
- If all proposed utilization locations are approved, 71% of the locations served by DPP#200 will be rural as defined by HRSA.

The modification would expand the targeted populations served by DPP #200 to the following populations which are evidenced based populations that have shown higher disease rates and least access to dental care.

Targeted Population Descriptions DPP#200	
WIC[1]	Woman, Infant, Children (WIC) serves lower-income pregnant, postpartum and breastfeeding women, infants and children under age 5 who have health or nutrition risks. Many working families are part of WIC - 71% of Oregon WIC families are employed. Applicants must meet four criteria to be eligible for WIC: • Live in Oregon. • Be a pregnant, postpartum or breastfeeding woman, an infant or a child under 5 years old. • Have a household income less than 185% of the federal poverty limit. *(Individuals who can prove Fully eligible for Medicaid/Oregon Health Plan, TANF, SNAP/Food Stamps or FDPIR are automatically income eligible for WIC.)* • Have a nutritional need or risk.

[1] https://www.oregon.gov/oha/PH/HEALTHYPEOPLEFAMILIES/WIC/Pages/index.aspx

Older-Adults	Oregon has been at the forefront of healthcare transformation efforts in the nation, but has been slower to transform the provision of oral health care to older adults.[2],[3] As Oregon's population ages, senior Baby Boomers need for dental care will continue. However, for many, the ability to pay for services will be at risk as a result of decreased income. Through Dental Pilot Project #200, we will provide on-site dental services for older adults in nursing homes as a strategy to expand access to dental services. • 43% of Oregon's older adults live in rural communities. • 1 in 3 older-adults in Oregon had no dental visits in 2015. • 84% of older-adults in Oregon, on Medicaid with diabetes had no dental visits last year.[4]
National School Lunch Program (NSLP) ***Formerly known as the FRL (Free-Reduced Lunch Program)***	Expand to additional schools located in Sherman/Gilliam Counties: The National School Lunch Program is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day.[5] Income Eligibility Guidelines are based on the Federal Poverty Guidelines[6] (FPL) and used in determining eligibility for free and reduced-price meals and free milk. • Children whose household income is less than 130% of FPL qualify for free lunch. • Children whose household income is between than 130% and 185% of FPL qualify for reduced-prince lunch. The percentage of students eligible for free or reduced-price lunch (FRPL) under the National School Lunch Program provides a proxy measure for the concentration of low-income students within a school.1 In this indicator, public schools2 (including both traditional and charter) are divided into categories by FRP eligibility. • High-poverty schools are defined as public schools where more than 75.0 percent of the students are eligible for FRPL. • Mid-high poverty schools as those where 50.1 to 75.0 percent of the students are eligible for FRPL.

[2] Kohli R, Sehgal HS, Nelson S, Schwarz E. Oral health needs, dental care utilization, and quality of life perceptions among Oregonian seniors. Spec Care Dentist. 2017

[3] Kohli R, Nelson S, Ulrich S, Finch T, Hall K, Schwarz E. Dental care practices and oral health training for professional caregivers in long-term care facilities: An interdisciplinary approach to address oral health disparities. Geriatr Nurs. 2017

[4] Oregon Health Authority. Oral Health and Aging Fact Sheet, 2018. Troubling news for Oregon's growing 65+ population.

[5] https://www.fns.usda.gov/nslp/national-school-lunch-program-nslp National School Lunch Program

[6] https://aspe.hhs.gov/poverty-guidelines Federal Poverty Guidelines

	• Mid-low poverty schools as those where 25.1 to 50.0 percent of the students are eligible for FRPL. In school year 2015–16, some 20 percent of public-school students attended low-poverty schools, and 24 percent of public school students attended high-poverty schools.[7] FRL is used as a proxy for income as poverty rates for individuals are typically not available.
Oregon Health Plan (Medicaid)	Oregon Health Plan[8] (OHP) is the name for the Medicaid program in Oregon. Medicaid offers comprehensive medical, dental and behavioral health to participants. Participants must meet eligibility requirements including income eligibility requirements. • Adults - OHP is available to adults who earn up to 138 percent of the Federal Poverty Level • Children - OHP is available to kids and teens (0-18) whose family earns up to 300 percent of the Federal Poverty Level
Coordinated Care Organizations (CCO)	"A coordinated care organization is a network of all types of health care providers (physical health care, addictions and mental health care and dental care providers) who work together in their local communities to serve people who receive health care coverage under the Oregon Health Plan (Medicaid). CCOs focus on prevention and helping people manage chronic conditions, like diabetes. This helps reduce unnecessary emergency room visits and gives people support to be healthy."[9] • See details under Oregon Health Plan (Medicaid) above.
Rural	Rural[10] is defined by the federal government. They use two major definitions of "rural," along with many variants that are also available. One is produced by the U.S. Census Bureau and the other by the Office of Management and Budget. The Federal Office of Rural Health Policy uses components of each definition when determining a classification for a geographic region. • Populations residing in rural areas may be underserved[11] • A HPSA designation describing the specific populations underserved is available. • See Oregon Areas of Unmet Health Care Need Report.[12]

[7] https://nces.ed.gov/programs/coe/indicator_clb.asp National Center for Education Statistics
[8] https://www.oregon.gov/oha/hsd/ohp/pages/apply.aspx Oregon Health Plan
[9] https://www.oregon.gov/oha/hsd/ohp/pages/coordinated-care-organizations.aspx
[10] https://www.hrsa.gov/rural-health/about-us/definition/index.html
[11] https://www.ohsu.edu/xd/outreach/oregon-rural-health/about-rural-frontier/health-care-need-designations.cfm#unmetneed
[12] https://www.ohsu.edu/xd/outreach/oregon-rural-health/about-rural-frontier/upload/2018-Area-of-Unmet-Health-Care-Need-Report.pdf

	Extensive details on the definition can be found at https://www.hrsa.gov/rural-health/about-us/definition/index.html
Primary-Medical Home Clinics/ Behavioral Health Clinics/ Women's Health Care	• Medical clinics with significant Medicaid patient population. • Behavioral health clinics with significant Medicaid patient population • Medical clinics with significant populations that are evidence-based populations with the highest disease rates and least access to care. - Pregnant Women (Medicaid recipients, low-income, rural) - Diabetic - Children (low-income/Medicaid/rural) • Several of the utilization sites/clinics are located in rural areas and have rural designations as identified by HRSA • Oral-Health integration into primary care practice[13], [14], [15], [16]

Continued services will be provided at the Head Start locations in Salem and Independence, Oregon.

Head Start[17]	Head Start programs promote school readiness of children ages birth to five from low-income families by supporting the development of the whole child. Head Start programs support children's growth and development in a positive learning environment through a variety of services, which include • **Early learning**: Children's readiness for school and beyond is fostered through individualized learning experiences. Through relationships with adults, play, and planned and spontaneous instruction, children grow in many aspects of development. Children progress in social skills and emotional well-being, along with language and literacy learning, and concept development • **Health**: Each child's perceptual, motor, and physical development is supported to permit them to fully explore and function in their environment. All children receive health and development screenings, nutritious meals, oral health and mental health support. Programs connect families with medical, dental, and mental health services to ensure that children are receiving the services they need. • **Family well-being**: Parents and families are supported in achieving their own goals, such as housing stability, continued education, and financial security. Programs support and strengthen parent-child relationships and engage families around children's learning and development. Income requirements for participation in head start[18]

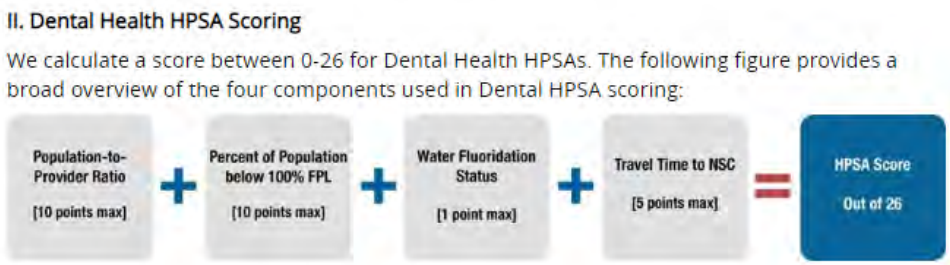
[13] https://www.hrsa.gov/sites/default/files/hrsa/oralhealth/integrationoforalhealth.pdf
[14] https://bphc.hrsa.gov/qualityimprovement/clinicalquality/oralhealth/index.html
[15] http://www.safetynetmedicalhome.org/sites/default/files/Guide-Oral-Health-Integration.pdf
[16] http://www.safetynetmedicalhome.org/sites/default/files/White-Paper-Oral-Health-Primary-Care.pdf
[17] https://www.acf.hhs.gov/ohs
[18] https://www.ohsa.net/ Oregon Head Start Association

	• Children from birth to age five from families with low income, according to the Poverty Guidelines[19] published by the federal government are eligible for Head Start and Early Head Start services. Pregnant women who are low income qualify for Early Head Start. • Children in foster care, homeless children, and children from families receiving public assistance (TANF or SSI) are eligible for Head Start and Early Head Start services regardless of income.

Additional information: The following are descriptions of information about the site locations.

National Health Service Corp (NHSC) Approved Sites[20]	National Health Service Corps (NHSC) is a federal government program administered by the U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA). The NHSC programs provide scholarships and student loan repayment to health care professionals in exchange for a service commitment whereby participants will be engaged in providing comprehensive primary medical, **dental**, and behavioral and mental health care in designated areas across the country with a shortage of health care professionals.
Dental HPSA	**About Dental HPS**A's: In Oregon, 33 of 36 counties are designated Dental HPSA. (Attachment) A Dental HPSA can be classified as a Dental HPSA in multiple ways. https://bhw.hrsa.gov/shortage-designation/types • Shortage designations indicate geographic areas with a shortage of dental providers for **a given population** – according to the HRSA guidelines. These shortages may be geographic-, population-, or facility-based: • **Geographic Area** A shortage of providers for the entire population within a defined geographic area. • **Population Groups** A shortage of providers for a specific population group(s) within a defined geographic area (e.g., low income, migrant farmworkers, and other groups) • **Facilities**

[19] https://aspe.hhs.gov/poverty-guidelines Federal Poverty Guidelines
[20] https://nhsc.hrsa.gov/downloads/nhsc-sites/nhsc-site-reference-guide.pdf

	Scoring Methodology:  [21] Once designated, HRSA scores HPSAs on a scale of 0-25 for primary care and mental health, and 0-26 for dental health, with higher scores indicating greater need. Dental HPSA's are not considered a population. These designations target millions of dollars of federal resources to improve health care in underserved areas of the state. [OHA Office of Primary Care] estimates these designations bring in over $20 million per year in unmatched federal resources. Not all individuals living in Dental HPSA's are considered underserved. See descriptions of shortage designations.

[21] https://bhw.hrsa.gov/shortage-designation/hpsa-process

Location Address (Site Name)	Target Population	Demographics of Site[1]	Dental HPSA and Designation Type[2]	HRSA – Urban Area/Rural Area[3],[4],[5]	National Health Service Corp (NHSC) Approved Sites[6], [7],[8]
Ash Creek Elementary School 1360 North 16th Street Monmouth, Oregon 97361 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Ash Creek Elementary School • 64% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 64% National Lunch Program • 492 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Childhood Health Associates of Salem 891 23rd Street NE Salem, OR 97301 (Childhood Health Associates of Salem – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description**: Childhood Health Associates of Salem • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 55% (Medicaid) OHP overall • 60% of total visits are OHP recipients. • 14,000 unique patient visits • 45,000 total patient visits	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6419994141 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 12/26/2012	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	This is a National Health Service Corps (NHSC) site; the area is a Health Professional Shortage Areas (HPSA) shortage area for medical, mental health, and dental. The need is greater for dental and mental health than for medical.
Falls City Elementary 111 N Main St Falls City, OR 97344 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less	**Site Name & Description:** Falls City Elementary • <95% National Lunch Program **Clinic Patient/Payment Source Demographics**: • <95% National Lunch Program • 97 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

[1] See attached school Fact sheets for detailed “At-a-Glance” School specific information.
[2] https://data.hrsa.gov/tools/shortage-area/hpsa-find
[3] List of Rural Counties and Designated Eligible Census Tracts in Metropolitan Counties, Updated Census 2010, HRSA
[4] https://www.hrsa.gov/rural-health/about-us/definition/index.html
[5] https://www.ohsu.edu/sites/default/files/2018-08/2018%20Area%20of%20Unmet%20Health%20Care%20Need%20Report.pdf
[6] https://ersrs.hrsa.gov/ReportServer?/HGDW_Reports/BCD_NHSC_SITE/NHSC_Appr_Site_List&rs:Format=PDF&theFilterType=region&theWhere=REGION_CD=%2710%27
[7] https://nhsc.hrsa.gov/downloads/nhsc-sites/nhsc-site-reference-guide.pdf
[8] https://datawarehouse.hrsa.gov/HGDWReports/OneClickRptFilter.aspx?rptName=NHSCAppSiteList

	than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch				
Independence Elementary 150 South 4th Street Independence, Oregon 97351 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Independence Elementary • 80% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 80% National Lunch Program • 421 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Community Action Head Start-Independence 246 I Street Independence, OR 97351 (Community Action Head Start – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are low-income and have a household income equal to or less than 130% of the published Federal Poverty Level who qualify for Head Start	**Site Name & Description:** OCDC – Head Start **Clinic Patient/Payment Source Demographics**: • Children who qualify for Head-Start	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Monmouth Elementary 958 East Church Street Monmouth, Oregon 97361 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Monmouth Elementary • 50% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 50% National Lunch Program • 547 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Oregon Child Development Coalition (OCDC) **Location 1: Concordia – Salem Lancaster** 4611 Lancaster Drive NE Salem, OR 97305	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e.	**Site Name & Description:** OCDC – Head Start **Clinic Patient/Payment Source Demographics**: Children who qualify for Head-Start	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	

(Community Action Head Start – Capitol Dental Site)	low-income, migrant farmworker, homeless • Individuals who are low-income and have a household income equal to or less than 130% of the published Federal Poverty Level who qualify for Head Start		Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017		
Oregon Child Development Coalition (OCDC) **Location 2: Independence** 535 G Street Independence, OR 97351 (Community Action Head Start – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are low-income and have a household income equal to or less than 130% of the published Federal Poverty Level who qualify for Head Start	**Site Name & Description:** OCDC – Head Start **Clinic Patient/Payment Source Demographics**: • Children who qualify for Head-Start	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
	Proposed additional sites listed below:				
WIC (Women, Infant and Children) program 3180 Center St NE Salem, OR 97301 (WIC – Salem, Oregon Site – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • WIC Eligible: Individuals who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for WIC benefits.	**Site Name & Description:** Women, Infant and Children Program • WIC clients who are pregnant or children 0-5 **Client/Patient/Payment Source Demographics**: • 43% of all pregnant women in Marion County received WIC benefits • 8,751 women, infants and children participated in Marion Counties WIC programs	**In a Dental Health HPSA: Yes** HPSA Name: Marion County ID: 6414940200 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	
Physicians Medical Center (PMC) 2435 NE Cumulus Ave McMinnville, OR 97128 (McMinnville – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Physicians Medical Center • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 24% (Medicaid) OHP overall • 50% of pediatric patients are OHP recipients. • 7,240 unique patient visits • 55,920 total patient visits	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

Valley Women's Health 2700 SE Stratus Ave, #301 McMinnville, OR 97128 (McMinnville – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Valley Women's Health • Obstetrics and Gynecology private practice **Clinic Patient/Payment Source Demographics**: • 30-50% (Medicaid) OHP • 20 patients per day	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Champion Team 1275 NW Adams St McMinnville, OR 97128 (McMinnville – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals who are uninsured and who are low-income and have a household income equal to or less than 138% FPL which makes them eligible for Medicaid (OHP) • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Champion Team • Champion Team is a non-profit organization run and operated by peers that are committed to fostering recovery by providing a trauma informed, safe place with programs and services for adults that self-identify with mental diversity and those co-occurring challenges. • Capitol Dental co-located dental clinic provides services **Clinic Patient/Payment Source Demographics**: • 100% (Medicaid) OHP	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Starting Strong 702 W. Main Street Medford, OR 97501 (Medford – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless	**Site Name & Description**: Starting Strong – Jackson Care Connect Program • Jackson Care Connect CCO members who are pregnant or children 0-4 **Clinic Patient/Payment Source Demographics**: • 100% (Medicaid) OHP	**In a Dental Health HPSA: Yes** HPSA Name: Jackson County ID: 6417694621 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 18 Designation Date: 12/26/2017 Last Update Date: 12/26/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	
Grants Pass Clinic 495 SW Ramsey Ave, Grants Pass, OR 97527 (Grants Pass – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless	**Site Name & Description**: Grants Pass Clinic • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 28% (Medicaid) OHP • 14,558 unique patients visits • 51,088 patient visits	**In a Dental Health HPSA: Yes** HPSA Name: Josephine County ID: 6414221673 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 17 Designation Date: 05/06/2004 Last Update Date: 10/28/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	

	• Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income				
Options for Southern Oregon – Hillside Center 1545 Harbeck Rd Grants Pass, OR 97527 (Grants Pass – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals low-income at >250% FPL are eligible for discounted/sliding fee schedule • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Options for Southern Oregon • Behavioral health clinic providing services to adult patients **Clinic Patient/Payment Source Demographics**: • 91% (Medicaid) OHP • 6,155 clients • 92,548 service counts	**In a Dental Health HPSA: Yes** HPSA Name: Josephine County ID: 6414221673 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 17 Designation Date: 05/06/2004 Last Update Date: 10/28/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	National Health Service Corps approved site. • Jackson County • UDS Number: 283429 • Options for Southern Oregon – Hillside Center
North Gilliam County Public Health District Arlington Medical Center 110 On The Mall PO Box 176 Arlington OR 97812 (Sherman County & Gilliam County Public Health – Advantage Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Arlington Medical Center • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 896 patients • Breakdown of active patients by age bracket: • Ages 0-17: 300 • Ages 18-29: 26 • Ages 30-50: 50 • Ages 51-64: 500 • Ages 65+: 20 *Percentage of total Medicaid at location unavailable. Only patients at this location with Advantage Dental Insurance or OHP Open Card will be seen.	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Sherman County School Pre-K-12 65912 High School Loop Moro, OR 97039 Sherman County School District	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and	**Site Name & Description:** Sherman County School Pre-K – 12 • 48% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 48% National Lunch Program	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

	who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	• 249 students enrolled	Last Update Date: 07/18/2018		
Sherman County Medical Clinic 110 Main Street Moro, OR 97039 (Sherman County & Gilliam County Public Health – Advantage Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Sherman County Medical Clinic • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 15% (Medicaid) OHP • 15% Medicare • 7% Self-Pay • 63% Private-Insurance **Currently 1324 active patients.** 0-17: 102 patients 18-29: 322 30-50: 329 51-64: 375 65+:196	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Arlington Community Charter School K-12 1400 Main Street Arlington, OR 97812 Arlington School District 3 (Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon School District 25J, Sherman County School District)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Arlington Community Charter School Pre-K – 12 • 53% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 53% National Lunch Program • 149 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Condon High School 210 E Bayard St Condon, OR 97823 Condon School District 25J (Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and	**Site Name & Description:** Condon High School • 34% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 34% National Lunch Program	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

School District 25J, Sherman County School District)	who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	• 35 students enrolled			
Condon Elementary School 220 S East Street Condon, OR 97823 Condon School District 25J (Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon School District 25J, Sherman County School District)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Condon Elementary School • 43% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 43% National Lunch Program • 95 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

SCHOOL HEALTH

Appendix B

RESEARCH ARTICLE

A School-Level Proxy Measure for Individual-Level Poverty Using School-Level Eligibility for Free and Reduced-Price Meals

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ABSTRACT

BACKGROUND: Socioeconomic status (SES) impacts health outcomes. The Youth Risk Behavior Survey (YRBS), like many school-based data sources, lacks individual-level poverty information. We propose using school-level percentages of student eligibility for free/reduced-price meals (%FRPM) as a proxy for individual-level poverty.

METHODS: Using the New York City (NYC) 2009 YRBS, we created school-level poverty quartiles to append to individual YRBS records by ranking schools by %FRPM. We compared this with 2 other school-level poverty measures using students' home and school neighborhood-level poverty and measured the association of these 3 school-level proxies with individual's household income. Last, we evaluated health outcomes by race/ethnicity and poverty to demonstrate the importance of accounting for poverty.

RESULTS: The school-level measure that used %FRPM had the strongest association with household income. When the school-level individual poverty proxy was included in illustrative analyses using YRBS data, patterns by poverty within race/ethnicity emerged that were not seen when looking at race/ethnicity alone.

CONCLUSIONS: Using a poverty measure to analyze school-based data will provide a better understanding of the impact of SES on health outcomes. Based on our evaluation, when individual-level information is not available, we propose using school-level %FRPM, which are publicly available throughout the United States.

Keywords: methods and materials of instruction; research; health-risk behaviors; evaluation; public health; child and adolescent health.

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The Youth Risk Behavior Survey (YRBS) is a critical surveillance tool used to monitor priority health-risk behaviors among high school students in the United States.[1] Findings from the YRBS are used to inform school health policies that promote healthy behaviors.[1-6] Previous research has shown that, in addition to behaviors, socioeconomic factors play an important role in health outcomes among adolescents.[4,7-14] However, the YRBS does not directly measure poverty. Typical measures of individual socioeconomic status (SES) used for adults such as income, education-level, and occupation cannot be used for children because they usually are still in school, live with a parent or guardian, and often do not know the required information to determine household income.[14-16] Additionally, other data such as income information from student-records cannot be linked to the YRBS because it is an anonymous survey.

Because of a lack of poverty information contained on the YRBS, much of the health inequity research using YRBS data has focused on differences by race/ethnicity.[3-6,18] Other than research done using the 1992 YRBS, which was a follow-back survey to the National Health Interview Survey that provided data from household adults on family income and education attainment, there are only a few YRBS studies that have examined poverty and health behaviors.[11,22-24] Those that have measured poverty

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Meeting Minutes DPF #200 8-10-2020

have used school-level proxies based on the geographic location of the school.[23,24] However, this approach is limited in settings where the survey population attends a single or small number of schools. Even these nonspecific approaches have shown that having some measure of poverty is important for understanding health behaviors and outcomes, emphasizing the need for a more specific measure of poverty that can be applied to local and state YRBS data.[4,13,14,18]

Using the readily available school-level percent of students eligible for the National School Lunch Program (NSLP), we created and validated a school-level proxy measure of individual-level poverty for use in conjunction with YRBS data.[25,26] School-level NSLP eligibility has been shown to be highly associated with various poverty measures involving the household incomes of residents within a school's geographic neighborhood, indicating it is as good a measure of adolescent SES as widely used school area-based measures.[14,27] This measure could also be used by other school-based studies with student-level data that lack household income or other individual-level SES information but the students' school are known.[13] To validate this approach by means of comparison, we also evaluated 2 other approaches to create school-level proxy measures: (1) student home neighborhood-level poverty (HNP); and (2) school neighborhood-level poverty (SNP).

METHODS

Participants

The New York City (NYC) YRBS is conducted biennially by the NYC Department of Health and Mental Hygiene (DOHMH) in collaboration with the NYC Department of Education (DOE) and is part of the National Centers for Disease Control and Prevention's (CDC) Youth Risk Behavior Surveillance System (YRBSS).[1] The sampling frame for the 2009 NYC YRBS ($2009YRBS_{NYC}$) constituted 396 public high schools serving NYC students, grades 9-12.[28] From this frame, a representative sample of 110 schools was selected, of which 105 schools participated. A sample of students within the participating schools was surveyed and the collected data were weighted to be representative of all students included in the frame. School-level poverty measures were created for the 105 sampled schools because the survey data were only available from surveyed students at these schools. However, these school-level poverty measures must be reflective of the school-level poverty of all 396 schools in the sample frame. To do this, the measures of school-level poverty were defined and evaluated using the 396 sample frame schools and their student enrollment and then applied to the 105 sampled schools.

Instruments

Individual student-level records were provided by the NYC DOE for the 2009-2010 school year, which we limited to students in grades 9-12 enrolled in the 396 schools in the NYC YRBS sample frame. Each student-record contained a unique student-code as well as the student's grade-level, school-code, school zip code, home zip code, and meal code eligibility status for NSLP. The home and school zip codes were used to create standardized measures of HNP and SNP as the percent of residents in a given area whose household income is below the federal poverty threshold (FPT): <10% (low-poverty), 10% to <20% (medium-poverty), 20% to <30% (high-poverty), and ≥30% (very-high-poverty).[29] These student-records were grouped by school to create school-specific information (see Procedures). Area-based poverty measures, such as HNP, are often used as a proxy for individual-level poverty when a direct measure is not available (such as household income);[30] in our analysis, we refer to HNP as "$Poverty_{HNP}$" when used as a 4-level measure of individual poverty.

Student meal status, reported by the New York State Education Department (NYSED), included 4 categories: (1) students eligible for federal assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) are automatically in NSLP and classified as "$Free_{Level1}$"; (2) students living in households with an income ≤130% of the FPT are classified as "$Free_{Level2}$"; (3) students between 131% and 185% FPT are classified as "Reduced-price"; and (4) students living in a household with an income >185% FPT are classified as "Full-price" meals. An income eligibility form must be completed for a student to be eligible for $Free_{Level2}$ and reduced-price meals. Meal statns is often used as a measure of individual-level poverty because of its direct relationship with

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Meeting Minutes DPR #200 8-10-2020

household income;[10,13,14,31-33] in our analysis, we refer to meal status as "$Poverty_{MEAL}$" when used as a 4-level measure of individual poverty.

To illustrate how the poverty measure can be applied to YRBS analyses, we used the $2009YRBS_{NYC}$ respondent data, which included 11,887 students in 105 schools. Students who participated in the $2009YRBS_{NYC}$ completed an anonymous, 99-item questionnaire on health-risk behaviors and basic demographic information.[28] The YRBS is designed to monitor 6 types of priority health-risk behaviors: (1) behaviors that contribute to unintentional injury and violence; (2) sexual behaviors that contribute to sexually transmitted diseases and unintended pregnancy; (3) alcohol and other drug use; (4) tobacco use; (5) unhealthy dietary behaviors; and (6) inadequate physical activity.[1,28] We created dichotomous variables to illustrate outcomes in each of these areas - Area 1 rarely or never wore a helmet when riding a bicycle last year and been hit by a boyfriend/girlfriend last year; Area 2 was sexually active during the last 3 months and reported having been or gotten someone pregnant ≥1 time(s); Area 3 consecutively drank 5 or more alcoholic beverages ≥1 time(s) last month and used marijuana ≥1 time(s) last month; Area 4 smoked ≥1 cigarette(s) last month; Area 5 drank ≥2 sugar-sweetened beverages (SSBs) per day; and Area 6 was physically active ≥60 minutes at least 5 days last week.[1,28]

Procedures

We created 3 measures of school-level poverty using NYC DOE enrollment data for students in grades 9-12. The first measure ($Method_{FRPM}$) used student meal status (calculated for each school using the DOE student-records). We combined students eligible for $Free_{Level1}$, $Free_{Level2}$, and reduced-price meals, which include students living in households with incomes ≤185% FPT, aud refer to them as students eligible for free or reduced-price meals (FRPM). Because we were analyzing $2009YRBS_{NYC}$ respondent data, we wanted to create a measure that produced an approximately equal number of weighted respondents in each of the 4 poverty categories. When using school-level poverty as a proxy for individual-level poverty, 2 possible approaches are to (1) create poverty categories where school is the unit being grouped into the 4 groups with approximately an even number of schools in each poverty group; or (2) use the number of students enrolled in each school to create an approximately even number of students in each poverty group. In $Method_{FRPM}$, we explored these 2 options for producing 4 evenly distributed poverty categories (even number of schools and students in each quartile) and found that ranking schools from lowest to highest percent FRPM and creating quartiles by placing an approximately equal number of students into each poverty group (low-, medium-, high-, very-high-poverty) provided the most evenly distributed number of $2009YRBS_{NYC}$ weighted responses in each poverty category.

Home zip codes (from the DOE student-records) categorized into levels of HNP for students attending each school were used to create the second measure of school-level poverty ($Method_{HNP}$) the same way as $Method_{FRPM}$, except instead of using student eligibility for FRPM, students who live in a very-high-poverty neighborhood (defined as living in a zip code where ≥30% of residents live below FPT) were counted in the numerator over the total number of students in each school to create a school-level percent of very-high-HNP ranked from lowest to highest among the 396 sample frame schools. As with $Method_{FRPM}$, we explored creating categories grouped by both school and students and found that poverty quartiles grouped by student were optimal.

The third measure ($Method_{SNP}$) used school zip codes categorized into 4 levels of SNP, which was based on the percent of residents living below the FPT in the school's zip code.[29] Because this method of creating poverty quartiles uses a measure that was already determined at the school-level, it is not a relative measure and does not differ whether grouped by number of schools or students. Table 1 summarizes $Method_{FRPM}$, $Method_{HNP}$, and $Method_{SNP}$.

Data Analysis

We applied the 3 school-level poverty measures ($Method_{FRPM}$, $Method_{HNP}$, $Method_{SNP}$) to the individual student-records for the 396 sample frame schools. We used 2 previously defined variables from the additional data provided by DOE to measure individual-level poverty: 4-level student meal status ($Poverty_{MEAL}$) and 4-level student HNP status ($Poverty_{HNP}$). To assess how well each method of defining school-level poverty approximated individual poverty, we evaluated the association between each school-level measure and each individual-level measure using the weighted kappa statistic (K).

$Poverty_{MEAL}$ is a direct proxy for household income and, therefore, a K that measures the association of a school-level proxy (as defined by $Method_{FRPM}$, $Method_{HNP}$, or $Method_{SNP}$) with $Poverty_{MEAL}$ is a direct measure of association of the school-level proxy with an individual's household income. However, the second variable ($Poverty_{HNP}$) is an indirect proxy of household income so the K that measures the association of a school-level proxy ($Method_{FRPM}$, $Method_{HNP}$, $Method_{SNP}$) with $Poverty_{HNP}$ does not indicate directly how well that school proxy measures household income. To determine how well $Poverty_{HNP}$ approximated household income, we

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Meeting Minutes DFR 1260 8-10-2020

Table 1. Summary of Methods and Definitions for Creating School-Level Poverty Proxy Measures for Individual-Level Poverty

Method	Variable used (from data source)	Students are counted as being "in poverty" if they are:	Schools are ranked from lowest to highest poverty by	Schools are divided into "poverty-quartiles" with:	School-level poverty quartiles are defined by:	School cut-points are applied to create school-level poverty assignments
$Method_{FRPM}$	Meal code status (DOE* enrollment)	Eligible for free or reduced-price meals† (FRPM)	% of students FRPM	Approximately equal number of students in each quartile	% of students eligible for FRPM per school	Low-poverty (0%, <49%) Medium-poverty (49%, <65%) High-poverty (65%, <80%) Very-high-poverty (80%, 100%)
$Method_{HNP}$	Home neighborhood-level Poverty (HNP) created from: Home zip code (DOE* enrollment) Zip code poverty‡ (2000 Census)	Living in a very high-HNP (≥30% of residents living below FPT)	% of students living in a very-high-poverty HNP	Approximately equal number of students in each quartile	% of students living in a very-high-poverty HNP per school	Low-poverty (0%, <4%) Medium-poverty (4%, <23%) High-poverty (23%, <54%) Very-high-poverty (54%, 100%)
$Method_{SNP}$	School neighborhood-level Poverty (SNP) created from: School zip code (DOE* enrollment) Zip code poverty‡ (2000 Census)	N/A	N/A	N/A	% of residents living below FPT per school's zip code	Low-poverty ≤10% FPT Medium-poverty <10%-20% FPT High-poverty <20%-30% FPT Very-high-poverty ≥30% FPT

*The New York City (NYC) Department of Education (DOE).
†Students eligible for free or reduced-price meals (FRPM) includes meal codes $Free_{Level1}$, $Free_{Level2}$, and reduced-price meals, which includes households with incomes ≤185% FPT.
‡Neighborhood-level poverty is defined as the percent of the population in a given NYC zip code whose household income is below the Federal Poverty Threshold (FPT) categorized as: low- (<10%), medium- (10% to <20%), high- (20% to <30%), and very-high-poverty (≥30%). The FPT, which follows the Office of Management and Budget's Statistical Policy Directive 14, uses a set of money income thresholds that vary by family size and composition. If a family's total income is less than the family's poverty threshold, then that family and every individual in it is classified as being in poverty (below 100% of poverty).

used the 2007-2011 American Community Survey weighted data for persons living in a Public Use Micro-data Area (PUMA) (the statistical geographic area defined for dissemination of census data) located in a NYC county ($2007\text{-}11ACS_{NYC}$). For each person-record a unique ID, survey-weight, home PUMA, and household income (given as the percent of their FPT) were used to create a 4-level area-based poverty measure based on the percent of residents living below FPT in a given PUMA. This area-based poverty measure ($PovertyACS_{HNP}$) is the same as $Poverty_{HNP}$ except PUMAs as opposed to zip codes are used to geographically define home neighborhoods. Each $2007\text{-}11ACS_{NYC}$ person-record was assigned an individual-level poverty proxy (low-, medium-, high-, or very-high-poverty) based on the $PovertyACS_{HNP}$ category of their home PUMA. Here $PovertyACS_{HNP}$ serves as a direct proxy for an individual's household income. Last, we created a 4-level $PovertyACS_{MEAL}$ status similar to $Poverty_{MEAL}$ with the following categories: (1) "$FreeACS_{Level1}$": receiving SNAP (a household indicator that we applied to the person aged 14-19 living in that household); (2) "$FreeACS_{Level2}$": household income ≤130% FPT; (3) "ReducedACS": between 131% and 185% FPT; and (4) "FullACS": household income >185% FPT. We further limited the $2007\text{-}11ACS_{NYC}$ weighted person-data to those attending a public school within the past 3 months, enrolled in grades 9-12 and between the ages of 14 and 19 and measured the association of individual income ($PovertyACS_{MEAL}$) to the assigned home area-based proxy for individual income, $PovertyACS_{HNP}$ among public high school students using K. We also use this K to define

high-agreement in the context of a school-level proxy measure's agreement with a student-level poverty measure (described below).

The K statistic is influenced by the prevalence of the finding under consideration and, as a result, is only meaningful when looked at within the context of the analysis. For rare findings, a low K value may not necessarily reflect low agreement.[34] A school-level proxy for a student-level trait will assign every student in a school the same value and, when comparing it to individual-level data, it is nearly impossible to achieve $K = 1$ unless, for example, every single student within a school had the same meal code status; therefore, the K value may appear low while approaching the maximum K for a school-level measure. To provide a gold-standard K in the context of this analysis, we used the most commonly accepted and utilized proxy measure of individual poverty, home area-based poverty using household income.[30] This gold-standard K is the measured agreement between $\text{PovertyACS}_{\text{HNP}}$ and $\text{PovertyACS}_{\text{MEAL}}$ using $2007\text{-}11\text{ACS}_{\text{NYC}}$ public high school person-records.

Finally, as a contextual validation of a poverty measure in analyzing YRBS data, we used the school-level poverty assignments from $\text{Method}_{\text{FRPM}}$ limited to the 105 sampled schools and appended the school poverty category to the 11,897 responses of the $2009\text{YRBS}_{\text{NYC}}$. Each record was assigned a poverty category (low-, medium-, high-, very-high-poverty) by matching the school codes, which were used as a proxy for individual poverty in our analysis. For each selected outcome measured in the $2009\text{YRBS}_{\text{NYC}}$, prevalence estimates were calculated using the 9 previously defined dichotomous variables. We stratified by race/ethnicity for non-Hispanic black (black) versus non-Hispanic white (white) students and then by poverty (very-high- vs low-poverty) separately among black and white students to evaluate the information poverty status provided above and beyond what was captured by race/ethnicity. We used *t* tests to test for significance of differences by race/ethnicity and differences by poverty within a racial/ethnic group at the .05 level.

All analysis was done in SAS 9.2. The 9 outcomes reported using $2009\text{YRBS}_{\text{NYC}}$ data were calculated and evaluated with SAS-callable SUDAAN 11.0.1 and specified the multistage probability sampling with replacement design option to correct for the clustering inherent in the YRBS' survey design.[1,28] These analyses were also nested by school and classroom and weighted to adjust for the probability of selection and poststratified by sex within grades and race/ethnicity.[1,28]

RESULTS

Schools were divided into 4 poverty groups using the $\text{Method}_{\text{FRPM}}$, $\text{Method}_{\text{HNP}}$, and $\text{Method}_{\text{SNP}}$ definitions (Table 1). $\text{Method}_{\text{FRPM}}$ resulted in schools with <49% of students eligible for FRPM categorized as "low-poverty" (Quartile 1) and schools with ≥80% FRPM eligibility as "very-high-poverty" (Quartile 4). Using quartiles based on percent FRPM alone would result in few schools categorized as low- (<25% FRPM) or medium-poverty (26-50% FRPM) because nearly 80% of the schools had ≥50% of their student population eligible for FRPM, which is true by HNP as well. $\text{Method}_{\text{HNP}}$ resulted in schools with <4% of students living in very-high-poverty neighborhoods categorized as "low-poverty" (Quartile 1) and schools with ≥54% living in very-high-poverty neighborhoods as "very-high-poverty" (Quartile 4). $\text{Method}_{\text{SNP}}$ defined a school as "low-poverty" (Quartile 1) if the school was located in a zip code where ≤10% of residents lived below FPT and assigned a school to "very-high-poverty" (Quartile 4) if ≥30% lived below FPT.

After applying the quartile cut-points described above to the sample frame population, $\text{Method}_{\text{FRPM}}$ resulted in the most even distribution in the number of schools between low- versus very-high-poverty (19% vs 37%), followed by $\text{Method}_{\text{SNP}}$ (15% vs 36%), and $\text{Method}_{\text{HNP}}$ (15% vs 42%). All 3 methods resulted in approximately equal number of students assigned to low- versus very-high-poverty. Of the schools located in very-high-poverty neighborhoods, 92% were assigned very-high-poverty nsing $\text{Method}_{\text{HNP}}$ compared with 52% using $\text{Method}_{\text{FRPM}}$. $\text{Method}_{\text{FRPM}}$ resulted in 17% of very-high-HNP students being assigned to low-poverty schools, while $\text{Method}_{\text{SNP}}$ and $\text{Method}_{\text{HNP}}$ assigned 9% and 1% of students, respectively. All methods assigned more FRPM and Hispanic and black students to very-high-poverty schools versus low-poverty schools (Table 2).

Using $\text{Method}_{\text{FRPM}}$, $\text{Method}_{\text{HNP}}$, and $\text{Method}_{\text{SNP}}$ to define school-level poverty, we used K to measure the association with individual-level $\text{Poverty}_{\text{MEAL}}$ and $\text{Poverty}_{\text{HNP}}$ (Table 3). $\text{Method}_{\text{FRPM}}$ ($K = 0.271$, confidence interval, $CI = 0.268, 0.273$) was the most highly correlated with $\text{Poverty}_{\text{MEAL}}$, followed by $\text{Method}_{\text{HNP}}$ ($K = 0.163$, $CI = 0.161, 0.166$) and $\text{Method}_{\text{SNP}}$ ($K = 0.123$, $CI = 0.120, 0.126$). For individual-level $\text{Poverty}_{\text{HNP}}$, school-level $\text{Method}_{\text{HNP}}$ and $\text{Method}_{\text{SNP}}$ were the most highly correlated ($K = 0.449$, $CI = 0.447, 0.451$ and $K = 0.378$, $CI = 0.376, 0.381$, respectively), followed by $\text{Method}_{\text{FRPM}}$ ($K = 0.220$, $CI = 0.217, 0.223$). Using $2007\text{-}11\text{ACS}_{\text{NYC}}$ to determine how well home area-based poverty measures household income among public high school students, we found $K = 0.213$ ($CI = 0.211, 0.215$) for the association between $\text{PovertyACS}_{\text{HNP}}$ and $\text{PovertyACS}_{\text{MEAL}}$ (Table 4), which was less correlated than the best school-level proxy with $\text{Poverty}_{\text{MEAL}}$ ($\text{Method}_{\text{FRPM}}$). Further, $\text{Method}_{\text{FRPM}}$ measured both individual-level

Table 2. Demographic Distributions by School-Level Poverty Assignments Using Poverty Cut-Points Defined by $Method_{FRPM}$*, $Method_{HNP}$†, and $Method_{SNP}$‡ Applied to the 2009 NYC YRBS Sample Frame 396 Schools and Their 2009-2010 School Year Student Enrollment Records.

Poverty quartile distributions by select characteristics associated with poverty for school and student enrollment		Assignment of school poverty quartiles by method:					
		$Method_{FRPM}$*		$Method_{HNP}$†		$Method_{SNP}$‡	
		Low-poverty	Very-high-poverty	Low-poverty	Very-high-poverty	Low-poverty	Very-high-poverty
Number of schools	N	77	147	59	166	58	142
	%	19	37	15	42	15	36
School neighborhood: very-high-poverty§		14	52	0	92	0	100
Number of students	N	68,084	70,446	67,619	68,705	57,357	61,999
	%	25	26	25	25	21	23
Home neighborhood‖: very-high-poverty§		17	43	1	57	9	49
Meal code¶ status: free or reduced		13	36	22	31	18	26
Race/ethnicity: Hispanic or Black		19	33	18	34	15	29

NYC, The New York City; YRBS, Youth Risk Behavior Survey.
*$Method_{FRPM}$: Poverty is defined by the percent of students eligible for free or reduced-price meals (FRPM) as defined in $Method_{FRPM}$ where "low-poverty" is a school with <49% of the enrollment population eligible for FRPM and "very-high-poverty" is a school where ≥80% of the students are eligible for FRPM.
†$Method_{HNP}$: Poverty is defined by the percent of students classified with very high home neighborhood-level poverty (HNP), which is defined as living in a zip code where ≥30% of the residents live below the federal poverty threshold (FPT), where "low-poverty" is a school with <4% of the enrollment population living in a very-high-poverty neighborhood and "very-high-poverty" is a school where ≥54% of the students are living in a very-high-poverty neighborhood.
‡$Method_{SNP}$: Poverty is defined by the school's neighborhood poverty (SNP), which is determined by the percent of residents in the school zip code living below the FPT. "Low-poverty" is defined as ≤10% of residents living below FPT and "very-high-poverty" is defined as ≥30% of residents living below FPT.
§A very-high-poverty neighborhood is defined as a NYC zip code with ≥30% of the residents living below the FPT.
‖There are 0.52% of the sample population who have a missing or nonvalid home NYC zip code.
¶There are 0.28% of the sample population who have a missing meal code status.

$Poverty_{MEAL}$ and individual-level $Poverty_{HNP}$ with $K > 0.213$, the gold standard for high-agreement in the context of this analysis, whereas $Method_{HNP}$ and $Method_{SNP}$ were only above the gold standard with individual-level $Poverty_{HNP}$.

Next, we compared the prevalence of 9 outcomes (from $2009YRBS_{NYC}$ data) by race/ethnicity (Blacks vs Whites) using $Method_{FRPM}$, because it had the strongest association with $Poverty_{MEAL}$ (Table 5). Our bivariate analysis showed that, compared with Whites, Blacks were significantly (all $p < .05$) more likely to report rarely/never wearing a helmet while riding a bicycle (91% vs 83%), being hit by a boyfriend/girlfriend (12% vs 6%), being sexually active (35% vs 21%), having been or ever gotten someone pregnant (8% vs 3%), and consuming ≥2 SSBs daily (32% vs 20%); and were less likely to report being a current binge drinker (10% vs 21%) and being a current smoker (4% vs 15%). When race/ethnicity was stratified by the school-level poverty measure based on FRPM, significant differences were found between very-high- and low-poverty groups within the racial/ethnic categories. For example, overall, Blacks had higher rates of sexual activity, SSB consumption, and unsafe biking than Whites; however, very-high-poverty Whites had a higher prevalence of these measures than both low- and very-high-poverty Blacks. Whereas marijuana use did not differ between racial/ethnic groups, significant differences were seen by poverty within each racial/ethnic group; the opposite was true of binge drinking and tobacco use.

DISCUSSION

Research clarifies the primacy of poverty in health outcomes.[7,13,14,35,36] Having this measure available in YRBS allows researchers to include poverty as both a control and an exposure in their analyses. This article looked at several alternatives and found that the preferred method for creating a school-level poverty measure used student eligibility for FRPM ($Method_{FRPM}$). This method proved to be the most highly associated with individual $Poverty_{MEAL}$ (a direct measure of household income). Althongh $Method_{HNP}$ and $Method_{SNP}$ were more strongly associated with $Poverty_{HNP}$ (an indirect measure of household income), $PovertyACS_{HNP}$ had a weaker association with household income ($PovertyACS_{MEAL}$) than the school-level poverty defined by $Method_{FRPM}$ measured household income ($Poverty_{MEAL}$). This indicates that $Poverty_{MEAL}$ was a better measure of individual-level poverty than $Poverty_{HNP}$. Thus, the best measure of school-level poverty was the method that more accurately measured $Poverty_{MEAL}$ rather than individual-level $Poverty_{HNP}$. Although this measure was developed and applied to YRBS data, $Method_{FRPM}$ can be applied to any school-based survey that lacks individual-level poverty information. This research is the first to define and validate a

Table 3. The Measure of Association With School-Level Poverty Assignments (Defined by $Method_{FRPM}$*, $Method_{HNP}$†, and $Method_{SNP}$‡) to Observed Measures of Individual-Level Poverty (Defined by $Poverty_{MEAL}$§, a Direct Measure of Household Income and by $Poverty_{HNP}$||, an Indirect Measure of Household Income) as Applied to the 2009 NYC YRBS High School Student Enrollment Population.

School-level poverty assignments (a proxy for individual-level poverty), by method	From NYC DOE student enrollment records	
	$Poverty_{MEAL}$§ weighted kappa (95% CI)	$Poverty_{HNP}$|| weighted kappa (95% CI)
$Method_{FRPM}$*	0.271 (0.268, 0.273)	0.220 (0.217, 0.223)
$Method_{HNP}$†	0.163 (0.161, 0.166)	0.449 (0.447, 0.451)
$Method_{SNP}$‡	0.123 (0.120, 0.126)	0.378 (0.376, 0.381)

CI, confidence interval; NYC DOE, the New York City Department of Education.
*$Method_{FRPM}$: Poverty is defined by the percent of students eligible for free or reduced-price meals (FRPM) as defined in $Method_{FRPM}$ where "low-poverty" is a school with <49% of the enrollment population eligible for FRPM and "very-high-poverty" is a school where ≥80% of the students are eligible for FRPM.
†$Method_{HNP}$: Poverty is defined by the percent of students classified with very high home neighborhood-level poverty (HNP), which is defined as living in a zip code where ≥30% of the residents live below the federal poverty threshold (FPT), where "low-poverty" is a school with <4% of the enrollment population living in a very-high-poverty neighborhood and "very-high-poverty" is a school where ≥54% of the students are living in a very-high-poverty neighborhood.
‡$Method_{SNP}$: Poverty is defined by the school's neighborhood poverty (SNP), which is determined by the percent of residents in the school zip code living below the FPT. "Low-poverty" is defined as ≤10% of residents living below FPT and "very-high-poverty" is defined as ≥30% of residents living below FPT.
§Of the sample population, 0.28% have a missing meal code status and, therefore, a missing value for $Poverty_{MEAL}$.
||Of the sample population, 0.52% have a missing or nonvalid home NYC zip code and, therefore, a missing value for $Poverty_{HNP}$.

Table 4. Illustration of the Analytic Structures Used to Measure the Association With Home Neighborhood-Level Poverty Assignments Grouped at the PUMA*-Level ($PovertyACS_{HNP}$†) to Observed Individual Household Income ($PovertyACS_{MEAL}$‡) Among Public High School Students, Grades 9-12, Aged 14-19 in the 2007-2011 New York City American Community Survey (ACS) Data.§

Home neighborhood-level poverty assignment, by method	From 2007-11 NYC ACS public high school data§ $PovertyACS_{MEAL}$‡ weighted kappa (95% CI)
$PovertyACS_{HNP}$§	0.213 (0.211, 0.215)

CI, confidence interval; NYC, New York City; ACS, American Community Survey.
*Public Use Micro-data Area (PUMA) is the statistical geographic area defined for dissemination of Census data.
†$PovertyACS_{HNP}$: using the 2007-2011 ACS weighted person-records, poverty is defined by the resident's home neighborhood-level poverty at the PUMA-level ($PovertyACS_{HNP}$), which is determined by the weighted percent of residents in the PUMA living below the FPT. "Low-poverty" is defined as ≤10% or residents living below FPT and "very-high-poverty" is defined as ≥30% of residents living below the FPT in a given PUMA.
‡$PovertyACS_{MEAL}$: using the 2007-2011 NYC ACS weighted person-records limited to NYC public high school students, household income was categorized as (1) "$FreeACS_{Level1}$" (very-high-poverty) if the student lives in a household receiving food stamps, (2) "$FreeACS_{Level2}$" (high-poverty) if the student lives in a household with an income ≤130% FPT, (3) "ReducedACS" (medium-poverty) if the student lives in a household with an income between 131% and 185% FPT, and (4) "FullACS" (low-poverty) if the student lives in a household with an income >185% FPT.
§The 2007-11 American Community Survey (ACS) weighted data for persons living in a PUMA located in a New York City (NYC) county were used to create $PovertyACS_{HNP}$ and $PovertyACS_{MEAL}$; each person-record contains a unique ID, survey-weight, home PUMA, and household income (given as the percent of their household Federal Poverty Threshold [FPT]), which were used to create $PovertyACS_{HNP}$ with all weighted person-records whose home residence was in NYC. These weighted person-records were further limited to those attending a public high school within the past 3 months, enrolled in grades 9-12, and between the ages of 14-19 to create $PovertyACS_{MEAL}$, an individual-level poverty measure among NYC public high school students.

school-level proxy for individual poverty that can be used in YRBS analysis as well as other school-based surveys.

There are advantages to the school-level poverty measure using $Method_{FRPM}$ in addition to its association with individual-level poverty. First, $Method_{FRPM}$ classified poverty into 4 categories so that each category would contain roughly equal numbers of students, increasing power when making comparisons. Further, the use of measures based on categories provides additional data security and, when the categories are created of equal size, confidentiality is maximized. Additionally, as discussed by Gelman and Park, a simple comparison of average values of Y in the upper and lower quartiles of X can replace a regression slope with approximately 80-90% efficiency.[37] Whereas we acknowledge that creating categories may result in a loss of some information and that ensuring equal size may result in categories that do not necessarily reflect the school or student context, we believe the approach to be the most practical solution in the YRBS context, where individual-level SES measures are not available and school anonymity must be maintained.

$Method_{FRPM}$ is preferred for several other reasons as well. The percentage of FRPM students by school is publicly available for each public school through yearly reports.[25] Further, through the National Center for Education Statistics (NCES) website, one can customize the presentation of these school reports to ensure that the presentation of percent FRPM for each school included in one's analysis is the same across all states and districts within the United States.[26] This allows for analysis of local data as well as comparisons between jurisdictions and does not require individual student data.

DRP #2000 Modified DRP #1268 8-10-2020 Meeting Minutes DRP #1268 8-10-2020

Table 5. The Prevalence* of 9 Outcomes†Measured in the 2009 New York City Youth Risk Behavior Survey (YRBS) by Race/Ethnicity (Non-Hispanic Black vs Non-Hispanic White) Overall and Within Race/Ethnicity by Poverty (Very-High-Poverty vs Low-Poverty).‡

Prevalence* by race/ethnicity YRBS health outcomes†	Race/Ethnicity		t Test for difference p value *
	Non-Hispanic Black % (95% CI)	Non-Hispanic White % (95% CI)	
Rarely/never use a bicycle helmet	91 (89, 93)	83 (77, 88)	.005
Been hit by a boyfriend/girlfriend	12 (11, 13)	6 (4, 10)	<.001
Currently sexually active	35 (32, 39)	21 (15, 28)	<.001
Ever been/gotten someone pregnant	8 (7, 9)	3 (2, 4)	<.001
Current binge drinker	10 (9, 11)	21 (15, 27)	<.001
Current marijuana user	17 (15, 19)	17 (12, 23)	.882
Current smoker	4 (3, 5)	15 (12, 20)	<.001
Sugary beverage consumption	32 (30, 34)	20 (18, 23)	<.001
Physical activity	36 (34, 39)	39 (36, 42)	.246

Prevalence* within race/ethnicity by poverty‡ YRBS health outcomes†	Non-Hispanic Black		t Test for difference p value *	Non-Hispanic White		t Test for difference p value *
	Very-high-poverty % (95% CI)	Low-poverty % (95% CI)		Very-high-poverty % (95% CI)	Low-poverty % (95% CI)	
Rarely/never use a bicycle helmet	92 (89, 95)	86 (79, 91)	.042	95 (72, 99)	77 (71, 81)	.001
Been hit by a boyfriend/girlfriend	11 (10, 13)	12 (9, 16)	.627	1 (0, 6)	6 (4, 9)	.002
Currently sexually active	40 (35, 47)	25 (19, 32)	.004	50 (34, 66)	20 (16, 24)	.001
Ever been/gotten someone pregnant	9 (7, 11)	8 (5, 11)	.597	1 (0, 5)	4 (2, 7)	.017
Current binge drinker	10 (8, 12)	8 (6, 12)	.457	23 (8, 52)	24 (20, 28)	.961
Current marijuana user	18 (16, 21)	11 (6, 20)	.054	8 (3, 20)	21 (15, 30)	.015
Current smoker	4 (2, 6)	3 (2, 5)	.925	11 (3, 33)	15 (13, 19)	.589
Sugary beverage consumption	34 (31, 37)	28 (24, 31)	.007	44 (27, 63)	17 (14, 21)	.006
Physical activity	33 (29, 37)	39 (30, 49)	.221	30 (19, 44)	38 (33, 43)	.222

CI, confidence interval.

*Prevalence estimates, 95% confidence intervals and significance tests were calculated with SAS-callable SUDAAN 11.0.1 using the 2009 New York City (NYC) Youth Risk Behavior Survey (YRBS) respondent data, which were weighted to adjust for the probability of selection and poststratified by gender within grades and race/ethnicity, nested by school and classroom, and specified the multistage probability sampling with replacement design option within SUDAAN to correct for the clustering inherent in the NYC YRBS' survey design. *T* tests were used to test for significant differences of prevalence among non-Hispanic black (black) versus non-Hispanic white (white) students, among very-high-poverty black versus low-poverty black students, and among very-high-poverty white versus low-poverty white students. Significance was determined at the .05 level.

†We have selected 9 outcomes, where each outcome represents one of the key health-risk areas measured in the NYC YRBS, to illustrate the additional information that is seen by including poverty (above and beyond race/ethnicity). The following dichotomous outcomes were used to measure the prevalence of the 9 key risk behaviors measured in the 2009 NYC YRBS:

1 Rarely/never use a bicycle helmet - Among students who reported having rode a bicycle during the past 12 months, also reported rarely or never wearing a bicycle helmet.
2 Been hit by a boyfriend/girlfriend - Reported being hit or physically hurt on purpose by a boyfriend/girlfriend in the past 12 months.
3 Currently sexually active - Reported having sexual intercourse with 1 or more people during the past 3 months.
4 Ever been/gotten someone pregnant - Among students who reported having ever had sex, also reported having been/gotten someone pregnant ≥1 time(s).
5 Current binge drinker - Reported having ≥5 consecutive drinks of alcohol on at least 1 of the past 30 days.
6 Current marijuana user - Reported using marijuana one or more times during the past 30 days.
7 Current smoker - Reported having smoked at least 1 cigarette on 1 or more of the past 30 days.
8 Sugary beverage consumption - Reported drinking 2 or more soda or other sugar-sweetened beverages (SSBs) per day.
9 Physical activity - Engaged in physical activity for at least 60 minutes per day on 5 or more of the past 7 days.

‡Poverty is a proxy measure for individual-level household poverty and is defined by the school-level percent of students eligible for free or reduced-price meals (FRPM) as defined in MethodFRPM where "low-poverty" is a school with <49% of the high school enrollment population eligible for FRPM and "very-high-poverty" is a school where ≥83% of high school students are eligible for FRPM.

Further, $Method_{FRPM}$ does not rely on an area-based measure to define poverty. This would not be useful in settings where all students attend schools or reside in neighborhoods with similar poverty-levels. Whereas school zip codes (used in $Method_{SNP}$) are public information, they fail to account for certain individuals in the school. For instance, in the $2009YRBS_{NYC}$ sample frame schools, approximately 70% of students travel from outside their home neighborhood (defined by United Hospital Fund areas) to attend high school and the location of the school may not reflect the poverty of students attending that school. Whereas $Method_{FRPM}$ and $Method_{HNP}$ use relative measures of poverty, which allow for schools that are all located in the same area to still be compared by poverty, $Method_{HNP}$ uses student home zip codes, which requires more personal and identifiable data than are often available for analyses. Another advantage to $Method_{FRPM}$ is that it can be applied to YRBS analysis broken down by many subgeographies because it does not require

that the population be located in areas that differ by poverty.

The illustrative analysis showed that patterns not apparent by race/ethnicity comparisons were seen by including poverty in over half of the outcomes and our findings even suggested health-risk unintentional injury, sexual, and dietary behaviors had stronger associations with poverty than with race, which are in agreement with the findings of previous research.[5-7,12-14,23,38,39] Although employing $Method_{FRPM}$ as the proxy measure for individual-level poverty fails to account for racial/ethnic composition variations that exist within each school, the illustrative analysis confirmed that including at least some school-level poverty measure adds important information and analyses done without poverty are subject to biases and likely will not fully characterize risks.

Limitations and Strengths

The school-level poverty measure using $Method_{FRPM}$ has a few limitations. First, students with missing meal codes were excluded; however, this number was small (0.28%) and probably did not affect the results. Second, there may have been students who met the income eligibility requirements for $free_{Level2}$ and reduced-price meals who did not complete the form and, based on NYC DOE policy, were classified as full-price meals. Third, private schools do not participate in the NSLP. Whereas the NYC YRBS sample frame does not include private schools, there are many school-based surveys (including the national YRBSS) that do.[1] Whereas recognizing that some private school students may be from high-poverty households, for these analyses we suggest treating each private school as having 0% of their student population eligible for FRPM to create the school rankings of FRPM eligibility (ie, using enrollment in a private school as a proxy for having a household income >185% FPT). Additionally, school-level poverty may measure a school-level effect of poverty in addition to being a proxy for individual-level poverty. For example, the collective culture of poorer schools may be different than the collective culture of less poor schools and have an effect on behavior that is independent of individual-level poverty.[14] Thus, whereas we have proposed the best available proxy measure of individual-level poverty, there may be additional school-level effects, which we did not address and should be considered with the interpretation of findings using this school-level proxy. Further, having the same SES represent all students within a school does not allow for the investigation of the effects of heterogeneity within a school. This loss of information will be greatest for the most heterogeneous schools, such as those drawn from a wide geographic area. Nonetheless, an individual measure cannot be constructed (or released) in this instance with the data at hand; the focus of this analysis was to identify a measure that could be used by researchers with current YRBS data releases. Future research is needed to identify and validate an approach for attaching SES information to YRBS respondent data so that students within the same school can be assigned different values.

The NYC population is ideal to test the 3 methods of defining school-level poverty because NYC is diverse on race/ethnicity, household income, and neighborhood poverty. The NYC DOE data also provided a large sample size of over 120,000 student-records to perform the validation analysis of the 3 school-level proxies with individual poverty. Although these features of the NYC population allowed us to evaluate the methods of defining school-level poverty comprehensively, the experience in NYC may not be typical of what would be found in other settings. Thus, the correlation of school poverty to individual poverty needs to be demonstrated in other jurisdictions with a different population make-up.

Finally, our contextual analysis consisted of bivariate analyses to measure the association between selected risk behaviors and race/ethnicity and poverty. Although this approach is commonly used in analysis of single-year YRBS data and our results demonstrate the added value of a poverty measure, its power to illuminate the complex interplay of poverty, race/ethnicity, and other factors is limited.[1] Although beyond the scope of this article, additional research using multivariate models would further elucidate these associations.

Conclusions

Readily available school eligibility reports in NSLP are the best option for creating a school-level poverty measure to be used as a proxy when individual-level poverty is not available. The proposed method takes into account individual students within a school by ranking participating schools according to the percent of students eligible for FRPM. Using these continuous percentages as the measure of school poverty allows flexibility to create easily comparable quartile groupings, which allows for each quartile to be substantial enough for sufficient power when making comparisons. Further, using relative rankings, poverty is determined by other schools in the same sample and reflects the true range of poverty within a population.

IMPLICATIONS FOR SCHOOL HEALTH

Because it is difficult to collect SES data directly from children and youth, there is limited research

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DRP #2008 Meeting Minutes DFR 4268 8-10-2020

on poverty and health using school-based data. The use of Method$_{FRPM}$ provides a uniform way to report school-level poverty as a proxy for individual poverty for surveys such as the YRBS that lack an individual measure; the method is readily available and cost effective because school lunch data are public and already collected. The following description provides guidance on how to include this proxy measure in analyses of a school-based data source that lacks student-level SES:

1 The comprehensive list of school codes/names included in the sample frame of a jurisdiction included in one's analysis should be used if available; otherwise, the list of sampled school codes/names can be used instead.
2 Use the NCES' Elementary/Secondary Information System (ELSi) application to create a customized table where each row is a school in your sample frame (or sampled) school list.[26]
3 Column 1 of the table is the school-level count of students included in the sampling frame, which can be calculated by taking the sum of student enrollment by grades for all grade-levels included in the sampling frame for each of the sample frame (or sampled) schools.
4 Column 2 of the table is the school-level %FRPM, which can be calculated by taking the number of students eligible for FRPM divided by the total number of students enrolled in a given school. The ELSi tableGenerator tool provides the number of all students eligible for FRPM within a school but can also be obtained for a specified grade range within a given school through the ELSi school search tool.[26]
5 The complete school-level table includes every school listed in the sample frame (or sample) as a row with the school's number of sample frame students as Column 1 and the school's %FRPM as Column 2.
6 The Common Core of Data (CCD) is used in the ELSi application to generate information on public schools whereas the Private School Survey (PSS) is used to generate information on private schools.[26] If the sample frame includes both public and private schools, then a separate private school table must be created in ELSi, the Column 2 value entered as 0% FRPM for every private school, and the public and private school tables stacked in order to produce the complete school-level table.
7 Sort the complete school-level table from lowest to highest %FRPM and explore these 2 approaches for producing 4 evenly distributed poverty categories: an even number of schools (step 8) versus an even number of students (step 9) in each quartile. The schools in the first quartile will be classified as low-poverty, those in the second quartile as medium-poverty, those in the third as high-poverty, and those in the fourth as very-high-poverty.
8 Create poverty categories where school is the unit being grouped into the 4 groups with approximately an even number of schools in each quartile. For the schools in the sample, append these school-level poverty assignments of low-, medium-, high-, and very-high-poverty to each student (weighted) response in the analytic sample dataset by matching on the school codes/names.
9 Create poverty categories using the number of students enrolled in each school to create an approximately even number of students in each quartile. For the schools in the sample, append these school-level poverty assignments of low-, medium-, high-, and very-high-poverty to each student (weighted) response in the analytic sample dataset by matching on the school codes/names.
10 Compare the distribution of weighted responses that resulted from step 8 with that of the distribution that resulted from step 9 and choose the one that provides the most evenly distributed number of weighted student responses in each poverty category.

Human Subjects Approval Statement

The NYC DOHMH and NYC DOE have conducted the NYC YRBS since 2003. The data collection and survey methods of the NYC YRBS were approved by both the NYC DOHMH and DOE institutional review boards. The secondary data analysis conducted for this study was determined as public health surveillance that is nonresearch by the institutional review board of the NYC DOHMH.

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Meeting Minutes DFR 4/28-8/10-2020

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Meeting Minutes DFR 4260 8-10-2020

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OREGON AT-A-GLANCE SCHOOL PROFILE
Arlington Community Charter School

PRINCIPAL: Kevin Hunking | GRADES: K-12 | 1200 Main St, Arlington 97812 | 541-454-2632

2017-18

Students We Serve

149
Student Enrollment

DEMOGRAPHICS

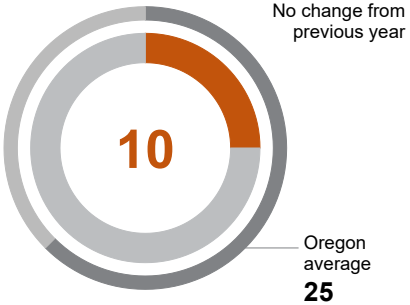
American Indian/Alaska Native	Students	5%
	Teachers	0%
Asian	Students	0%
	Teachers	8%
Black/African American	Students	0%
	Teachers	0%
Hispanic/Latino	Students	12%
	Teachers	0%
Multiracial	Students	1%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	1%
	Teachers	0%
White	Students	81%
	Teachers	92%

* Ever English Learners		2 Languages Spoken
13% Students with Disabilities	98% Required Vaccinations	53% Free/ Reduced Price Lunch

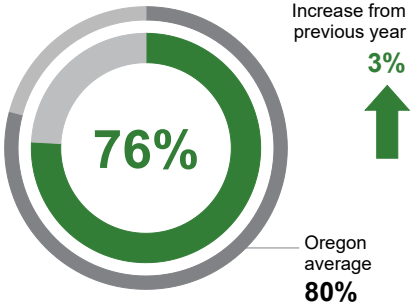
*Not enough students

School Environment

CLASS SIZE
Median size of classes in core subjects.

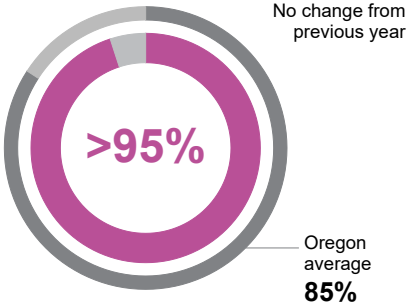


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



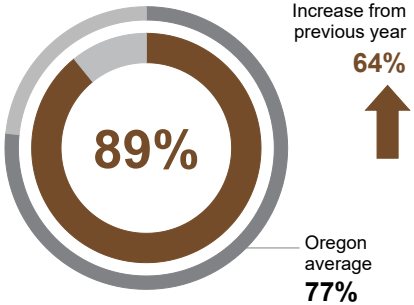
Academic Progress

ON-TRACK TO GRADUATE
Students earning one-quarter of graduation credits in their 9th grade year.

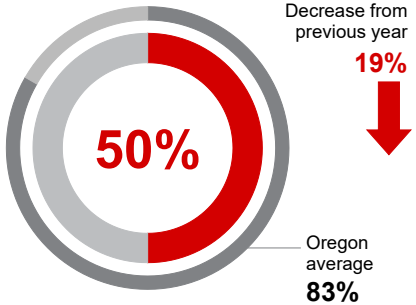


Academic Success

ON-TIME GRADUATION
Students earning a diploma within four years.



FIVE-YEAR COMPLETION
Students earning a high school diploma or GED within five years.



COLLEGE GOING
Students enrolling in a two or four year college within one year of completing high school.

School Goals
Our school strives to promote student success by helping students to regularly attend school. Through our school and district's Strive for Five attendance initiative, we work with students and their parents to inform them of the importance of regular attendance. Due to this work, we have seen the attendance rate for our school increase over the last year.

State Goals
The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment
Our school strives to ensure all students and their parents feel welcome by including bilingual staff in our school office. All communication sent home through mail, phone, or text is translated for easy access. Interpreters are provided for parent conferences and other school meetings where parents are present.

School Website: www.honkernet.net

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Arlington Community Charter School

2017-18

PRINCIPAL: Kevin Hunking | GRADES: K-12 | 1200 Main St, Arlington 97812 | 541-454-2632

Our Staff

12 Teachers

0 Educational assistants

0 Counselors

14% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	Not enough students	Not enough students	100%
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	61%	Not enough students	100%
Multiracial	Not enough students	Not enough students	100%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	77%	Not enough students	86%
Free/Reduced Price Lunch	68%	Not enough students	78%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	60%	Not enough students	100%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	73%	Not enough students	100%
Male	79%	Not enough students	82%

About Our School

ADVANCED COURSEWORK

Our school offers many college courses. Highlights Include:
•Biology, Physics, Chemistry, US History, World History

Our School offers a number of advanced language courses:
•Spanish, Spanish for Native Speakers, French, German
We also offer dual-enrollment courses through the local community college. Highlights include:
•Chemistry, English, US History

CAREER & TECHNICAL EDUCATION

Our students have the option of enrolling in a variety of CTE courses where students can earn dual credit and receive college credit:
•Digital Design
•Manufacturing
•Web Design
•Welding
•Food Science
•Diesel Mechanics
•Industrial Maintenance

EXTRACURRICULAR ACTIVITIES

Our school offers several academic focused extracurricular activities:
•Yearbook Team
•National Honors Society
•College Classes
Our school offers OSAA athletics, visit our school website for more details.

PARENT & COMMUNITY ENGAGEMENT

Our school engages our parents and community by hosting a variety of events intended for parents and community members to attend:
•First Day Open House
•May Day
•Homecoming
•College Academy
•Career Fair
•Parent's Club
Our school also partners with local business to create internship opportunities for senior students.
See our school website for a full list of internship opportunities.

Meeting Minutes DPR #200 8-10-2020
DPR #200 Modification Request - 2019
44
30

School Website: www.honkernet.net

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE
Ash Creek Elementary School

PRINCIPAL: Ashley Wildfang | GRADES: K-5 | 1360 N 16th St, Monmouth 97361 | 503-606-9016

2017-18

Students We Serve

559
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	1%
	Teachers	0%
Asian	Students	<1%
	Teachers	0%
Black/African American	Students	1%
	Teachers	0%
Hispanic/Latino	Students	50%
	Teachers	8%
Multiracial	Students	5%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	0%
	Teachers	0%
White	Students	43%
	Teachers	92%

25% Ever English Learners

6 Languages Spoken

8% Students with Disabilities

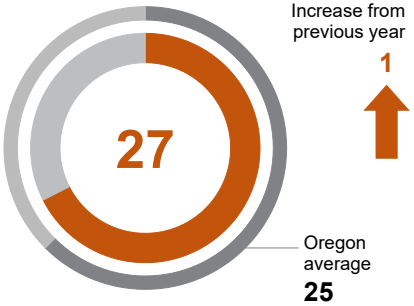
99% Required Vaccinations

66% Free/ Reduced Price Lunch

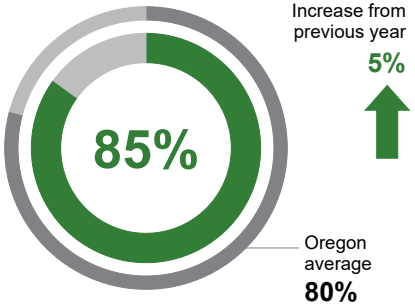
*Not enough students

School Environment

CLASS SIZE
Median class size.

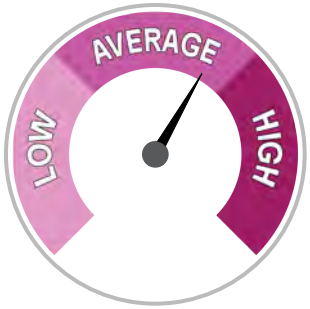


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



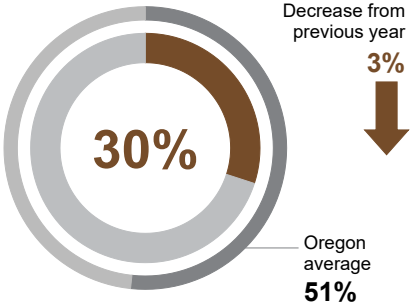
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

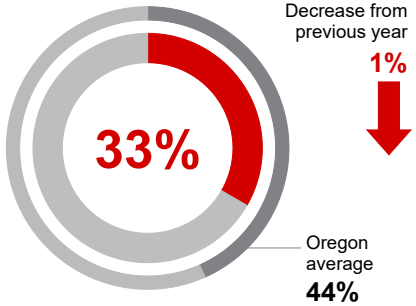


Academic Success

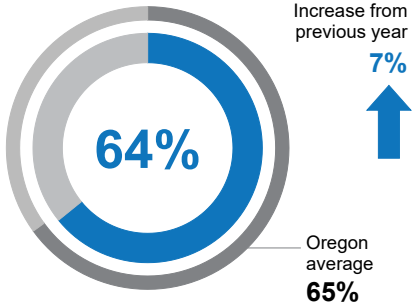
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals

Ash Creek Elementary Strategic Goals:
STUDENT GROWTH & ACHIEVEMENT: Every student is engaged, supported, challenged, & prepared, to achieve & be successful in school, career, college & community.
FAMILY INVOLVEMENT: Every student & their family feels welcome, supported, safe & valued.
COMMUNITY PARTNERSHIP: Partners engage in collaboration for student success in a safe, healthy, prosperous, & inclusive community.
STAFF LEADERSHIP & CONTINUOUS IMPROVEMENT: Staff engage in student-centered decision-making, problem-solving, professional development, focused on continuous improvement & growth.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Ash Creek Elementary works to create an environment where every student & their family feels welcomed, supported, safe & valued. To accomplish this Ash Creek staff use Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community. One key communication tool is through School Messenger which allows translation for easy access. Interpreters are provided at school events & parent conferences. Ash Creek recognizes & values individual students & their families as we create safe & inclusive environments.

School Website: www.central.k12.or.us

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Ash Creek Elementary School

2017-18

PRINCIPAL: Ashley Wildfang | GRADES: K-5 | 1360 N 16th St, Monmouth 97361 | 503-606-9016

Our Staff

25 Teachers

15 Educational assistants

0 Counselors

14% Average teacher turnover rate

Teacher Experience Coming in 2018-19

Yes New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	85%	16%	24%
Multiracial	92%	20%	47%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	85%	48%	42%
Free/Reduced Price Lunch	82%	22%	26%
Ever English Learner	93%	7%	11%
Students with Disabilities	80%	9%	9%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	83%	33%	33%
Male	87%	27%	33%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe, positive & inclusive learning environment, we adhere to policy JFCF & JFCF-AR. These documents outline the processes for addressing hazing, harassment, bullying, & cyberbullying. Staff are engage in trauma informed professional learning & practices to support safe learning environments. In partnership with Polk County, we also have a mental health associate staff member. As a member of Safe Oregon, students, parents, & community members have the ability to report school safety concerns. Staff engage in training & implementation of Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community.

EXTRACURRICULAR ACTIVITIES

Ash Creek offers before and after school academic & enrichment activities. Activities included, but not limited to:

· Academic Intervention

· Chess Club

· Social & Emotional Learning

· Sports & Games

· Science, Technology, Engineering, Art, Mathematics (STEAM)

PARENT ENGAGEMENT

As part of our Family Engagement strategic goal of every student & family feeling welcome, supported, safe & valued, below are the list of activities throughout the school year.

· Parent teacher conferences

· Parent club

· Soar into reading club - nightly read at home program with book give aways

· Spring Carnival

· Juggling Night

· Parent volunteers (in class and at home projects)

· Square One Art

COMMUNITY ENGAGEMENT

As part of our Community Partnership strategic goal of engaging in collaboration for student success in a safe, healthy, prosperous, & inclusive community, below is a list of our partners and activities.

· Jog a thon

· Western Oregon University volunteers (30 hours)

· Western Oregon University teacher candidates

· Volunteers support the SMART reading program

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OREGON AT-A-GLANCE SCHOOL PROFILE

Condon Elementary School

2017-18

PRINCIPAL: Michelle Geer | GRADES: K-8 | 220 S East St, Condon 97823 | 541-384-2581

Students We Serve

95
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	1%
Teachers	0%
Asian	
Students	0%
Teachers	0%
Black/African American	
Students	0%
Teachers	0%
Hispanic/Latino	
Students	7%
Teachers	0%
Multiracial	
Students	2%
Teachers	0%
Native Hawaiian/Pacific Islander	
Students	0%
Teachers	0%
White	
Students	89%
Teachers	100%

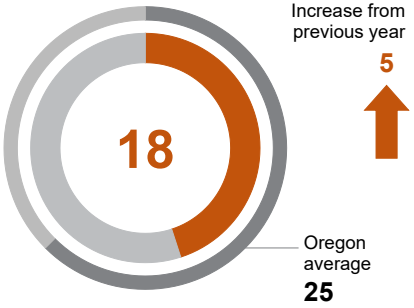
*		1
Ever English Learners		Languages Spoken
23%	**92%**	**43%**
Students with Disabilities	Required Vaccinations	Free/ Reduced Price Lunch

*Not enough students

School Environment

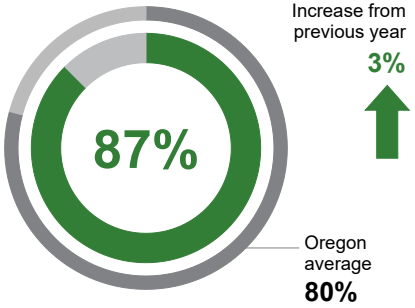
CLASS SIZE

Median class size.



REGULAR ATTENDERS

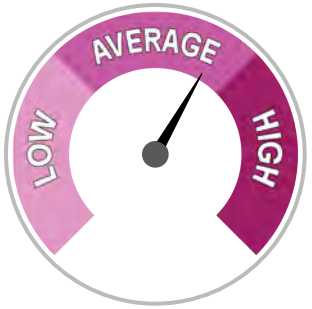
Students who attended more than 90% of their enrolled school days.



Academic Progress

INDIVIDUAL STUDENT PROGRESS

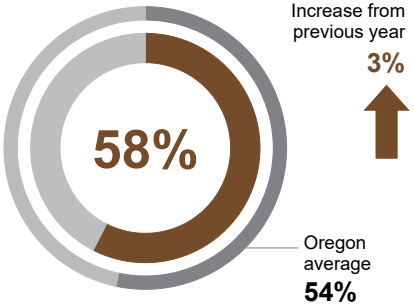
Year-to-year progress in English language arts and mathematics.



Academic Success

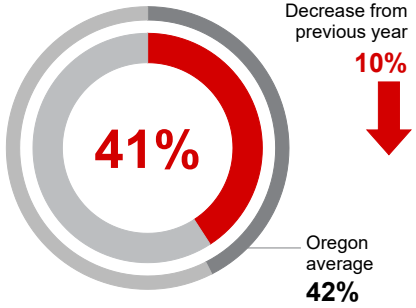
ENGLISH LANGUAGE ARTS

Students meeting state grade-level expectations.



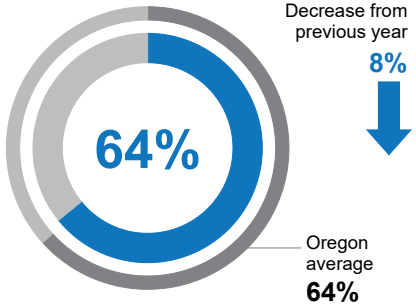
MATHEMATICS

Students meeting state grade-level expectations.



SCIENCE

Students meeting state grade-level expectations.



School Goals

As a District we strive to show growth in core content areas by continuing to implement and provide interventions that support the Common Core State Standards in Math and English. The District will implement the Next Generation Science Standards through STEMscopes curriculum for K-8, and new course offerings at the high school. To reach this goal we are committed to using student centered data for relevant instruct and providing an environment that promotes a safe, respectful, and responsible District.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Our school strives to ensure all students and parents feel safe and welcome in our buildings. We are implementing a Positive Behavioral Intervention & Support (PBIS) system where students, staff, and community model and practice safe, respectful, and responsible behaviors.

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Condon Elementary School

2017-18

PRINCIPAL: Michelle Geer | GRADES: K-8 | 220 S East St, Condon 97823 | 541-384-2581

Our Staff

6 Teachers

1 Educational assistants

0 Counselors

15% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	Not enough students	Not enough students	Not enough students
Multiracial	Not enough students	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	89%	58%	40%
Free/Reduced Price Lunch	85%	63%	56%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	86%	18%	9%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	81%	73%	40%
Male	94%	41%	41%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe and secure learning environment for all of our students, our school has worked with outside agencies to build a safety protocol for large scale safety issues. We have policies in place that address students safety issues at school and we work with our counselor, staff and parents to address conflict between students.
All staff have training every year that helps to recognize bullying/ harassment and provide strategies for interventions.

EXTRACURRICULAR ACTIVITIES

Volleyball
Football
Cross Country
Basketball
Track & Field
Music Lessons
After School Academic Supports

PARENT ENGAGEMENT

Our school engages parents by hosting a number of events intended for parents to attend:
Welcome back BBQ
Parent/Teacher Conferences
Literacy/ Math Nights
School Carnival
Classroom Parties
Monthly Assemblies
Music Concerts

COMMUNITY ENGAGEMENT

We send out weekly bulletins to share highlights about what is going on around the District and in the schools. We partner with local businesses to provide students with additional learning opportunities whenever possible.

OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!

OREGON AT-A-GLANCE SCHOOL PROFILE
Condon High School

PRINCIPAL: Michelle Geer | GRADES: 9-12 | 210 E Bayard St, Condon 97823 | 541-384-2441

2017-18

Students We Serve

35
Student Enrollment

DEMOGRAPHICS

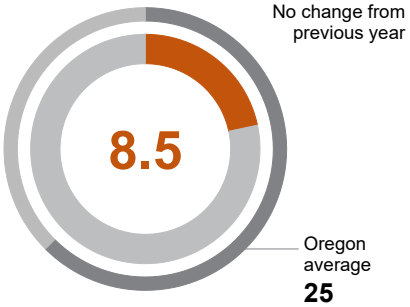
American Indian/Alaska Native		
	Students	0%
	Teachers	0%
Asian		
	Students	0%
	Teachers	0%
Black/African American		
	Students	0%
	Teachers	0%
Hispanic/Latino		
	Students	6%
	Teachers	0%
Multiracial		
	Students	0%
	Teachers	0%
Native Hawaiian/Pacific Islander		
	Students	0%
	Teachers	0%
White		
	Students	94%
	Teachers	100%

* Ever English Learners		1 Languages Spoken
* Students with Disabilities	97% Required Vaccinations	34% Free/ Reduced Price Lunch

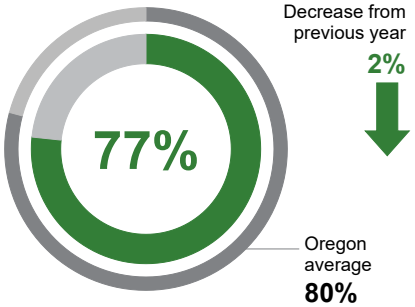
*Not enough students

School Environment

CLASS SIZE
Median size of classes in core subjects.

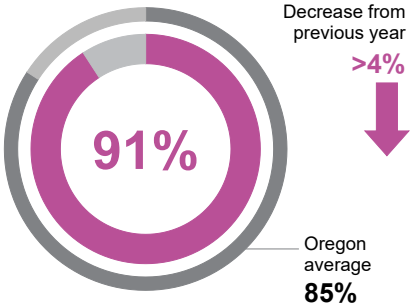


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



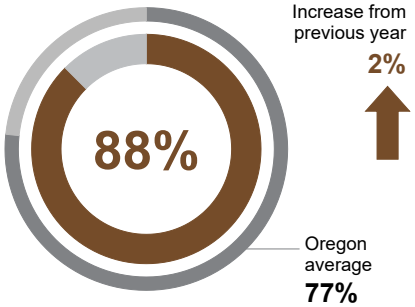
Academic Progress

ON-TRACK TO GRADUATE
Students earning one-quarter of graduation credits in their 9th grade year.

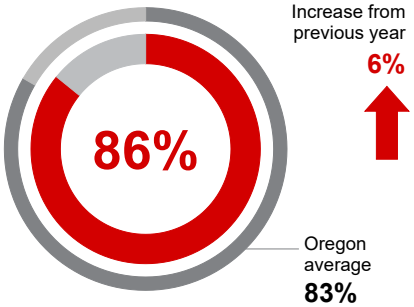


Academic Success

ON-TIME GRADUATION
Students earning a diploma within four years.



FIVE-YEAR COMPLETION
Students earning a high school diploma or GED within five years.



COLLEGE GOING
Students enrolling in a two or four year college within one year of completing high school.

School Goals

As a District we strive to show growth in core content areas by continuing to implement and provide interventions that support the Common Core State Standards in Math and English. The District will implement the Next Generation Science Standards through the STEMscopes curriculum for K-8, and new course offerings at the high school. To reach this goal we are committed to using student centered data for relevant instruct and providing an environment that promotes a safe, respectful, and responsible District.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Our school strives to ensure all students and parents feel safe and welcome in our buildings. We are implementing a Positive Behavioral Intervention & Support (PBIS) system where students, staff, and community model and practice safe, respectful, and responsible behaviors.

Meeting Minutes DPR #200 8-10-2020
DPR #200 Modification Request - 2019
35
49

School Website: www.condon.k12.or.us

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Condon High School

2017-18

PRINCIPAL: Michelle Geer | GRADES: 9-12 | 210 E Bayard St, Condon 97823 | 541-384-2441

Our Staff

4 Teachers

1 Educational assistants

0 Counselors

13% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	Not enough students	Not enough students	100%
Multiracial	Not enough students	Not enough students	100%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	75%	91%	83%
Free/Reduced Price Lunch	58%	Not enough students	82%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	Not enough students	Not enough students	100%
Migrant	Not enough students	Not enough students	100%
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	75%	Not enough students	100%
Male	78%	Not enough students	80%

About Our School

ADVANCED COURSEWORK

Our school offers dual-enrollment courses through Columbia Gorge Community College. Highlights include: MTH 95, MTH 111, WR 121, WR 122, Comm 111, and many more.

CAREER & TECHNICAL EDUCATION

Our students have the opportunity of taking Health Science's courses locally. They also have the option of taking CTE courses through Columbia Gorge Community College to earn dual credit.

EXTRACURRICULAR ACTIVITIES

Volleyball
Football
Cross Country
Basketball
Track & Field
Baseball
Tennis
Honor Society
Student Council

PARENT & COMMUNITY ENGAGEMENT

Our school engages our parents and community by hosting a variety of events intended for parents and community to attend:
Welcome Back BBQ
Homecoming
Parent/Teacher Conferences
Home Games
We also send out a weekly bulletin that highlights what's going on around the District and in each building.

School Website: www.condon.k12.or.us

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE
Falls City Elementary School

PRINCIPAL: Art Houghtaling | GRADES: K-8 | 177 Prospect Ave, Falls City 97344 | 503-787-3521

2017-18

Students We Serve

137
Student Enrollment

DEMOGRAPHICS

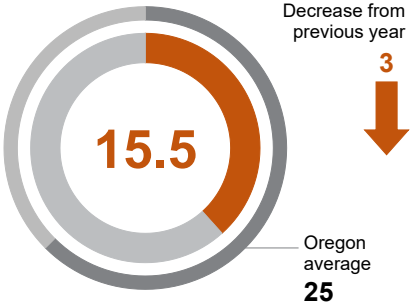
American Indian/Alaska Native	Students	1%
	Teachers	0%
Asian	Students	1%
	Teachers	0%
Black/African American	Students	0%
	Teachers	0%
Hispanic/Latino	Students	6%
	Teachers	10%
Multiracial	Students	7%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	0%
	Teachers	0%
White	Students	85%
	Teachers	90%

* Ever English Learners		1 Languages Spoken
20% Students with Disabilities	85% Required Vaccinations	>95% Free/ Reduced Price Lunch

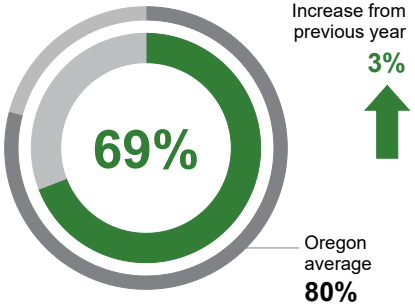
*Not enough students

School Environment

CLASS SIZE
Median class size.

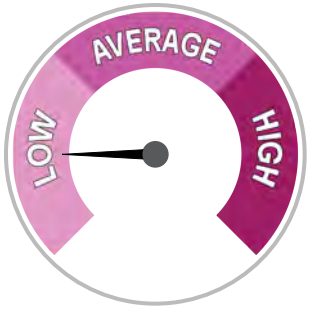


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



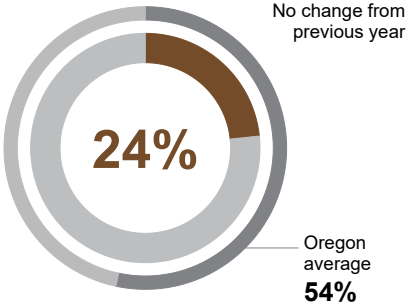
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

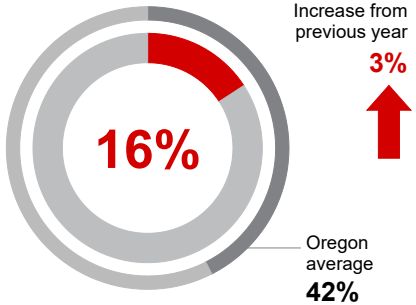


Academic Success

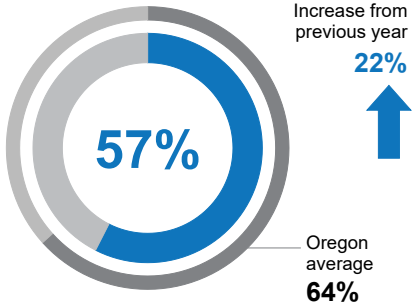
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals
*Information was not submitted for this section.

State Goals
The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment
*Information was not submitted for this section.

School Website: www.fallscityschools.org

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Falls City Elementary School

2017-18

PRINCIPAL: Art Houghtaling | GRADES: K-8 | 177 Prospect Ave, Falls City 97344 | 503-787-3521

Our Staff

10 Teachers

5 Educational assistants

0 Counselors

42% Average teacher turnover rate

Teacher Experience Coming in 2018-19

Yes New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	Not enough students	Not enough students	Not enough students
Multiracial	Not enough students	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	68%	22%	15%
Free/Reduced Price Lunch	69%	24%	16%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	78%	<5%	9%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	64%	27%	14%
Male	74%	19%	19%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES
*Information was not submitted for this section.

EXTRACURRICULAR ACTIVITIES
*Information was not submitted for this section.

PARENT ENGAGEMENT
*Information was not submitted for this section.

COMMUNITY ENGAGEMENT
*Information was not submitted for this section.

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OREGON AT-A-GLANCE SCHOOL PROFILE
Independence Elementary School

PRINCIPAL: Nicole Smith | GRADES: K-5 | 150 S 4th St, Independence 97351 | 503-838-1322

2017-18

Students We Serve

409
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	2%
	Teachers	0%
Asian	Students	1%
	Teachers	0%
Black/African American	Students	<1%
	Teachers	5%
Hispanic/Latino	Students	57%
	Teachers	5%
Multiracial	Students	3%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	<1%
	Teachers	0%
White	Students	36%
	Teachers	90%

38% Ever English Learners

4 Languages Spoken

11% Students with Disabilities

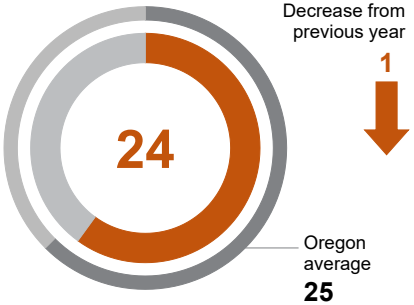
99% Required Vaccinations

80% Free/ Reduced Price Lunch

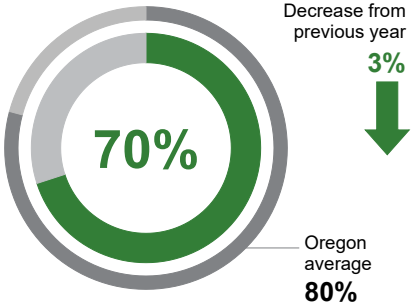
*Not enough students

School Environment

CLASS SIZE
Median class size.

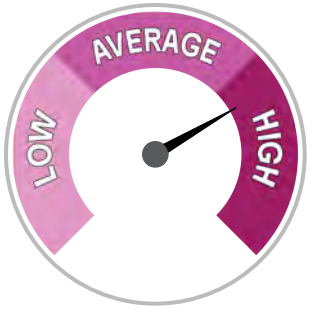


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



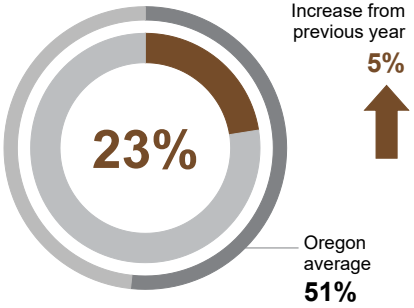
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

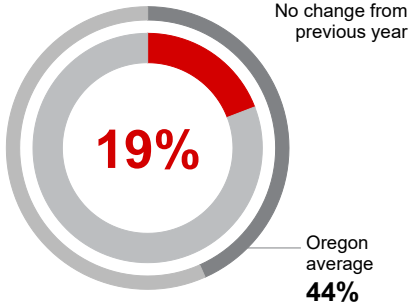


Academic Success

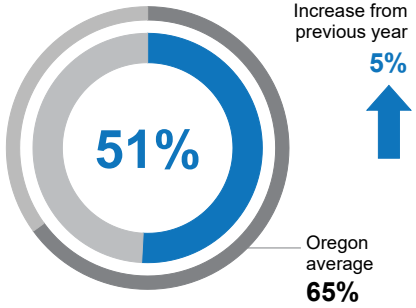
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals

Independence Elementary Strategic Goals:
STUDENT GROWTH & ACHIEVEMENT: Every student is engaged, supported, challenged, & prepared, to achieve & be successful in school, career, college & community.
FAMILY INVOLVEMENT: Every student & their family feels welcome, supported, safe & valued.
COMMUNITY PARTNERSHIP: Partners engage in collaboration for student success in a safe, healthy, prosperous, & inclusive community.
STAFF LEADERSHIP & CONTINUOUS IMPROVEMENT: Staff engage in student-centered decision-making, problem-solving, professional development, focused on continuous improvement & growth.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

IES works to create an environment where every student & their family feels welcomed, supported, safe & valued. To accomplish this IES staff use Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community. One key communication tool is through School Messenger which allows translation for easy access. Interpreters are provided at school events & parent conferences. IES recognizes & values individual students & their families as we create safe & inclusive environments.

Meeting Minutes DPR #200 8-10-2020
DPR #200 Modification Request - 2019
53
39
School Website: www.central.k12.or.us
For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Independence Elementary School

2017-18

PRINCIPAL: Nicole Smith | GRADES: K-5 | 150 S 4th St, Independence 97351 | 503-838-1322

Our Staff

20 Teachers

9 Educational assistants

0 Counselors

27% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	71%	15%	15%
Multiracial	50%	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	71%	33%	23%
Free/Reduced Price Lunch	66%	17%	17%
Ever English Learner	78%	8%	11%
Students with Disabilities	80%	21%	<5%
Migrant	71%	<5%	<5%
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	69%	25%	20%
Male	70%	20%	18%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe, positive & inclusive learning environment, we adhere to policy JFCF & JFCF-AR. These documents outline the processes for addressing hazing, harassment, bullying, & cyberbullying. Staff are engage in trauma informed professional learning & practices to support safe learning environments. In partnership with Polk County, we also have a mental health associate staff member. As a member of Safe Oregon, students, parents, & community members have the ability to report school safety concerns. Staff engage in training & implementation of Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community.

EXTRACURRICULAR ACTIVITIES

Independence Elementary offers before and after school academic & enrichment activities. Activities included, but not limited to:

· Academic Intervention

· Social & Emotional Learning

· Sports & Games

· Science, Technology, Engineering, Art, Mathematics (STEAM)

PARENT ENGAGEMENT

As part of our Family Engagement strategic goal of every student & family feeling welcome, supported, safe & valued, below are the list of activities throughout the school year.

· Parent-teacher conferences

· Bilingual language supports in the front office

· Family nights focused on curriculum, instruction, and engagement

· Parent club

· Parenting classes sponsored by Polk County

· Parent and family volunteers

COMMUNITY ENGAGEMENT

As part of our Community Partnership strategic goal of engaging in collaboration for student success in a safe, healthy, prosperous, & inclusive community, below is a list of our partners and activities.

· Parenting classes sponsored by Polk County

· Partnership with Fostering Hope and managing the Little Free Library

· Partnership with Independence library

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OREGON AT-A-GLANCE SCHOOL PROFILE
Monmouth Elementary School

PRINCIPAL: Kim Seidel | GRADES: K-5 | 958 E Church St, Monmouth 97361 | 503-838-1433

2017-18

Students We Serve

536
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	1%
	Teachers	0%
Asian	Students	2%
	Teachers	0%
Black/African American	Students	<1%
	Teachers	0%
Hispanic/Latino	Students	25%
	Teachers	4%
Multiracial	Students	5%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	<1%
	Teachers	0%
White	Students	66%
	Teachers	96%

14% Ever English Learners

8 Languages Spoken

14% Students with Disabilities

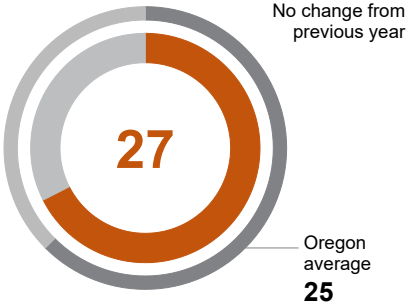
98% Required Vaccinations

50% Free/ Reduced Price Lunch

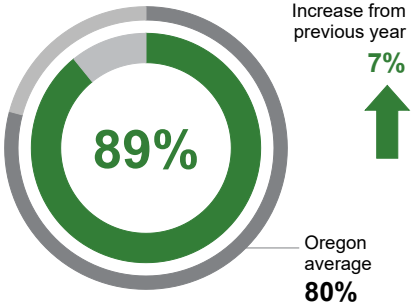
*Not enough students

School Environment

CLASS SIZE
Median class size.

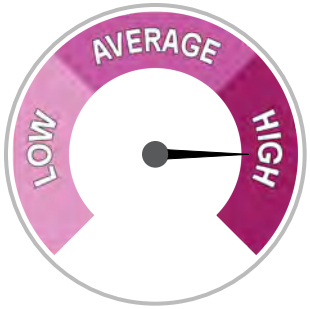


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



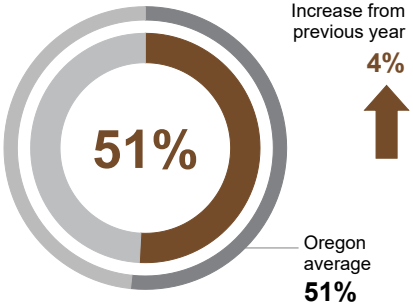
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

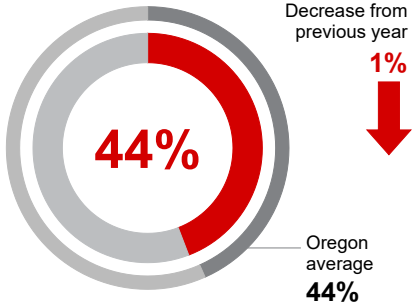


Academic Success

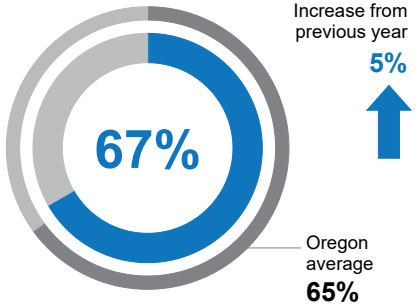
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals

Monmouth Elementary Strategic Goals:
STUDENT GROWTH & ACHIEVEMENT: Every student is engaged, supported, challenged, & prepared, to achieve & be successful in school, career, college & community.
FAMILY INVOLVEMENT: Every student & their family feels welcome, supported, safe & valued.
COMMUNITY PARTNERSHIP: Partners engage in collaboration for student success in a safe, healthy, prosperous, & inclusive community.
STAFF LEADERSHIP & CONTINUOUS IMPROVEMENT: Staff engage in student-centered decision-making, problem-solving, professional development, focused on continuous improvement & growth.

State Goals

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Safe & Welcoming Environment

Monmouth Elementary works to create an environment where every student & their family feels welcomed, supported, safe & valued. To accomplish this MES staff use Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community. One key communication tool is through School Messenger which allows translation for easy access. Interpreters are provided at school events & parent conferences. MES recognizes & values individual students & their families as we create safe & inclusive environments.

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Monmouth Elementary School

2017-18

PRINCIPAL: Kim Seidel | GRADES: K-5 | 958 E Church St, Monmouth 97361 | 503-838-1433

Our Staff

27 Teachers

23 Educational assistants

0 Counselors

12% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	84%	31%	23%
Multiracial	80%	69%	46%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	91%	57%	55%
Free/Reduced Price Lunch	84%	45%	36%
Ever English Learner	87%	23%	14%
Students with Disabilities	83%	23%	12%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	90%	53%	45%
Male	88%	48%	44%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe, positive & inclusive learning environment, we adhere to policy JFCF & JFCF-AR. These documents outline the processes for addressing hazing, harassment, bullying, & cyberbullying. Staff are engage in trauma informed professional learning & practices to support safe learning environments. In partnership with Polk County, we also have a mental health associate staff member. As a member of Safe Oregon, students, parents, & community members have the ability to report school safety concerns. Staff engage in training & implementation of Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community.

EXTRACURRICULAR ACTIVITIES

Monmouth Elementary offers before and after school academic & enrichment activities. Activities included, but not limited to:

· Academic Intervention

· Chess Club

· Social & Emotional Learning

· Sports & Games

· Science, Technology, Engineering, Art, Mathematics (STEAM)

PARENT ENGAGEMENT

As part of our Family Engagement strategic goal of every student & family feeling welcome, supported, safe & valued, below are the list of activities throughout the school year.

· Family Literacy Night (parents worked with literacy teachers and principal to help support their child learn to read or improve reading skills)
· Family Math Night (Teachers were required to attend one of the three family nights)
· Family STEM Night
· Fall Festival
· MES Carnival

COMMUNITY ENGAGEMENT

As part of our Community Partnership strategic goal of engaging in collaboration for student success in a safe, healthy, prosperous, & inclusive community, below is a list of our partners and activities.

· Jog-a-thon - MPD, High School Students, and local community members involved.

· Partnered with Dutch Bros and Fro Zone for Attendance celebration

· Partnered with Nathan Moore Farmers Insurance for supplies

· Monmouth Christian Church - supplies/back packs/ teacher supplies

OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!

OREGON AT-A-GLANCE SCHOOL PROFILE
Sherman County School

PRINCIPAL: Mike Somnis | GRADES: K-12 | 65912 High School Lp, Moro 97039 | 541-565-3500

2017-18

Students We Serve

249
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	2%
	Teachers	0%
Asian	Students	<1%
	Teachers	0%
Black/African American	Students	0%
	Teachers	0%
Hispanic/Latino	Students	13%
	Teachers	0%
Multiracial	Students	4%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	0%
	Teachers	0%
White	Students	81%
	Teachers	100%

<5% Ever English Learners

1 Languages Spoken

16% Students with Disabilities

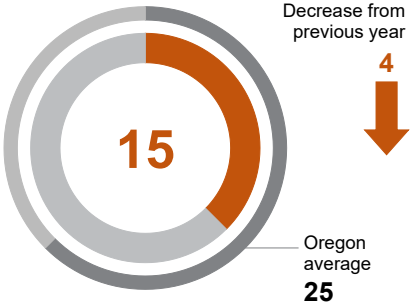
92% Required Vaccinations

48% Free/ Reduced Price Lunch

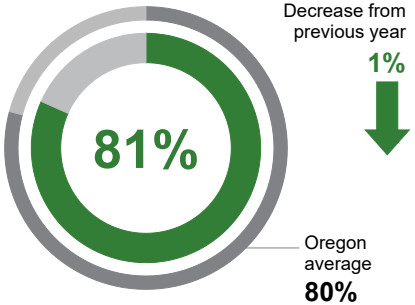
*Not enough students

School Environment

CLASS SIZE
Median size of classes in core subjects.

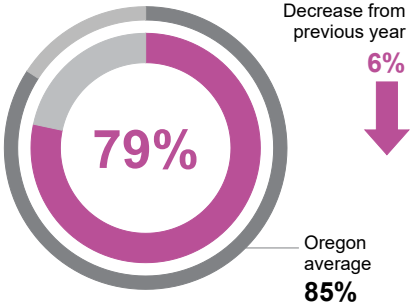


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



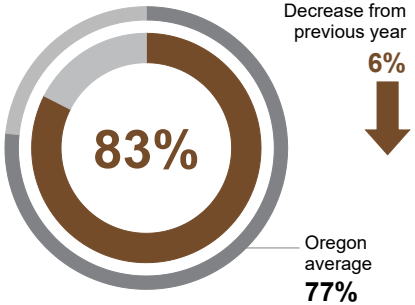
Academic Progress

ON-TRACK TO GRADUATE
Students earning one-quarter of graduation credits in their 9th grade year.

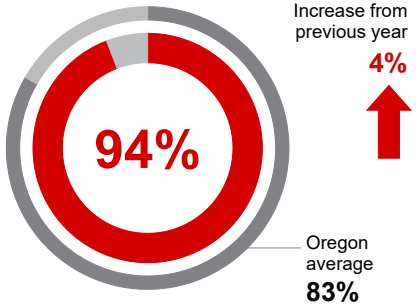


Academic Success

ON-TIME GRADUATION
Students earning a diploma within four years.



FIVE-YEAR COMPLETION
Students earning a high school diploma or GED within five years.



COLLEGE GOING
Students enrolling in a two or four year college within one year of completing high school.

School Goals

The Sherman County School District Board has established goals to: increase student achievement at all levels through a focus on reading, writing, math and science; provide support for expanded opportunities for students to graduate from high school prepared for post-secondary education and training; provide enhanced professional development for staff with implementation of Response to Intervention and Positive Behavioral Intervention & Supports; implement the Board-adopted safety initiative; and be more intentional with communication to increase parent and community involvement as partners in the education of their students.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

The safety and well-being of our students and staff is a top priority of the Sherman County School District. In conjunction with our multi-agency safety committee, we pursue a multi-phase approach to safety planning by creating meaningful, thoughtful, coordinated, and aligned systems and procedures consistent with best practices. The District has implemented numerous safety measures that are designed to support the academic, social, and emotional needs of our students while maintaining a safe and orderly learning environment.

School Website: sjsns.weebly.com/index.html

For more information please visit: www.oregon.gov/ode

OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!

OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Sherman County School

2017-18

PRINCIPAL: Mike Somnis | GRADES: K-12 | 65912 High School Lp, Moro 97039 | 541-565-3500

Our Staff

16 Teachers

6 Educational assistants

1 Counselors

40% Average teacher turnover rate

Teacher Experience Coming in 2018-19

Yes New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	Not enough students	Not enough students	0%
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	75%	Not enough students	100%
Multiracial	Not enough students	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	83%	82%	84%
Free/Reduced Price Lunch	80%	Not enough students	78%
Ever English Learner	80%	Not enough students	Not enough students
Students with Disabilities	77%	Not enough students	33%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	71%	Not enough students	100%
Female	81%	Not enough students	85%
Male	82%	Not enough students	80%

About Our School

ADVANCED COURSEWORK

We provide an early college program through Columbia Gorge Community College for students to earn dual credit. We also offer online courses for high school and college credit.

CAREER & TECHNICAL EDUCATION

· Agriculture Science and Technology with option for college credit from Blue Mountain Community College

EXTRACURRICULAR ACTIVITIES

Clubs

· Pep Band

· FFA

· National Honor Society

· Student Council
· Gaming Club
· SKORE
· The Pack

Interscholastic Sports

· Baseball

· Basketball

· Football

· Tennis

· Track & Field

· Volleyball

PARENT & COMMUNITY ENGAGEMENT

We value the support of our parents and community as a critical component of students' education. We look forward to working with you during the 2018-19 school year.

OREGON AREAS OF UNMET HEALTH CARE NEED REPORT

August 2018

The Oregon Office of Rural Health, in response to a mandate from the Oregon Legislature, developed the AUHCN report in 1998 to measure medical underservice in rural areas. The report is published annually and is used:

- *To qualify a practice site for loan repayment and forgiveness programs (OAR 409-036-0010 [25] [A]);*
- *To grant exceptions for medical staff eligibility for Oregon's rural practitioner income tax credit program;*
- *As part of a risk assessment formula for rural hospitals to receive cost-based Medicaid reimbursement (SB 607, passed in 1991; HB 3650, passed in 2011);*
- *As part of the determination of "medically underserved" geographic areas for the Oregon Governor's Health Care Shortage Area Designation.*

The report includes nine variables that measure access to primary physical, mental and oral health care. This report can be used by state partners to prioritize financial and technical assistance, and by community health care stakeholders to advocate for their unmet needs.

CONTENTS

WHAT IS CONSIDERED RURAL AND FRONTIER? **3**

SUMMARY RESULTS **4**

Overview **4**

Highlights **5**

Figure 1. Overall Scores By Service Area *6*

Figure 2. Ranked Service Area Scores (Highest Unmet Need to Lowest) *7*

METHODOLOGY **11**

Primary Care Service Areas **11**

The Variables Used in the AUHCN Calculation **12**

CATEGORY ONE: AVAILABILITY OF PROVIDERS **13**

1) TRAVEL TIME TO NEAREST PATIENT CENTERED PRIMARY CARE HOME (PCPCH) 13

Figure 3. Service Areas Above Average Travel Time to Nearest PCPCH *14*

2) PRIMARY CARE CAPACITY (PERCENT OF PRIMARY CARE VISITS ABLE TO BE MET) 15

Figure 4. Service Areas Below Oregon's Primary Care Capacity Ratio *17*

3) MENTAL HEALTH PROVIDERS PER 1,000 POPULATION 18

Figure 5. Service Areas Below Oregon's Mental Health Provider Per 1,000 Population Rate *19*

4) DENTISTS PER 1,000 POPULATION 20

Figure 6. Service Area's Below Oregon's Dentist Per 1,000 Population Rate *21*

CATEGORY TWO: ABILITY TO AFFORD CARE **22**

5) PERCENT OF POPULATION BETWEEN 138% AND 200% OF THE FEDERAL POVERTY LEVEL 22

Figure 7. Service Areas Above Oregon's 138% - 200% Federal Poverty Level Rate *23*

CATEGORY THREE: UTILIZATION **24**

6) AMBULATORY CARE SENSITIVE CONDITIONS/PREVENTABLE HOSPITALIZATIONS PER 1,000 POPULATION 24

Figure 8. Service Areas Above Oregon's ACSC Rate Per 1,000 Population *26*

7) INADEQUATE PRENATAL CARE RATE PER 1,000 BIRTHS 27

Figure 9. Service Areas Above Oregon's ACSC Inadequate Prenatal Care Rate Per 1,000 Births *28*

8) EMERGENCY DEPARTMENT NON-TRAUMATIC DENTAL VISITS PER 1,000 POPULATION 29

Figure 10. Service Areas Above Oregon's Non-Traumatic Emergency Department Dental Visit Rate Per 1,000 Population *31*

9) EMERGENCY DEPARTMENT MENTAL HEALTH/SUBSTANCE ABUSE VISITS PER 1,000 POPULATION 32

Figure 11. Service areas Above Oregon's Emergency Department Mental Health/Substance Abuse Visit Rate Per 1,000 Population *34*

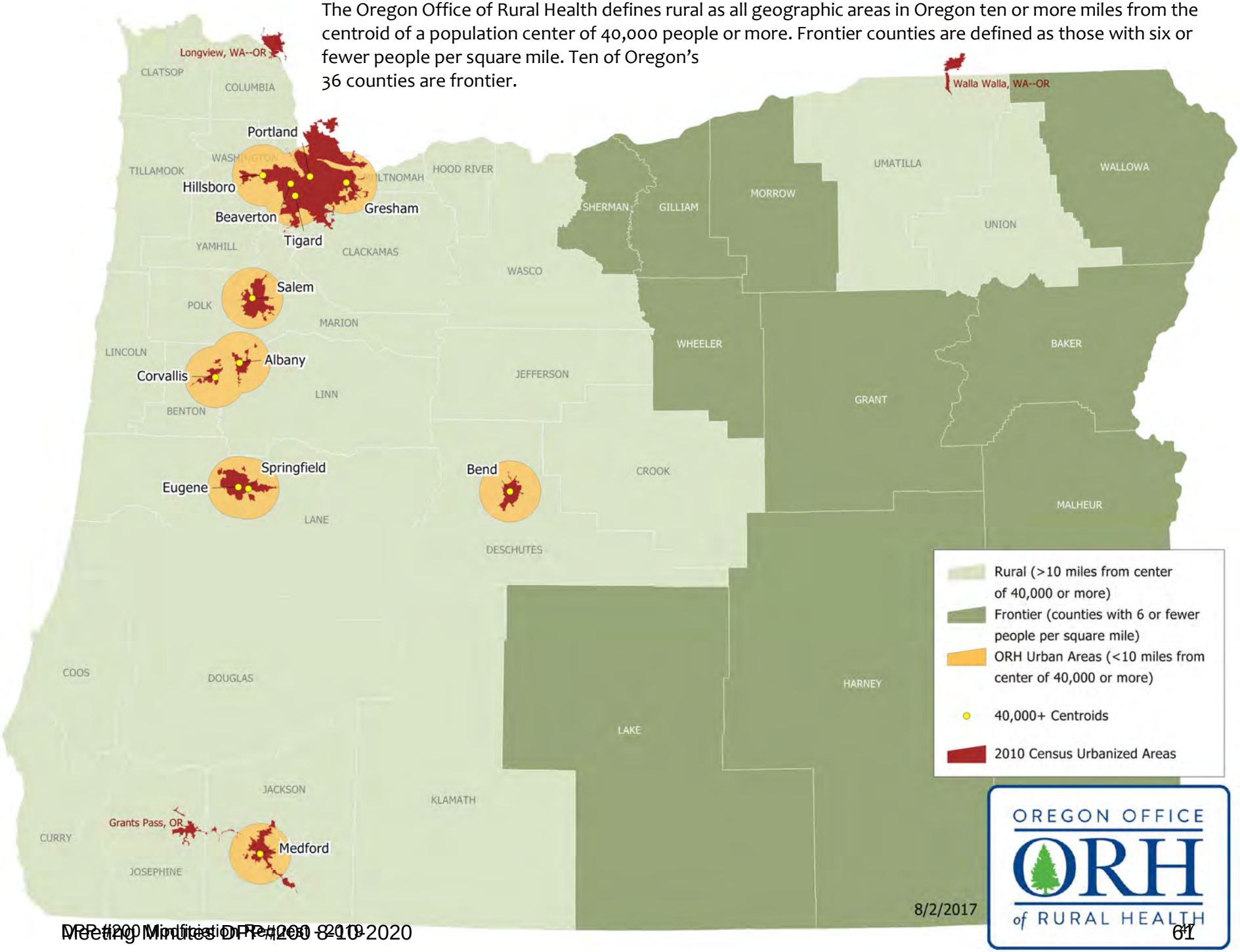
TOTAL SCORES **35**

We welcome your feedback. If you have any questions or suggestions on this report, please contact Emerson Ong at onge@ohsu.edu.

OREGON OFFICE ORH of RURAL HEALTH

WHAT IS CONSIDERED RURAL AND FRONTIER?

The Oregon Office of Rural Health defines rural as all geographic areas in Oregon ten or more miles from the centroid of a population center of 40,000 people or more. Frontier counties are defined as those with six or fewer people per square mile. Ten of Oregon's 36 counties are frontier.



SUMMARY RESULTS

Overview

Nine variables are used to calculate Unmet Need scores for each of Oregon's 130 primary care service areas. The lowest and worst score possible is 0. The highest and best score possible is 90. A low score means greater unmet need. For 2018, scores in Oregon ranged from 20 (worst) to 72 (best).

Rural and frontier service areas have greater unmet need than urban areas:

Mean (Average) Score by Geographic Area	
Oregon	46.2
Urban	58
Rural (without Frontier)	42.5
Rural (including Frontier)	43.3
Frontier	47.2

The mean (average) score for Oregon overall is 46.2. The number of service areas by geographic type with scores below the Oregon average include:

Urban:	2 out of 26 (8%)
Rural (without Frontier):	57 out of 86 (66%)
Rural (including Frontier):	65 out of 104 (63%)
Frontier:	8 out of 18 (44%)

The areas with the highest and lowest unmet need:

Greatest Unmet Need Areas		***Least Unmet Need Areas***	
Drain/Yoncalla	20	*Portland West*	72
Cascade Locks	23	*Lake Oswego*	71
Port Orford	26	*Tigard*	70
Glendale	27	*Hood River*	70
Detroit	27	*Portland Downtown*	68
Powers	28	*Portland Inner S.*	68
Blodgett-Eddyville	29	*Sisters*	67
East Klamath	30	*Corvallis/Philomath*	65
Swisshome/Triangle Lake	31	*Bend*	65
Shady Cove	31	*Fossil*	65
Siletz	31	*Eugene/University*	64

Highlights

Pages 13-14 The average travel time in Oregon to the nearest Patient Centered Primary Care Home (PCPCH) is 12.3 minutes. **Nineteen rural and frontier service areas do not have a PCPCH and the drive times for these areas can be as long as 78 minutes (Jordan Valley.)** There were 6 new PCPCHs in rural areas this year that had none last year.

Pages 15-17 The estimated ratio of primary care visits able to be met in Oregon is 0.93. Rural and frontier service areas have lower ratios, meaning there is greater demand than supply. **Nine rural primary care service areas have 0 FTE of primary care providers available.**

Pages 18-19 There are 1.8 mental health care providers per 1,000 people in Oregon. **Sixty-six rural and frontier service areas have less than 0.5 mental health providers and 30 of those have 0 mental health providers.**

Pages 20-21 Oregon has 0.45 dentist patient care FTE per 1,000 people. **Twenty rural and frontier primary care service areas have 0 dentist FTE.**

Pages 22-23 The percentage of the population that is above the Medicaid cut off of 138% Federal Poverty Level (FPL) but still below 200% of the FPL (and therefore unlikely able to afford health insurance unless provided by an employer) is 12% in Oregon. **Rural and frontier service areas have higher percentages (13.5% and 14.8% respectively.) North Lake, Condon and Bandon have percentages as high as 25-27%.**

Pages 24-26 Oregon has a preventable hospitalization rate of 8.6 per 1,000 people. **Rural and frontier service areas average 10.6 per 1000. Wallowa/Enterprise, Powers, and Reedsport, have the highest rates, ranging from 21.1 to 18.9.** For the first time ever, Warm Springs no longer has the worst ACSC rate, currently coming in 4th behind the areas above.

Pages 27-28 Oregon has an average inadequate prenatal care rate of 56.5 per 1,000 births. **The average rate in frontier service areas is 92.7. Alsea, Port Orford, and Warm Springs have rates almost triple the state average.**

Pages 29-31 Oregon has an average non-traumatic dental Emergency Department (ED) visit rate of 4.7 per 1,000 people per year. **The rate in rural Oregon is 6.0. Cottage Grove and Warm Springs have rates more than double the rural average (12.1 and 17.6 respectively).**

Pages 32-34 Oregon has an average mental health/substance abuse ED visit rate of 16.3 per 1,000 people per year. **This is the only variable where rural and frontier (14.9), on average, do better than urban areas (17.0). However Coos Bay, Seaside and Warm Springs have very high rates (26.6 to 47).**

Pages 35 Oregon has an average Unmet Need Score of 46.2 out of 90. **All but 2 of the service areas that fall under this mean are either rural or frontier.** The frontier area of Fossil, with a score of 65, tied for 8th best score on the list.

Figure 1.
Overall Scores By Service Area

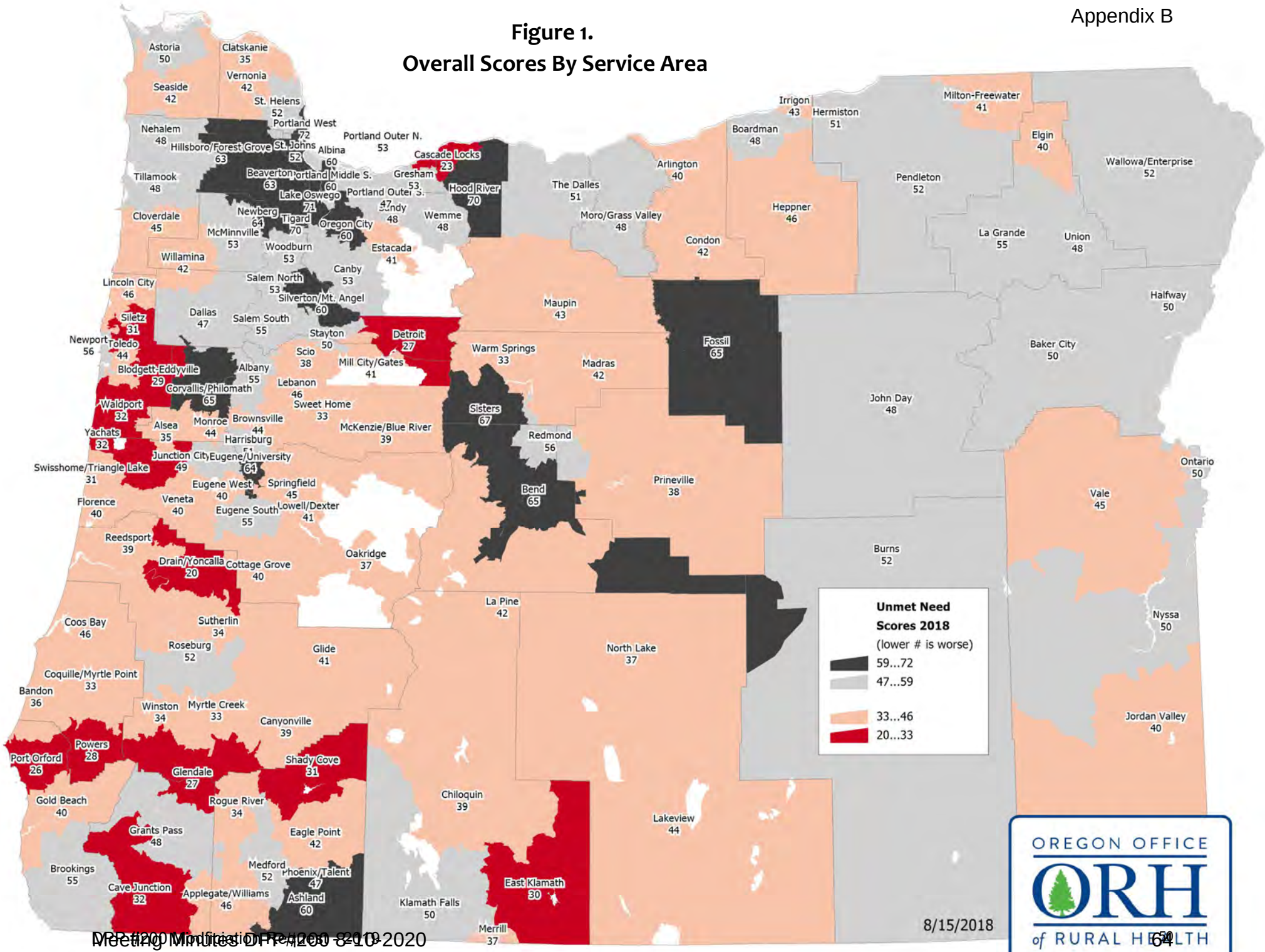


Figure 2. Ranked Service Area Scores (Highest Unmet Need to Lowest)

The worst score in each column is darkest red and the best score is darkest green with graduated shading for the numbers in between the best and worst.

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
Drain/Yoncalla	Rural	20	22	0.09	0.00	0.00	22%	13.4	95.0	9.5	12.6
Cascade Locks	Rural	23	23	0.00	0.00	0.00	19%	13.2	102.6	5.9	10.5
Port Orford	Rural	26	33	0.43	0.00	0.00	7%	17.4	155.6	7.2	16.6
Detroit	Rural	27	25	0.00	0.00	0.00	19%	14.1	0.0	6.4	21.2
Glendale	Rural	27	24	0.00	0.00	0.00	16%	11.4	80.2	5.3	12.1
Powers	Rural	28	10	0.00	0.00	0.00	15%	20.2	85.1	4.1	15.0
Blodgett-Eddyville	Rural	29	13	0.00	0.00	0.00	20%	2.7	64.5	6.0	16.7
East Klamath	Rural	30	37	0.22	0.00	0.00	13%	14.1	34.7	6.6	14.1
Shady Cove	Rural	31	10	0.15	0.00	0.14	14%	16.1	105.1	6.0	15.7
Siletz	Rural	31	14	0.45	0.17	0.65	20%	10.6	90.9	9.5	18.3
Swisshome/Triangle Lake	Rural	31	28	0.07	0.23	0.00	15%	10.4	44.4	4.1	14.1
Cave Junction	Rural	32	10	0.32	0.35	0.10	15%	17.1	107.4	5.3	17.6
Waldport	Rural	32	10	0.27	0.42	0.10	17%	13.0	96.6	6.9	17.0
Yachats	Rural	32	13	0.00	0.18	0.14	9%	9.9	140.0	7.1	15.7
Coquille/Myrtle Point	Rural	33	10	0.24	0.01	0.20	17%	16.8	61.4	7.1	17.8
Myrtle Creek	Rural	33	10	0.11	0.01	0.09	15%	13.3	55.0	9.6	13.9
Sweet Home	Rural	33	10	0.14	0.07	0.14	17%	13.5	55.4	6.7	14.6
Warm Springs	Rural	33	10	1.33	0.51	0.44	16%	18.4	154.5	17.6	47.0
Rogue River	Rural	34	10	0.17	0.10	0.20	14%	12.6	82.0	5.9	15.3
Sutherlin	Rural	34	10	0.08	0.00	0.16	14%	13.3	40.1	7.4	14.6
Winston	Rural	34	10	0.23	0.50	0.10	17%	14.3	41.1	10.5	14.5
Alsea	Rural	35	10	0.00	0.00	0.00	12%	8.1	191.5	3.8	12.2
Clatskanie	Rural	35	10	0.05	0.08	0.28	15%	15.8	84.4	5.4	12.1
Bandon	Rural	36	10	0.74	0.33	0.23	25%	14.6	73.1	6.8	17.7
North Lake	Frontier	37	10	0.66	0.00	0.00	27%	11.5	94.3	1.8	8.8
Merrill	Rural	37	28	0.29	0.00	0.00	17%	7.9	54.5	2.3	7.8
Oakridge	Rural	37	10	0.37	0.43	0.00	10%	15.2	72.4	6.3	14.5
Prineville	Rural	38	10	0.45	0.32	0.27	17%	13.2	46.3	10.6	20.1
Scio	Rural	38	12	0.00	0.18	0.04	16%	7.3	42.0	4.1	8.2
Canyonville	Rural	39	10	0.77	0.04	0.27	23%	13.9	63.4	8.0	13.1
Chiloquin	Rural	39	32	0.70	0.00	0.40	19%	10.0	114.3	3.7	12.1

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
McKenzie/Blue River	Rural	39	10	0.21	0.53	0.00	11%	15.5	69.4	4.8	11.8
Reedsport	Rural	39	10	0.83	0.26	0.35	17%	18.9	89.7	6.8	20.2
Arlington	Frontier	40	26	1.40	0.00	0.00	12%	16.6	44.4	4.2	7.2
Jordan Valley	Frontier	40	78	0.00	0.00	0.00	22%	0.0	0.0	0.0	4.4
Cottage Grove	Rural	40	10	0.54	0.77	0.26	15%	14.2	55.7	12.1	19.6
Elgin	Rural	40	10	0.42	0.00	0.21	13%	14.6	69.8	9.7	7.6
Florence	Rural	40	10	0.81	0.40	0.20	16%	11.7	92.3	5.8	15.0
Gold Beach	Rural	40	10	1.62	1.20	0.20	18%	16.1	106.1	8.7	23.1
Veneta	Rural	40	10	0.34	0.23	0.14	15%	10.7	66.5	3.9	12.3
Eugene West	Urban	40	10	0.61	0.43	0.20	14%	10.7	63.6	6.5	24.0
Estacada	Rural	41	10	0.28	0.00	0.14	12%	8.1	77.7	5.1	11.5
Glide	Rural	41	10	0.11	0.00	0.19	8%	9.7	69.6	8.8	11.7
Lowell/Dexter	Rural	41	24	0.15	0.88	0.18	11%	10.5	41.3	6.1	12.2
Mill City/Gates	Rural	41	10	0.71	0.04	0.16	14%	11.4	52.9	6.1	16.1
Milton-Freewater	Rural	41	17	0.13	0.13	0.29	19%	10.0	74.2	0.3	0.7
Condon	Frontier	42	22	1.41	0.00	0.31	25%	13.7	66.7	1.7	4.5
Eagle Point	Rural	42	10	0.40	0.35	0.09	15%	10.9	48.4	4.1	11.8
La Pine	Rural	42	10	0.49	0.37	0.19	15%	12.0	66.1	4.3	11.4
Madras	Rural	42	10	0.83	0.66	0.21	17%	9.7	84.1	10.8	17.2
Seaside	Rural	42	10	0.82	0.55	0.29	15%	14.2	73.2	8.8	26.6
Vernonia	Rural	42	10	0.40	0.00	0.19	11%	8.3	74.5	7.6	12.4
Willamina	Rural	42	10	0.67	0.37	0.29	13%	10.7	72.0	8.1	15.1
Irrigon	Frontier	43	10	0.44	0.00	0.00	11%	9.2	108.7	4.6	8.3
Maupin	Rural	43	10	0.50	0.05	0.26	17%	9.0	67.8	4.1	10.6
Lakeview	Frontier	44	10	1.45	0.47	0.55	17%	16.1	71.7	7.0	14.4
Brownsville	Rural	44	10	0.24	0.07	0.21	17%	7.6	61.3	3.4	8.7
Monroe	Rural	44	10	0.27	0.37	0.00	13%	7.5	55.1	4.1	12.5
Toledo	Rural	44	10	0.56	0.19	0.13	8%	9.5	51.3	11.8	16.0
Vale	Frontier	45	10	0.57	0.00	0.11	15%	6.5	95.7	2.8	6.5
Cloverdale	Rural	45	10	0.60	0.00	0.18	19%	11.0	23.4	4.4	11.3
Springfield	Urban	45	10	1.26	0.77	0.32	14%	12.7	66.6	10.1	20.5
Heppner	Frontier	46	10	0.97	0.63	0.00	18%	13.4	62.5	3.3	7.8
Applegate/Williams	Rural	46	13	0.07	0.16	0.32	8%	8.9	70.2	3.9	10.1
Coos Bay	Rural	46	10	0.93	1.31	0.42	12%	18.4	68.5	9.6	26.7
Lebanon	Rural	46	10	1.00	0.34	0.29	13%	12.9	41.8	5.9	15.8
Lincoln City	Rural	46	10	0.87	0.73	0.27	14%	12.0	63.4	10.0	20.8
Oregon		46.2	12.3	0.93	1.68	0.45	12%	8.6	56.5	4.7	16.3

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
Dallas	Rural	47	10	0.48	0.55	0.16	13%	7.7	51.4	6.2	13.5
Phoenix/Talent	Urban	47	10	0.44	0.69	0.15	8%	10.3	55.3	5.7	15.9
Portland Outer S.	Urban	47	10	0.79	0.89	0.39	16%	9.4	99.2	7.1	24.4
Boardman	Frontier	48	10	0.65	0.09	0.29	18%	5.4	106.3	2.3	9.4
John Day	Frontier	48	10	1.05	0.36	0.53	14%	12.9	104.2	3.5	12.2
Moro/Grass Valley	Frontier	48	10	0.66	0.00	0.00	17%	7.6	0.0	3.6	9.1
Grants Pass	Rural	48	10	1.05	0.96	0.47	15%	13.3	71.2	5.3	19.7
Nehalem	Rural	48	10	0.38	1.15	0.17	17%	11.4	46.9	2.1	12.4
Sandy	Rural	48	10	0.25	0.26	0.18	12%	7.9	40.2	3.1	11.4
Tillamook	Rural	48	10	0.89	1.08	0.38	16%	13.0	51.9	7.8	23.4
Union	Rural	48	10	0.25	0.18	0.24	12%	10.5	44.0	4.8	7.1
Wemme	Rural	48	10	0.26	0.00	0.13	12%	6.5	60.1	3.2	10.8
Junction City	Rural	49	10	0.16	0.96	0.22	11%	9.9	69.2	4.2	11.5
Baker City	Frontier	50	10	0.59	0.95	0.39	15%	10.0	63.2	10.4	11.5
Halfway	Frontier	50	10	0.37	0.00	0.37	14%	10.2	80.5	1.4	4.9
Nyssa	Frontier	50	10	0.45	0.00	0.37	13%	5.9	131.1	2.4	11.0
Ontario	Frontier	50	10	1.82	0.70	0.69	13%	8.6	125.6	6.6	17.7
Astoria	Rural	50	10	1.08	1.65	0.42	13%	12.8	55.2	6.5	21.2
Klamath Falls	Rural	50	10	1.07	0.86	0.45	14%	10.6	63.2	7.0	18.9
Stayton	Rural	50	10	0.72	0.07	0.35	11%	11.1	46.5	7.0	13.9
Harrisburg	Rural	51	10	0.18	0.37	0.04	7%	6.1	40.6	3.2	11.0
Hermiston	Rural	51	10	0.96	0.38	0.34	15%	7.8	77.2	4.4	11.5
The Dalles	Rural	51	10	1.16	1.53	0.46	13%	12.4	49.0	9.6	15.4
Burns	Frontier	52	10	1.17	1.23	0.24	18%	10.1	54.2	4.5	12.8
Wallowa/Enterprise	Frontier	52	10	1.28	0.99	0.25	12%	21.1	39.9	4.0	10.0
Pendleton	Rural	52	10	1.01	1.24	0.45	14%	9.6	83.7	6.8	14.3
Roseburg	Rural	52	10	1.32	1.62	0.54	16%	11.9	38.7	9.6	21.1
St. Helens	Rural	52	10	0.45	0.63	0.28	11%	10.5	62.4	2.1	12.1
Medford	Urban	52	10	1.33	1.67	0.59	15%	12.3	60.2	6.4	22.1
Milwaukie	Urban	52	10	0.40	1.56	0.41	12%	8.9	49.7	6.0	18.4
St. Johns	Urban	52	10	0.41	1.07	0.20	10%	8.5	54.7	4.1	15.4
Canby	Rural	53	10	0.39	0.13	0.30	12%	7.4	49.5	2.9	10.5
McMinnville	Rural	53	10	0.66	1.02	0.34	12%	9.6	39.3	7.6	17.3
Woodburn	Rural	53	10	0.57	0.51	0.20	16%	6.7	55.8	2.3	8.4
Gresham	Urban	53	10	0.70	0.84	0.41	12%	8.3	65.8	4.9	17.4
Portland Outer N.	Urban	53	10	0.98	1.09	0.66	13%	10.1	81.3	5.1	18.3
Salem North	Urban	53	10	0.52	0.74	0.36	14%	7.7	53.3	3.9	12.3
Brookings	Rural	55	10	0.79	0.53	0.47	18%	6.7	72.7	1.3	10.4

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
La Grande	Rural	55	10	1.17	1.39	0.36	11%	10.6	53.9	9.3	10.2
Albany	Urban	55	10	0.66	1.15	0.38	13%	6.3	38.4	6.9	14.9
Eugene South	Urban	55	10	0.29	1.23	0.46	11%	7.3	67.4	3.1	11.6
Salem South	Urban	55	10	1.24	2.30	0.66	14%	8.5	60.6	5.2	19.3
Newport	Rural	56	10	1.07	2.56	0.57	9%	9.0	60.7	9.4	21.3
Redmond	Rural	56	10	0.57	0.51	0.40	12%	7.9	38.1	4.8	14.4
Ashland	Rural	60	10	1.15	3.31	0.40	10%	5.1	68.4	4.0	13.9
Silverton/Mt. Angel	Rural	60	10	1.14	0.65	0.20	11%	7.1	38.0	2.9	8.9
Albina	Urban	60	10	1.59	3.66	0.19	8%	8.3	39.9	3.6	18.8
Oregon City	Urban	60	10	1.89	2.13	0.63	9%	6.8	65.0	4.2	14.8
Portland Middle S.	Urban	60	10	1.23	2.95	0.49	10%	7.3	41.4	3.1	18.0
Beaverton	Urban	63	10	0.48	0.92	0.56	11%	5.6	45.0	2.1	11.3
Hillsboro/Forest Grove	Urban	63	10	1.04	1.22	0.43	11%	5.5	47.5	3.9	12.7
Newberg	Rural	64	10	0.93	1.60	0.39	11%	7.4	29.2	4.0	11.2
Eugene/University	Urban	64	10	1.93	6.57	0.96	9%	8.4	68.2	4.0	22.5
Fossil	Frontier	65	10	0.92	0.71	0.54	10%	10.4	56.6	0.7	5.9
Bend	Urban	65	10	1.14	2.38	0.51	11%	6.0	30.9	2.8	13.2
Corvallis/Philomath	Urban	65	10	1.21	2.27	0.40	10%	4.0	51.0	2.1	14.4
Sisters	Rural	67	10	0.53	0.82	0.46	9%	6.0	9.9	1.1	8.4
Portland Downtown	Urban	68	10	3.75	13.86	1.32	8%	10.0	46.3	3.4	55.6
Portland Inner S.	Urban	68	10	1.06	6.37	0.73	9%	4.9	41.7	1.7	15.9
Hood River	Rural	70	10	1.54	1.93	0.80	9%	5.9	29.4	2.7	9.0
Tigard	Urban	70	10	1.01	1.45	0.65	8%	5.8	38.2	1.8	11.0
Lake Oswego	Urban	71	10	0.69	1.74	0.64	7%	5.5	35.3	1.4	9.1
Portland West	Urban	72	10	1.08	2.19	0.52	6%	4.3	32.4	1.0	9.7

METHODOLOGY

Primary Care Service Areas

County geographies in most of the United States are relatively small and homogenous, so county-level data is widely used to analyze information. Oregon's 36 counties, however, vary greatly in size, geography, and population. As a result, sub-county geographies needed to be developed to more accurately represent community use of health care services.

Among the established small geographic boundaries, only postal ZIP Code areas follow transportation and market patterns. ZIP Codes are also linked to a large amount of demographic, socioeconomic and health status information. In 1985, the Oregon Office of Rural Health, with the help of other state and local agencies, chose ZIP Codes to be the building blocks of sub-county service areas and grouped all of Oregon's 470+ ZIP Codes into Oregon "Primary Care Service Areas" using the following criteria:[1]

1) Health resources are generally located within 30 to 40 minutes travel time.
2) Defined areas are not smaller than a single ZIP Code and ZIP Codes used are geographically contiguous and/or follow main roads.
3) Defined areas contain a population of at least 800 to 1,000 or more people.
4) Defined areas constitute a "rational" medical trade or market area considering topography, social and political boundaries, and travel patterns.
5) Additional considerations for service areas are boundaries that:
   a) Are congruent with existing special taxing districts (e.g., health or hospital districts); and
   b) Include a population which has a local perception that it constitutes a "community of need" for primary health care services, or demonstrates demographic or socioeconomic homogeneity. The population should be large enough (800-1000 or more) to be financially capable of supporting at least a single midlevel health care provider.

The criteria remain the same, but the areas are updated when necessary according to changes in population and health utilization. The last change was made to Lakeview in 2013.

There are 130 Oregon Primary Care Service Areas:
Urban: 26 | Rural + Frontier[2]: 104 | Rural Only: 86 | Frontier Only: 18

Six-page demographic, socioeconomic, and health status profiles for each of the rural and frontier service areas are updated continuously and available for free. A sample profile, and more information, are available here.

[1] Van Eck, Ethan; Bennett, Marge et. al. *Strategic Plan for Primary Health Care in Rural Oregon*, 1985-1990. September 30, 1985. (Available through the Office of Rural Health)
[2] Using the Oregon Office of Rural Health's definition —Rural is a geographic area 10 or more miles from the centroid of a city of 40,000 or more. Frontier areas are those in counties with 6 or fewer people per square mile.

The Variables Used in the AUHCN Calculation

The Oregon Office of Rural Health researched academic publications and collected studies from other State Offices of Rural Health to determine the measures that would be used for the new report. This data was brought to a stakeholder group with knowledge of health utilization, hospital data, primary care, dental, and mental health services (list of individuals and members below).

Data Limitations:

- Data points must be available at the ZIP Code geographic level.
- Data must be updated annually, at minimum.
- Data must be available to the Oregon Office of Rural Health.

The following 9 variables were identified as the best currently available to measure access to primary care, dental and mental health services. More detail on the sources and methodology for each variable is included in the following pages.

Category One: Availability of Providers—*Are needed providers available locally?*

1) Travel Time to Nearest Patient Centered Primary Care Home (PCPCH)
2) Primary Care Capacity (Percent of Primary Care Visits Able to Be Met)
3) Mental Health Providers per 1,000 Population
4) Dentists per 1,000 Population

Category Two: Ability to Afford Care—*Is it affordable to see these providers?*

5) Percent of Population Between 138% and 200% of Federal Poverty Level (FPL)

Category Three: Utilization—*Are primary physical, mental and oral health care being used?*

6) Ambulatory Care Sensitive Conditions (ACSC)/ Preventable Hospitalizations per 1,000 Population
7) Inadequate Prenatal Care Rate per 1,000 Births
8) Emergency Department Non-Traumatic Dental Visits per 1,000 Population
9) Emergency Department Mental Health/Substance Abuse Visits per 1,000 Population

The Oregon Office of Rural Health would like to thank the stakeholder group for their participation:

Greater Oregon Behavioral Health, Inc.
Paul McGinnis, CCO Integration Director

Oregon Association of Hospitals & Health Systems
Katie Harris, Director of Program Management
Andy Van Pelt, Executive Vice President

Oregon Health Authority
Jackie Fabrick, Behavioral Health Policy Analyst
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Amanda Peden, Health Policy Analyst
Jeffery Scroggin, Policy Analyst

Oregon Health & Science University
Eli Schwarz, Chair of Department of Community Dentistry

CATEGORY ONE: AVAILABILITY OF PROVIDERS

1) TRAVEL TIME TO NEAREST PATIENT CENTERED PRIMARY CARE HOME (PCPCH)

Description:
PCPCHs are health care clinics that have been officially recognized by the Oregon Health Authority (OHA) for providing high quality, patient-centered care. All PCPCHs have to pass a minimum set of 11 criteria. For this report, three criteria were considered good indicators of community access to primary care and in preventing misuse of the emergency room. These include: screening and referral for mental health and substance abuse, 24/7 access to live clinical advice by telephone, and ongoing management of chronic diseases.

Data Source:
Patient-Centered Primary Care Home Program, Oregon Health Authority (May 2018)

Methodology:
Google Maps is used to determine driving times from the largest town in the Primary Care Service Area to the town where the nearest PCPCH is located. Locations that already have a PCPCH in the largest town are defaulted to a drive time of 10 minutes.

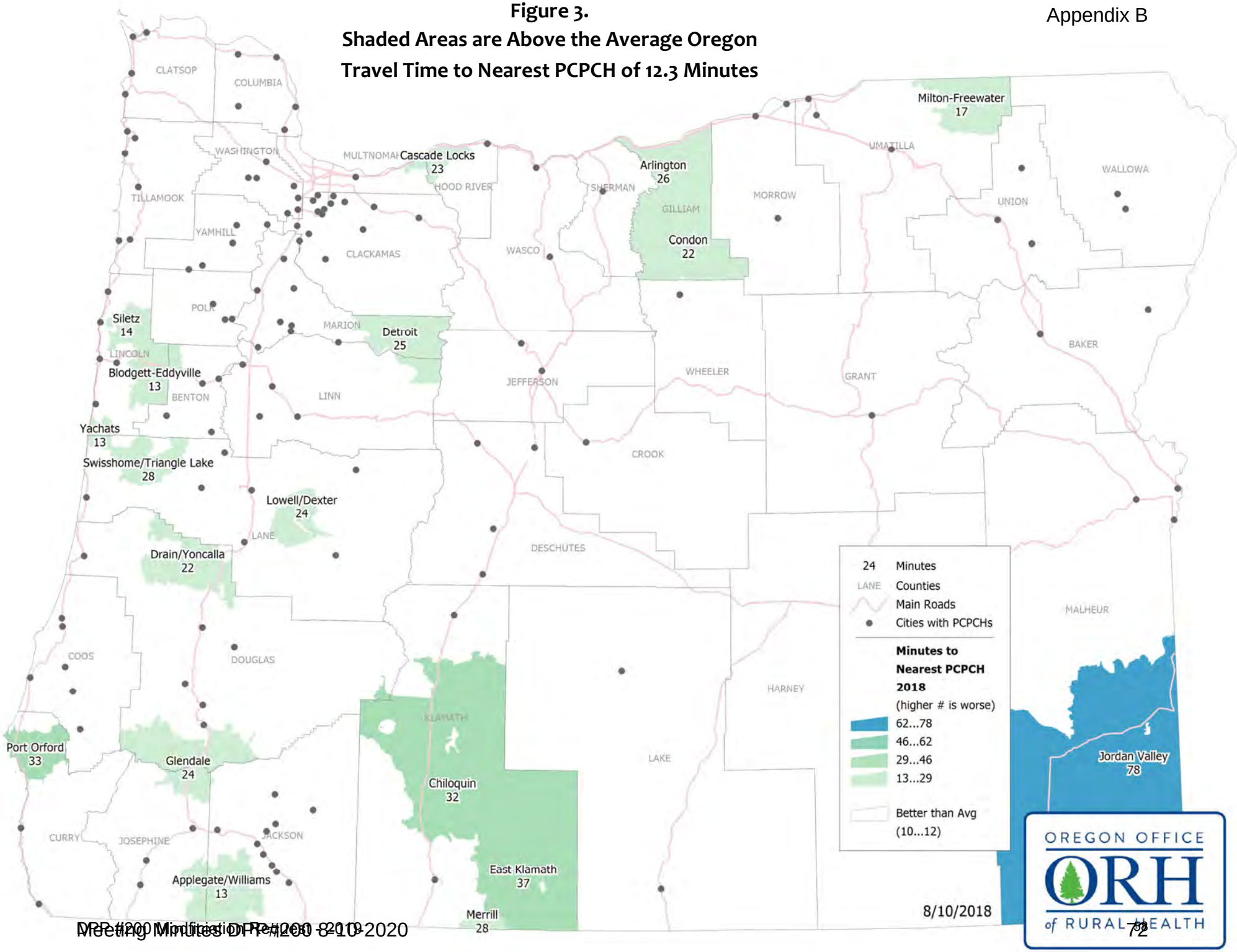
V_1 = Drive time in minutes

Results:
Average drive time to the nearest PCPCH for all 130 Primary Care Service Areas in Oregon is 12.3 minutes. There were 6 new PCPCHs in rural areas this year, shortening the average drive time from 13.6 minutes last year. Nineteen service areas do not have a PCPCH, and the drive times for these areas range from 12 (Scio) to 78 minutes (Jordan Valley).

Overall Results	***In Minutes***
Oregon	12.3
Urban	10
Rural (without Frontier)	12.3
Rural (including Frontier)	12.8
Frontier	15.3

5 Longest Travel Times to PCPCH	
Jordan Valley	78
East Klamath	37
Port Orford	33
Chiloquin	32
Swisshome/Triangle Lake	28

Figure 3.
Shaded Areas are Above the Average Oregon Travel Time to Nearest PCPCH of 12.3 Minutes



2) Primary Care Capacity (Percent of Primary Care Visits Able to Be Met)

Description:
This measure compares the estimated visits the primary care providers in the service area should be able to supply, with the estimated primary care visits needed by the local population. Primary care providers include general and family physicians, pediatricians, obstetrician-gynecologists, internists, primary care physician assistants, and primary care nurse practitioners.

Data Sources:
Estimated Primary Care Visits Provided:
Physician, physician assistant, and nurse practitioner patient care FTE: Oregon Health Authority's Health Care Workforce Reporting Program Database: licensure survey (2017)[3] using both primary and secondary work locations

Estimated number of visits provided per year by primary care specialty: Medical Provider FTEs and Encounters for Calendar Year 2016 for Oregon FQHCs, from Oregon Primary Care Association (OPCA)

Estimated Primary Care Visits Needed:
Annually adjusted rates from the National Ambulatory Medical Care Survey: State and National Summary Tables, National Center for Health Statistics (2015)[4]

Local population data: Claritas (2018)

Methodology:

a) Estimated primary care visits provided:

Specialty	Estimated Number of Visits Provided Per Year
General and family physicians	2204
Pediatricians	2216
Obstetrician-gynecologists	2063
Internists	1861
Physician assistants	2013
Nurse practitioners	2368

Total Visits Provided = $p_1(2204) + p_2(2216) + p_3(2063) + p_4(1861) + p_5(2013) + p_6(2368)$ where:

p_1 = FTE of General and family physicians
p_2 = FTE of Pediatricians
p_3 = FTE of Obstetrician-gynecologists
p_4 = FTE of Internists
p_5 = FTE of Primary care physician assistants
p_6 = FTE of Primary care nurse practitioners

[3] https://www.oregon.gov/oha/HPA/ANALYTICS/Pages/Health-Care-Workforce-Reporting.aspx
Data from the Oregon Health Authority's Health Care Workforce Reporting Program Database was used to produce this product. Statements contained herein are solely those of the authors and the OHA assumes no responsibility for the accuracy and completeness of the analyses contained in the product.
[4] https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2015_namcs_web_tables.pdf

b) Primary care visits needed:

Total # of Primary Care Visits Needed = 0.8[5] x
(([Female Population 0-14] x 2) +
([Female Population 15-24] x 2.4) +
([Female Population 25-44] x 3) +
([Female Population 45-64] x 4.2) +
([Female Population 65-74] x 6.1) +
([Female Population 75+] x 7.4) +
([Male Population 0-14] x 2.1) +
([Male Population 15-24] x 1.2) +
([Male Population 25-44] x 1.3) +
([Male Population 45-64] x 3.1) +
([Male Population 65-74] x 5.6) +
([Male Population 75+] x 8))

c) Total visits provided is divided by the total number of primary care visits needed. The final variable is a ratio of need being met, using the following formula:

$$V_2 = \frac{\text{Total Visits Provided}}{\text{Total \# of Primary Care Visits Needed}}$$

Results:
The estimated ratio of primary care visits able to be met for the state of Oregon is 0.93. A ratio of 1 means that supply should be equal to demand, if access and affordability were equal for everyone. A lower ratio means more demand. A higher ratio means more supply. There are 9 service areas (all rural) that don't have any primary care providers, with the highest ratios located in urban areas: Portland Downtown (3.8), and Eugene/University (1.9).

We refined this calculation this year by using patient care FTE from both primary and secondary locations in the provider surveys, counting only primary care physician assistants and nurse practitioners, and using a new annually-updated and Oregon-specific estimate for visit numbers provided by primary care specialty.

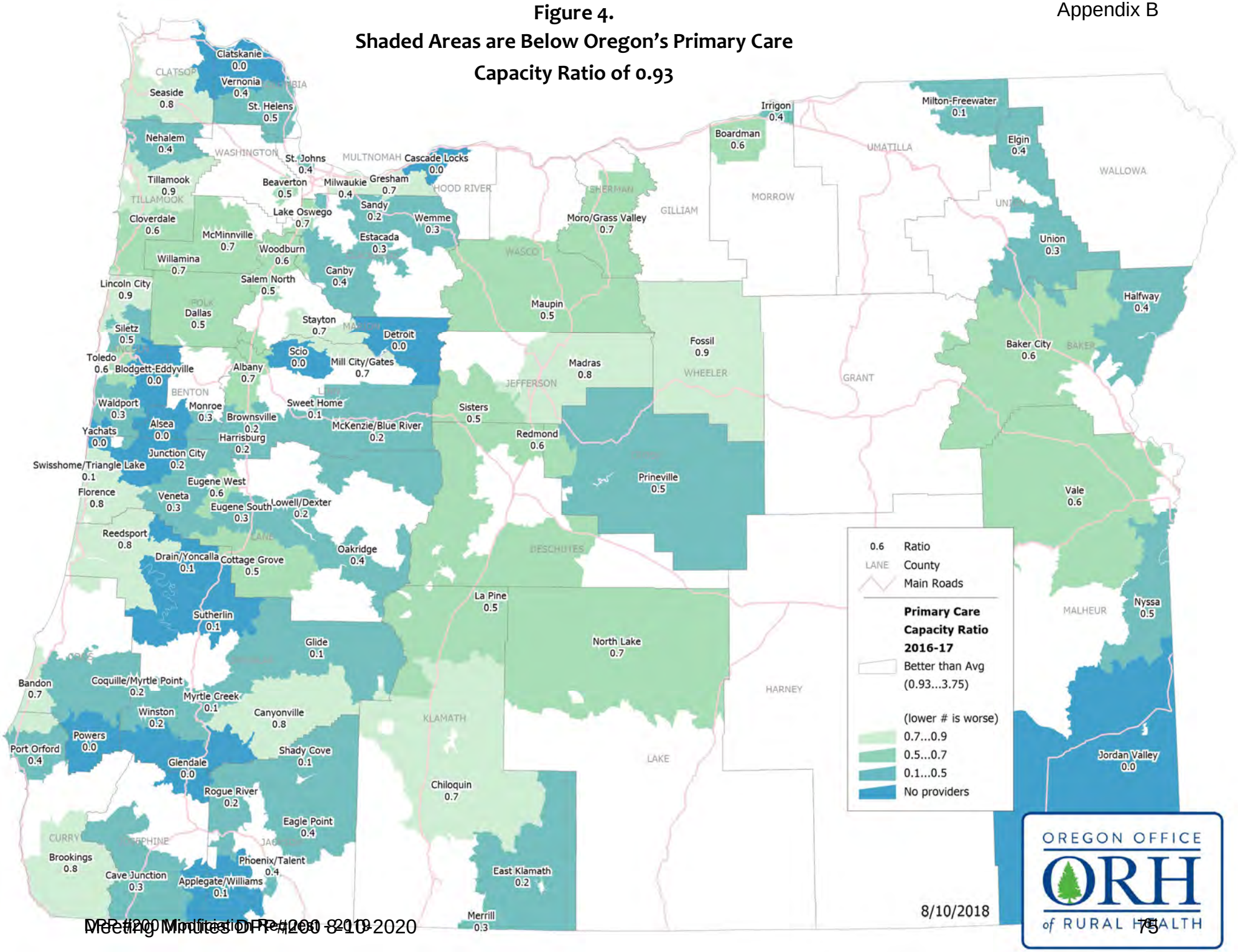
Primary Care Service Areas with no primary care provider FTE:
Detroit, Blodgett-Eddyville, Yachats, Powers, Alsea, Glendale, Cascade Locks, Scio, and Jordan Valley

Overall Results

Oregon	0.93
Urban	1.05
Rural (without Frontier)	0.70
Rural (including Frontier)	0.72
Frontier	1.04

[5] All multipliers are from the National Ambulatory Medical Care Survey; which estimates visits to ALL types of physicians. Since primary care in rural areas accounts for 80% of those visits, the calculation here is multiplied by 0.8.

Figure 4.
Shaded Areas are Below Oregon's Primary Care Capacity Ratio of 0.93



3) MENTAL HEALTH PROVIDERS PER 1,000 POPULATION

Description:
Count of Psychiatrist FTE, Psychiatric Nurse Practitioner FTE, Marriage and Family Therapist FTE, Psychologists, and Clinical Social Workers compared to local population.

Data Sources:
Psychiatrist, psychiatric nurse practitioner, and marriage and family therapist patient care FTE: Oregon Health Authority's Health Care Workforce Reporting Program: licensure survey (2017) for both primary and secondary work locations

Psychologist active licensure count: Oregon Board of Psychologist Examiners (2017)

Clinical social worker active licensure count: Oregon Board of Clinical Social Workers (2017)

Local population data: Claritas (2018)

Methodology:

$$V_3 = \frac{\text{Sum of 5 mental health providers}}{\text{Local population}} \times 1000$$

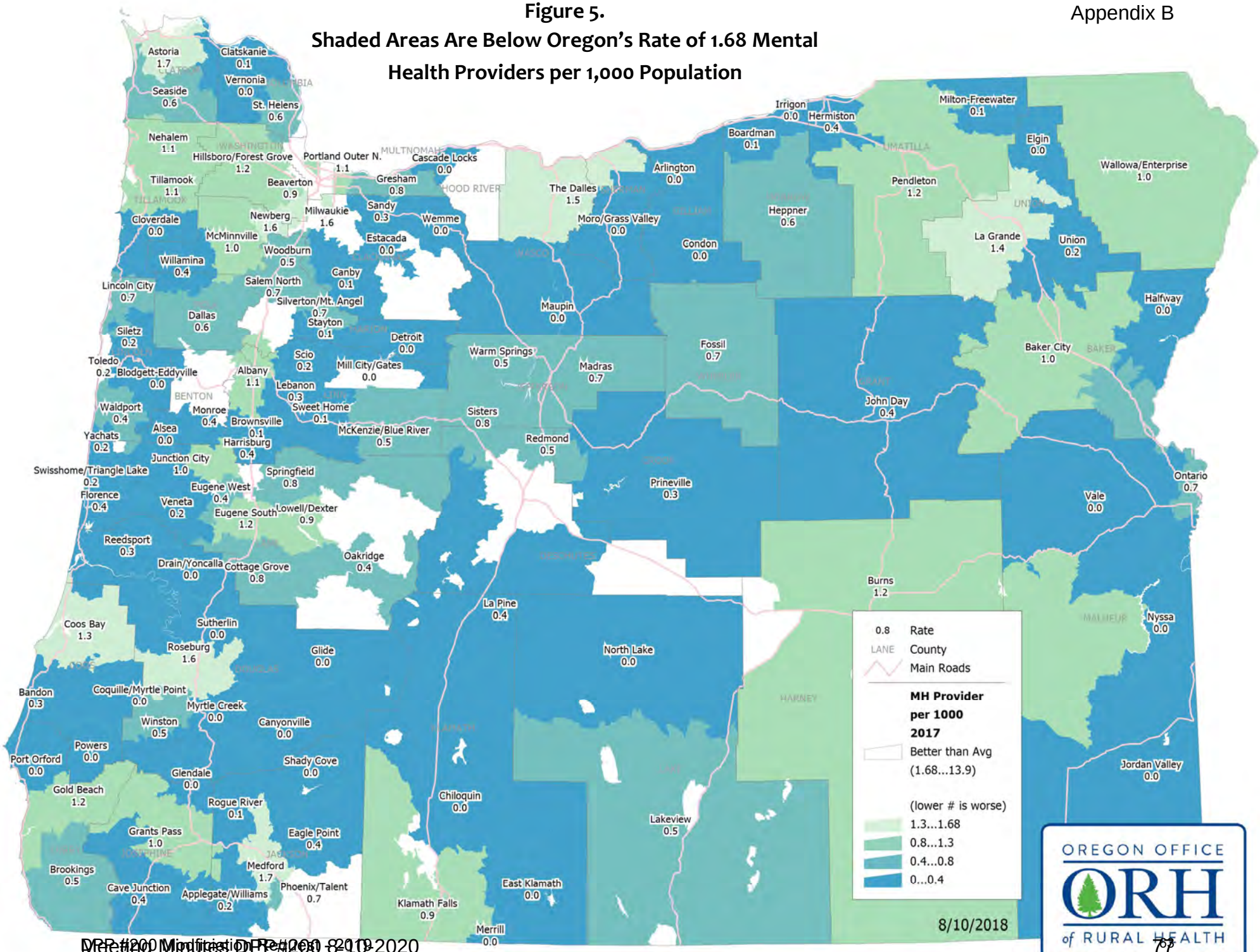
Results:
There are 1.7 mental health providers per 1,000 people in Oregon. Twenty-eight of 130 service areas (all rural or frontier) had no mental health providers. An additional 39 service areas (all rural or frontier except for one) have 0.5 or fewer mental health providers per 1,000 people. The highest numbers per 1,000 are in the urban areas of Portland Downtown (13.9), Eugene/University (6.6) and Portland Inner South (6.4).

Patient care FTE were collected for the first time this year for marriage and family therapists, and both primary and secondary work locations were calculated for these as well as for psychiatrists and psychiatric nurse practitioners.

Primary Care Service Areas with no mental health providers:
Alsea, Arlington, Blodgett-Eddyville, Cascade Locks, Chiloquin, Cloverdale, Condon, Detroit, Drain/Yoncalla, East Klamath, Elgin, Estacada, Glendale, Glide, Halfway, Irrigon, Jordan Valley, Merrill, Moro/Grass Valley, North Lake, Nyssa, Port Orford, Powers, Shady Cove, Sutherlin, Vale, Vernonia, and Wemme

Overall Results	***Per 1,000 Population***
Oregon	1.7
Urban	2.2
Rural (without Frontier)	0.74
Rural (including Frontier)	0.73
Frontier	0.56

Figure 5.
Shaded Areas Are Below Oregon's Rate of 1.68 Mental Health Providers per 1,000 Population



4) Dentists Per 1,000 Population

Description:
Patient care FTE of local dentists compared to local population.

Data Sources:
Dentist patient care FTE: Oregon Health Authority's Health Care Workforce Reporting Program: licensure survey (2017) for both primary and secondary work locations

Local population: Claritas (2018)

Methodology:

$$V_4 = \frac{\text{Dentist patient care FTE}}{\text{Local population}} \times 1{,}000$$

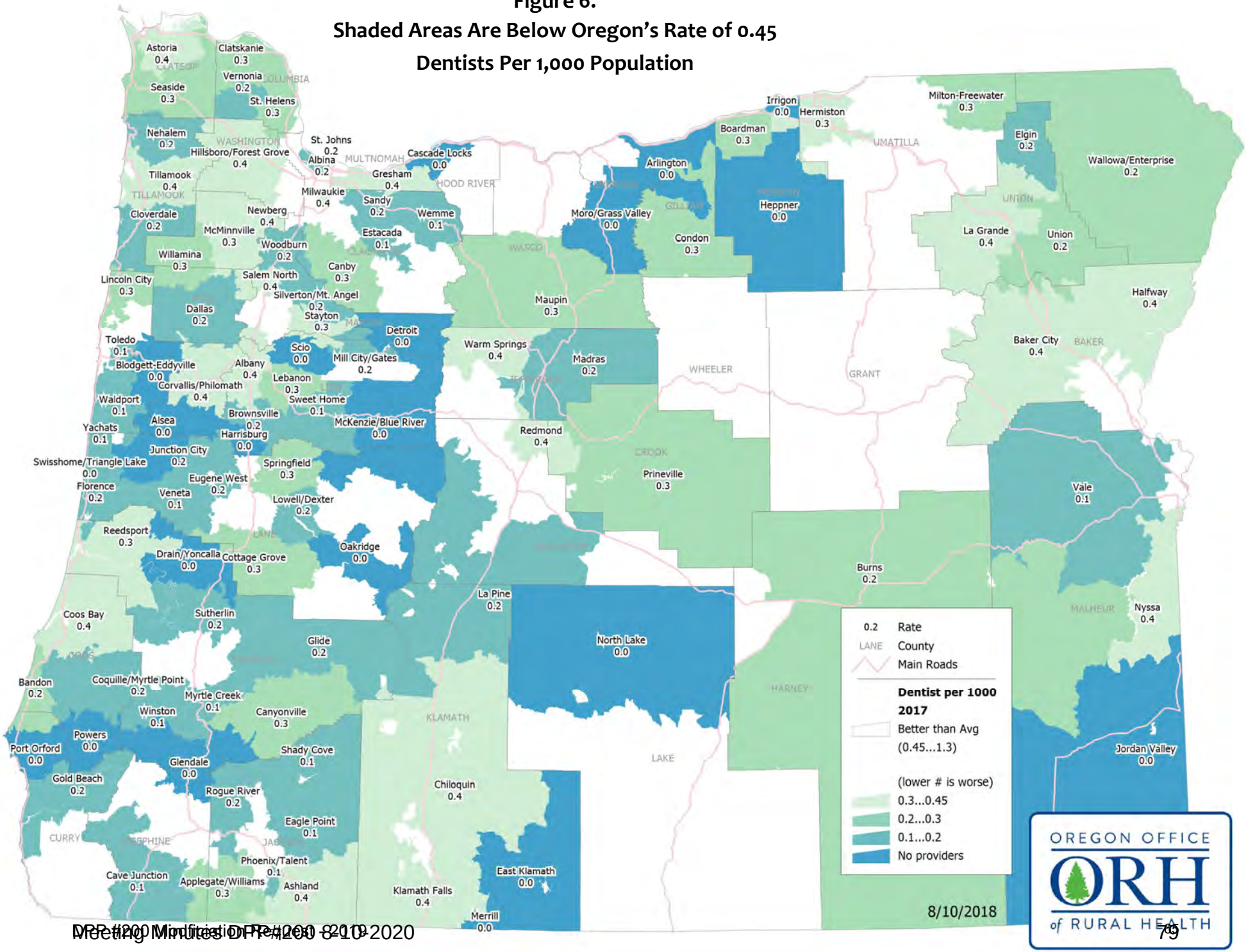
Results:
Oregon has 0.45 dentist patient care FTE per 1,000 people. Twenty primary care service areas (all rural or frontier) have no dentists. The urban areas of Portland Downtown (1.3) and Eugene/University (0.96) have the highest numbers of dentists per 1000 people.

Secondary work locations were added to the patient care FTE calculations for this year.

Primary Care Service Areas with no dentists:
Alsea, Arlington, Blodgett-Eddyville, Cascade Locks, Detroit, Drain/Yoncalla, East Klamath, Glendale, Heppner, Irrigon, Jordan Valley, McKenzie/Blue River, Merrill, Monroe, Moro/Grass Valley, North Lake, Oakridge, Port Orford, Powers, Swisshome/Triangle Lake

Overall Results	***Per 1,000 Population***
Oregon	0.45
Urban	0.52
Rural (without Frontier)	0.31
Rural (including Frontier)	0.31
Frontier	0.38

Figure 6.
Shaded Areas Are Below Oregon's Rate of 0.45
Dentists Per 1,000 Population



Category Two: Ability to Afford Care

5) Percent of Population Between 138% and 200% of the Federal Poverty Level

Description:
The percentage of the local population that is above the Medicaid cutoff of 138% of Federal Poverty Level (FPL), but still too poor to get health insurance on their own (unless they have jobs that provide health insurance).

Data Source:
American Community Survey (2012-2016)[6]

Methodology:
V_5 = 200% FPL – 138% FPL

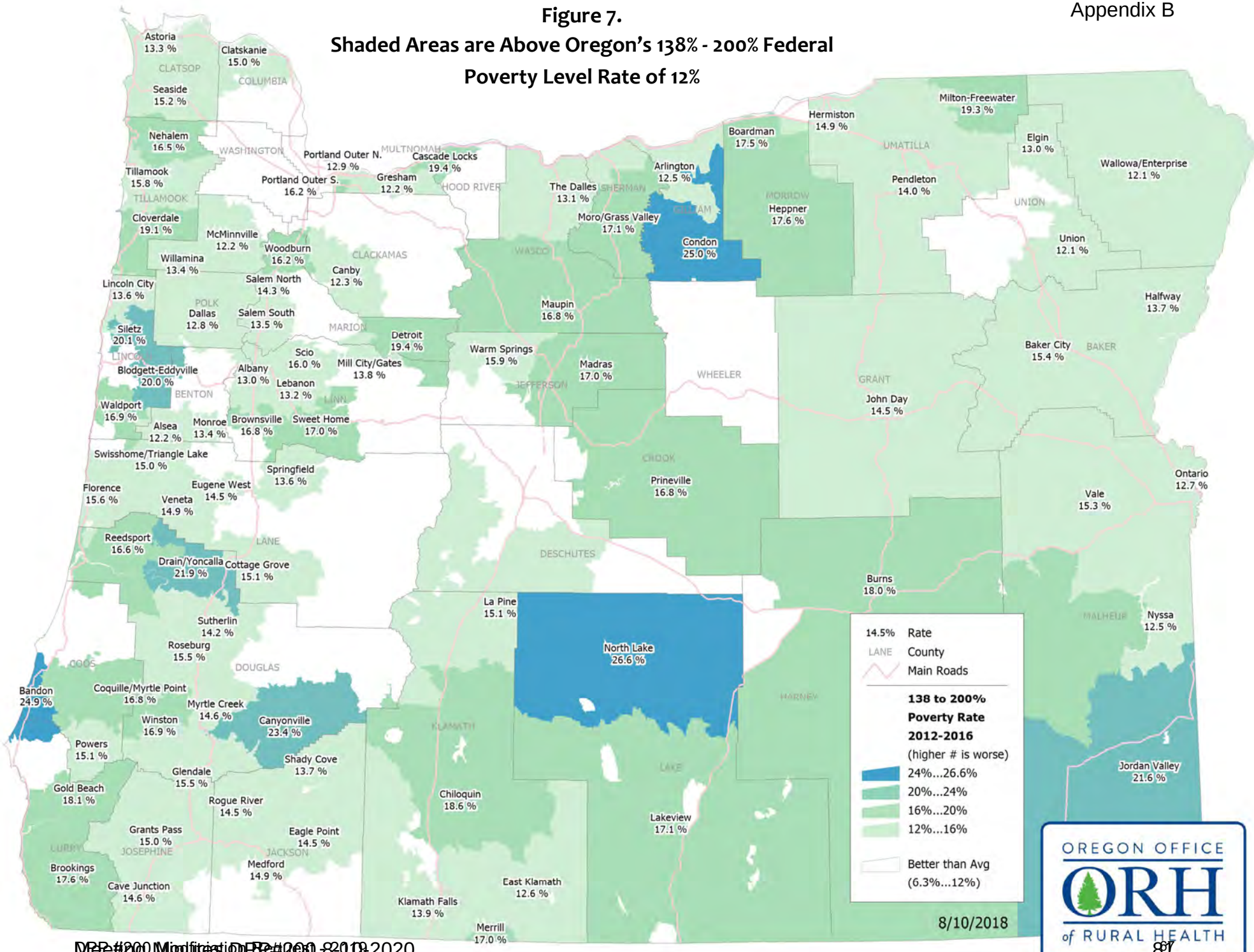
Results:
12% of the population in Oregon are between 138% and 200% of the Federal Poverty Level. The rate ranges from 6% in Portland West and 7% in Harrisburg, Lake Oswego, and Port Orford, to a high of 27% in North Lake and 25% in Condon and Bandon.

Overall Results	
Oregon	12%
Urban	11%
Rural (without Frontier)	14%
Rural (including Frontier)	14%
Frontier	15%

5 Highest 138-200% Federal Poverty Level Rates	
North Lake	27%
Condon	25%
Bandon	25%
Canyonville	23%
Drain/Yoncalla	22%
Jordan Valley	22%

[6] Because American Community Survey data is based on samples, they are subject to a margin of error, particularly in places with a low population, and are best regarded as estimates.

Figure 7.
Shaded Areas are Above Oregon's 138% - 200% Federal Poverty Level Rate of 12%



CATEGORY THREE: UTILIZATION

6) AMBULATORY CARE SENSITIVE CONDITIONS/PREVENTABLE HOSPITALIZATIONS PER 1,000 POPULATION

Description:
Ambulatory Care Sensitive Conditions (ACSC), also known as preventable hospitalizations, are a set of inpatient discharges that may have been preventable had they been treated with timely and effective primary care. These include common conditions such as asthma, diabetes, hypertension, and pneumonia.

Data Sources:
All Oregon and Washington hospital inpatient discharges for the latest 3 calendar years (2015-2017) from Apprise Health Insights.

Primary diagnoses filtered using the ACSC ICD-9 and ICD-10 codes introduced and updated by John Billings.[7-8]

Local population: Claritas (2018)

Methodology:

$$V_6 = \frac{\text{Average ACSC Discharges per Year}}{\text{Local population}} \times 1{,}000$$

Results:
Oregon has an ACSC rate of 8.6 per 1,000 people. Since only Oregon and Washington hospital data are collected, any Oregon residents who go to hospitals in other states are not counted in this calculation. For a few communities near the Oregon border whose closest hospital is in the adjacent state, this means that only part of their hospital usage is captured, and is most likely higher than reported here. This affects places like Jordan Valley (0.0)—the lowest result—and Brookings (6.7).

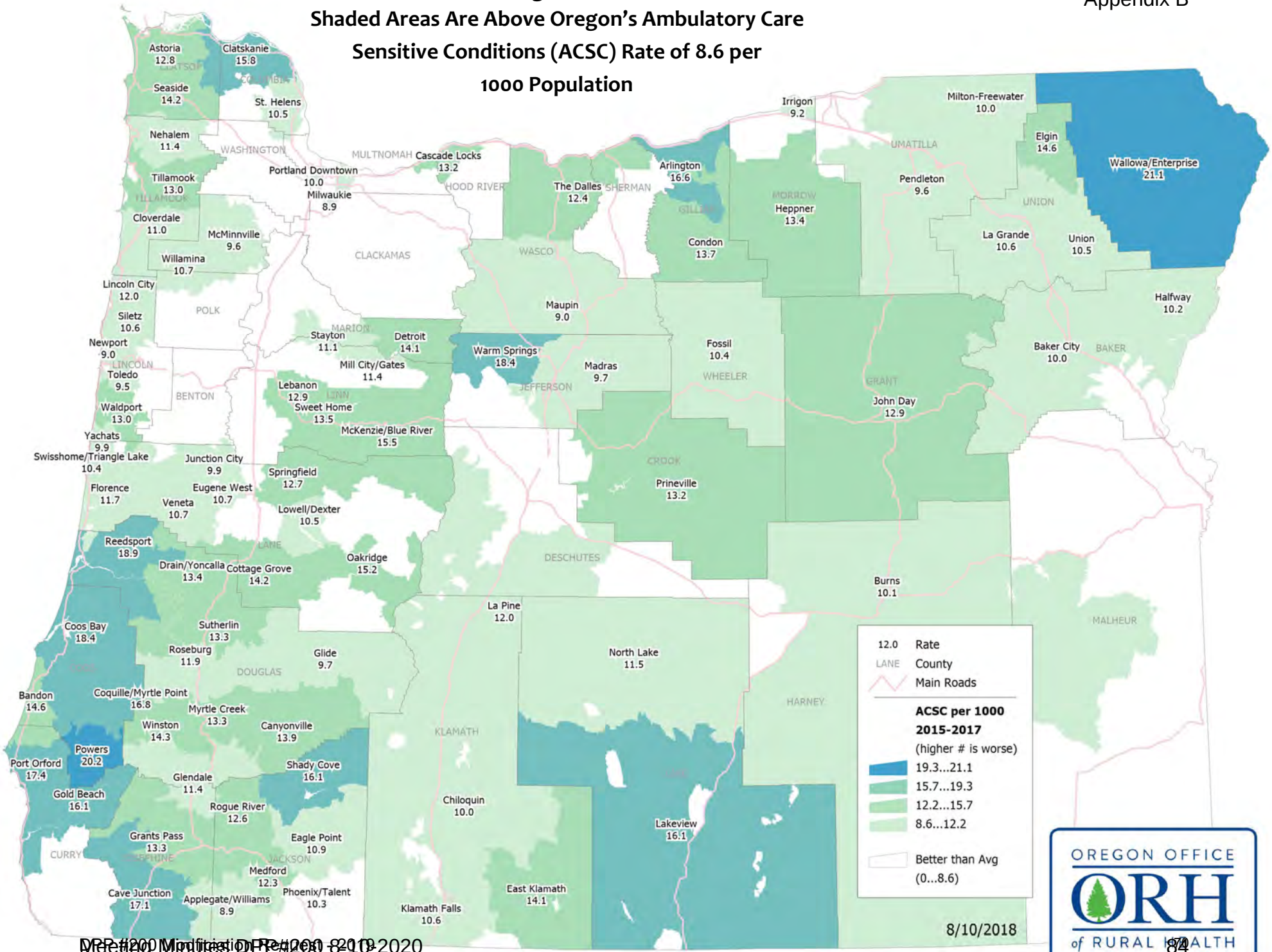
For the very first time since we began calculating this measure in 2002, Warm Springs no longer has the highest ACSC rate. It has since dropped down to 4th. The number of statewide preventable hospitalizations has also been declining in the past 3 years:
2015: 39,981
2016: 35,181
2017: 32,557

Overall Results	*Per 1,000 Population*
Oregon	8.6
Urban	7.5
Rural (without Frontier)	10.6
Rural (including Frontier)	10.7
Frontier	10.6

[7] Introduced: Billings J., Zeitel L., Lukomnik J., et al. Impact of socioeconomic status on hospital use in New York City. Health Affairs (Spring 1993): 162-173.
[8] Updates available at: https://wagner.nyu.edu/faculty/billings/acs-algorithm

5 Highest ACSC Rates	
Wallowa/Enterprise	21.1
Powers	20.2
Reedsport	18.9
Warm Springs	18.4
Coos Bay	18.4

Figure 8.
Shaded Areas Are Above Oregon's Ambulatory Care Sensitive Conditions (ACSC) Rate of 8.6 per 1000 Population



7) Inadequate Prenatal Care Rate Per 1,000 Births

Description:
Inadequate prenatal care is defined in Oregon as care that began in the third trimester, or consisted of less than 5 prenatal visits. In addition to revealing the frequency of required primary care utilization, low birthweight rates are much higher for women who received inadequate prenatal care.[9]

Data Sources:
Latest 5 years (2012-2016) of inadequate prenatal care data from Oregon Health Authority Center for Health Statistics.

Methodology:

$$V_7 = \frac{\text{5 years of inadequate prenatal care births}}{\text{5 years of total births}} \times 1000$$

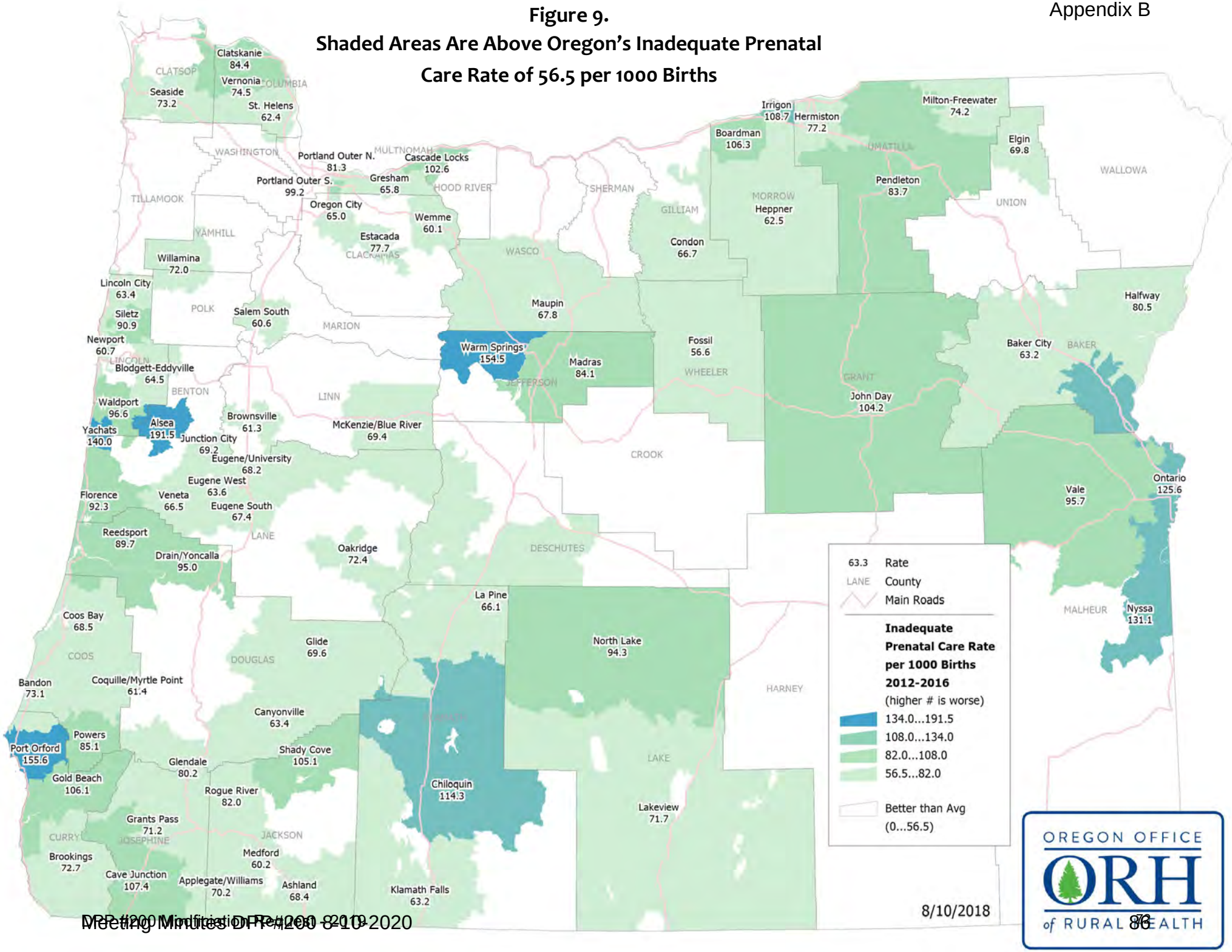
Results:
Oregon has an average inadequate prenatal care rate of 56.5 per 1,000 births. Detroit, Moro/Grass Valley, and Jordan Valley have no inadequate prenatal care births in the last 5 years, likely because of the few births that occur there (4 per year in Detroit, 9 per year in Moro/Grass Valley, and 6 per year in Jordan Valley). Places like Alsea, Port Orford, and Warm Springs have rates almost triple the state average.

Overall Results	***Per 1,000 Births***
Oregon	56.5
Urban	54.4
Rural (without Frontier)	57.7
Rural (including Frontier)	60.2
Frontier	92.7

5 Highest Inadequate Prenatal Care Rates	
Alsea	191.5
Port Orford	155.6
Warm Springs	154.5
Yachats	140.0
Nyssa	131.1

[9] *Oregon Vital Statistics Annual Report 2015, Volume 1.* Oregon Health Authority, Public Health Division. 2-10

Figure 9.
Shaded Areas Are Above Oregon's Inadequate Prenatal Care Rate of 56.5 per 1000 Births



8) Emergency Department Non-Traumatic Dental Visits Per 1,000 Population

Description:
Visits to the Emergency Department (ED) with a primary diagnosis of dental problems that are not a result of trauma. ED visits for oral health conditions are often a result of limited access to dental care.[10] Most of these visits resulted in opioid and antibiotic prescriptions rather than definitive dental care.[11]

Data Sources:
All Oregon hospital inpatient and outpatient ED visits for the latest 3 calendar years (2015-2017) from Apprise Health Insights.

Primary diagnoses filtered for non-traumatic dental ICD-9 and ICD-10 codes used in the published article: "Emergency Department Visits for Non traumatic Dental Problems: A Mixed-Methods Study."[12]

Local population: Claritas (2018)

Methodology:

$$V_8 = \frac{\text{Per Year Average Non-Traumatic Dental ED Visits}}{\text{Local Population}} \times 1000$$

Results:
Oregon has an average non-traumatic dental ED visit rate of 4.7 per 1,000 per year. Only Oregon hospital data is collected, so any Oregon residents who go to hospitals in other states are not counted in this calculation. For a few communities near the Oregon border whose closest hospital is in the adjacent state, this means that only part of their hospital usage is captured, and is most likely higher than reported here. This affects places like Jordan Valley (0.0), Milton-Freewater (0.3)—the two best results—and Brookings (1.3).

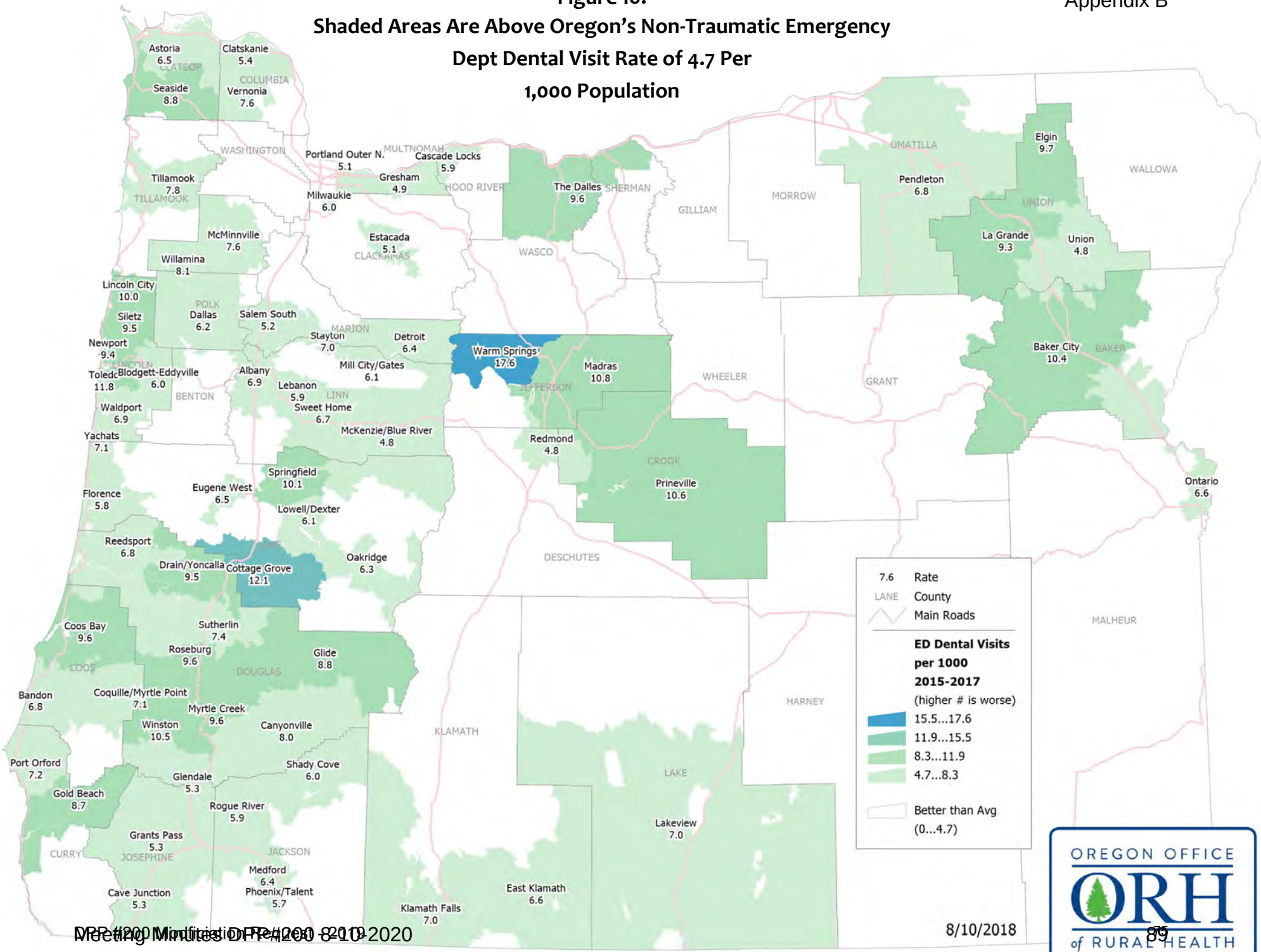
The number of statewide outpatient non-traumatic dental visits to the ED has been declining for the past 3 years:
2015: 21,058
2016: 19,853
2017: 17,789

Overall Results	***Per 1,000 Population***
Oregon	4.7
Urban	4.0
Rural (without Frontier)	6.0
Rural (including Frontier)	6.0
Frontier	5.3

[10] Sun BC, Chi DL, Schwarz E, et al. Emergency Department Visits for Non traumatic Dental Problems: A Mixed-Methods Study. *American Journal of Public Health*. 2015;105(5):947-955. doi:10.2105/AJPH.2014.302398.
[11] Ibid.
[12] Ibid.

5 Highest ED Dental Visit Rates	
Warm Springs	17.6
Cottage Grove	12.1
Toledo	11.8
Madras	10.8
Prineville	10.6

Figure 10.
Shaded Areas Are Above Oregon's Non-Traumatic Emergency Dept Dental Visit Rate of 4.7 Per 1,000 Population



9) EMERGENCY DEPARTMENT MENTAL HEALTH/SUBSTANCE ABUSE VISITS PER 1,000 POPULATION

Description:
Visits to the Emergency Department (ED) with a primary diagnosis of mood disorders, anxiety, alcohol, drug use, schizophrenia and other psychoses, suicide attempts and suicidal ideations. ED visits for Mental Health/Substance Abuse (MHSA) conditions are potentially preventable with adequate primary care.[13] They are twice as likely to result in a hospital admission[14], and the increasing rate of MHSA ED visits in the past few years is highest among low-income populations.[15]

Data Sources:
All Oregon hospital inpatient and outpatient ED visits for the latest 3 calendar years (2015-2017) from Apprise Health Insights.

Primary diagnoses filtered for the top 5 mental health diagnosis grouping codes (ICD-9 and ICD-10)[16], including suicide attempts and suicidal ideations.

Local population: Claritas (2018)

Methodology:

$$V_9 = \frac{\text{Per Year Average ED Mental Health/Substance Abuse Visits}}{\text{Local Population}} \times 1000$$

Results:
Oregon has an average mental health/substance abuse ED visit rate of 16.3 per 1,000 population per year. This is the only variable where rural areas as a whole have better results than urban areas. Only Oregon hospital data is collected, so any Oregon residents who go to hospitals in other states are not counted in this calculation. For a few communities near the Oregon border whose closest hospital is in the adjacent state, this means that only part of their hospital usage is captured, and is most likely higher than reported here. This applies to places like Milton-Freewater (0.7), Jordan Valley (4.4)—the two best results—and Brookings (10.4).

The number of statewide outpatient mental health/substance abuse visits to the ED has been increasing for the past 3 years:
2015: 55,906
2016: 61,142
2017: 62,419

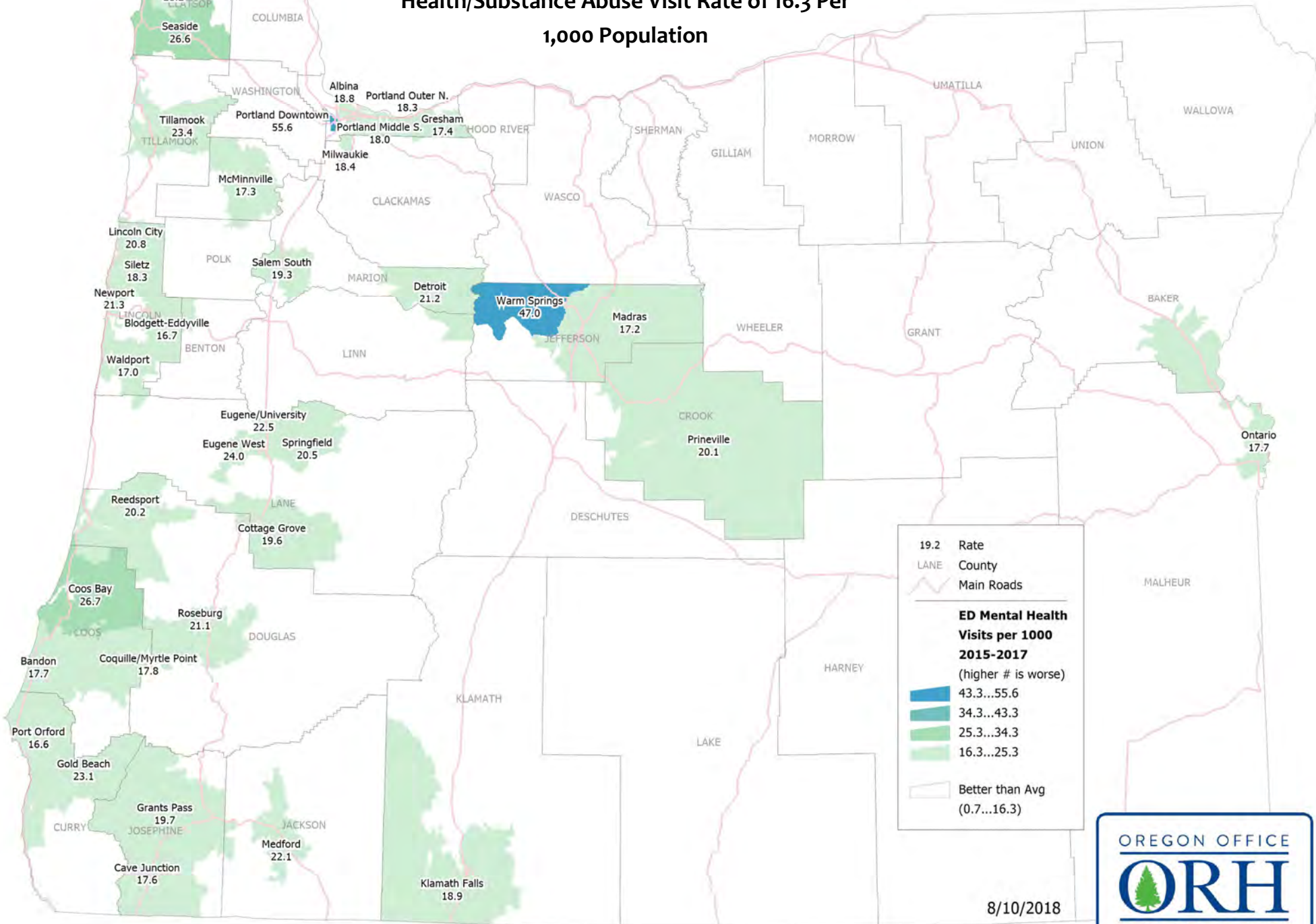
The number of outpatient ED visits for suicidal ideation alone has also increased in the past 3 years:
2015: 2478
2016: 3259
2017: 4774

[13] Rockett IRH, Putnam SL, Jia H, Chang C, Smith GS. Unmet substance abuse treatment need, health services utilization, and cost: a population-based emergency department study. *Annals of Emergency Medicine*. 2005; 45(2):118–27.
[14] Owens PL, Mutter R, Stocks C. Mental Health and Substance Abuse-Related Emergency Department Visits Among Adults, 2007. HCUP Statistical Brief #92. July 2010. Agency for Healthcare Research and Quality, Rockville, MD.
[15] Weiss AJ, Barrett ML, Heslin KC, Stocks C. Trends in Emergency Department Visits Involving Mental and Substance Use Disorders, 2006–2013. HCUP Statistical Brief #216. 2016. Agency for Healthcare Research and Quality, Rockville, MD.
[16] Owens PL, et al. Mental Health and Substance Abuse-Related Emergency Department Visits Among Adults, 2007.

Overall Results	Per 1,000 Population
Oregon	16.3
Urban	17.0
Rural (without Frontier)	15.1
Rural (including Frontier)	14.9
Frontier	11.9

5 Highest ED MHSA Rates	
Portland Downtown	55.6
Warm Springs	47.0
Coos Bay	26.7
Seaside	26.6
Portland Outer South	24.4

Figure 11.
Shaded Areas Are Above Oregon's Emergency Dept Mental Health/Substance Abuse Visit Rate of 16.3 Per 1,000 Population



TOTAL SCORES

Methodology:
A score of between 0 (worst) and 10 (best) is calculated for each of the variables, depending on the variances of the lowest and highest numbers from the mean. The scores are added together to produce a final Unmet Need Total Score:

$V_1 + V_2 + V_3 + V_4 + V_5 + V_6 + V_7 + V_8 + V_9$ = Unmet Need Total Score (0 to 90)

Results:
The highest scoring primary care service area is Portland West (72 out of 90), and the highest scoring rural service area is Hood River (70). Drain/Yoncalla has the lowest score of 20 (it also had the lowest score last year). All but 2 of the 67 service areas that fall under the mean are either rural or frontier. Only a quarter of the 15 highest scoring service areas are rural or frontier.

An interesting bit of good news in the results is the standing of Fossil, in the frontier county of Wheeler in north-central Oregon. It scored 65 points, just making it into the top 10, with results as good as or better than the state average in all but 2 variables (ACSC and mental health providers). It only has 1405 people, but 39.4% are employed by the government, and 27.8% are Medicare enrollees.

One caveat about the ranking is that all 3 of the hospital utilization variables (ACSC, ED Dental, and ED Mental) utilize data from Oregon and Washington hospitals only (ACSC) or Oregon hospitals only (ED Dental and Mental). Three rural service areas—Brookings, Jordan Valley, and Milton-Freewater—mostly use hospitals that are located in adjacent states, so their visit numbers for these variables are incomplete and might give the impression that they are in better shape than reality. Their respective total scores (55, 40, and 42) should be interpreted with this in mind.

Mean (Average) Score by Geographic Area

Oregon	46.2
Urban	58
Rural (without Frontier)	42.5
Rural (including Frontier)	43.3
Frontier	47.2

Top 10 Areas With the Lowest Total Unmet Need Scores

Drain/Yoncalla	20
Cascade Locks	23
Port Orford	26
Detroit	27
Glendale	27
Powers	28
Blodgett-Eddyville	29
East Klamath	30
Shady Cove	31
Siletz	31
Swisshome/Triangle Lake	31

Oral Health and Aging:
Troubling news for Oregon's growing 65+ population

Oral Health Affects Overall Health

Gum Disease* is linked to

- Diabetes
- Respiratory Disease
- Heart Disease
- Other Chronic Diseases

70% of U.S. adults 65+ have gum disease. The severity increases with age.

84% of Oregonians 65+ on Medicaid with diabetes had **NO** dental visits last year.

Of Oregon adults 65+:

1 in 3 had no dental visits in 2015.

15% have **NO** teeth, which makes it harder to eat healthy foods.

1 in 3 had **at least 6** teeth removed due to cavities or gum disease.

Of U.S. adults 65+:

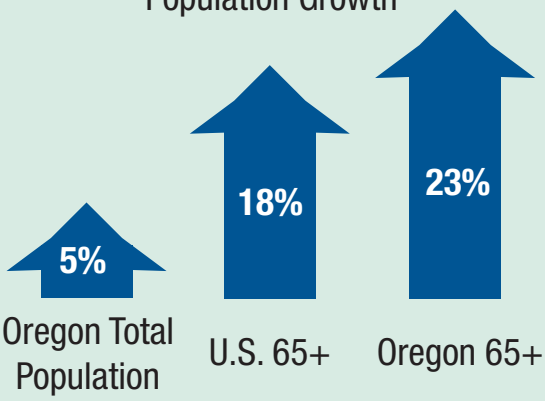
44% of mouth and neck cancers are diagnosed among people aged 65+.

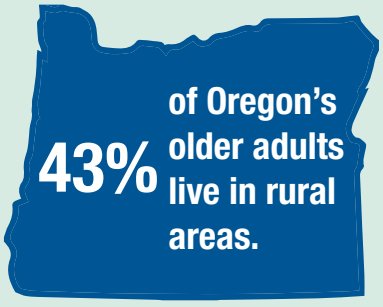
1 in 5 had untreated cavities, with higher rates among people of color.

$72M is spent on non-accident related dental conditions seen in ERs.

From 2010 to 2015, the Oregon 65+ population grew faster than the entire Oregon population and the U.S. 65+ population.

Population Growth





In 2015, Oregonians living in rural areas were the least likely to receive dental care.

For more information contact the Oral Health Unit at 971-673-0348 or oral.health@state.or.us.

Oregon Health Authority

Oral health needs, dental care utilization, and quality of life perceptions among Oregonian seniors

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ABSTRACT

Background: For a relevant planning process and advocate for improvement in oral health conditions of the senior population up-to-date data are necessary. The objective of this study was to assess the oral health status, dental care utilization and quality of life perceptions of seniors in Clackamas County in Oregon.

Methods: Data were collected in a cross-sectional study on institutionalized and community dwelling older adults where participants completed a self-reported oral health survey, the short-form Oral Health Impact Profile (OHIP-14 questionnaire) and had clinical screenings.

Results: Overall, the participants (n = 177) reported mean OHIP-14 score of 0.6 ± 1.1, with "physical pain" as the highest scored domain. Seniors who were white, had teeth, dental insurance, were having a regular dentist and living in the community were 4.2 to 33.1 times more likely to visit the dentist in the previous 12 months compared to those respondents who were nonwhite, edentulous, uninsured, not having a regular dentist and living in long-term care facility ($r^2 = 0.67$, $p < 0.05$).

Conclusion: Clackamas county senior population has considerable oral health needs, dental utilization, and quality of life issues. Better dental insurance plans, health literacy opportunities and culturally competent dental providers may help to improve the oral health situation and reduce barriers.

KEY WORDS: seniors, oral health, quality of life, dental care utilization

Introduction

At the national level, the problem of oral healthcare for seniors was highlighted in 2000, in the Surgeon-General's report, Oral Health in America, which emphasized that "a silent epidemic" of oral diseases is affecting our most vulnerable citizens–poor children, the elderly, and many members of racial and ethnic minority groups.[1] Dental caries, periodontal disease, oral cancer, and other soft tissue lesions are commonly present in older adults.[2] In addition, various medical and psychiatric problems as well as physical and financial limitations present a significant challenge treating this population.[2] In spite of substantial evidence of the insufficient oral healthcare available to large proportions of the nation's seniors consecutive reports by Oral Health America (OHA) in 2003,[3] 2013,[4] and 2016[5] have documented that relatively little progress has been made by states to ensure basic oral healthcare for the growing population of seniors.

Data from the third National Health and Nutrition Examination indicate that 47% of 65-74 year olds and 56% of 75 year olds had decayed or filled root surfaces.[6] Caries risk management is especially important for the elderly population, given the additional risk factors, such as gingival recession, decreased salivary flow, removable partial dentures, physical disability, inability to pay for treatment, and limited access to dental care.[7] Recent reports indicate that periodontal disease in the older adult population is much more prevalent than hitherto assumed.[8] Although edentulism has declined among seniors from 46% in the early 1970s to 29% in 1988-1994, those with lower incomes are much more likely to be missing all their teeth.[2] As the edentulous population continues to decline and is replaced by older adults with increasing numbers of teeth requiring large amounts of restorative care, the need and demand for dental care by the elderly can be expected to grow.[9,10]

In addition to epidemiologic data, literature suggests that oral disorders can have a significant impact on the functional, social and psychological well-being of older adults.[11] Numerous studies have reported that a considerable proportion of the older population has daily living problems associated with oral health problems.[12–16] The term "oral health-related quality of life" (OHRQoL) is commonly used to describe the impact

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of oral health on everyday life experiences.[17] Measuring OHRQoL is important because it helps to assess the extent to which different oral diseases and conditions affect individuals' general well-being; in addition, assessment of changes in QoL over time may appear as a result of treatment or population level interventions and policies.[18–20] To a large extent, these national trends and disease characteristics are also reflected in the older adult population of Oregon, but with variations due to demographic, socioeconomic, and other local factors. However, local information on oral health of seniors is very limited. A study was carried out in 1991-1993 by the Health Division of the Oregon State, which comprised long-term care facility residents in three long-term care facilities in three different counties.[21] The study showed that over 36% of the dentate residents were in need of non-urgent dental care with an additional 17% in need of urgent care for pain or infection.[21] Almost half of the residents without teeth did not have a denture, while 37% had an upper and lower denture.[21] The report indicated that long-term care facility residents in Oregon have an oral health status far below that of adults attending senior centers throughout the United States.[21] Oral health surveillance of a more general kind is conducted on a regular basis by the Centers for Disease Control and Prevention (CDC) through the Behavioral Risk Factor Surveillance System (BRFSS), which has included questions on loss of teeth.[22] Data from 2002 to 2012 indicate that Oregonian older adults gradually retain more teeth, although at a slower rate than older adults' nationally.[22] No more recent data are available, and recent State strategic planning documents for healthy aging have no references to oral health or dental care.[23]

It is generally accepted that in order to carry out a relevant planning process and advocate for improvement in the oral health conditions of the senior population up-to-date data are necessary.

Consequently, the objectives of this study were to assess the oral health status, dental care utilization and quality of life perceptions of seniors in Clackamas County in Oregon and to use this information to be able to build a better case for addressing their problems.

Methods

The study protocol was approved by the Oregon Health and Science University Institutional Review Board (IRB00009667). Clackamas County is one of three counties constituting the Portland metro area. The county is the third largest in the state and comprises both urban and large rural areas. As recommended in the Basic Screening Survey (BSS) methodology developed by the Association of State and Territorial Dental Directors (ASTDD), two sampling frames were used to assess the oral health of two high-risk population groups—residents of long-term care facilities and congregate meal site participants.[24] Facilities in adult foster care, assisted living or residential care were excluded from this sample because of budget and time constraints as well to assure consistency in the target population of older adults. A list of licensed long-term care facilities in Clackamas County was obtained from the State of Oregon's Department of Human Services (n = 170). The list included address, total number of beds and number of Medicaid beds. Facility zip-code was used to classify facilities as urban or rural. The list was stratified by urban/rural status and a systematic probability proportional to size (PPS) sampling scheme in which units are selected at an equal probability irrespective of their size.[24] PPS was used to select 10 facilities to ensure sufficient representation of the larger clusters (facilities) and increase the efficiency of the survey, as larger clusters (facilities) are often more geographically concentrated in urban areas, thus decreasing survey travel time and costs.[24] If a facility refused to participate, PPS sampling was used to select a replacement facility within the same sampling stratum. Within each selected facility, all residents were invited to participate, irrespective of designated service priority level. Altogether 10 congregate meal sites were identified in the county, which were located in both urban and rural communities. According to the sampling scheme, eight should be selected, but it was decided to include all 10 sites. All sites were invited by a letter from the study principal investigator together with a support letter from the Clackamas County Director of the Department of Health and Human Services. Shortly after the mailing, this was followed up by a phone conversation with the facility long-term care director or the director of social services. Several of the facilities were visited prior to the study being initiated there.

Consent was obtained from the participants at the time of data collection. The participants completed a self-reported oral health survey, which comprised general demographic information, questions about perceptions of general and oral health, dental care and visit habits, and the short-form Oral Health Impact Profile (OHIP-14 questionnaire). The OHIP-14, developed by Slade and Spencer (1994) is one of the most widely used instruments for the measurement of disability and discomfort due to oral conditions.[25] OHIP-14 comprises 14 items divided into seven subscales, which include functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap.[26] The OHIP-14 is less time consuming, more feasible, and has comparable reliability and validity to the long (49-item) version.[25,27,28]

Responses to the OHIP-14 questions were based on a recall period of 12 months and were scored on a five-point Likert scale: "Very often" = 4; "Fairly often" = 3; "Occasionally" = 2; "Hardly ever" = 1; and "Never" = 0. Thus, higher scores indicate less favorable OHRQoL. Clinical screenings were performed by a trained and calibrated dentist (RK) for the congregate meal sites and an experienced expanded practice dental hygienist (SN) for long-term care facilities. In order to account for the variation in the clinical screenings by two different examiners, nine participants were examined together prior to collecting formal clinical examination data. Any discrepancies between

the examiners were discussed and resolved. However, with the number of patients seen together and high concordance between the examiners, a formal kappa evaluation was not performed. Data were recorded on a modified version of ASTDD (Association of State and Territorial Dental Directors) Basic Screening Survey (BSS). The main modification was related to the dental examination. In contrast to the BSS, which records mainly presence/absence of for instance dentures, teeth, root fragments, etc.; the present survey recorded visible plaque index on six indicator teeth (presence or absence of visible plaque); presence of gingival inflammation (no, mild, severe); status of each tooth (sound, decayed, filled and decayed, filled without decay, missing, bridge abutment/implant, not recordable). Soft tissue lesion and tooth mobility were recorded as present or absent. Prosthetic need was recorded as 0: No prosthesis needed; 1: Full denture needed; 2: Partial denture needed; 3: Denture realignment needed. Root caries was recorded as 0: No exposed roots with active caries; 1: 1-3 roots with active caries; 2: Multiple roots with active caries. Dental treatment needs were recorded as 1: Preventive care (no active decay, due for check-up); 2: Routine dental care (stains/plaque/no prior dental care); 3: Non-urgent dental care (active decay, pain discomfort, bleeding gums); 4: Urgent dental care (swelling, large active decay, ongoing pain, and 5: Immediate emergency care (trauma, swelling, severe pain). The screening form was pretested and validated in a series of community outreach oral health screenings among low-income adults in Clackamas County.[29] Survey and clinical data were combined without identifying individuals. Since we did not have direct access to the study participants, we approached the participants/patients of congregate meal sites and long-term care facilities through the administrators, who provided us a list of seniors who were available and agreed to participate. Thus the total number of eligible participants was uncertain. There were 206 seniors who participated in the study—out of these, 22 had deficient cognitive ability that underwent clinical examination but could not complete the questionnaires. Further seven individuals had two or more missing values on the OHIP-14 questionnaires that were excluded from the data analysis. Thus, 177 individuals were included in the final analysis of this study. Any remaining missing values were replaced with the mean value for that item, computed from the values for respondents who gave valid responses. Mean scores were calculated for individual items, domains and overall OHIP-14 scores.[26]

Caries estimates in individuals were calculated from the clinical recordings of missing teeth (M), teeth with untreated decay (D) and those with fillings (F). DMFT (decayed, missing, and filled teeth), which is the measure of person's total lifetime tooth decay experience, was calculated by adding the number of D, M, and F teeth. Further data analysis included tests of associations between OHIP-14 impacts, mean DMFT scores and independent variables using ANOVA. The relative effect of selected variables on the pattern of dental visits during the last 12 months (dichotomous variable was dental visit yes or dental visit no) was explored by logistic regression analysis. Bivariate data analysis and logistic regression was conducted using SPSS v20.

Results

Characteristics of respondents

The study sample consisted of 177 seniors (39% males and 61% females) 65 to 101 years old (mean age = 77.8, s.d. = 8.5), Table *1*. Of these, only 1/4 had dental insurance, less than 1/2 had a regular dentist and 1/4 had seen a dentist for more than 5 years ago. The majority of the respondents were dentate (80.2%), were living in the community (53.1%), were white (93.2%), and had high school or higher education (95.4%).

Oral health status

Mean DMFT scores

The DMFT scores ranged from 11.0 to 32.0 with mean score of 25.2 ± 5.8).

Table 1. Characteristics of study participants (n = 177).

Characteristics	N = 177 (%)
Age group	
65-74	70 (39.5)
75-84	69 (39.0)
85 and older	38 (21.5)
Gender	
Males	68 (38.6)
Females	108 (61.4)
Education	
Primary/middle school	8 (4.6)
High school or higher	166 (95.4)
Ethnicity	
White	164 (93.2)
Others	12 (6.8)
Type of facility	
Congregate meal site	94 (53.1)
Long-term care facility	83 (46.9)
Dentate status	
Edentulous	35 (19.8)
Dentate	142 (80.2)
Dental insurance	
Yes	44 (26.2)
No	124 (73.8)
Regular dentist	
Yes	96 (54.5)
No	80 (45.5)
Last saw a dentist	
Within last year	77 (44.0)
>1 year	98 (56.0)

Note: Total number of study participants included in analysis = 177. Some participants had missed information on the above variables on study characteristics.

Average number of decayed, missing and filled teeth (FT) was 1.8 ± 3.6, 15.2 ± 11.0 and 8.2 ± 7.0), respectively (Table 2). The mean number of missing teeth (MT) increased from the youngest old (65 to 74), 14.2 ± 11.0 to the oldest old (85+), 16.6 ± 10.8. Statistically significant higher mean numbers of MT were found in those with primary/middle school education compared to those with high school or higher education (23.4 vs. 14.8, F = 4.6), in those living in a

Table 2. Mean DMFT scores by characteristics (n = 177).

Mean DMFT scores by characteristics	Mean DT (s.d.)	Mean MT (s.d.)	Mean FT (s.d.)	Mean DMFT (s.d.)
Age group				
65-74	1.8 (3.4)	14.2 (11.0)	8.2 (7.0)	24.2 (6.2)
75-84	1.8 (4.0)	15.4 (11.2)	8.4 (7.0)	25.6 (5.7)
85 and older	1.8 (3.4)	16.6 (10.8)	8.1 (7.2)	26.4 (5.1)
Gender				
Males	2.1 (4.0)	16.5 (11.1)	6.7 (6.0)[1]	25.3 (6.4)
Females	1.6 (3.4)	14.3 (10.9)	9.3 (7.4)[1]	25.2 (5.4)
Education				
Primary/middle school	1.0 (2.1)	23.4 (11.2)*	4.9 (6.1)	29.3 (4.5)*
High school or higher	1.9 (3.7)	14.8 (10.9)*	8.4 (7.1)	25.1 (6.0)*
Ethnicity				
White	1.9 (3.7)	15.0 (10.9)	8.4 (7.1)	25.3 (5.7)
Others	0.8 (1.4)	17.8 (12.5)	6.3 (6.6)	24.8 (6.7)
Type of facility				
Congregate meal site	1.8 (3.5)	12.4 (10.2)*	10.1 (6.9)*	24.3 (6.0)*
Long-term care facility	1.9 (3.8)	18.4 (11.1)*	6.1 (6.6)*	26.3 (5.5)*
Dental insurance				
Yes	1.7 (4.1)	10.6 (9.7)*	10.9 (6.7)*	23.2 (6.1)*
No	1.8 (3.6)	16.9 (11.2)*	7.5 (7.1)*	26.2 (5.4)*
Regular dentist				
Yes	1.7 (3.5)	11.9 (9.4)*	10.6 (6.6)*	24.2 (5.5)*
No	2.0 (3.8)	19.3 (11.5)*	5.4 (6.5)*	26.6 (5.9)*
Last saw a dentist				
Within last year	2.1 (3.9)	10.2 (8.5)*	11.5 (6.3)*	23.2 (5.7)*
>1 year	1.5 (3.2)	19.1 (11.3)*	5.7 (6.5)*	26.9 (5.4)*
Overall health perceptions				
Poor	1.2 (1.7)	6.1 (3.3)*	14.5 (3.8)*	21.8 (3.0)*
Fair to excellent	1.9 (3.7)	15.7 (11.1)*	7.9 (7.0)*	25.4 (5.9)*
Oral health perceptions				
Poor	1.0 (1.4)	6.4 (3.9)*	13.3 (3.7)*	20.7 (3.3)*
Fair to excellent	1.9 (3.7)	15.4 (11.0)*	8.1 (7.1)*	25.3 (5.8)*

*$p < 0.05$, ANOVA test.

long-term care facility compared to those in the community setting (18.4 vs. 12.4, F = 14.0), in those not having dental insurance compared to those having dental insurance (16.9 vs. 10.6, F = 11.0), in those not having a regular dentist vs. having a regular dentist (19.3 vs. 11.9, F = 21.9), in those with dental utilization greater than 1 year than those who saw dentist within the last year (19.1 vs. 10.2, F = 33.2), in those having perceptions of fair to excellent overall health compared to those with poor overall health (15.7 vs. 6.1, F = 7.5) and to those having perceptions of fair to excellent oral health compared to those with poor overall oral health (15.4 vs. 6.4, F = 4.6; $p < 0.05$).

Mean number of FT were significantly lower in males than females (6.7 vs. 9.3, F = 6.0), in those living in a long-term care facility vs. community setting (6.1 vs. 10.1, F = 15.7), in those without dental insurance vs. with dental insurance (7.5 vs. 10.9, F = 7.7), in those not having a regular dentist vs. having a regular dentist (5.4 vs. 10.6, F = 27.7), dental utilization greater than 1 year than those who saw dentist within the last year (5.7 vs. 11.5, F = 35.5), having perceptions of fair to excellent overall health than poor overall health (7.9 vs. 14.5, F = 8.8) and having perceptions of fair to excellent oral health than poor overall health (8.1 vs. 13.3, F = 3.7; $p < 0.05$).

Mean DMFT scores were significantly higher in those with primary/middle school education than high school or higher education (29.3 vs. 25.1, F = 3.9), living a long-term care facility than community setting (26.3 vs. 24.3, F = 5.6), not having dental insurance than having dental insurance (26.2 vs. 23.2, F = 9.6), not having regular dentist vs. having a regular dentist (26.6 vs. 24.2, F = 8.0), dental utilization greater than 1 year than those who saw dentist within the last year (26.9 vs. 23.2, F = 19.4), having perceptions of fair to excellent overall health than poor overall health (25.4 vs. 21.8, F = 3.8) and having perceptions of fair to excellent oral health than poor overall health (25.3 vs. 20.7, F = 4.4). All these differences were statistically significant ($p < 0.05$).

Of those who were dentate, 35.5% had visible plaque on 6 or more teeth, 28.8% had one or more exposed root surfaces with active caries and 11.5 % had a soft tissue lesion. Mild and severe gingival inflammation was present in 53.4% and 8.0% of the participants. Overall, 35.2% of the seniors needed preventive dental care (no active decay, due for check-up), 23.9% needed routine dental care (stains/plaque/no prior dental care), 34.1% needed non-urgent dental care (active decay/pain/discomfort/bleeding gums), and 6.8% needed urgent dental care (swelling/large active decay/ongoing pain).

Seniors who were white; had teeth; dental insurance, were having a regular

DRP #200 Modified DRP #200 8-10-2020
Meeting Minutes DRP #200 8-10-2020

Table 3. Multiple Logistic Regression analysis of factors possibly associated with utilization of dental services in the last year (n = 177).

	Odds ratio	95% CI	*p* Value
Having insurance	4.2	1.3-13.8	0.02
Being white	11.6	1.1-126.1	0.04
Having a regular dentist	33.1	10.1-108.6	0.00
Being dentate	5.3	1.2-23.4	0.03
Living in the community	5.7	1.9-17.0	0.00

dentist and living in the community were 4.2 to 33.1 times more likely to visit the dentist in the previous 12 months compared to those respondents who were nonwhite; edentulous; uninsured, not having a regular dentist and living in a long-term care facility ($r^2 = 0.67$, $p < 0.05$; Table 3).

OHIP-14 scores

Overall, the mean OHIP-14 score reported was low, i.e., 0.6 ± 1.1, with higher scores indicating poorer quality of life. "Physical pain" was the highest scored domain (mean = 0.9 ± 1.1) followed by psychological discomfort (mean = 0.7 ± 1.2), psychological disability (mean = 0.6 ± 0.9), physical disability (mean = 0.5 ± 0.9), functional limitation (mean = 0.5 ± 0.8), handicap (mean = 0.3 ± 0.3), and social disability (mean = 0.3 ± 0.5). Mean item scores were higher for problems like discomfort while eating foods (mean = 1.1 ± 1.4), painful aching in the mouth (mean = 0.8 ± 1.1), feeling self-conscious (mean = 0.8 ± 1.3), and feeling tense (mean = 0.7 ± 1.2; Table 4).

OHIP-14 scores were significantly higher among respondents with primary/middle school education than those with high school or higher education (1.1 vs. 0.5, F = 5.8), living in community setting than long-term care facility (0.7 vs. 0.4, F = 9.3), not having a regular dentist vs. having a regular dentist (0.7 vs. 0.4, F = 7.2) and not having dental insurance vs. having dental insurance (0.6 vs. 0.3, F = 4.7). No statistically significant differences were found for OHIP-14 scores in characteristics like age group, gender, ethnicity, dentate status, last dental visit, overall, and oral health perceptions (Table 5).

Table 4. Mean scores of OHIP-14 domains and individual questions (n = 177).

OHIP-14 subscale and item	Mean score
Functional limitation	0.5 (0.8)
Had trouble pronouncing words	0.4 (0.8)
Felt that sense of taste has worsened	0.6 (1.1)
Physical pain	0.9 (1.1)
Had painful aching in the mouth	0.8 (1.1)
Was uncomfortable eating foods	1.1 (1.4)
Psychological discomfort	0.7 (1.2)
Has been feeling self-conscious	0.8 (1.3)
Has felt tense	0.7 (1.2)
Physical disability	0.5 (0.9)
Diet has been unsatisfactory	0.6 (1.1)
Has had to interrupt meals	0.5 (0.9)
Psychological disability	0.6 (0.9)
Finds it difficult to relax	0.5 (0.9)
Has been a bit embarrassed	0.6 (1.2)
Social disability	0.3 (0.5)
Has been irritable with other people	0.3 (0.7)
Has had difficulty doing usual jobs	0.2 (0.5)
Handicap	0.3 (0.3)
Has found life less satisfying	0.5 (0.9)
Has been totally unable to function	0.2 (0.6)
Total QoL scores	0.6 (0.7)

Discussion

This study is the first county-wide oral health study in Oregon on seniors, which assessed subjective perceptions of oral

Table 5. Mean OHIP-14 scores by characteristics (n = 177).

QoL scores by characteristics	Mean OHIP-14 (s.d.)
Age group	
65-74	0.6 (0.8)
75-84	0.6 (0.7)
85 and older	0.4 (0.6)
Gender	
Males	0.6 (0.8)
Females	0.5 (0.7)
Education	
Primary/middle school	1.1 (1.1)*
High school or higher	0.5 (0.7)*
Ethnicity	
White	0.5 (0.7)
Others	0.5 (0.6)
Type of facility	
Congregate meal site	0.7 (0.7)*
Long-term care facility	0.4 (0.7)*
Dentate Status	
Edentulous	0.5 (0.7)
Dentate	0.6 (0.8)
Dental insurance	
Yes	0.5 (0.7)
No	0.6 (0.8)
Regular dentist	
Yes	0.4 (0.6)*
No	0.7 (0.8)*
Last saw a dentist	
Within last year	0.5 (0.7)
>1 year	0.6 (0.7)
Overall health perceptions	
Poor	0.6 (0.8)
Fair to excellent	0.5 (0.7)
Oral health perceptions	
Poor	0.3 (0.3)
Fair to excellent	0.6 (0.7)

*$p < 0.05$, ANOVA test.

Meeting Minutes DPR #200 8-10-2020
95

health with a validated oral health-related quality of life instrument (OHIP-14) in addition to objectively assessed oral health needs and dental care utilization. The main finding of this study was that dental caries experience (DMFT index) was higher in those with primary/middle school education, living in assisted living facility, not having dental insurance, not having regular dentist, who did not see the dentist within the last year and had perceptions of fair to excellent overall health and oral health. Other studies have also reported that the home-bound and institutionalized elderly individuals have poorer oral health conditions than do seniors who are community dwelling in the same community,[30,31] which is largely an expression of existing social inequalities. As expected in older adults and reported in other studies,[32] the number of MT significantly contributed to high values of the DMFT index. Average value for DMFT in our study was higher than that reported in The National Health and Nutrition Examination Survey (NHANES) 1999-2004 study.[33] The average values for untreated decay (DT), MT and the number of FT were higher than that compared with NHANES 1999-2004 study (Trends in Oral Health Status: United States, 1988-1994 and 1999-2004). The prevalence rate of edentulism as 35% was quite high in our study population as compared to NHANES data 2009-2012 with the rate being 13.7% in 65-74 years olds and 24.1% in ≥75 years olds.[10] Oral health impacts reported by the respondents were also dependent upon socioeconomic factors like education and having a regular dentist; with poorer quality of life in lower educated elderly and those who do not have a regular dentist. Papaioannou *et al.*, in their study on Greek senior citizens, found that elderly who had lower education had perceived their quality of life as worse than those with higher education.[34] Further, the high cost of dental treatment in general and the lack of dental health benefits under Medicare may support our findings. Medicare only pays for dental services that are an integral part either of a covered procedure (e.g., reconstruction of the jaw following accidental injury), or for extractions done in preparation for radiation treatment for neoplastic diseases involving the jaw or oral examinations, but not treatment, preceding kidney transplantation or heart valve replacement, under certain circumstances.[35]

Oral health impacts were significantly higher in seniors living in independent community settings that those in long-term care facilities as found by Kotzer *et al.*[36] Since those living in assisted care facilities have other high priority medical problems, they might be accustomed to live with the dental conditions they have and might be more satisfied overall.

The individual OHIP items most commonly reported were from physical pain and psychological discomfort subscales of the measure, uncomfortable eating foods and feeling self-conscious. Similarly, Zhou *et al.* found that "Uncomfortable to eat" and "taste worse" were the two most common problems reported.[37] Similar findings were reported by Hodacova *et al.* in a Czech population[38] and Ikebe *et al.*, 2004 in Japanese seniors.[39]

There are limitations on the generalizability of findings from this study. Although we used stratified sampling as well as census data for better representation of older people in Oregon, because of limited resources, there was no attempt made for in-home visits for homebound individuals and those who are community dwelling but do not visit senior centers. Because this study was cross-sectional, we do not have information on their change in OHRQoL with age and other related factors. As with other quality of life studies which are dependent on patients' recall about particular incidents, this study is also subject to recall bias.

Despite the above mentioned limitations, this study has strengths. Our study provides good baseline information on oral health status and perceptions of seniors, which is very important in assessing trends in health and disease. The findings were suggestive of oral health access problems for seniors in the Clackamas County in Oregon, which might be present in other counties as well. This should be helpful in understanding various factors affecting the oral health and overall quality of life of the senior population and thus point to corrective strategies needed at the individual, local and state level.

Future studies should focus on longitudinal studies with standardized clinical measures as well as OHQoL instruments. Robust studies are needed on the impact of dental treatment and oral health policies on the overall quality of life. Although difficult to implement, qualitative studies with in-depth interviews may provide very good information on the expected oral health interventions needed to improve the quality of life.

Conclusions

The main findings of this study were that Clackamas county senior population has considerable oral health needs, dental utilization, and quality of life issues which are consistent with a low level of insurance coverage and irregular dental care. Better dental insurance coverage, health literacy initiatives, and culturally competent dental providers may help to improve the oral health situation and reduce barriers in this population.

Acknowledgements

This study was made possible by the funding support of the National Association of Chronic Disease Directors and the DentaQuest Foundation. The assistance received by Clackamas County Department of Health and Human Services to facilitate this study is gratefully acknowledged. We are very grateful to all the administrators and coordinators of senior centers and long-term care facilities for their assistance in recruiting the participants. We also wish to express our gratitude to representatives for Crest Oral-B, Glaxo Smith Kline, and to Johnson & Johnson for their generous donation of oral health supplies which were very popular among our study participants and institutions. Finally, all the

participants of this study are thanked for their willingness to participate. The assistance of Dr. Kathy Phipps, Association of State & Territorial Dental Directors (ASTDD), with sampling process is gratefully acknowledged.

Conflict of interest

There is no conflict of interest in this study.

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CENTER FOR PREVENTION AND HEALTH PROMOTION
Oral Health Program
Kate Brown, Governor

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August 6, 2019

Eli Schwarz DDS, MPH, PhD
3030 SW Moody Avenue, Suite 135
Portland, Oregon 97201

Dear Dr. Schwarz,

In response to the request for project modification originally submitted on April 5, 2019 and revised and resubmitted on July 23, 2019 by the project sponsor for DPP #200 to the Oregon Health Authority (OHA):

- The project modification request proposal to add 6 additional sites to Dental Pilot Project #200 complies with Oregon Administrative Rules, Dental Pilot Project Program, 333-010-0800 and is therefor approved.

- The project modification request proposal to extend the timeline of the project to operate until September 30, 2020 under Dental Pilot Project #200 complies with Oregon Administrative Rules, Dental Pilot Project Program, 333-010-0800 and is therefor approved.

Approved modifications include the addition of the following 6 sites under the approved Dental Pilot Project Program DPP #200:	
Sites	**Locations Under Sites**
WIC – Salem, Oregon Site – Capitol Dental Site	• WIC (Women, Infant and Children) Program 3180 Center St NE Salem, OR 97301
Grants Pass – Capitol Dental Site	• Grants Pass Clinic 495 SW Ramsey Ave Grants Pass, OR 97527 • Options for Southern Oregon – Hillside Center 1545 Harbeck Rd Grants Pass, OR 97527
McMinnville – Capitol Dental Site	• Champion Team 1275 NW Adams St McMinnville, OR 97128 • Physicians Medical Center (PMC)

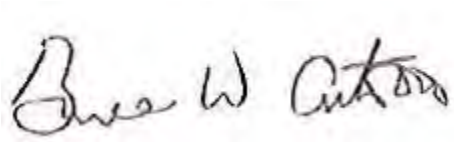
	2435 NE Cumulus Ave McMinnville, OR 97128 • Valley Women's Health 2700 SE Stratus Ave, #301 McMinnville, OR 97128
Medford – Capitol Dental Site	• Starting Strong 702 W. Main Street Medford, OR 97501
Sherman County & Gilliam County Public Health – Advantage Dental Site	• North Gilliam County Public Health District Arlington Medical Center 110 On The Mall PO Box 176 Arlington OR 97812 • Sherman County Medical Clinic 110 Main Street Moro, OR 97039
Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon School District 25J, Sherman County School District	• Arlington Community Charter School K-12 1400 Main Street Arlington, OR 97812 • Condon Elementary School 220 S East Street Condon, OR 97823 • Condon High School 210 E Bayard St Condon, OR 97823 • Sherman County School Pre-K-12 65912 High School Loop Moro, OR 97039

Existing Approved Sites Operating Under DPP#200: Utilization Phase	
Sites	**Locations Under Sites**
Childhood Health Associates of Salem – Capitol Dental Site	• Childhood Health Associates of Salem 891 23rd Street NE Salem, OR 97301
Community Action Head Start – Capitol Dental Site	• Community Action Head Start Community Action Head Start Independence Site 246 I Street Independence, OR 97351
Polk County – Capitol Dental Site Central School District 13J & Falls City School District 57	• Ash Creek Elementary School 1360 North 16th Street Monmouth, Oregon 97361

	• Falls City Elementary School 177 Prospect Ave Falls City, OR 97344 • Independence Elementary 150 South 4th Street Independence, Oregon 97351 • Monmouth Elementary 958 East Church Street Monmouth, Oregon 97361
Oregon Child Development Coalition – Capitol Dental Site	• Oregon Child Development Coalition Concordia – Salem Lancaster Migrant, Seasonal, Early Head Start 4611 Lancaster Drive NE Salem, OR 97305 • Oregon Child Development Coalition Independence Migrant, Seasonal, Early Head Start 535 G Street Independence, OR 97351

DPP#200 is required to continue to comply with OAR 333-010-0700 through 333-010-0820.

Sincerely,



Bruce Austin
Statewide Dental Director

"Training Dental Hygienists to Place Interim Therapeutic Restorations"

DPP#200 Modification Request 2019

TABLE OF CONTENTS

MODIFICATION REQUEST LETTER 1

OHSU LETTER 1-4

ADDENDUM TO MODIFICATION REQUEST 5

TARGETED POPULATION DESCRIPTIONS 5-11

EMPLOYMENT/UTILIZATION SITES 12

CURRENT LOCATIONS 12-14
PROPOSED LOCATIONS 14-18

SUPPORTING INFORMATION 19

"A SCHOOL-LEVEL PROXY MEASURE FOR INDIVIDUAL POVERTY USING SCHOOL-LEVEL ELIGIBILITY FOR FREE AND REDUCED-PRICE MEALS 19-29
OREGON DEPARTMENT OF EDUCATION SCHOOL FACT SHEETS 30-45
OREGON AREAS OF UNMET HEALTH CARE NEED REPORT 46-80
OREGON HEALTH AUTHORITY OLDER ADULT FACT SHEET 81
SPECIAL CARE DENTISTRY: SENIORS' ORAL HEALTH AND QUALITY OF LIFE 82-89

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April 5, 2019

Bruce Austin, DMD
State Dental Director
Dental Pilot Projects
Center for Prevention and Health Promotion
Oral Health Program
800 NE Oregon Street
Portland, OR 97232

Dear Dr. Austin,

Re: Modification Request for Dental Pilot Project #200, "Training Dental Hygienists to Place Interim Therapeutic Restorations (ITR)"

The purpose of this letter is to kindly request modification for our Dental Pilot Project #200, "Training Dental Hygienists to Place Interim Therapeutic Restorations." This modification includes the following requested changes:

1. Addition of new partners and sites
2. Staff modifications
3. Updated project timeline

Specifically, we wish to include an additional 13 pilot sites managed by two organizations: 1) Advantage Dental Care (6 sites); and 2) Capitol Dental (7 sites). In addition, we also seek approval to train eight additional Expanded Practice Dental Hygienists (EPDH) for providing onsite services of ITRs for this project.

1. Addition of new partners and sites

The rationale for adding these sites is that 1) all the proposed locations are designated as Dental Health Professional Shortage Areas (HPSAs); 2) additional EPDHs will be trained and will provide services at the added sites. Please see below details on currently approved sites as well as the sites requested for approval.

Current Sites	
Ash Creek Elementary School 1360 North 16th Street Monmouth, Oregon 97361	**Childhood Health Associates of Salem** 891 23rd Street NE Salem, OR 97301
Independence Elementary 150 South 4th Street Independence, Oregon 97351	**Community Action Head Start-Independence** 246 I Street Independence, OR 97351
Monmouth Elementary 958 East Church Street Monmouth, Oregon 97361	**Oregon Child Development Coalition (OCDC)** **Location 1: Concordia – Salem Lancaster** 4611 Lancaster Drive NE Salem, OR 97305 **Location 2: Independence** 535 G Street Independence, OR 97351

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Capitol Dental Care – Additional Sites	
WIC (Women, Infant and Children) program 3180 Center St NE Salem, OR 97301 Eligible: WIC clients who are pregnant or children 0-5	**In a Dental Health HPSA: Yes** HPSA Name: Marion County ID: 6414940200 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017
Physicians Medical Center (PMC) 2435 NE Cumulus Ave McMinnville, OR 97128 Eligible: PMC patients	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017
Valley Women's Health 2700 SE Stratus Ave, #301 McMinnville, OR 97128 Eligible: VWH patients	
Champion Team 1275 NW Adams St McMinnville, OR 97128 Eligible: Clients of Champion Team	
Starting Strong 702 W. Main Street Medford, OR 97501 Eligible: JCCO members who are pregnant or children 0-4	**In a Dental Health HPSA: Yes** HPSA Name: Jackson County ID: 6417694621 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 18 Designation Date: 12/26/2017 Last Update Date: 12/26/2017
Grants Pass Clinic 495 SW Ramsey Ave, Grants Pass, OR 97527 Eligible: Patients of GPC	**In a Dental Health HPSA: Yes** HPSA Name: Josephine County ID: 6414221673 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 17 Designation Date: 05/06/2004 Last Update Date: 10/28/2017
Options 1545 Harbeck Rd Grants Pass, OR 97527 Eligible: Clients of Options	

Advantage Dental Care – New Partner
Advantage Dental, an independent practice association founded in 1994, is geographically the largest dental care organization in the state of Oregon and is contracted to provide dental care in 35 of Oregon's 36 counties. The corporate office is located in Redmond, Oregon. Advantage Dental has a network of approximately 150 primary care dental practices to serve the OHP Medicaid population, as well as 28 EPDHs affiliated with its company-owned clinics and owns and operates 41 staff model clinics located throughout the State, particularly in rural counties. Advantage has a strong commitment to improve the access to dental care The Advantage Dental community outreach program closely resembles the Virtual Dental Home model by utilizing EPDHs to provide oral health education, assessments, triage, sealants and other services throughout the state. Advantage is already in schools, WIC, Head Start and long-term care facilities.

OREGON HEALTH & SCIENCE UNIVERSITY
OHSU

School of Dentistry

Department of Community Dentistry

Professor & Chair
Eli Schwarz KOD DDS, MPH, PhD, FHKAM, FCDSHK, FACD, FRACDS

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www.ohsu.edu/sod

North Gilliam County Health District Arlington Medical Center 110 On The Mall PO Box 176 Arlington OR 97812	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018
Sherman County School Pre-K-12 65912 High School Loop Moro, OR 97039 Sherman County School District	
Sherman County Medical Clinic 110 Main Street Moro, OR 97039	
Arlington Community Charter School K-12 1400 Main Street Arlington, OR 97812 Arlington School District 3	
Condon High School 210 E Bayard St Condon, OR 97823 Condon School District 25J	
Condon Elementary School 220 S East Street Condon, OR 97823 Condon School District 25J	

2. Staff Modifications

Current Staff
Meagan Newton, EPDH
Kristin Hockema, EPDH
Brittany Trujillo, EPDH
Dr. Jennifer Clemens, Supervising teledentist
Dr. Eli Schwarz
Dr. Richie Kohli

New Staff

Capitol	**Advantage**
Kelli Beaumont, EPDH Jessica Grapentine, EPDH Kyle Johnstone, EPDH Chelsea Montgomery, EPDH Karla Smith, EPDH Andrea Stutzman, EPDH Dr. Katelyn Nichols, Supervising Dentist Dr. Audrey Mikkelson, Supervising Dentist	Ashley Danielson, EPDH Jessica Crew, EPDH Dr. Monte Junker, Supervising Dentist Dr. Joseph Sharon, Supervising Dentist
	OHSU
	Dr. Neda Modaresi, External Evaluator

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Activity	**Timeline Quarters/Year 2019-2020**							**Key Staff Responsible**
	1st 2019	2nd 2019	3rd 2019	4th 2019	1st 2020	2nd 2020	3rd 2020	
1. Hold didactic, laboratory, and clinical training for new participants	■							Paul Glassman; Neda Modaresi, Eli Schwarz
2. Submit modification to OHA		■						Eli Schwarz
3. OHSU IRB to approve modifications to the study		■						Eli Schwarz, Richie Kohli
4. Trainees place ITRs; teledentist reviews placements		■	■	■	■	■	■	Katie Nichols
5. Evaluation of ITRs by external evaluator	■	■	■	■	■	■	■	Neda Modaresi
6. Disseminate and collect satisfaction surveys	■	■	■	■	■	■	■	Meagan Kintz
7. Analysis and reporting of satisfaction survey data			■				■	Richie Kohli
8. Project Steering Group	■		■		■		■	All partners
9. OHA Site Visit		■				■		Eli Schwarz, Richie Kohli

3. Updated Timeline

Please let us know if you need more information. We appreciate your consideration to approve this request.

Yours Sincerely,

Eli Schwarz KOD, DDS, MPH, PhD

Addendum Dental Pilot Project Modification:
Dental Pilot Project #200
"Training Dental Hygienists to Place Interim Therapeutic Restorations"

DPP#200 has targeted utilization sites with a high percentage of individuals who are from populations identified as evidence-based groups of individuals with the highest disease rates and the least access to dental care.

Since the inception of the pilot project, combined billing data for all DPP#200 sites are as follows:

Medicaid (Oregon Health Plan)	**81.0 %**
Uninsured	**9.5 %**
Privately Insured	**9.5 %**

It is the goal of DPP#200 to continue to see as many of the individuals identified from the targeted populations groups as possible.

- Currently, 75% of the locations served by DPP#200 are defined by HRSA as rural.
- 69% of proposed additional locations are defined as rural by HRSA.
- If all proposed utilization locations are approved, 71% of the locations served by DPP#200 will be rural as defined by HRSA.

The modification would expand the targeted populations served by DPP #200 to the following populations which are evidenced based populations that have shown higher disease rates and least access to dental care.

Targeted Population Descriptions DPP#200	
WIC[1]	Woman, Infant, Children (WIC) serves lower-income pregnant, postpartum and breastfeeding women, infants and children under age 5 who have health or nutrition risks. Many working families are part of WIC - 71% of Oregon WIC families are employed. Applicants must meet four criteria to be eligible for WIC: • Live in Oregon. • Be a pregnant, postpartum or breastfeeding woman, an infant or a child under 5 years old. • Have a household income less than 185% of the federal poverty limit. *(Individuals who can prove Fully eligible for Medicaid/Oregon Health Plan, TANF, SNAP/Food Stamps or FDPIR are automatically income eligible for WIC.)* • Have a nutritional need or risk.

[1] https://www.oregon.gov/oha/PH/HEALTHYPEOPLEFAMILIES/WIC/Pages/index.aspx

Older-Adults	Oregon has been at the forefront of healthcare transformation efforts in the nation, but has been slower to transform the provision of oral health care to older adults.[2],[3] As Oregon's population ages, senior Baby Boomers need for dental care will continue. However, for many, the ability to pay for services will be at risk as a result of decreased income. Through Dental Pilot Project #200, we will provide on-site dental services for older adults in nursing homes as a strategy to expand access to dental services. • 43% of Oregon's older adults live in rural communities. • 1 in 3 older-adults in Oregon had no dental visits in 2015. • 84% of older-adults in Oregon, on Medicaid with diabetes had no dental visits last year.[4]
National School Lunch Program (NSLP) ***Formerly known as the FRL (Free-Reduced Lunch Program)***	Expand to additional schools located in Sherman/Gilliam Counties: The National School Lunch Program is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day.[5] Income Eligibility Guidelines are based on the Federal Poverty Guidelines[6] (FPL) and used in determining eligibility for free and reduced-price meals and free milk. • Children whose household income is less than 130% of FPL qualify for free lunch. • Children whose household income is between than 130% and 185% of FPL qualify for reduced-prince lunch. The percentage of students eligible for free or reduced-price lunch (FRPL) under the National School Lunch Program provides a proxy measure for the concentration of low-income students within a school.1 In this indicator, public schools2 (including both traditional and charter) are divided into categories by FRP eligibility. • High-poverty schools are defined as public schools where more than 75.0 percent of the students are eligible for FRPL. • Mid-high poverty schools as those where 50.1 to 75.0 percent of the students are eligible for FRPL.

[2] Kohli R, Sehgal HS, Nelson S, Schwarz E. Oral health needs, dental care utilization, and quality of life perceptions among Oregonian seniors. Spec Care Dentist. 2017

[3] Kohli R, Nelson S, Ulrich S, Finch T, Hall K, Schwarz E. Dental care practices and oral health training for professional caregivers in long-term care facilities: An interdisciplinary approach to address oral health disparities. Geriatr Nurs. 2017

[4] Oregon Health Authority. Oral Health and Aging Fact Sheet, 2018. Troubling news for Oregon's growing 65+ population.

[5] https://www.fns.usda.gov/nslp/national-school-lunch-program-nslp National School Lunch Program

[6] https://aspe.hhs.gov/poverty-guidelines Federal Poverty Guidelines

	• Mid-low poverty schools as those where 25.1 to 50.0 percent of the students are eligible for FRPL. In school year 2015–16, some 20 percent of public-school students attended low-poverty schools, and 24 percent of public school students attended high-poverty schools.[7] FRL is used as a proxy for income as poverty rates for individuals are typically not available.
Oregon Health Plan (Medicaid)	Oregon Health Plan[8] (OHP) is the name for the Medicaid program in Oregon. Medicaid offers comprehensive medical, dental and behavioral health to participants. Participants must meet eligibility requirements including income eligibility requirements. • Adults - OHP is available to adults who earn up to 138 percent of the Federal Poverty Level • Children - OHP is available to kids and teens (0-18) whose family earns up to 300 percent of the Federal Poverty Level
Coordinated Care Organizations (CCO)	"A coordinated care organization is a network of all types of health care providers (physical health care, addictions and mental health care and dental care providers) who work together in their local communities to serve people who receive health care coverage under the Oregon Health Plan (Medicaid). CCOs focus on prevention and helping people manage chronic conditions, like diabetes. This helps reduce unnecessary emergency room visits and gives people support to be healthy."[9] • See details under Oregon Health Plan (Medicaid) above.
Rural	Rural[10] is defined by the federal government. They use two major definitions of "rural," along with many variants that are also available. One is produced by the U.S. Census Bureau and the other by the Office of Management and Budget. The Federal Office of Rural Health Policy uses components of each definition when determining a classification for a geographic region. • Populations residing in rural areas may be underserved[11] • A HPSA designation describing the specific populations underserved is available. • See Oregon Areas of Unmet Health Care Need Report.[12]

[7] https://nces.ed.gov/programs/coe/indicator_clb.asp National Center for Education Statistics
[8] https://www.oregon.gov/oha/hsd/ohp/pages/apply.aspx Oregon Health Plan
[9] https://www.oregon.gov/oha/hsd/ohp/pages/coordinated-care-organizations.aspx
[10] https://www.hrsa.gov/rural-health/about-us/definition/index.html
[11] https://www.ohsu.edu/xd/outreach/oregon-rural-health/about-rural-frontier/health-care-need-designations.cfm#unmetneed
[12] https://www.ohsu.edu/xd/outreach/oregon-rural-health/about-rural-frontier/upload/2018-Area-of-Unmet-Health-Care-Need-Report.pdf

	Extensive details on the definition can be found at https://www.hrsa.gov/rural-health/about-us/definition/index.html
Primary-Medical Home Clinics/ Behavioral Health Clinics/ Women's Health Care	• Medical clinics with significant Medicaid patient population. • Behavioral health clinics with significant Medicaid patient population • Medical clinics with significant populations that are evidence-based populations with the highest disease rates and least access to care. - Pregnant Women (Medicaid recipients, low-income, rural) - Diabetic - Children (low-income/Medicaid/rural) • Several of the utilization sites/clinics are located in rural areas and have rural designations as identified by HRSA • Oral-Health integration into primary care practice[13], [14], [15], [16]

Continued services will be provided at the Head Start locations in Salem and Independence, Oregon.

Head Start[17]	Head Start programs promote school readiness of children ages birth to five from low-income families by supporting the development of the whole child. Head Start programs support children's growth and development in a positive learning environment through a variety of services, which include • **Early learning**: Children's readiness for school and beyond is fostered through individualized learning experiences. Through relationships with adults, play, and planned and spontaneous instruction, children grow in many aspects of development. Children progress in social skills and emotional well-being, along with language and literacy learning, and concept development • **Health**: Each child's perceptual, motor, and physical development is supported to permit them to fully explore and function in their environment. All children receive health and development screenings, nutritious meals, oral health and mental health support. Programs connect families with medical, dental, and mental health services to ensure that children are receiving the services they need. • **Family well-being**: Parents and families are supported in achieving their own goals, such as housing stability, continued education, and financial security. Programs support and strengthen parent-child relationships and engage families around children's learning and development. Income requirements for participation in head start[18]

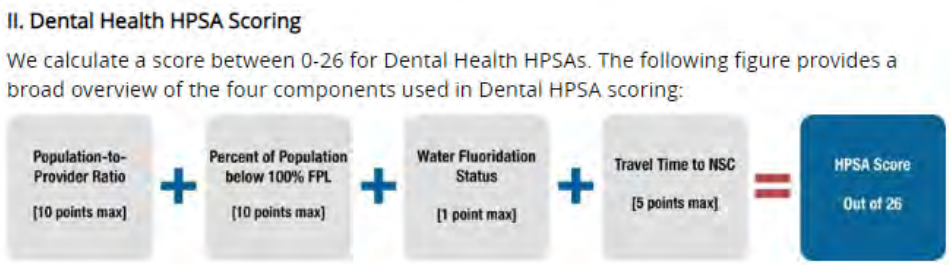
[13] https://www.hrsa.gov/sites/default/files/hrsa/oralhealth/integrationoforalhealth.pdf
[14] https://bphc.hrsa.gov/qualityimprovement/clinicalquality/oralhealth/index.html
[15] http://www.safetynetmedicalhome.org/sites/default/files/Guide-Oral-Health-Integration.pdf
[16] http://www.safetynetmedicalhome.org/sites/default/files/White-Paper-Oral-Health-Primary-Care.pdf
[17] https://www.acf.hhs.gov/ohs
[18] https://www.ohsa.net/ Oregon Head Start Association

	• Children from birth to age five from families with low income, according to the Poverty Guidelines[19] published by the federal government are eligible for Head Start and Early Head Start services. Pregnant women who are low income qualify for Early Head Start. • Children in foster care, homeless children, and children from families receiving public assistance (TANF or SSI) are eligible for Head Start and Early Head Start services regardless of income.

Additional information: The following are descriptions of information about the site locations.

National Health Service Corp (NHSC) Approved Sites[20]	National Health Service Corps (NHSC) is a federal government program administered by the U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA). The NHSC programs provide scholarships and student loan repayment to health care professionals in exchange for a service commitment whereby participants will be engaged in providing comprehensive primary medical, **dental**, and behavioral and mental health care in designated areas across the country with a shortage of health care professionals.
Dental HPSA	**About Dental HPS**A's: In Oregon, 33 of 36 counties are designated Dental HPSA. (Attachment) A Dental HPSA can be classified as a Dental HPSA in multiple ways. https://bhw.hrsa.gov/shortage-designation/types • Shortage designations indicate geographic areas with a shortage of dental providers for **a given population** – according to the HRSA guidelines. These shortages may be geographic-, population-, or facility-based: • **Geographic Area** A shortage of providers for the entire population within a defined geographic area. • **Population Groups** A shortage of providers for a specific population group(s) within a defined geographic area (e.g., low income, migrant farmworkers, and other groups) • **Facilities**

[19] https://aspe.hhs.gov/poverty-guidelines Federal Poverty Guidelines
[20] https://nhsc.hrsa.gov/downloads/nhsc-sites/nhsc-site-reference-guide.pdf

	Scoring Methodology:  [21] Once designated, HRSA scores HPSAs on a scale of 0-25 for primary care and mental health, and 0-26 for dental health, with higher scores indicating greater need. Dental HPSA's are not considered a population. These designations target millions of dollars of federal resources to improve health care in underserved areas of the state. [OHA Office of Primary Care] estimates these designations bring in over $20 million per year in unmatched federal resources. Not all individuals living in Dental HPSA's are considered underserved. See descriptions of shortage designations.

[21] https://bhw.hrsa.gov/shortage-designation/hpsa-process

Location Address (Site Name)	Target Population	Demographics of Site[1]	Dental HPSA and Designation Type[2]	HRSA – Urban Area/Rural Area[3],[4],[5]	National Health Service Corp (NHSC) Approved Sites[6], [7],[8]
Ash Creek Elementary School 1360 North 16th Street Monmouth, Oregon 97361 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Ash Creek Elementary School • 64% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 64% National Lunch Program • 492 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Childhood Health Associates of Salem 891 23rd Street NE Salem, OR 97301 (Childhood Health Associates of Salem – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description**: Childhood Health Associates of Salem • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 55% (Medicaid) OHP overall • 60% of total visits are OHP recipients. • 14,000 unique patient visits • 45,000 total patient visits	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6419994141 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 12/26/2012	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	This is a National Health Service Corps (NHSC) site; the area is a Health Professional Shortage Areas (HPSA) shortage area for medical, mental health, and dental. The need is greater for dental and mental health than for medical.
Falls City Elementary 111 N Main St Falls City, OR 97344 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less	**Site Name & Description:** Falls City Elementary • <95% National Lunch Program **Clinic Patient/Payment Source Demographics**: • <95% National Lunch Program • 97 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

[1] See attached school Fact sheets for detailed “At-a-Glance” School specific information.
[2] https://data.hrsa.gov/tools/shortage-area/hpsa-find
[3] List of Rural Counties and Designated Eligible Census Tracts in Metropolitan Counties, Updated Census 2010, HRSA
[4] https://www.hrsa.gov/rural-health/about-us/definition/index.html
[5] https://www.ohsu.edu/sites/default/files/2018-08/2018%20Area%20of%20Unmet%20Health%20Care%20Need%20Report.pdf
[6] https://ersrs.hrsa.gov/ReportServer?/HGDW_Reports/BCD_NHSC_SITE/NHSC_Appr_Site_List&rs:Format=PDF&theFilterType=region&theWhere=REGION_CD=%2710%27
[7] https://nhsc.hrsa.gov/downloads/nhsc-sites/nhsc-site-reference-guide.pdf
[8] https://datawarehouse.hrsa.gov/HGDWReports/OneClickRptFilter.aspx?rptName=NHSCAppSiteList

	than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch				
Independence Elementary 150 South 4th Street Independence, Oregon 97351 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Independence Elementary • 80% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 80% National Lunch Program • 421 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Community Action Head Start-Independence 246 I Street Independence, OR 97351 (Community Action Head Start – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are low-income and have a household income equal to or less than 130% of the published Federal Poverty Level who qualify for Head Start	**Site Name & Description:** OCDC – Head Start **Clinic Patient/Payment Source Demographics**: • Children who qualify for Head-Start	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Monmouth Elementary 958 East Church Street Monmouth, Oregon 97361 (Polk County – Capitol Dental Site - Central School District 13J & Falls City School District 57)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Monmouth Elementary • 50% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 50% National Lunch Program • 547 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Oregon Child Development Coalition (OCDC) **Location 1: Concordia – Salem Lancaster** 4611 Lancaster Drive NE Salem, OR 97305	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e.	**Site Name & Description:** OCDC – Head Start **Clinic Patient/Payment Source Demographics**: Children who qualify for Head-Start	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	

(Community Action Head Start – Capitol Dental Site)	low-income, migrant farmworker, homeless • Individuals who are low-income and have a household income equal to or less than 130% of the published Federal Poverty Level who qualify for Head Start		Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017		
Oregon Child Development Coalition (OCDC) **Location 2: Independence** 535 G Street Independence, OR 97351 (Community Action Head Start – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are low-income and have a household income equal to or less than 130% of the published Federal Poverty Level who qualify for Head Start	**Site Name & Description:** OCDC – Head Start **Clinic Patient/Payment Source Demographics**: • Children who qualify for Head-Start	**In a Dental Health HPSA: Yes** HPSA Name: Low Income/Migrant Farmworker/Homeless - Marion/Polk ID: 6414940200 Designation Type: HPSA Population Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
	Proposed additional sites listed below:				
WIC (Women, Infant and Children) program 3180 Center St NE Salem, OR 97301 (WIC – Salem, Oregon Site – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • WIC Eligible: Individuals who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for WIC benefits.	**Site Name & Description:** Women, Infant and Children Program • WIC clients who are pregnant or children 0-5 **Client/Patient/Payment Source Demographics**: • 43% of all pregnant women in Marion County received WIC benefits • 8,751 women, infants and children participated in Marion Counties WIC programs	**In a Dental Health HPSA: Yes** HPSA Name: Marion County ID: 6414940200 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/14/1999 Last Update Date: 10/28/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	
Physicians Medical Center (PMC) 2435 NE Cumulus Ave McMinnville, OR 97128 (McMinnville – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Physicians Medical Center • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 24% (Medicaid) OHP overall • 50% of pediatric patients are OHP recipients. • 7,240 unique patient visits • 55,920 total patient visits	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

Valley Women's Health 2700 SE Stratus Ave, #301 McMinnville, OR 97128 (McMinnville – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Valley Women's Health • Obstetrics and Gynecology private practice **Clinic Patient/Payment Source Demographics**: • 30-50% (Medicaid) OHP • 20 patients per day	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Champion Team 1275 NW Adams St McMinnville, OR 97128 (McMinnville – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals who are uninsured and who are low-income and have a household income equal to or less than 138% FPL which makes them eligible for Medicaid (OHP) • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Champion Team • Champion Team is a non-profit organization run and operated by peers that are committed to fostering recovery by providing a trauma informed, safe place with programs and services for adults that self-identify with mental diversity and those co-occurring challenges. • Capitol Dental co-located dental clinic provides services **Clinic Patient/Payment Source Demographics**: • 100% (Medicaid) OHP	**In a Dental Health HPSA: Yes** HPSA Name: Yamhill County ID: 6413125912 Type: Low-Income/Migrant Farmworker/ Homeless HPSA Status: Designated Score: 13 Designation Date: 05/23/1978 Last Update Date: 10/28/2017	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Starting Strong 702 W. Main Street Medford, OR 97501 (Medford – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless	**Site Name & Description**: Starting Strong – Jackson Care Connect Program • Jackson Care Connect CCO members who are pregnant or children 0-4 **Clinic Patient/Payment Source Demographics**: • 100% (Medicaid) OHP	**In a Dental Health HPSA: Yes** HPSA Name: Jackson County ID: 6417694621 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 18 Designation Date: 12/26/2017 Last Update Date: 12/26/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	
Grants Pass Clinic 495 SW Ramsey Ave, Grants Pass, OR 97527 (Grants Pass – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless	**Site Name & Description**: Grants Pass Clinic • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 28% (Medicaid) OHP • 14,558 unique patients visits • 51,088 patient visits	**In a Dental Health HPSA: Yes** HPSA Name: Josephine County ID: 6414221673 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 17 Designation Date: 05/06/2004 Last Update Date: 10/28/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	

	• Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income				
Options for Southern Oregon – Hillside Center 1545 Harbeck Rd Grants Pass, OR 97527 (Grants Pass – Capitol Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals low-income at >250% FPL are eligible for discounted/sliding fee schedule • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Options for Southern Oregon • Behavioral health clinic providing services to adult patients **Clinic Patient/Payment Source Demographics**: • 91% (Medicaid) OHP • 6,155 clients • 92,548 service counts	**In a Dental Health HPSA: Yes** HPSA Name: Josephine County ID: 6414221673 Type: Low-Income/Migrant Farmworker HPSA Status: Designated Score: 17 Designation Date: 05/06/2004 Last Update Date: 10/28/2017	HRSA- Rural Designation – No Location: This location is not in an area that qualifies for Rural Health Grants.	National Health Service Corps approved site. • Jackson County • UDS Number: 283429 • Options for Southern Oregon – Hillside Center
North Gilliam County Public Health District Arlington Medical Center 110 On The Mall PO Box 176 Arlington OR 97812 (Sherman County & Gilliam County Public Health – Advantage Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Arlington Medical Center • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 896 patients • Breakdown of active patients by age bracket: • Ages 0-17: 300 • Ages 18-29: 26 • Ages 30-50: 50 • Ages 51-64: 500 • Ages 65+: 20 *Percentage of total Medicaid at location unavailable. Only patients at this location with Advantage Dental Insurance or OHP Open Card will be seen.	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Sherman County School Pre-K-12 65912 High School Loop Moro, OR 97039 Sherman County School District	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and	**Site Name & Description:** Sherman County School Pre-K – 12 • 48% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 48% National Lunch Program	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

	who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	• 249 students enrolled	Last Update Date: 07/18/2018		
Sherman County Medical Clinic 110 Main Street Moro, OR 97039 (Sherman County & Gilliam County Public Health – Advantage Dental Site)	• Individuals on Medicaid (OHP) • Individuals residing in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are older-adults (age 65+) who are uninsured, Medicaid or low-income	**Site Name & Description**: Sherman County Medical Clinic • Primary Medical Home **Clinic Patient/Payment Source Demographics**: • 15% (Medicaid) OHP • 15% Medicare • 7% Self-Pay • 63% Private-Insurance **Currently 1324 active patients.** 0-17: 102 patients 18-29: 322 30-50: 329 51-64: 375 65+:196	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Arlington Community Charter School K-12 1400 Main Street Arlington, OR 97812 Arlington School District 3 (Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon School District 25J, Sherman County School District)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Arlington Community Charter School Pre-K – 12 • 53% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 53% National Lunch Program • 149 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	
Condon High School 210 E Bayard St Condon, OR 97823 Condon School District 25J (Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and	**Site Name & Description:** Condon High School • 34% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 34% National Lunch Program	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

School District 25J, Sherman County School District)	who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	• 35 students enrolled			
Condon Elementary School 220 S East Street Condon, OR 97823 Condon School District 25J (Sherman County & Gilliam County – Advantage Dental Site Arlington School District 3, Condon School District 25J, Sherman County School District)	• Individuals on Medicaid (OHP) • Individuals residing/attending school in rural communities as defined by Federal definition under HRSA • Individuals meeting associated Dental HPSA designation type i.e. low-income, migrant farmworker, homeless • Individuals who are uninsured and who are low-income and have a household income equal to or less than 185% of the published Federal Poverty Level who qualify for Free and Reduced Lunch	**Site Name & Description:** Condon Elementary School • 43% National Lunch Program **Clinic Patient/Payment Source Demographics**: • 43% National Lunch Program • 95 students enrolled	**In a Dental Health HPSA: Yes** HPSA Name: Sherman/Gilliam Counties ID: 6412142772 Type: Low-Income Designation Type: Population HPSA Status: Designated Score: 16 Designation Date: 07/18/2018 Last Update Date: 07/18/2018	HRSA- Rural Designation – Yes Location: Qualifies as a location that would be eligible under HRSA requirements to apply for Rural Health Grants.	

SCHOOL HEALTH

Appendix B

RESEARCH ARTICLE

A School-Level Proxy Measure for Individual-Level Poverty Using School-Level Eligibility for Free and Reduced-Price Meals

SOPHIA E. DAY, MA[a] KINJIA HINTERLAND, MPH[b] CHRISTA MYERS, MPH[c] LEENA GUPTA, MPH[d] TIFFANY G. HARRIS, PhD, MS[e] KEVIN J. KONTY, MS[f]

ABSTRACT

BACKGROUND: Socioeconomic status (SES) impacts health outcomes. The Youth Risk Behavior Survey (YRBS), like many school-based data sources, lacks individual-level poverty information. We propose using school-level percentages of student eligibility for free/reduced-price meals (%FRPM) as a proxy for individual-level poverty.

METHODS: Using the New York City (NYC) 2009 YRBS, we created school-level poverty quartiles to append to individual YRBS records by ranking schools by %FRPM. We compared this with 2 other school-level poverty measures using students' home and school neighborhood-level poverty and measured the association of these 3 school-level proxies with individual's household income. Last, we evaluated health outcomes by race/ethnicity and poverty to demonstrate the importance of accounting for poverty.

RESULTS: The school-level measure that used %FRPM had the strongest association with household income. When the school-level individual poverty proxy was included in illustrative analyses using YRBS data, patterns by poverty within race/ethnicity emerged that were not seen when looking at race/ethnicity alone.

CONCLUSIONS: Using a poverty measure to analyze school-based data will provide a better understanding of the impact of SES on health outcomes. Based on our evaluation, when individual-level information is not available, we propose using school-level %FRPM, which are publicly available throughout the United States.

Keywords: methods and materials of instruction; research; health-risk behaviors; evaluation; public health; child and adolescent health.

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The Youth Risk Behavior Survey (YRBS) is a critical surveillance tool used to monitor priority health-risk behaviors among high school students in the United States.[1] Findings from the YRBS are used to inform school health policies that promote healthy behaviors.[1-6] Previous research has shown that, in addition to behaviors, socioeconomic factors play an important role in health outcomes among adolescents.[4,7-14] However, the YRBS does not directly measure poverty. Typical measures of individual socioeconomic status (SES) used for adults such as income, education-level, and occupation cannot be used for children because they usually are still in school, live with a parent or guardian, and often do not know the required information to determine household income.[14-16] Additionally, other data such as income information from student-records cannot be linked to the YRBS because it is an anonymous survey.

Because of a lack of poverty information contained on the YRBS, much of the health inequity research using YRBS data has focused on differences by race/ethnicity.[3-6,18] Other than research done using the 1992 YRBS, which was a follow-back survey to the National Health Interview Survey that provided data from household adults on family income and education attainment, there are only a few YRBS studies that have examined poverty and health behaviors.[11,22-24] Those that have measured poverty

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Meeting Minutes DPF #200 8-10-2020

have used school-level proxies based on the geographic location of the school.[23,24] However, this approach is limited in settings where the survey population attends a single or small number of schools. Even these nonspecific approaches have shown that having some measure of poverty is important for understanding health behaviors and outcomes, emphasizing the need for a more specific measure of poverty that can be applied to local and state YRBS data.[4,13,14,18]

Using the readily available school-level percent of students eligible for the National School Lunch Program (NSLP), we created and validated a school-level proxy measure of individual-level poverty for use in conjunction with YRBS data.[25,26] School-level NSLP eligibility has been shown to be highly associated with various poverty measures involving the household incomes of residents within a school's geographic neighborhood, indicating it is as good a measure of adolescent SES as widely used school area-based measures.[14,27] This measure could also be used by other school-based studies with student-level data that lack household income or other individual-level SES information but the students' school are known.[13] To validate this approach by means of comparison, we also evaluated 2 other approaches to create school-level proxy measures: (1) student home neighborhood-level poverty (HNP); and (2) school neighborhood-level poverty (SNP).

METHODS

Participants

The New York City (NYC) YRBS is conducted biennially by the NYC Department of Health and Mental Hygiene (DOHMH) in collaboration with the NYC Department of Education (DOE) and is part of the National Centers for Disease Control and Prevention's (CDC) Youth Risk Behavior Surveillance System (YRBSS).[1] The sampling frame for the 2009 NYC YRBS (2009YRBS$_{NYC}$) constituted 396 public high schools serving NYC students, grades 9-12.[28] From this frame, a representative sample of 110 schools was selected, of which 105 schools participated. A sample of students within the participating schools was surveyed and the collected data were weighted to be representative of all students included in the frame. School-level poverty measures were created for the 105 sampled schools because the survey data were only available from surveyed students at these schools. However, these school-level poverty measures must be reflective of the school-level poverty of all 396 schools in the sample frame. To do this, the measures of school-level poverty were defined and evaluated using the 396 sample frame schools and their student enrollment and then applied to the 105 sampled schools.

Instruments

Individual student-level records were provided by the NYC DOE for the 2009-2010 school year, which we limited to students in grades 9-12 enrolled in the 396 schools in the NYC YRBS sample frame. Each student-record contained a unique student-code as well as the student's grade-level, school-code, school zip code, home zip code, and meal code eligibility status for NSLP. The home and school zip codes were used to create standardized measures of HNP and SNP as the percent of residents in a given area whose household income is below the federal poverty threshold (FPT): <10% (low-poverty), 10% to <20% (medium-poverty), 20% to <30% (high-poverty), and ≥30% (very-high-poverty).[29] These student-records were grouped by school to create school-specific information (see Procedures). Area-based poverty measures, such as HNP, are often used as a proxy for individual-level poverty when a direct measure is not available (such as household income);[30] in our analysis, we refer to HNP as "Poverty$_{HNP}$" when used as a 4-level measure of individual poverty.

Student meal status, reported by the New York State Education Department (NYSED), included 4 categories: (1) students eligible for federal assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) are automatically in NSLP and classified as "Free$_{Level1}$"; (2) students living in households with an income ≤130% of the FPT are classified as "Free$_{Level2}$"; (3) students between 131% and 185% FPT are classified as "Reduced-price"; and (4) students living in a household with an income >185% FPT are classified as "Full-price" meals. An income eligibility form must be completed for a student to be eligible for Free$_{Level2}$ and reduced-price meals. Meal statns is often used as a measure of individual-level poverty because of its direct relationship with

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DRR #200 Modified DRR #260 8-10-2020
Meeting Minutes DRR #260 8-10-2020

household income;[10,13,14,31-33] in our analysis, we refer to meal status as "$Poverty_{MEAL}$" when used as a 4-level measure of individual poverty.

To illustrate how the poverty measure can be applied to YRBS analyses, we used the $2009YRBS_{NYC}$ respondent data, which included 11,887 students in 105 schools. Students who participated in the $2009YRBS_{NYC}$ completed an anonymous, 99-item questionnaire on health-risk behaviors and basic demographic information.[28] The YRBS is designed to monitor 6 types of priority health-risk behaviors: (1) behaviors that contribute to unintentional injury and violence; (2) sexual behaviors that contribute to sexually transmitted diseases and unintended pregnancy; (3) alcohol and other drug use; (4) tobacco use; (5) unhealthy dietary behaviors; and (6) inadequate physical activity.[1,28] We created dichotomous variables to illustrate outcomes in each of these areas - Area 1 rarely or never wore a helmet when riding a bicycle last year and been hit by a boyfriend/girlfriend last year; Area 2 was sexually active during the last 3 months and reported having been or gotten someone pregnant ≥1 time(s); Area 3 consecutively drank 5 or more alcoholic beverages ≥1 time(s) last month and used marijuana ≥1 time(s) last month; Area 4 smoked ≥1 cigarette(s) last month; Area 5 drank ≥2 sugar-sweetened beverages (SSBs) per day; and Area 6 was physically active ≥60 minutes at least 5 days last week.[1,28]

Procedures

We created 3 measures of school-level poverty using NYC DOE enrollment data for students in grades 9-12. The first measure ($Method_{FRPM}$) used student meal status (calculated for each school using the DOE student-records). We combined students eligible for $Free_{Level1}$, $Free_{Level2}$, and reduced-price meals, which include students living in households with incomes ≤185% FPT, aud refer to them as students eligible for free or reduced-price meals (FRPM). Because we were analyzing $2009YRBS_{NYC}$ respondent data, we wanted to create a measure that produced an approximately equal number of weighted respondents in each of the 4 poverty categories. When using school-level poverty as a proxy for individual-level poverty, 2 possible approaches are to (1) create poverty categories where school is the unit being grouped into the 4 groups with approximately an even number of schools in each poverty group; or (2) use the number of students enrolled in each school to create an approximately even number of students in each poverty group. In $Method_{FRPM}$, we explored these 2 options for producing 4 evenly distributed poverty categories (even number of schools and students in each quartile) and found that ranking schools from lowest to highest percent FRPM and creating quartiles by placing an approximately equal number of students into each poverty group (low-, medium-, high-, very-high-poverty) provided the most evenly distributed number of $2009YRBS_{NYC}$ weighted responses in each poverty category.

Home zip codes (from the DOE student-records) categorized into levels of HNP for students attending each school were used to create the second measure of school-level poverty ($Method_{HNP}$) the same way as $Method_{FRPM}$, except instead of using student eligibility for FRPM, students who live in a very-high-poverty neighborhood (defined as living in a zip code where ≥30% of residents live below FPT) were counted in the numerator over the total number of students in each school to create a school-level percent of very-high-HNP ranked from lowest to highest among the 396 sample frame schools. As with $Method_{FRPM}$, we explored creating categories grouped by both school and students and found that poverty quartiles grouped by student were optimal.

The third measure ($Method_{SNP}$) used school zip codes categorized into 4 levels of SNP, which was based on the percent of residents living below the FPT in the school's zip code.[29] Because this method of creating poverty quartiles uses a measure that was already determined at the school-level, it is not a relative measure and does not differ whether grouped by number of schools or students. Table 1 summarizes $Method_{FRPM}$, $Method_{HNP}$, and $Method_{SNP}$.

Data Analysis

We applied the 3 school-level poverty measures ($Method_{FRPM}$, $Method_{HNP}$, $Method_{SNP}$) to the individual student-records for the 396 sample frame schools. We used 2 previously defined variables from the additional data provided by DOE to measure individual-level poverty: 4-level student meal status ($Poverty_{MEAL}$) and 4-level student HNP status ($Poverty_{HNP}$). To assess how well each method of defining school-level poverty approximated individual poverty, we evaluated the association between each school-level measure and each individual-level measure using the weighted kappa statistic (K).

$Poverty_{MEAL}$ is a direct proxy for household income and, therefore, a K that measures the association of a school-level proxy (as defined by $Method_{FRPM}$, $Method_{HNP}$, or $Method_{SNP}$) with $Poverty_{MEAL}$ is a direct measure of association of the school-level proxy with an individual's household income. However, the second variable ($Poverty_{HNP}$) is an indirect proxy of household income so the K that measures the association of a school-level proxy ($Method_{FRPM}$, $Method_{HNP}$, $Method_{SNP}$) with $Poverty_{HNP}$ does not indicate directly how well that school proxy measures household income. To determine how well $Poverty_{HNP}$ approximated household income, we

Meeting Minutes DFR #200 8-10-2020

Table 1. Summary of Methods and Definitions for Creating School-Level Poverty Proxy Measures for Individual-Level Poverty

Method	Variable used (from data source)	Students are counted as being "in poverty" if they are:	Schools are ranked from lowest to highest poverty by	Schools are divided into "poverty-quartiles" with:	School-level poverty quartiles are defined by:	School cut-points are applied to create school-level poverty assignments
$Method_{FRPM}$	Meal code status (DOE* enrollment)	Eligible for free or reduced-price meals† (FRPM)	% of students FRPM	Approximately equal number of students in each quartile	% of students eligible for FRPM per school	Low-poverty (0%, <49%) Medium-poverty (49%, <65%) High-poverty (65%, <80%) Very-high-poverty (80%, 100%)
$Method_{HNP}$	Home neighborhood-level Poverty (HNP) created from: Home zip code (DOE* enrollment) Zip code poverty‡ (2000 Census)	Living in a very high-HNP (≥30% of residents living below FPT)	% of students living in a very-high-poverty HNP	Approximately equal number of students in each quartile	% of students living in a very-high-poverty HNP per school	Low-poverty (0%, <4%) Medium-poverty (4%, <23%) High-poverty (23%, <54%) Very-high-poverty (54%, 100%)
$Method_{SNP}$	School neighborhood-level Poverty (SNP) created from: School zip code (DOE* enrollment) Zip code poverty‡ (2000 Census)	N/A	N/A	N/A	% of residents living below FPT per school's zip code	Low-poverty ≤10% FPT Medium-poverty <10%-20% FPT High-poverty <20%-30% FPT Very-high-poverty ≥30% FPT

*The New York City (NYC) Department of Education (DOE).
†Students eligible for free or reduced-price meals (FRPM) includes meal codes $Free_{Level1}$, $Free_{Level2}$, and reduced-price meals, which includes households with incomes ≤185% FPT.
‡Neighborhood-level poverty is defined as the percent of the population in a given NYC zip code whose household income is below the Federal Poverty Threshold (FPT) categorized as: low- (<10%), medium- (10% to <20%), high- (20% to <30%), and very-high-poverty (≥30%). The FPT, which follows the Office of Management and Budget's Statistical Policy Directive 14, uses a set of money income thresholds that vary by family size and composition. If a family's total income is less than the family's poverty threshold, then that family and every individual in it is classified as being in poverty (below 100% of poverty).

used the 2007-2011 American Community Survey weighted data for persons living in a Public Use Micro-data Area (PUMA) (the statistical geographic area defined for dissemination of census data) located in a NYC county ($2007\text{-}11ACS_{NYC}$). For each person-record a unique ID, survey-weight, home PUMA, and household income (given as the percent of their FPT) were used to create a 4-level area-based poverty measure based on the percent of residents living below FPT in a given PUMA. This area-based poverty measure ($PovertyACS_{HNP}$) is the same as $Poverty_{HNP}$ except PUMAs as opposed to zip codes are used to geographically define home neighborhoods. Each $2007\text{-}11ACS_{NYC}$ person-record was assigned an individual-level poverty proxy (low-, medium-, high-, or very-high-poverty) based on the $PovertyACS_{HNP}$ category of their home PUMA. Here $PovertyACS_{HNP}$ serves as a direct proxy for an individual's household income. Last, we created a 4-level $PovertyACS_{MEAL}$ status similar to $Poverty_{MEAL}$ with the following categories: (1) "$FreeACS_{Level1}$": receiving SNAP (a household indicator that we applied to the person aged 14-19 living in that household); (2) "$FreeACS_{Level2}$": household income ≤130% FPT; (3) "ReducedACS": between 131% and 185% FPT; and (4) "FullACS": household income >185% FPT. We further limited the $2007\text{-}11ACS_{NYC}$ weighted person-data to those attending a public school within the past 3 months, enrolled in grades 9-12 and between the ages of 14 and 19 and measured the association of individual income ($PovertyACS_{MEAL}$) to the assigned home area-based proxy for individual income, $PovertyACS_{HNP}$ among public high school students using K. We also use this K to define

high-agreement in the context of a school-level proxy measure's agreement with a student-level poverty measure (described below).

The K statistic is influenced by the prevalence of the finding under consideration and, as a result, is only meaningful when looked at within the context of the analysis. For rare findings, a low K value may not necessarily reflect low agreement.[34] A school-level proxy for a student-level trait will assign every student in a school the same value and, when comparing it to individual-level data, it is nearly impossible to achieve $K = 1$ unless, for example, every single student within a school had the same meal code status; therefore, the K value may appear low while approaching the maximum K for a school-level measure. To provide a gold-standard K in the context of this analysis, we used the most commonly accepted and utilized proxy measure of individual poverty, home area-based poverty using household income.[30] This gold-standard K is the measured agreement between $\text{PovertyACS}_{\text{HNP}}$ and $\text{PovertyACS}_{\text{MEAL}}$ using $2007\text{-}11\text{ACS}_{\text{NYC}}$ public high school person-records.

Finally, as a contextual validation of a poverty measure in analyzing YRBS data, we used the school-level poverty assignments from $\text{Method}_{\text{FRPM}}$ limited to the 105 sampled schools and appended the school poverty category to the 11,897 responses of the $2009\text{YRBS}_{\text{NYC}}$. Each record was assigned a poverty category (low-, medium-, high-, very-high-poverty) by matching the school codes, which were used as a proxy for individual poverty in our analysis. For each selected outcome measured in the $2009\text{YRBS}_{\text{NYC}}$, prevalence estimates were calculated using the 9 previously defined dichotomous variables. We stratified by race/ethnicity for non-Hispanic black (black) versus non-Hispanic white (white) students and then by poverty (very-high- vs low-poverty) separately among black and white students to evaluate the information poverty status provided above and beyond what was captured by race/ethnicity. We used *t* tests to test for significance of differences by race/ethnicity and differences by poverty within a racial/ethnic group at the .05 level.

All analysis was done in SAS 9.2. The 9 outcomes reported using $2009\text{YRBS}_{\text{NYC}}$ data were calculated and evaluated with SAS-callable SUDAAN 11.0.1 and specified the multistage probability sampling with replacement design option to correct for the clustering inherent in the YRBS' survey design.[1,28] These analyses were also nested by school and classroom and weighted to adjust for the probability of selection and poststratified by sex within grades and race/ethnicity.[1,28]

RESULTS

Schools were divided into 4 poverty groups using the $\text{Method}_{\text{FRPM}}$, $\text{Method}_{\text{HNP}}$, and $\text{Method}_{\text{SNP}}$ definitions (Table 1). $\text{Method}_{\text{FRPM}}$ resulted in schools with <49% of students eligible for FRPM categorized as "low-poverty" (Quartile 1) and schools with ≥80% FRPM eligibility as "very-high-poverty" (Quartile 4). Using quartiles based on percent FRPM alone would result in few schools categorized as low- (<25% FRPM) or medium-poverty (26-50% FRPM) because nearly 80% of the schools had ≥50% of their student population eligible for FRPM, which is true by HNP as well. $\text{Method}_{\text{HNP}}$ resulted in schools with <4% of students living in very-high-poverty neighborhoods categorized as "low-poverty" (Quartile 1) and schools with ≥54% living in very-high-poverty neighborhoods as "very-high-poverty" (Quartile 4). $\text{Method}_{\text{SNP}}$ defined a school as "low-poverty" (Quartile 1) if the school was located in a zip code where ≤10% of residents lived below FPT and assigned a school to "very-high-poverty" (Quartile 4) if ≥30% lived below FPT.

After applying the quartile cut-points described above to the sample frame population, $\text{Method}_{\text{FRPM}}$ resulted in the most even distribution in the number of schools between low- versus very-high-poverty (19% vs 37%), followed by $\text{Method}_{\text{SNP}}$ (15% vs 36%), and $\text{Method}_{\text{HNP}}$ (15% vs 42%). All 3 methods resulted in approximately equal number of students assigned to low- versus very-high-poverty. Of the schools located in very-high-poverty neighborhoods, 92% were assigned very-high-poverty nsing $\text{Method}_{\text{HNP}}$ compared with 52% using $\text{Method}_{\text{FRPM}}$. $\text{Method}_{\text{FRPM}}$ resulted in 17% of very-high-HNP students being assigned to low-poverty schools, while $\text{Method}_{\text{SNP}}$ and $\text{Method}_{\text{HNP}}$ assigned 9% and 1% of students, respectively. All methods assigned more FRPM and Hispanic and black students to very-high-poverty schools versus low-poverty schools (Table 2).

Using $\text{Method}_{\text{FRPM}}$, $\text{Method}_{\text{HNP}}$, and $\text{Method}_{\text{SNP}}$ to define school-level poverty, we used K to measure the association with individual-level $\text{Poverty}_{\text{MEAL}}$ and $\text{Poverty}_{\text{HNP}}$ (Table 3). $\text{Method}_{\text{FRPM}}$ ($K = 0.271$, confidence interval, $CI = 0.268, 0.273$) was the most highly correlated with $\text{Poverty}_{\text{MEAL}}$, followed by $\text{Method}_{\text{HNP}}$ ($K = 0.163$, $CI = 0.161, 0.166$) and $\text{Method}_{\text{SNP}}$ ($K = 0.123$, $CI = 0.120, 0.126$). For individual-level $\text{Poverty}_{\text{HNP}}$, school-level $\text{Method}_{\text{HNP}}$ and $\text{Method}_{\text{SNP}}$ were the most highly correlated ($K = 0.449$, $CI = 0.447, 0.451$ and $K = 0.378$, $CI = 0.376, 0.381$, respectively), followed by $\text{Method}_{\text{FRPM}}$ ($K = 0.220$, $CI = 0.217, 0.223$). Using $2007\text{-}11\text{ACS}_{\text{NYC}}$ to determine how well home area-based poverty measures household income among public high school students, we found $K = 0.213$ ($CI = 0.211, 0.215$) for the association between $\text{PovertyACS}_{\text{HNP}}$ and $\text{PovertyACS}_{\text{MEAL}}$ (Table 4), which was less correlated than the best school-level proxy with $\text{Poverty}_{\text{MEAL}}$ ($\text{Method}_{\text{FRPM}}$). Further, $\text{Method}_{\text{FRPM}}$ measured both individual-level

DRR #200 Modification to Meeting Minutes DRR #268 8-10-2020

Table 2. Demographic Distributions by School-Level Poverty Assignments Using Poverty Cut-Points Defined by $Method_{FRPM}$*, $Method_{HNP}$†, and $Method_{SNP}$‡ Applied to the 2009 NYC YRBS Sample Frame 396 Schools and Their 2009-2010 School Year Student Enrollment Records.

Poverty quartile distributions by select characteristics associated with poverty for school and student enrollment		Assignment of school poverty quartiles by method:					
		$Method_{FRPM}$*		$Method_{HNP}$†		$Method_{SNP}$‡	
		Low-poverty	Very-high-poverty	Low-poverty	Very-high-poverty	Low-poverty	Very-high-poverty
Number of schools	N	77	147	59	166	58	142
	%	19	37	15	42	15	36
School neighborhood: very-high-poverty§		14	52	0	92	0	100
Number of students	N	68,084	70,446	67,619	68,705	57,357	61,999
	%	25	26	25	25	21	23
Home neighborhood ‖: very-high-poverty§		17	43	1	57	9	49
Meal code¶ status: free or reduced		13	36	22	31	18	26
Race/ethnicity: Hispanic or Black		19	33	18	34	15	29

NYC, The New York City; YRBS, Youth Risk Behavior Survey.
*$Method_{FRPM}$: Poverty is defined by the percent of students eligible for free or reduced-price meals (FRPM) as defined in $Method_{FRPM}$ where "low-poverty" is a school with <49% of the enrollment population eligible for FRPM and "very-high-poverty" is a school where ≥80% of the students are eligible for FRPM.
†$Method_{HNP}$: Poverty is defined by the percent of students classified with very high home neighborhood-level poverty (HNP), which is defined as living in a zip code where ≥30% of the residents live below the federal poverty threshold (FPT), where "low-poverty" is a school with <4% of the enrollment population living in a very-high-poverty neighborhood and "very-high-poverty" is a school where ≥54% of the students are living in a very-high-poverty neighborhood.
‡$Method_{SNP}$: Poverty is defined by the school's neighborhood poverty (SNP), which is determined by the percent of residents in the school zip code living below the FPT. "Low-poverty" is defined as ≤10% of residents living below FPT and "very-high-poverty" is defined as ≥30% of residents living below FPT.
§A very-high-poverty neighborhood is defined as a NYC zip code with ≥30% of the residents living below the FPT.
‖There are 0.52% of the sample population who have a missing or nonvalid home NYC zip code.
¶There are 0.28% of the sample population who have a missing meal code status.

$Poverty_{MEAL}$ and individual-level $Poverty_{HNP}$ with $K > 0.213$, the gold standard for high-agreement in the context of this analysis, whereas $Method_{HNP}$ and $Method_{SNP}$ were only above the gold standard with individual-level $Poverty_{HNP}$.

Next, we compared the prevalence of 9 outcomes (from $2009YRBS_{NYC}$ data) by race/ethnicity (Blacks vs Whites) using $Method_{FRPM}$, because it had the strongest association with $Poverty_{MEAL}$ (Table 5). Our bivariate analysis showed that, compared with Whites, Blacks were significantly (all $p < .05$) more likely to report rarely/never wearing a helmet while riding a bicycle (91% vs 83%), being hit by a boyfriend/girlfriend (12% vs 6%), being sexually active (35% vs 21%), having been or ever gotten someone pregnant (8% vs 3%), and consuming ≥2 SSBs daily (32% vs 20%); and were less likely to report being a current binge drinker (10% vs 21%) and being a current smoker (4% vs 15%). When race/ethnicity was stratified by the school-level poverty measure based on FRPM, significant differences were found between very-high- and low-poverty groups within the racial/ethnic categories. For example, overall, Blacks had higher rates of sexual activity, SSB consumption, and unsafe biking than Whites; however, very-high-poverty Whites had a higher prevalence of these measures than both low- and very-high-poverty Blacks. Whereas marijuana use did not differ between racial/ethnic groups, significant differences were seen by poverty within each racial/ethnic group; the opposite was true of binge drinking and tobacco use.

DISCUSSION

Research clarifies the primacy of poverty in health outcomes.[7,13,14,35,36] Having this measure available in YRBS allows researchers to include poverty as both a control and an exposure in their analyses. This article looked at several alternatives and found that the preferred method for creating a school-level poverty measure used student eligibility for FRPM ($Method_{FRPM}$). This method proved to be the most highly associated with individual $Poverty_{MEAL}$ (a direct measure of household income). Althongh $Method_{HNP}$ and $Method_{SNP}$ were more strongly associated with $Poverty_{HNP}$ (an indirect measure of household income), $PovertyACS_{HNP}$ had a weaker association with household income ($PovertyACS_{MEAL}$) than the school-level poverty defined by $Method_{FRPM}$ measured household income ($Poverty_{MEAL}$). This indicates that $Poverty_{MEAL}$ was a better measure of individual-level poverty than $Poverty_{HNP}$. Thus, the best measure of school-level poverty was the method that more accurately measured $Poverty_{MEAL}$ rather than individual-level $Poverty_{HNP}$. Although this measure was developed and applied to YRBS data, $Method_{FRPM}$ can be applied to any school-based survey that lacks individual-level poverty information. This research is the first to define and validate a

Meeting Minutes DPP #200 8-10-2020

Table 3. The Measure of Association With School-Level Poverty Assignments (Defined by $Method_{FRPM}$*, $Method_{HNP}$†, and $Method_{SNP}$‡) to Observed Measures of Individual-Level Poverty (Defined by $Poverty_{MEAL}$§, a Direct Measure of Household Income and by $Poverty_{HNP}$‖, an Indirect Measure of Household Income) as Applied to the 2009 NYC YRBS High School Student Enrollment Population.

School-level poverty assignments (a proxy for individual-level poverty), by method	From NYC DOE student enrollment records	
	$Poverty_{MEAL}$§ weighted kappa (95% CI)	$Poverty_{HNP}$‖ weighted kappa (95% CI)
$Method_{FRPM}$*	0.271 (0.268, 0.273)	0.220 (0.217, 0.223)
$Method_{HNP}$†	0.163 (0.161, 0.166)	0.449 (0.447, 0.451)
$Method_{SNP}$‡	0.123 (0.120, 0.126)	0.378 (0.376, 0.381)

CI, confidence interval; NYC DOE, the New York City Department of Education.
*$Method_{FRPM}$: Poverty is defined by the percent of students eligible for free or reduced-price meals (FRPM) as defined in $Method_{FRPM}$ where "low-poverty" is a school with <49% of the enrollment population eligible for FRPM and "very-high-poverty" is a school where ≥80% of the students are eligible for FRPM.
†$Method_{HNP}$: Poverty is defined by the percent of students classified with very high home neighborhood-level poverty (HNP), which is defined as living in a zip code where ≥30% of the residents live below the federal poverty threshold (FPT), where "low-poverty" is a school with <4% of the enrollment population living in a very-high-poverty neighborhood and "very-high-poverty" is a school where ≥54% of the students are living in a very-high-poverty neighborhood.
‡$Method_{SNP}$: Poverty is defined by the school's neighborhood poverty (SNP), which is determined by the percent of residents in the school zip code living below the FPT. "Low-poverty" is defined as ≤10% of residents living below FPT and "very-high-poverty" is defined as ≥30% of residents living below FPT.
§Of the sample population, 0.28% have a missing meal code status and, therefore, a missing value for $Poverty_{MEAL}$.
‖Of the sample population, 0.52% have a missing or nonvalid home NYC zip code and, therefore, a missing value for $Poverty_{HNP}$.

Table 4. Illustration of the Analytic Structures Used to Measure the Association With Home Neighborhood-Level Poverty Assignments Grouped at the PUMA*-Level ($PovertyACS_{HNP}$†) to Observed Individual Household Income ($PovertyACS_{MEAL}$‡) Among Public High School Students, Grades 9-12, Aged 14-19 in the 2007-2011 New York City American Community Survey (ACS) Data.§

Home neighborhood-level poverty assignment, by method	From 2007-11 NYC ACS public high school data§ $PovertyACS_{MEAL}$‡ weighted kappa (95% CI)
$PovertyACS_{HNP}$§	0.213 (0.211, 0.215)

CI, confidence interval; NYC, New York City; ACS, American Community Survey.
*Public Use Micro-data Area (PUMA) is the statistical geographic area defined for dissemination of Census data.
†$PovertyACS_{HNP}$: using the 2007-2011 ACS weighted person-records, poverty is defined by the resident's home neighborhood-level poverty at the PUMA-level ($PovertyACS_{HNP}$), which is determined by the weighted percent of residents in the PUMA living below the FPT. "Low-poverty" is defined as ≤10% or residents living below FPT and "very-high-poverty" is defined as ≥30% of residents living below the FPT in a given PUMA.
‡$PovertyACS_{MEAL}$: using the 2007-2011 NYC ACS weighted person-records limited to NYC public high school students, household income was categorized as (1) "$FreeACS_{Level1}$" (very-high-poverty) if the student lives in a household receiving food stamps, (2) "$FreeACS_{Level2}$" (high-poverty) if the student lives in a household with an income ≤130% FPT, (3) "ReducedACS" (medium-poverty) if the student lives in a household with an income between 131% and 185% FPT, and (4) "FullACS" (low-poverty) if the student lives in a household with an income >185% FPT.
§The 2007-11 American Community Survey (ACS) weighted data for persons living in a PUMA located in a New York City (NYC) county were used to create $PovertyACS_{HNP}$ and $PovertyACS_{MEAL}$; each person-record contains a unique ID, survey-weight, home PUMA, and household income (given as the percent of their household Federal Poverty Threshold [FPT]), which were used to create $PovertyACS_{HNP}$ with all weighted person-records whose home residence was in NYC. These weighted person-records were further limited to those attending a public high school within the past 3 months, enrolled in grades 9-12, and between the ages of 14-19 to create $PovertyACS_{MEAL}$, an individual-level poverty measure among NYC public high school students.

school-level proxy for individual poverty that can be used in YRBS analysis as well as other school-based surveys.

There are advantages to the school-level poverty measure using $Method_{FRPM}$ in addition to its association with individual-level poverty. First, $Method_{FRPM}$ classified poverty into 4 categories so that each category would contain roughly equal numbers of students, increasing power when making comparisons. Further, the use of measures based on categories provides additional data security and, when the categories are created of equal size, confidentiality is maximized. Additionally, as discussed by Gelman and Park, a simple comparison of average values of Y in the upper and lower quartiles of X can replace a regression slope with approximately 80-90% efficiency.[37] Whereas we acknowledge that creating categories may result in a loss of some information and that ensuring equal size may result in categories that do not necessarily reflect the school or student context, we believe the approach to be the most practical solution in the YRBS context, where individual-level SES measures are not available and school anonymity must be maintained.

$Method_{FRPM}$ is preferred for several other reasons as well. The percentage of FRPM students by school is publicly available for each public school through yearly reports.[25] Further, through the National Center for Education Statistics (NCES) website, one can customize the presentation of these school reports to ensure that the presentation of percent FRPM for each school included in one's analysis is the same across all states and districts within the United States.[26] This allows for analysis of local data as well as comparisons between jurisdictions and does not require individual student data.

DRP #2020 Meeting Minutes DFR 4268 8-10-2020

Table 5. The Prevalence* of 9 Outcomes† Measured in the 2009 New York City Youth Risk Behavior Survey (YRBS) by Race/Ethnicity (Non-Hispanic Black vs Non-Hispanic White) Overall and Within Race/Ethnicity by Poverty (Very-High-Poverty vs Low-Poverty).‡

Prevalence* by race/ethnicity YRBS health outcomes†	Race/Ethnicity		t Test for difference p value *
	Non-Hispanic Black % (95% CI)	Non-Hispanic White % (95% CI)	
Rarely/never use a bicycle helmet	91 (89, 93)	83 (77, 88)	.005
Been hit by a boyfriend/girlfriend	12 (11, 13)	6 (4, 10)	<.001
Currently sexually active	35 (32, 39)	21 (15, 28)	<.001
Ever been/gotten someone pregnant	8 (7, 9)	3 (2, 4)	<.001
Current binge drinker	10 (9, 11)	21 (15, 27)	<.001
Current marijuana user	17 (15, 19)	17 (12, 23)	.882
Current smoker	4 (3, 5)	15 (12, 20)	<.001
Sugary beverage consumption	32 (30, 34)	20 (18, 23)	<.001
Physical activity	36 (34, 39)	39 (36, 42)	.246

Prevalence* within race/ethnicity by poverty‡ YRBS health outcomes†	Non-Hispanic Black		t Test for difference p value *	Non-Hispanic White		t Test for difference p value *
	Very-high-poverty % (95% CI)	Low-poverty % (95% CI)		Very-high-poverty % (95% CI)	Low-poverty % (95% CI)	
Rarely/never use a bicycle helmet	92 (89, 95)	86 (79, 91)	.042	95 (72, 99)	77 (71, 81)	.001
Been hit by a boyfriend/girlfriend	11 (10, 13)	12 (9, 16)	.627	1 (0, 6)	6 (4, 9)	.002
Currently sexually active	40 (35, 47)	25 (19, 32)	.004	50 (34, 66)	20 (16, 24)	.001
Ever been/gotten someone pregnant	9 (7, 11)	8 (5, 11)	.597	1 (0, 5)	4 (2, 7)	.017
Current binge drinker	10 (8, 12)	8 (6, 12)	.457	23 (8, 52)	24 (20, 28)	.961
Current marijuana user	18 (16, 21)	11 (6, 20)	.054	8 (3, 20)	21 (15, 30)	.015
Current smoker	4 (2, 6)	3 (2, 5)	.925	11 (3, 33)	15 (13, 19)	.589
Sugary beverage consumption	34 (31, 37)	28 (24, 31)	.007	44 (27, 63)	17 (14, 21)	.006
Physical activity	33 (29, 37)	39 (30, 49)	.221	30 (19, 44)	38 (33, 43)	.222

CI, confidence interval.

*Prevalence estimates, 95% confidence intervals and significance tests were calculated with SAS-callable SUDAAN 11.0.1 using the 2009 New York City (NYC) Youth Risk Behavior Survey (YRBS) respondent data, which were weighted to adjust for the probability of selection and poststratified by gender within grades and race/ethnicity, nested by school and classroom, and specified the multistage probability sampling with replacement design option within SUDAAN to correct for the clustering inherent in the NYC YRBS' survey design. *T* tests were used to test for significant differences of prevalence among non-Hispanic black (black) versus non-Hispanic white (white) students, among very-high-poverty black versus low-poverty black students, and among very-high-poverty white versus low-poverty white students. Significance was determined at the .05 level.

†We have selected 9 outcomes, where each outcome represents one of the key health-risk areas measured in the NYC YRBS, to illustrate the additional information that is seen by including poverty (above and beyond race/ethnicity). The following dichotomous outcomes were used to measure the prevalence of the 9 key risk behaviors measured in the 2009 NYC YRBS:

1 Rarely/never use a bicycle helmet - Among students who reported having rode a bicycle during the past 12 months, also reported rarely or never wearing a bicycle helmet.
2 Been hit by a boyfriend/girlfriend - Reported being hit or physically hurt on purpose by a boyfriend/girlfriend in the past 12 months.
3 Currently sexually active - Reported having sexual intercourse with 1 or more people during the past 3 months.
4 Ever been/gotten someone pregnant - Among students who reported having ever had sex, also reported having been/gotten someone pregnant ≥1 time(s).
5 Current binge drinker - Reported having ≥5 consecutive drinks of alcohol on at least 1 of the past 30 days.
6 Current marijuana user - Reported using marijuana one or more times during the past 30 days.
7 Current smoker - Reported having smoked at least 1 cigarette on 1 or more of the past 30 days.
8 Sugary beverage consumption - Reported drinking 2 or more soda or other sugar-sweetened beverages (SSBs) per day.
9 Physical activity - Engaged in physical activity for at least 60 minutes per day on 5 or more of the past 7 days.

‡Poverty is a proxy measure for individual-level household poverty and is defined by the school-level percent of students eligible for free or reduced-price meals (FRPM) as defined in MethodFRPM where "low-poverty" is a school with <49% of the high school enrollment population eligible for FRPM and "very-high-poverty" is a school where ≥83% of high school students are eligible for FRPM.

Further, $Method_{FRPM}$ does not rely on an area-based measure to define poverty. This would not be useful in settings where all students attend schools or reside in neighborhoods with similar poverty-levels. Whereas school zip codes (used in $Method_{SNP}$) are public information, they fail to account for certain individuals in the school. For instance, in the $2009YRBS_{NYC}$ sample frame schools, approximately 70% of students travel from outside their home neighborhood (defined by United Hospital Fund areas) to attend high school and the location of the school may not reflect the poverty of students attending that school. Whereas $Method_{FRPM}$ and $Method_{HNP}$ use relative measures of poverty, which allow for schools that are all located in the same area to still be compared by poverty, $Method_{HNP}$ uses student home zip codes, which requires more personal and identifiable data than are often available for analyses. Another advantage to $Method_{FRPM}$ is that it can be applied to YRBS analysis broken down by many subgeographies because it does not require

that the population be located in areas that differ by poverty.

The illustrative analysis showed that patterns not apparent by race/ethnicity comparisons were seen by including poverty in over half of the outcomes and our findings even suggested health-risk unintentional injury, sexual, and dietary behaviors had stronger associations with poverty than with race, which are in agreement with the findings of previous research.[5-7,12-14,23,38,39] Although employing $\text{Method}_{\text{FRPM}}$ as the proxy measure for individual-level poverty fails to account for racial/ethnic composition variations that exist within each school, the illustrative analysis confirmed that including at least some school-level poverty measure adds important information and analyses done without poverty are subject to biases and likely will not fully characterize risks.

Limitations and Strengths

The school-level poverty measure using $\text{Method}_{\text{FRPM}}$ has a few limitations. First, students with missing meal codes were excluded; however, this number was small (0.28%) and probably did not affect the results. Second, there may have been students who met the income eligibility requirements for $\text{free}_{\text{Level2}}$ and reduced-price meals who did not complete the form and, based on NYC DOE policy, were classified as full-price meals. Third, private schools do not participate in the NSLP. Whereas the NYC YRBS sample frame does not include private schools, there are many school-based surveys (including the national YRBSS) that do.[1] Whereas recognizing that some private school students may be from high-poverty households, for these analyses we suggest treating each private school as having 0% of their student population eligible for FRPM to create the school rankings of FRPM eligibility (ie, using enrollment in a private school as a proxy for having a household income >185% FPT). Additionally, school-level poverty may measure a school-level effect of poverty in addition to being a proxy for individual-level poverty. For example, the collective culture of poorer schools may be different than the collective culture of less poor schools and have an effect on behavior that is independent of individual-level poverty.[14] Thus, whereas we have proposed the best available proxy measure of individual-level poverty, there may be additional school-level effects, which we did not address and should be considered with the interpretation of findings using this school-level proxy. Further, having the same SES represent all students within a school does not allow for the investigation of the effects of heterogeneity within a school. This loss of information will be greatest for the most heterogeneous schools, such as those drawn from a wide geographic area. Nonetheless, an individual measure cannot be constructed (or released) in this instance with the data at hand; the focus of this analysis was to identify a measure that could be used by researchers with current YRBS data releases. Future research is needed to identify and validate an approach for attaching SES information to YRBS respondent data so that students within the same school can be assigned different values.

The NYC population is ideal to test the 3 methods of defining school-level poverty because NYC is diverse on race/ethnicity, household income, and neighborhood poverty. The NYC DOE data also provided a large sample size of over 120,000 student-records to perform the validation analysis of the 3 school-level proxies with individual poverty. Although these features of the NYC population allowed us to evaluate the methods of defining school-level poverty comprehensively, the experience in NYC may not be typical of what would be found in other settings. Thus, the correlation of school poverty to individual poverty needs to be demonstrated in other jurisdictions with a different population make-up.

Finally, our contextual analysis consisted of bivariate analyses to measure the association between selected risk behaviors and race/ethnicity and poverty. Although this approach is commonly used in analysis of single-year YRBS data and our results demonstrate the added value of a poverty measure, its power to illuminate the complex interplay of poverty, race/ethnicity, and other factors is limited.[1] Although beyond the scope of this article, additional research using multivariate models would further elucidate these associations.

Conclusions

Readily available school eligibility reports in NSLP are the best option for creating a school-level poverty measure to be used as a proxy when individual-level poverty is not available. The proposed method takes into account individual students within a school by ranking participating schools according to the percent of students eligible for FRPM. Using these continuous percentages as the measure of school poverty allows flexibility to create easily comparable quartile groupings, which allows for each quartile to be substantial enough for sufficient power when making comparisons. Further, using relative rankings, poverty is determined by other schools in the same sample and reflects the true range of poverty within a population.

IMPLICATIONS FOR SCHOOL HEALTH

Because it is difficult to collect SES data directly from children and youth, there is limited research

Meeting Minutes DFF #200 8-10-2020

on poverty and health using school-based data. The use of Method$_{FRPM}$ provides a uniform way to report school-level poverty as a proxy for individual poverty for surveys such as the YRBS that lack an individual measure; the method is readily available and cost effective because school lunch data are public and already collected. The following description provides guidance on how to include this proxy measure in analyses of a school-based data source that lacks student-level SES:

1 The comprehensive list of school codes/names included in the sample frame of a jurisdiction included in one's analysis should be used if available; otherwise, the list of sampled school codes/names can be used instead.
2 Use the NCES' Elementary/Secondary Information System (ELSi) application to create a customized table where each row is a school in your sample frame (or sampled) school list.[26]
3 Column 1 of the table is the school-level count of students included in the sampling frame, which can be calculated by taking the sum of student enrollment by grades for all grade-levels included in the sampling frame for each of the sample frame (or sampled) schools.
4 Column 2 of the table is the school-level %FRPM, which can be calculated by taking the number of students eligible for FRPM divided by the total number of students enrolled in a given school. The ELSi tableGenerator tool provides the number of all students eligible for FRPM within a school but can also be obtained for a specified grade range within a given school through the ELSi school search tool.[26]
5 The complete school-level table includes every school listed in the sample frame (or sample) as a row with the school's number of sample frame students as Column 1 and the school's %FRPM as Column 2.
6 The Common Core of Data (CCD) is used in the ELSi application to generate information on public schools whereas the Private School Survey (PSS) is used to generate information on private schools.[26] If the sample frame includes both public and private schools, then a separate private school table must be created in ELSi, the Column 2 value entered as 0% FRPM for every private school, and the public and private school tables stacked in order to produce the complete school-level table.
7 Sort the complete school-level table from lowest to highest %FRPM and explore these 2 approaches for producing 4 evenly distributed poverty categories: an even number of schools (step 8) versus an even number of students (step 9) in each quartile. The schools in the first quartile will be classified as low-poverty, those in the second quartile as medium-poverty, those in the third as high-poverty, and those in the fourth as very-high-poverty.
8 Create poverty categories where school is the unit being grouped into the 4 groups with approximately an even number of schools in each quartile. For the schools in the sample, append these school-level poverty assignments of low-, medium-, high-, and very-high-poverty to each student (weighted) response in the analytic sample dataset by matching on the school codes/names.
9 Create poverty categories using the number of students enrolled in each school to create an approximately even number of students in each quartile. For the schools in the sample, append these school-level poverty assignments of low-, medium-, high-, and very-high-poverty to each student (weighted) response in the analytic sample dataset by matching on the school codes/names.
10 Compare the distribution of weighted responses that resulted from step 8 with that of the distribution that resulted from step 9 and choose the one that provides the most evenly distributed number of weighted student responses in each poverty category.

Human Subjects Approval Statement

The NYC DOHMH and NYC DOE have conducted the NYC YRBS since 2003. The data collection and survey methods of the NYC YRBS were approved by both the NYC DOHMH and DOE institutional review boards. The secondary data analysis conducted for this study was determined as public health surveillance that is nonresearch by the institutional review board of the NYC DOHMH.

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Meeting Minutes DFR 4260-8210-2020

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Meeting Minutes DFR 4260 8-10-2020

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OREGON AT-A-GLANCE SCHOOL PROFILE
Arlington Community Charter School

PRINCIPAL: Kevin Hunking | GRADES: K-12 | 1200 Main St, Arlington 97812 | 541-454-2632

2017-18

Students We Serve

149
Student Enrollment

DEMOGRAPHICS

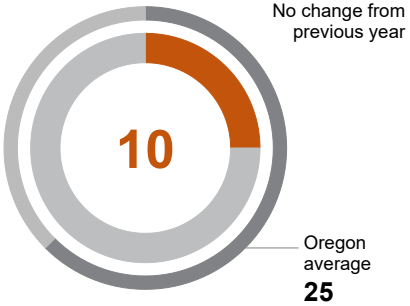
American Indian/Alaska Native	Students	5%
	Teachers	0%
Asian	Students	0%
	Teachers	8%
Black/African American	Students	0%
	Teachers	0%
Hispanic/Latino	Students	12%
	Teachers	0%
Multiracial	Students	1%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	1%
	Teachers	0%
White	Students	81%
	Teachers	92%

* Ever English Learners		2 Languages Spoken
13% Students with Disabilities	98% Required Vaccinations	53% Free/ Reduced Price Lunch

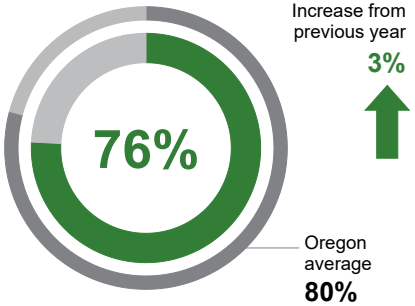
*Not enough students

School Environment

CLASS SIZE
Median size of classes in core subjects.

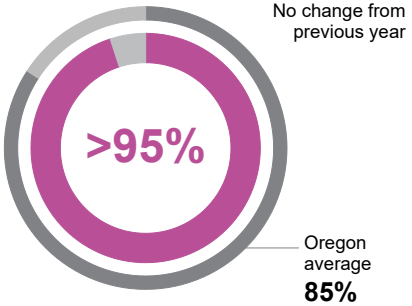


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



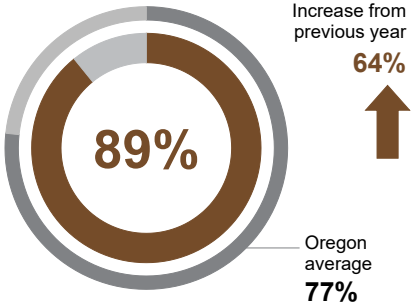
Academic Progress

ON-TRACK TO GRADUATE
Students earning one-quarter of graduation credits in their 9th grade year.

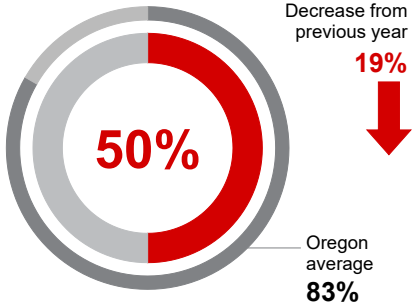


Academic Success

ON-TIME GRADUATION
Students earning a diploma within four years.



FIVE-YEAR COMPLETION
Students earning a high school diploma or GED within five years.



COLLEGE GOING
Students enrolling in a two or four year college within one year of completing high school.

School Goals
Our school strives to promote student success by helping students to regularly attend school. Through our school and district's Strive for Five attendance initiative, we work with students and their parents to inform them of the importance of regular attendance. Due to this work, we have seen the attendance rate for our school increase over the last year.

State Goals
The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment
Our school strives to ensure all students and their parents feel welcome by including bilingual staff in our school office. All communication sent home through mail, phone, or text is translated for easy access. Interpreters are provided for parent conferences and other school meetings where parents are present.

School Website: www.honkernet.net

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Arlington Community Charter School

2017-18

PRINCIPAL: Kevin Hunking | GRADES: K-12 | 1200 Main St, Arlington 97812 | 541-454-2632

Our Staff

12 Teachers

0 Educational assistants

0 Counselors

14% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	Not enough students	Not enough students	100%
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	61%	Not enough students	100%
Multiracial	Not enough students	Not enough students	100%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	77%	Not enough students	86%
Free/Reduced Price Lunch	68%	Not enough students	78%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	60%	Not enough students	100%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	73%	Not enough students	100%
Male	79%	Not enough students	82%

About Our School

ADVANCED COURSEWORK

Our school offers many college courses. Highlights Include:
•Biology, Physics, Chemistry, US History, World History

Our School offers a number of advanced language courses:
•Spanish, Spanish for Native Speakers, French, German
We also offer dual-enrollment courses through the local community college. Highlights include:
•Chemistry, English, US History

CAREER & TECHNICAL EDUCATION

Our students have the option of enrolling in a variety of CTE courses where students can earn dual credit and receive college credit:
•Digital Design
•Manufacturing
•Web Design
•Welding
•Food Science
•Diesel Mechanics
•Industrial Maintenance

EXTRACURRICULAR ACTIVITIES

Our school offers several academic focused extracurricular activities:
•Yearbook Team
•National Honors Society
•College Classes
Our school offers OSAA athletics, visit our school website for more details.

PARENT & COMMUNITY ENGAGEMENT

Our school engages our parents and community by hosting a variety of events intended for parents and community members to attend:
•First Day Open House
•May Day
•Homecoming
•College Academy
•Career Fair
•Parent's Club
Our school also partners with local business to create internship opportunities for senior students.
See our school website for a full list of internship opportunities.

School Website: www.honkernet.net

For more information please visit: www.oregon.gov/ode

Appendix B

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE
Ash Creek Elementary School

PRINCIPAL: Ashley Wildfang | GRADES: K-5 | 1360 N 16th St, Monmouth 97361 | 503-606-9016

2017-18

Students We Serve

559
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	1%
	Teachers	0%
Asian	Students	<1%
	Teachers	0%
Black/African American	Students	1%
	Teachers	0%
Hispanic/Latino	Students	50%
	Teachers	8%
Multiracial	Students	5%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	0%
	Teachers	0%
White	Students	43%
	Teachers	92%

25% Ever English Learners

6 Languages Spoken

8% Students with Disabilities

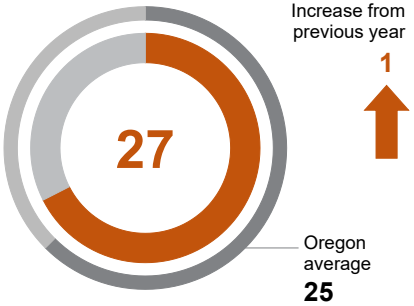
99% Required Vaccinations

66% Free/ Reduced Price Lunch

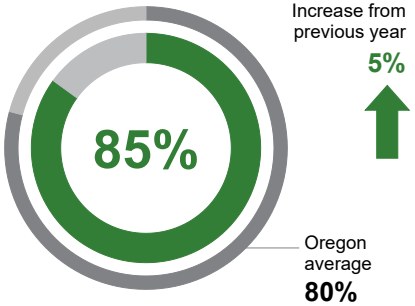
*Not enough students

School Environment

CLASS SIZE
Median class size.

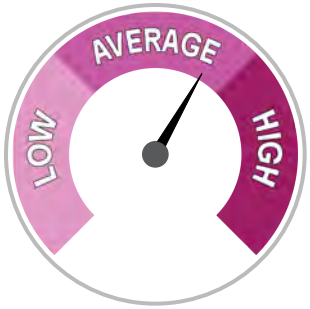


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



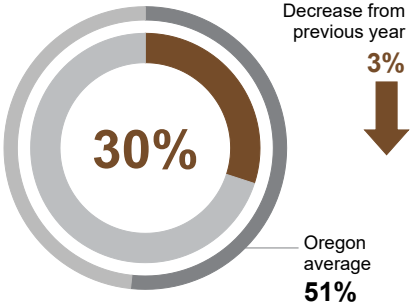
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

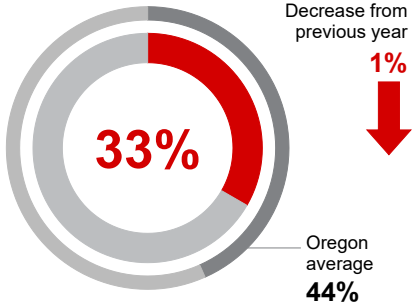


Academic Success

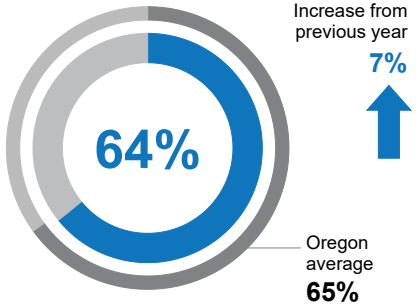
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals

Ash Creek Elementary Strategic Goals:
STUDENT GROWTH & ACHIEVEMENT: Every student is engaged, supported, challenged, & prepared, to achieve & be successful in school, career, college & community.
FAMILY INVOLVEMENT: Every student & their family feels welcome, supported, safe & valued.
COMMUNITY PARTNERSHIP: Partners engage in collaboration for student success in a safe, healthy, prosperous, & inclusive community.
STAFF LEADERSHIP & CONTINUOUS IMPROVEMENT: Staff engage in student-centered decision-making, problem-solving, professional development, focused on continuous improvement & growth.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Ash Creek Elementary works to create an environment where every student & their family feels welcomed, supported, safe & valued. To accomplish this Ash Creek staff use Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community. One key communication tool is through School Messenger which allows translation for easy access. Interpreters are provided at school events & parent conferences. Ash Creek recognizes & values individual students & their families as we create safe & inclusive environments.

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Ash Creek Elementary School

2017-18

PRINCIPAL: Ashley Wildfang | GRADES: K-5 | 1360 N 16th St, Monmouth 97361 | 503-606-9016

Our Staff

25 Teachers

15 Educational assistants

0 Counselors

14% Average teacher turnover rate

Teacher Experience Coming in 2018-19

Yes New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	85%	16%	24%
Multiracial	92%	20%	47%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	85%	48%	42%
Free/Reduced Price Lunch	82%	22%	26%
Ever English Learner	93%	7%	11%
Students with Disabilities	80%	9%	9%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	83%	33%	33%
Male	87%	27%	33%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe, positive & inclusive learning environment, we adhere to policy JFCF & JFCF-AR. These documents outline the processes for addressing hazing, harassment, bullying, & cyberbullying. Staff are engage in trauma informed professional learning & practices to support safe learning environments. In partnership with Polk County, we also have a mental health associate staff member. As a member of Safe Oregon, students, parents, & community members have the ability to report school safety concerns. Staff engage in training & implementation of Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community.

EXTRACURRICULAR ACTIVITIES

Ash Creek offers before and after school academic & enrichment activities. Activities included, but not limited to:

· Academic Intervention

· Chess Club

· Social & Emotional Learning

· Sports & Games

· Science, Technology, Engineering, Art, Mathematics (STEAM)

PARENT ENGAGEMENT

As part of our Family Engagement strategic goal of every student & family feeling welcome, supported, safe & valued, below are the list of activities throughout the school year.

· Parent teacher conferences

· Parent club

· Soar into reading club - nightly read at home program with book give aways

· Spring Carnival

· Juggling Night

· Parent volunteers (in class and at home projects)

· Square One Art

COMMUNITY ENGAGEMENT

As part of our Community Partnership strategic goal of engaging in collaboration for student success in a safe, healthy, prosperous, & inclusive community, below is a list of our partners and activities.

· Jog a thon

· Western Oregon University volunteers (30 hours)

· Western Oregon University teacher candidates

· Volunteers support the SMART reading program

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OREGON AT-A-GLANCE SCHOOL PROFILE
Condon Elementary School

PRINCIPAL: Michelle Geer | GRADES: K-8 | 220 S East St, Condon 97823 | 541-384-2581

2017-18

Students We Serve

95
Student Enrollment

DEMOGRAPHICS

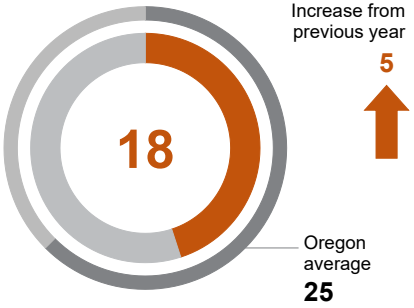
American Indian/Alaska Native		
	Students	1%
	Teachers	0%
Asian		
	Students	0%
	Teachers	0%
Black/African American		
	Students	0%
	Teachers	0%
Hispanic/Latino		
	Students	7%
	Teachers	0%
Multiracial		
	Students	2%
	Teachers	0%
Native Hawaiian/Pacific Islander		
	Students	0%
	Teachers	0%
White		
	Students	89%
	Teachers	100%

* Ever English Learners		1 Languages Spoken
23% Students with Disabilities	92% Required Vaccinations	43% Free/ Reduced Price Lunch

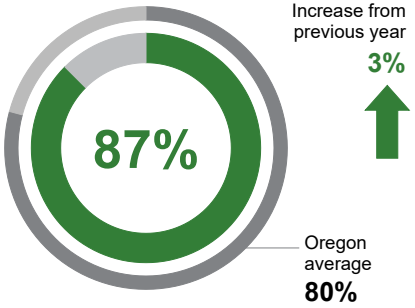
*Not enough students

School Environment

CLASS SIZE
Median class size.

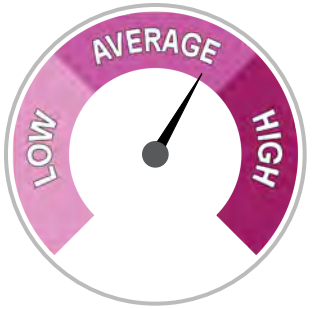


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



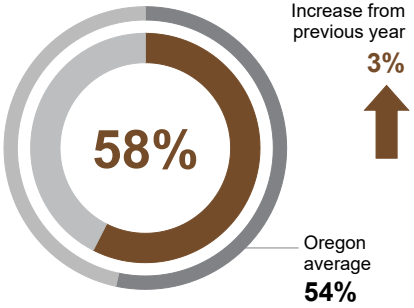
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

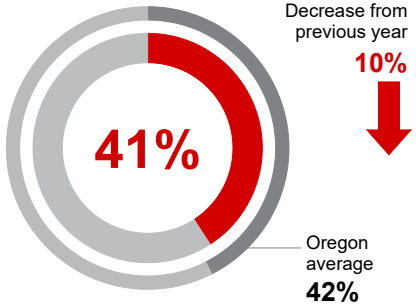


Academic Success

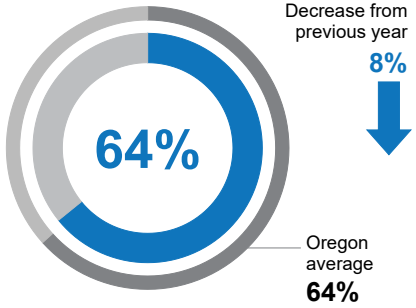
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals

As a District we strive to show growth in core content areas by continuing to implement and provide interventions that support the Common Core State Standards in Math and English. The District will implement the Next Generation Science Standards through STEMscopes curriculum for K-8, and new course offerings at the high school. To reach this goal we are committed to using student centered data for relevant instruct and providing an environment that promotes a safe, respectful, and responsible District.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Our school strives to ensure all students and parents feel safe and welcome in our buildings. We are implementing a Positive Behavioral Intervention & Support (PBIS) system where students, staff, and community model and practice safe, respectful, and responsible behaviors.

School Website: www.condon.k12.or.us

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Condon Elementary School

2017-18

PRINCIPAL: Michelle Geer | GRADES: K-8 | 220 S East St, Condon 97823 | 541-384-2581

Our Staff

6 Teachers

1 Educational assistants

0 Counselors

15% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	Not enough students	Not enough students	Not enough students
Multiracial	Not enough students	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	89%	58%	40%
Free/Reduced Price Lunch	85%	63%	56%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	86%	18%	9%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	81%	73%	40%
Male	94%	41%	41%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe and secure learning environment for all of our students, our school has worked with outside agencies to build a safety protocol for large scale safety issues. We have policies in place that address students safety issues at school and we work with our counselor, staff and parents to address conflict between students.
All staff have training every year that helps to recognize bullying/ harassment and provide strategies for interventions.

EXTRACURRICULAR ACTIVITIES

Volleyball
Football
Cross Country
Basketball
Track & Field
Music Lessons
After School Academic Supports

PARENT ENGAGEMENT

Our school engages parents by hosting a number of events intended for parents to attend:
Welcome back BBQ
Parent/Teacher Conferences
Literacy/ Math Nights
School Carnival
Classroom Parties
Monthly Assemblies
Music Concerts

COMMUNITY ENGAGEMENT

We send out weekly bulletins to share highlights about what is going on around the District and in the schools. We partner with local businesses to provide students with additional learning opportunities whenever possible.

Meeting Minutes DPR #200 8-10-2020
DPR #200 Modification Request - 2019
140
School Website: www.condon.k12.or.us
For more information please visit: www.oregon.gov/ode

Appendix B

OREGON AT-A-GLANCE SCHOOL PROFILE

Condon High School

2017-18

PRINCIPAL: Michelle Geer | GRADES: 9-12 | 210 E Bayard St, Condon 97823 | 541-384-2441

OREGON DEPARTMENT OF EDUCATION
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Students We Serve

35
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	0%
Teachers	0%
Asian	
Students	0%
Teachers	0%
Black/African American	
Students	0%
Teachers	0%
Hispanic/Latino	
Students	6%
Teachers	0%
Multiracial	
Students	0%
Teachers	0%
Native Hawaiian/Pacific Islander	
Students	0%
Teachers	0%
White	
Students	94%
Teachers	100%

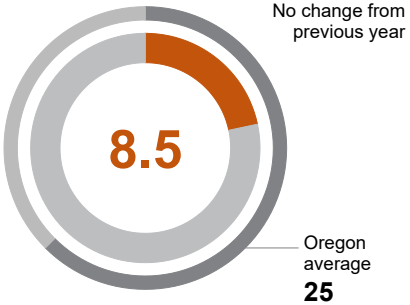
* Ever English Learners		1 Languages Spoken
* Students with Disabilities	97% Required Vaccinations	34% Free/ Reduced Price Lunch

*Not enough students

School Environment

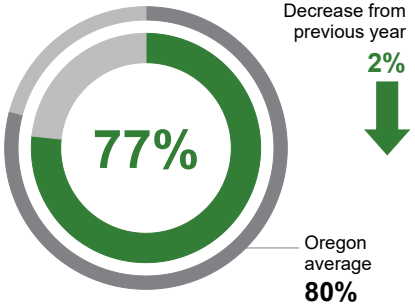
CLASS SIZE

Median size of classes in core subjects.



REGULAR ATTENDERS

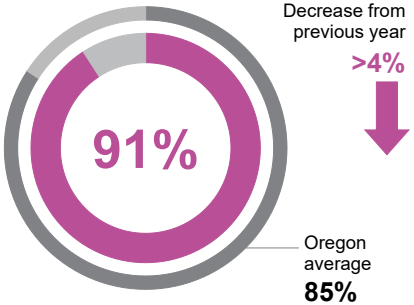
Students who attended more than 90% of their enrolled school days.



Academic Progress

ON-TRACK TO GRADUATE

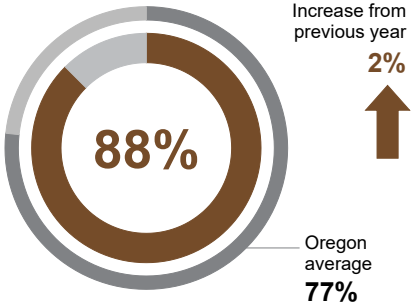
Students earning one-quarter of graduation credits in their 9th grade year.



Academic Success

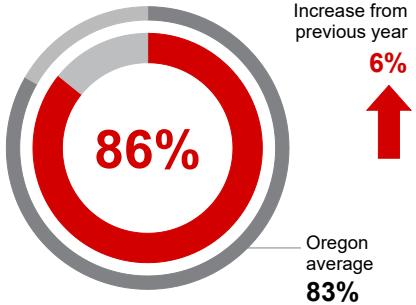
ON-TIME GRADUATION

Students earning a diploma within four years.



FIVE-YEAR COMPLETION

Students earning a high school diploma or GED within five years.



COLLEGE GOING

Students enrolling in a two or four year college within one year of completing high school.

School Goals

As a District we strive to show growth in core content areas by continuing to implement and provide interventions that support the Common Core State Standards in Math and English. The District will implement the Next Generation Science Standards through the STEMscopes curriculum for K-8, and new course offerings at the high school. To reach this goal we are committed to using student centered data for relevant instruct and providing an environment that promotes a safe, respectful, and responsible District.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Our school strives to ensure all students and parents feel safe and welcome in our buildings. We are implementing a Positive Behavioral Intervention & Support (PBIS) system where students, staff, and community model and practice safe, respectful, and responsible behaviors.

Meeting Minutes DRAFT 2-10-2020

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Condon High School

2017-18

PRINCIPAL: Michelle Geer | GRADES: 9-12 | 210 E Bayard St, Condon 97823 | 541-384-2441

Our Staff

4 Teachers

1 Educational assistants

0 Counselors

13% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	Not enough students	Not enough students	100%
Multiracial	Not enough students	Not enough students	100%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	75%	91%	83%
Free/Reduced Price Lunch	58%	Not enough students	82%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	Not enough students	Not enough students	100%
Migrant	Not enough students	Not enough students	100%
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	75%	Not enough students	100%
Male	78%	Not enough students	80%

About Our School

ADVANCED COURSEWORK

Our school offers dual-enrollment courses through Columbia Gorge Community College. Highlights include: MTH 95, MTH 111, WR 121, WR 122, Comm 111, and many more.

CAREER & TECHNICAL EDUCATION

Our students have the opportunity of taking Health Science's courses locally. They also have the option of taking CTE courses through Columbia Gorge Community College to earn dual credit.

EXTRACURRICULAR ACTIVITIES

Volleyball
Football
Cross Country
Basketball
Track & Field
Baseball
Tennis
Honor Society
Student Council

PARENT & COMMUNITY ENGAGEMENT

Our school engages our parents and community by hosting a variety of events intended for parents and community to attend:
Welcome Back BBQ
Homecoming
Parent/Teacher Conferences
Home Games
We also send out a weekly bulletin that highlights what's going on around the District and in each building.

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE
Falls City Elementary School

PRINCIPAL: Art Houghtaling | GRADES: K-8 | 177 Prospect Ave, Falls City 97344 | 503-787-3521

2017-18

Students We Serve

137
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native		
	Students	1%
	Teachers	0%
Asian		
	Students	1%
	Teachers	0%
Black/African American		
	Students	0%
	Teachers	0%
Hispanic/Latino		
	Students	6%
	Teachers	10%
Multiracial		
	Students	7%
	Teachers	0%
Native Hawaiian/Pacific Islander		
	Students	0%
	Teachers	0%
White		
	Students	85%
	Teachers	90%

* Ever English Learners		1 Languages Spoken
20% Students with Disabilities	85% Required Vaccinations	>95% Free/ Reduced Price Lunch

*Not enough students

School Environment

CLASS SIZE
Median class size.

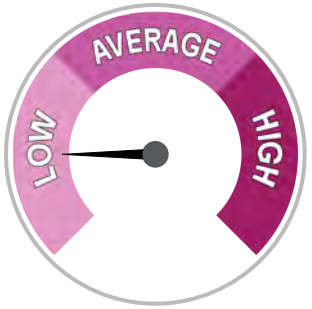
15.5
Decrease from previous year 3
Oregon average 25

REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.

69%
Increase from previous year 3%
Oregon average 80%

Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.



Academic Success

ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.

24%
No change from previous year
Oregon average 54%

MATHEMATICS
Students meeting state grade-level expectations.

16%
Increase from previous year 3%
Oregon average 42%

SCIENCE
Students meeting state grade-level expectations.

57%
Increase from previous year 22%
Oregon average 64%

School Goals
*Information was not submitted for this section.

State Goals
The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment
*Information was not submitted for this section.

School Website: www.fallscityschools.org
For more information please visit: www.oregon.gov/ode

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Falls City Elementary School

2017-18

PRINCIPAL: Art Houghtaling | GRADES: K-8 | 177 Prospect Ave, Falls City 97344 | 503-787-3521

Our Staff

10 Teachers

5 Educational assistants

0 Counselors

42% Average teacher turnover rate

Teacher Experience Coming in 2018-19

Yes New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	Not enough students	Not enough students	Not enough students
Multiracial	Not enough students	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	68%	22%	15%
Free/Reduced Price Lunch	69%	24%	16%
Ever English Learner	Not enough students	Not enough students	Not enough students
Students with Disabilities	78%	<5%	9%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	64%	27%	14%
Male	74%	19%	19%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES
*Information was not submitted for this section.

EXTRACURRICULAR ACTIVITIES
*Information was not submitted for this section.

PARENT ENGAGEMENT
*Information was not submitted for this section.

COMMUNITY ENGAGEMENT
*Information was not submitted for this section.

School Website: www.fallscityschools.org

For more information please visit: www.oregon.gov/ode

Appendix B

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE
Independence Elementary School

PRINCIPAL: Nicole Smith | GRADES: K-5 | 150 S 4th St, Independence 97351 | 503-838-1322

2017-18

Students We Serve

409
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	2%
	Teachers	0%
Asian	Students	1%
	Teachers	0%
Black/African American	Students	<1%
	Teachers	5%
Hispanic/Latino	Students	57%
	Teachers	5%
Multiracial	Students	3%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	<1%
	Teachers	0%
White	Students	36%
	Teachers	90%

38% Ever English Learners

4 Languages Spoken

11% Students with Disabilities

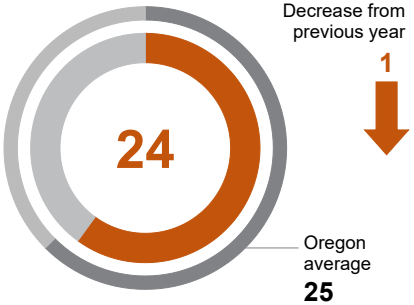
99% Required Vaccinations

80% Free/ Reduced Price Lunch

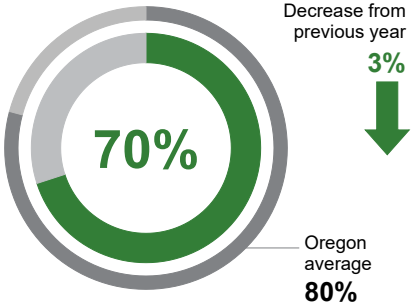
*Not enough students

School Environment

CLASS SIZE
Median class size.

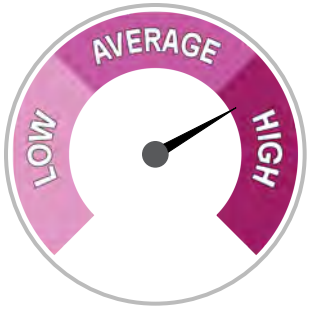


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



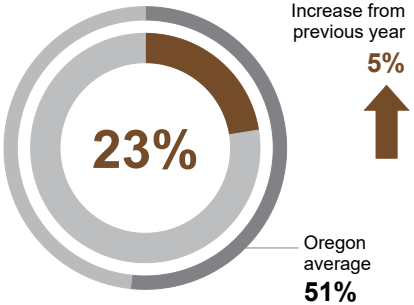
Academic Progress

INDIVIDUAL STUDENT PROGRESS
Year-to-year progress in English language arts and mathematics.

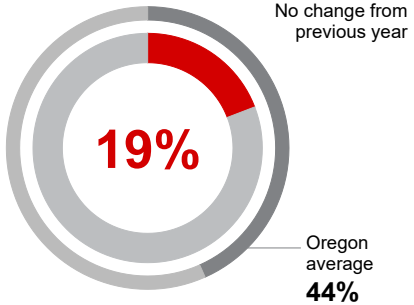


Academic Success

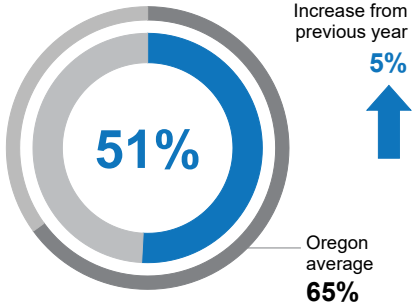
ENGLISH LANGUAGE ARTS
Students meeting state grade-level expectations.



MATHEMATICS
Students meeting state grade-level expectations.



SCIENCE
Students meeting state grade-level expectations.



School Goals

Independence Elementary Strategic Goals:
STUDENT GROWTH & ACHIEVEMENT: Every student is engaged, supported, challenged, & prepared, to achieve & be successful in school, career, college & community.
FAMILY INVOLVEMENT: Every student & their family feels welcome, supported, safe & valued.
COMMUNITY PARTNERSHIP: Partners engage in collaboration for student success in a safe, healthy, prosperous, & inclusive community.
STAFF LEADERSHIP & CONTINUOUS IMPROVEMENT: Staff engage in student-centered decision-making, problem-solving, professional development, focused on continuous improvement & growth.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

IES works to create an environment where every student & their family feels welcomed, supported, safe & valued. To accomplish this IES staff use Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community. One key communication tool is through School Messenger which allows translation for easy access. Interpreters are provided at school events & parent conferences. IES recognizes & values individual students & their families as we create safe & inclusive environments.

DPP #200 Modification Request - 2019
Meeting Minutes DPP #200 8-10-2020
143
School Website: www.central.k12.or.us
For more information please visit: www.oregon.gov/ode

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Independence Elementary School

2017-18

PRINCIPAL: Nicole Smith | GRADES: K-5 | 150 S 4th St, Independence 97351 | 503-838-1322

Our Staff

20 Teachers

9 Educational assistants

0 Counselors

27% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	71%	15%	15%
Multiracial	50%	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	71%	33%	23%
Free/Reduced Price Lunch	66%	17%	17%
Ever English Learner	78%	8%	11%
Students with Disabilities	80%	21%	<5%
Migrant	71%	<5%	<5%
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	69%	25%	20%
Male	70%	20%	18%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe, positive & inclusive learning environment, we adhere to policy JFCF & JFCF-AR. These documents outline the processes for addressing hazing, harassment, bullying, & cyberbullying. Staff are engage in trauma informed professional learning & practices to support safe learning environments. In partnership with Polk County, we also have a mental health associate staff member. As a member of Safe Oregon, students, parents, & community members have the ability to report school safety concerns. Staff engage in training & implementation of Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community.

EXTRACURRICULAR ACTIVITIES

Independence Elementary offers before and after school academic & enrichment activities. Activities included, but not limited to:

· Academic Intervention

· Social & Emotional Learning

· Sports & Games

· Science, Technology, Engineering, Art, Mathematics (STEAM)

PARENT ENGAGEMENT

As part of our Family Engagement strategic goal of every student & family feeling welcome, supported, safe & valued, below are the list of activities throughout the school year.

· Parent-teacher conferences

· Bilingual language supports in the front office

· Family nights focused on curriculum, instruction, and engagement

· Parent club

· Parenting classes sponsored by Polk County

· Parent and family volunteers

COMMUNITY ENGAGEMENT

As part of our Community Partnership strategic goal of engaging in collaboration for student success in a safe, healthy, prosperous, & inclusive community, below is a list of our partners and activities.

· Parenting classes sponsored by Polk County

· Partnership with Fostering Hope and managing the Little Free Library

· Partnership with Independence library

OREGON DEPARTMENT OF EDUCATION
Oregon achieves . . . together!

OREGON AT-A-GLANCE SCHOOL PROFILE

Monmouth Elementary School

2017-18

PRINCIPAL: Kim Seidel | GRADES: K-5 | 958 E Church St, Monmouth 97361 | 503-838-1433

Students We Serve

536
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	
Students	1%
Teachers	0%
Asian	
Students	2%
Teachers	0%
Black/African American	
Students	<1%
Teachers	0%
Hispanic/Latino	
Students	25%
Teachers	4%
Multiracial	
Students	5%
Teachers	0%
Native Hawaiian/Pacific Islander	
Students	<1%
Teachers	0%
White	
Students	66%
Teachers	96%

14% Ever English Learners

8 Languages Spoken

14% Students with Disabilities

98% Required Vaccinations

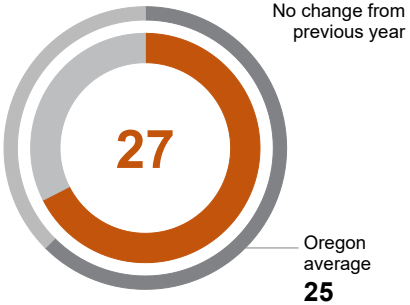
50% Free/ Reduced Price Lunch

*Not enough students

School Environment

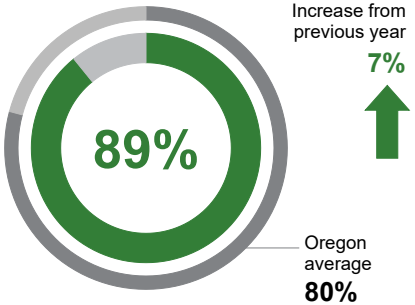
CLASS SIZE

Median class size.



REGULAR ATTENDERS

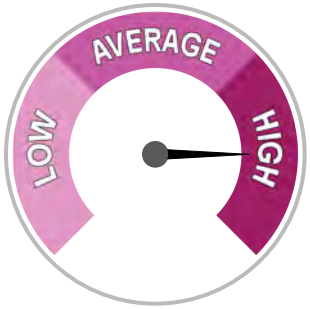
Students who attended more than 90% of their enrolled school days.



Academic Progress

INDIVIDUAL STUDENT PROGRESS

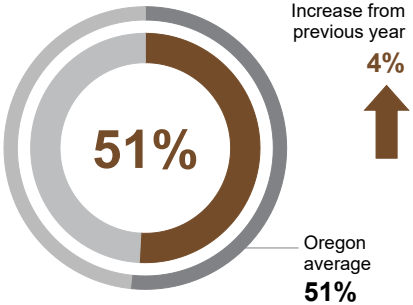
Year-to-year progress in English language arts and mathematics.



Academic Success

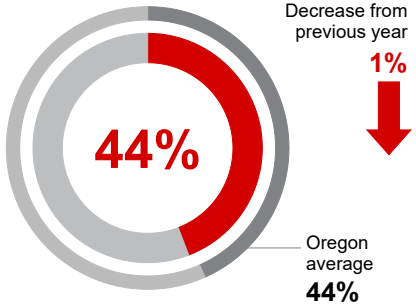
ENGLISH LANGUAGE ARTS

Students meeting state grade-level expectations.



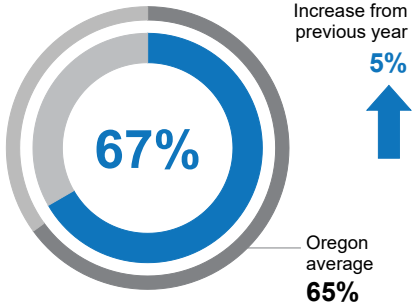
MATHEMATICS

Students meeting state grade-level expectations.



SCIENCE

Students meeting state grade-level expectations.



School Goals

Monmouth Elementary Strategic Goals:
STUDENT GROWTH & ACHIEVEMENT: Every student is engaged, supported, challenged, & prepared, to achieve & be successful in school, career, college & community.
FAMILY INVOLVEMENT: Every student & their family feels welcome, supported, safe & valued.
COMMUNITY PARTNERSHIP: Partners engage in collaboration for student success in a safe, healthy, prosperous, & inclusive community.
STAFF LEADERSHIP & CONTINUOUS IMPROVEMENT: Staff engage in student-centered decision-making, problem-solving, professional development, focused on continuous improvement & growth.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

Monmouth Elementary works to create an environment where every student & their family feels welcomed, supported, safe & valued. To accomplish this MES staff use Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community. One key communication tool is through School Messenger which allows translation for easy access. Interpreters are provided at school events & parent conferences. MES recognizes & values individual students & their families as we create safe & inclusive environments.

OREGON DEPARTMENT OF EDUCATION
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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Monmouth Elementary School

2017-18

PRINCIPAL: Kim Seidel | GRADES: K-5 | 958 E Church St, Monmouth 97361 | 503-838-1433

Our Staff

27 Teachers

23 Educational assistants

0 Counselors

12% Average teacher turnover rate

Teacher Experience Coming in 2018-19

No New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ENGLISH LANGUAGE ARTS	MATHEMATICS
American Indian/Alaska Native	Not enough students	Not enough students	Not enough students
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	84%	31%	23%
Multiracial	80%	69%	46%
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	91%	57%	55%
Free/Reduced Price Lunch	84%	45%	36%
Ever English Learner	87%	23%	14%
Students with Disabilities	83%	23%	12%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	Not enough students	Not enough students	Not enough students
Female	90%	53%	45%
Male	88%	48%	44%

About Our School

BULLYING, HARASSMENT, AND SAFETY POLICIES

To ensure a safe, positive & inclusive learning environment, we adhere to policy JFCF & JFCF-AR. These documents outline the processes for addressing hazing, harassment, bullying, & cyberbullying. Staff are engage in trauma informed professional learning & practices to support safe learning environments. In partnership with Polk County, we also have a mental health associate staff member. As a member of Safe Oregon, students, parents, & community members have the ability to report school safety concerns. Staff engage in training & implementation of Positive Behavior Instructional Supports - a variety of ways for staff to positively recognize students, supervise & respond appropriately to student behavior, & maintain a safe school community.

EXTRACURRICULAR ACTIVITIES

Monmouth Elementary offers before and after school academic & enrichment activities. Activities included, but not limited to:

· Academic Intervention

· Chess Club

· Social & Emotional Learning

· Sports & Games

· Science, Technology, Engineering, Art, Mathematics (STEAM)

PARENT ENGAGEMENT

As part of our Family Engagement strategic goal of every student & family feeling welcome, supported, safe & valued, below are the list of activities throughout the school year.

· Family Literacy Night (parents worked with literacy teachers and principal to help support their child learn to read or improve reading skills)
· Family Math Night (Teachers were required to attend one of the three family nights)
· Family STEM Night
· Fall Festival
· MES Carnival

COMMUNITY ENGAGEMENT

As part of our Community Partnership strategic goal of engaging in collaboration for student success in a safe, healthy, prosperous, & inclusive community, below is a list of our partners and activities.

· Jog-a-thon - MPD, High School Students, and local community members involved.

· Partnered with Dutch Bros and Fro Zone for Attendance celebration

· Partnered with Nathan Moore Farmers Insurance for supplies

· Monmouth Christian Church - supplies/back packs/ teacher supplies

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OREGON AT-A-GLANCE SCHOOL PROFILE
Sherman County School

PRINCIPAL: Mike Somnis | GRADES: K-12 | 65912 High School Lp, Moro 97039 | 541-565-3500

2017-18

Students We Serve

249
Student Enrollment

DEMOGRAPHICS

American Indian/Alaska Native	Students	2%
	Teachers	0%
Asian	Students	<1%
	Teachers	0%
Black/African American	Students	0%
	Teachers	0%
Hispanic/Latino	Students	13%
	Teachers	0%
Multiracial	Students	4%
	Teachers	0%
Native Hawaiian/Pacific Islander	Students	0%
	Teachers	0%
White	Students	81%
	Teachers	100%

<5% Ever English Learners

1 Languages Spoken

16% Students with Disabilities

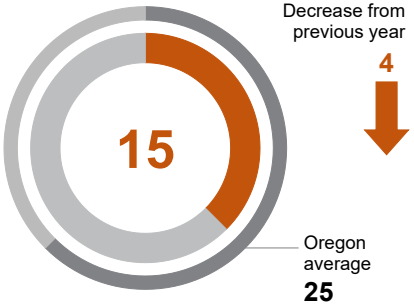
92% Required Vaccinations

48% Free/ Reduced Price Lunch

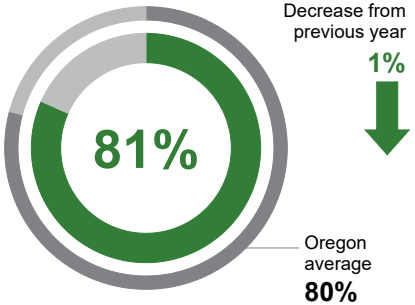
*Not enough students

School Environment

CLASS SIZE
Median size of classes in core subjects.

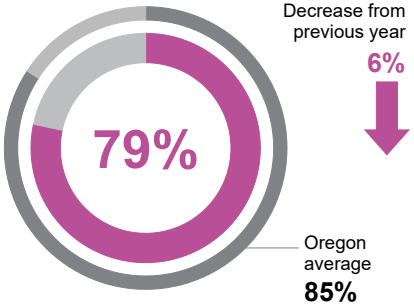


REGULAR ATTENDERS
Students who attended more than 90% of their enrolled school days.



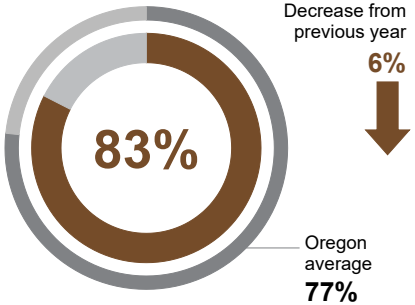
Academic Progress

ON-TRACK TO GRADUATE
Students earning one-quarter of graduation credits in their 9th grade year.

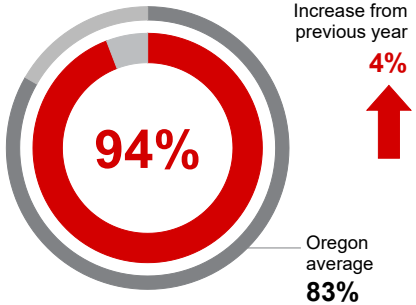


Academic Success

ON-TIME GRADUATION
Students earning a diploma within four years.



FIVE-YEAR COMPLETION
Students earning a high school diploma or GED within five years.



COLLEGE GOING
Students enrolling in a two or four year college within one year of completing high school.

School Goals

The Sherman County School District Board has established goals to: increase student achievement at all levels through a focus on reading, writing, math and science; provide support for expanded opportunities for students to graduate from high school prepared for post-secondary education and training; provide enhanced professional development for staff with implementation of Response to Intervention and Positive Behavioral Intervention & Supports; implement the Board-adopted safety initiative; and be more intentional with communication to increase parent and community involvement as partners in the education of their students.

State Goals

The Oregon Department of Education is working in partnership with school districts and local communities to ensure a 90% on-time, four year graduation rate by 2025. To progress toward this goal, the state will prioritize efforts to improve attendance, invest in implementing culturally responsive practices, and promote continuous improvement to close opportunity and achievement gaps for historically and currently underserved students.

Safe & Welcoming Environment

The safety and well-being of our students and staff is a top priority of the Sherman County School District. In conjunction with our multi-agency safety committee, we pursue a multi-phase approach to safety planning by creating meaningful, thoughtful, coordinated, and aligned systems and procedures consistent with best practices. The District has implemented numerous safety measures that are designed to support the academic, social, and emotional needs of our students while maintaining a safe and orderly learning environment.

School Website: sjsns.weebly.com/index.html

For more information please visit: www.oregon.gov/ode

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OREGON AT-A-GLANCE SCHOOL PROFILE CONTINUED

Sherman County School

2017-18

PRINCIPAL: Mike Somnis | GRADES: K-12 | 65912 High School Lp, Moro 97039 | 541-565-3500

Our Staff

16 Teachers

6 Educational assistants

1 Counselors

40% Average teacher turnover rate

Teacher Experience Coming in 2018-19

Yes New principal in the last 3 years

Outcomes

	REGULAR ATTENDERS	ON-TRACK TO GRADUATE	ON-TIME GRADUATION
American Indian/Alaska Native	Not enough students	Not enough students	0%
Asian	Not enough students	Not enough students	Not enough students
Black/African American	Not enough students	Not enough students	Not enough students
Hispanic/Latino	75%	Not enough students	100%
Multiracial	Not enough students	Not enough students	Not enough students
Native Hawaiian/Pacific Islander	Not enough students	Not enough students	Not enough students
White	83%	82%	84%
Free/Reduced Price Lunch	80%	Not enough students	78%
Ever English Learner	80%	Not enough students	Not enough students
Students with Disabilities	77%	Not enough students	33%
Migrant	Not enough students	Not enough students	Not enough students
Talented and Gifted	71%	Not enough students	100%
Female	81%	Not enough students	85%
Male	82%	Not enough students	80%

About Our School

ADVANCED COURSEWORK

We provide an early college program through Columbia Gorge Community College for students to earn dual credit. We also offer online courses for high school and college credit.

CAREER & TECHNICAL EDUCATION

· Agriculture Science and Technology with option for college credit from Blue Mountain Community College

EXTRACURRICULAR ACTIVITIES

Clubs

· Pep Band

· FFA

· National Honor Society

· Student Council
· Gaming Club
· SKORE
· The Pack
Interscholastic Sports

· Baseball

· Basketball

· Football

· Tennis

· Track & Field

· Volleyball

PARENT & COMMUNITY ENGAGEMENT

We value the support of our parents and community as a critical component of students' education. We look forward to working with you during the 2018-19 school year.

School Website: sjsns.weebly.com/index.html

For more information please visit: www.oregon.gov/ode

OREGON AREAS OF UNMET HEALTH CARE NEED REPORT

August 2018

The Oregon Office of Rural Health, in response to a mandate from the Oregon Legislature, developed the AUHCN report in 1998 to measure medical underservice in rural areas. The report is published annually and is used:

- *To qualify a practice site for loan repayment and forgiveness programs (OAR 409-036-0010 [25] [A]);*
- *To grant exceptions for medical staff eligibility for Oregon's rural practitioner income tax credit program;*
- *As part of a risk assessment formula for rural hospitals to receive cost-based Medicaid reimbursement (SB 607, passed in 1991; HB 3650, passed in 2011);*
- *As part of the determination of "medically underserved" geographic areas for the Oregon Governor's Health Care Shortage Area Designation.*

The report includes nine variables that measure access to primary physical, mental and oral health care. This report can be used by state partners to prioritize financial and technical assistance, and by community health care stakeholders to advocate for their unmet needs.

CONTENTS

WHAT IS CONSIDERED RURAL AND FRONTIER? **3**

SUMMARY RESULTS **4**

Overview **4**

Highlights **5**

Figure 1. Overall Scores By Service Area *6*

Figure 2. Ranked Service Area Scores (Highest Unmet Need to Lowest) *7*

METHODOLOGY **11**

Primary Care Service Areas **11**

The Variables Used in the AUHCN Calculation **12**

CATEGORY ONE: AVAILABILITY OF PROVIDERS **13**

1) TRAVEL TIME TO NEAREST PATIENT CENTERED PRIMARY CARE HOME (PCPCH) 13

Figure 3. Service Areas Above Average Travel Time to Nearest PCPCH *14*

2) PRIMARY CARE CAPACITY (PERCENT OF PRIMARY CARE VISITS ABLE TO BE MET) 15

Figure 4. Service Areas Below Oregon's Primary Care Capacity Ratio *17*

3) MENTAL HEALTH PROVIDERS PER 1,000 POPULATION 18

Figure 5. Service Areas Below Oregon's Mental Health Provider Per 1,000 Population Rate *19*

4) DENTISTS PER 1,000 POPULATION 20

Figure 6. Service Area's Below Oregon's Dentist Per 1,000 Population Rate *21*

CATEGORY TWO: ABILITY TO AFFORD CARE **22**

5) PERCENT OF POPULATION BETWEEN 138% AND 200% OF THE FEDERAL POVERTY LEVEL 22

Figure 7. Service Areas Above Oregon's 138% - 200% Federal Poverty Level Rate *23*

CATEGORY THREE: UTILIZATION **24**

6) AMBULATORY CARE SENSITIVE CONDITIONS/PREVENTABLE HOSPITALIZATIONS PER 1,000 POPULATION 24

Figure 8. Service Areas Above Oregon's ACSC Rate Per 1,000 Population *26*

7) INADEQUATE PRENATAL CARE RATE PER 1,000 BIRTHS 27

Figure 9. Service Areas Above Oregon's ACSC Inadequate Prenatal Care Rate Per 1,000 Births *28*

8) EMERGENCY DEPARTMENT NON-TRAUMATIC DENTAL VISITS PER 1,000 POPULATION 29

Figure 10. Service Areas Above Oregon's Non-Traumatic Emergency Department Dental Visit Rate Per 1,000 Population *31*

9) EMERGENCY DEPARTMENT MENTAL HEALTH/SUBSTANCE ABUSE VISITS PER 1,000 POPULATION 32

Figure 11. Service areas Above Oregon's Emergency Department Mental Health/Substance Abuse Visit Rate Per 1,000 Population *34*

TOTAL SCORES **35**

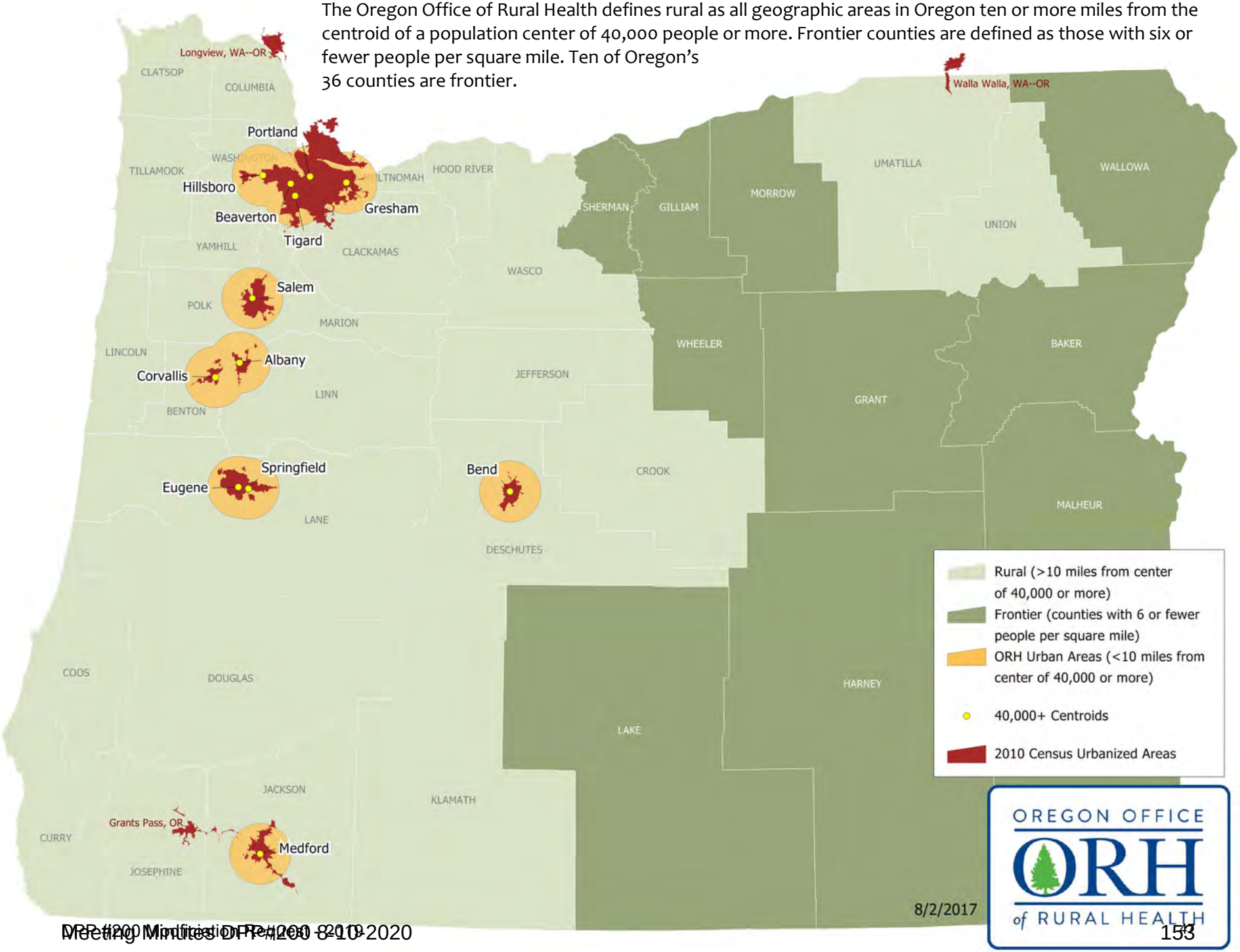
We welcome your feedback. If you have any questions or suggestions on this report, please contact Emerson Ong at onge@ohsu.edu.

OREGON OFFICE ORH of RURAL HEALTH

Appendix B

WHAT IS CONSIDERED RURAL AND FRONTIER?

The Oregon Office of Rural Health defines rural as all geographic areas in Oregon ten or more miles from the centroid of a population center of 40,000 people or more. Frontier counties are defined as those with six or fewer people per square mile. Ten of Oregon's 36 counties are frontier.



SUMMARY RESULTS

Overview

Nine variables are used to calculate Unmet Need scores for each of Oregon's 130 primary care service areas. The lowest and worst score possible is 0. The highest and best score possible is 90. A low score means greater unmet need. For 2018, scores in Oregon ranged from 20 (worst) to 72 (best).

Rural and frontier service areas have greater unmet need than urban areas:

Mean (Average) Score by Geographic Area	
Oregon	46.2
Urban	58
Rural (without Frontier)	42.5
Rural (including Frontier)	43.3
Frontier	47.2

The mean (average) score for Oregon overall is 46.2. The number of service areas by geographic type with scores below the Oregon average include:

Urban:	2 out of 26 (8%)
Rural (without Frontier):	57 out of 86 (66%)
Rural (including Frontier):	65 out of 104 (63%)
Frontier:	8 out of 18 (44%)

The areas with the highest and lowest unmet need:

Greatest Unmet Need Areas		***Least Unmet Need Areas***	
Drain/Yoncalla	20	*Portland West*	72
Cascade Locks	23	*Lake Oswego*	71
Port Orford	26	*Tigard*	70
Glendale	27	*Hood River*	70
Detroit	27	*Portland Downtown*	68
Powers	28	*Portland Inner S.*	68
Blodgett-Eddyville	29	*Sisters*	67
East Klamath	30	*Corvallis/Philomath*	65
Swisshome/Triangle Lake	31	*Bend*	65
Shady Cove	31	*Fossil*	65
Siletz	31	*Eugene/University*	64

Highlights

Pages 13-14 The average travel time in Oregon to the nearest Patient Centered Primary Care Home (PCPCH) is 12.3 minutes. **Nineteen rural and frontier service areas do not have a PCPCH and the drive times for these areas can be as long as 78 minutes (Jordan Valley.)** There were 6 new PCPCHs in rural areas this year that had none last year.

Pages 15-17 The estimated ratio of primary care visits able to be met in Oregon is 0.93. Rural and frontier service areas have lower ratios, meaning there is greater demand than supply. **Nine rural primary care service areas have 0 FTE of primary care providers available.**

Pages 18-19 There are 1.8 mental health care providers per 1,000 people in Oregon. **Sixty-six rural and frontier service areas have less than 0.5 mental health providers and 30 of those have 0 mental health providers.**

Pages 20-21 Oregon has 0.45 dentist patient care FTE per 1,000 people. **Twenty rural and frontier primary care service areas have 0 dentist FTE.**

Pages 22-23 The percentage of the population that is above the Medicaid cut off of 138% Federal Poverty Level (FPL) but still below 200% of the FPL (and therefore unlikely able to afford health insurance unless provided by an employer) is 12% in Oregon. **Rural and frontier service areas have higher percentages (13.5% and 14.8% respectively.) North Lake, Condon and Bandon have percentages as high as 25-27%.**

Pages 24-26 Oregon has a preventable hospitalization rate of 8.6 per 1,000 people. **Rural and frontier service areas average 10.6 per 1000. Wallowa/Enterprise, Powers, and Reedsport, have the highest rates, ranging from 21.1 to 18.9.** For the first time ever, Warm Springs no longer has the worst ACSC rate, currently coming in 4th behind the areas above.

Pages 27-28 Oregon has an average inadequate prenatal care rate of 56.5 per 1,000 births. **The average rate in frontier service areas is 92.7. Alsea, Port Orford, and Warm Springs have rates almost triple the state average.**

Pages 29-31 Oregon has an average non-traumatic dental Emergency Department (ED) visit rate of 4.7 per 1,000 people per year. **The rate in rural Oregon is 6.0. Cottage Grove and Warm Springs have rates more than double the rural average (12.1 and 17.6 respectively).**

Pages 32-34 Oregon has an average mental health/substance abuse ED visit rate of 16.3 per 1,000 people per year. **This is the only variable where rural and frontier (14.9), on average, do better than urban areas (17.0). However Coos Bay, Seaside and Warm Springs have very high rates (26.6 to 47).**

Pages 35 Oregon has an average Unmet Need Score of 46.2 out of 90. **All but 2 of the service areas that fall under this mean are either rural or frontier.** The frontier area of Fossil, with a score of 65, tied for 8th best score on the list.

Figure 1.
Overall Scores By Service Area

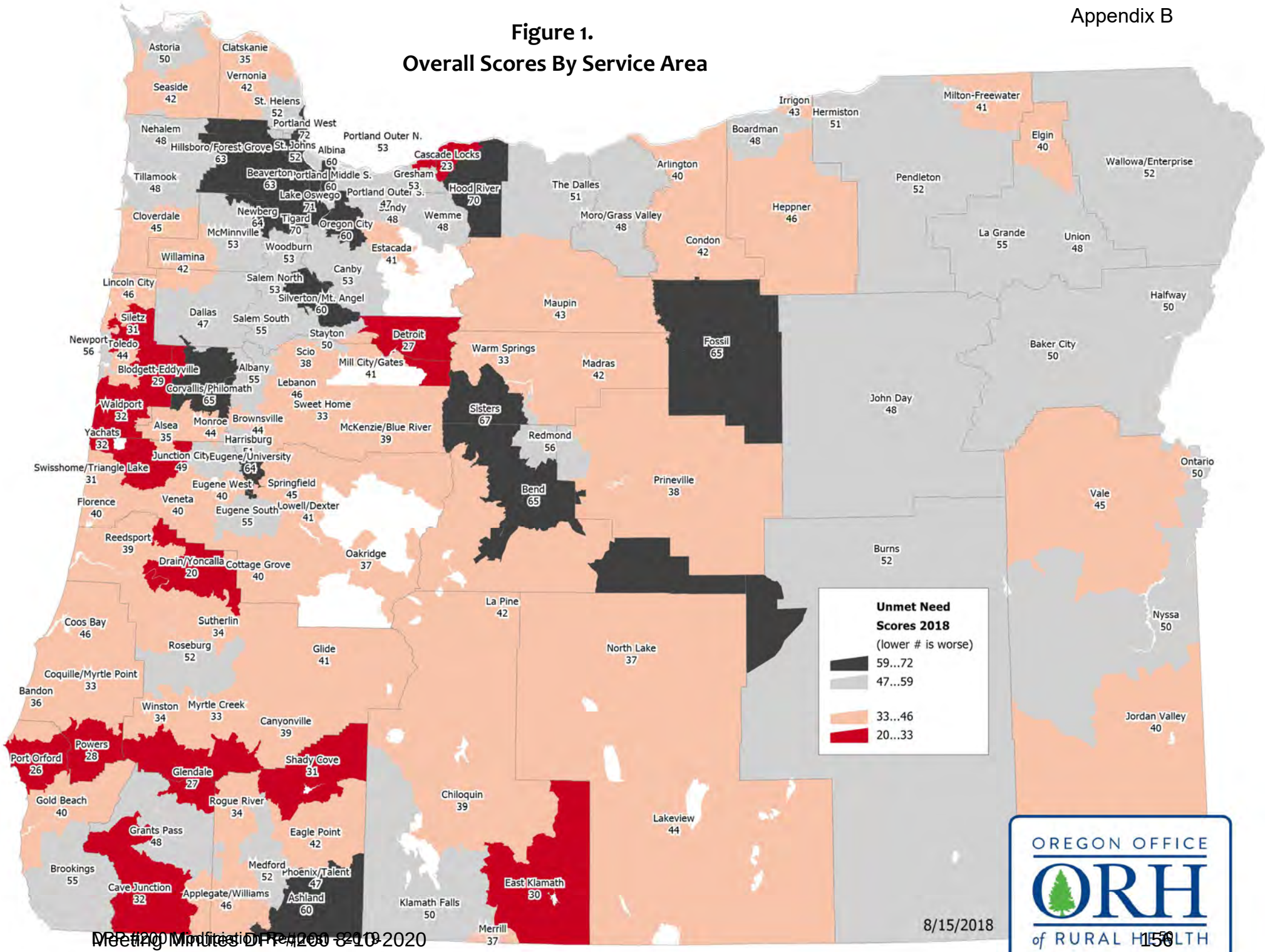


Figure 2. Ranked Service Area Scores (Highest Unmet Need to Lowest)

The worst score in each column is darkest red and the best score is darkest green with graduated shading for the numbers in between the best and worst.

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
Drain/Yoncalla	Rural	20	22	0.09	0.00	0.00	22%	13.4	95.0	9.5	12.6
Cascade Locks	Rural	23	23	0.00	0.00	0.00	19%	13.2	102.6	5.9	10.5
Port Orford	Rural	26	33	0.43	0.00	0.00	7%	17.4	155.6	7.2	16.6
Detroit	Rural	27	25	0.00	0.00	0.00	19%	14.1	0.0	6.4	21.2
Glendale	Rural	27	24	0.00	0.00	0.00	16%	11.4	80.2	5.3	12.1
Powers	Rural	28	10	0.00	0.00	0.00	15%	20.2	85.1	4.1	15.0
Blodgett-Eddyville	Rural	29	13	0.00	0.00	0.00	20%	2.7	64.5	6.0	16.7
East Klamath	Rural	30	37	0.22	0.00	0.00	13%	14.1	34.7	6.6	14.1
Shady Cove	Rural	31	10	0.15	0.00	0.14	14%	16.1	105.1	6.0	15.7
Siletz	Rural	31	14	0.45	0.17	0.65	20%	10.6	90.9	9.5	18.3
Swisshome/Triangle Lake	Rural	31	28	0.07	0.23	0.00	15%	10.4	44.4	4.1	14.1
Cave Junction	Rural	32	10	0.32	0.35	0.10	15%	17.1	107.4	5.3	17.6
Waldport	Rural	32	10	0.27	0.42	0.10	17%	13.0	96.6	6.9	17.0
Yachats	Rural	32	13	0.00	0.18	0.14	9%	9.9	140.0	7.1	15.7
Coquille/Myrtle Point	Rural	33	10	0.24	0.01	0.20	17%	16.8	61.4	7.1	17.8
Myrtle Creek	Rural	33	10	0.11	0.01	0.09	15%	13.3	55.0	9.6	13.9
Sweet Home	Rural	33	10	0.14	0.07	0.14	17%	13.5	55.4	6.7	14.6
Warm Springs	Rural	33	10	1.33	0.51	0.44	16%	18.4	154.5	17.6	47.0
Rogue River	Rural	34	10	0.17	0.10	0.20	14%	12.6	82.0	5.9	15.3
Sutherlin	Rural	34	10	0.08	0.00	0.16	14%	13.3	40.1	7.4	14.6
Winston	Rural	34	10	0.23	0.50	0.10	17%	14.3	41.1	10.5	14.5
Alsea	Rural	35	10	0.00	0.00	0.00	12%	8.1	191.5	3.8	12.2
Clatskanie	Rural	35	10	0.05	0.08	0.28	15%	15.8	84.4	5.4	12.1
Bandon	Rural	36	10	0.74	0.33	0.23	25%	14.6	73.1	6.8	17.7
North Lake	Frontier	37	10	0.66	0.00	0.00	27%	11.5	94.3	1.8	8.8
Merrill	Rural	37	28	0.29	0.00	0.00	17%	7.9	54.5	2.3	7.8
Oakridge	Rural	37	10	0.37	0.43	0.00	10%	15.2	72.4	6.3	14.5
Prineville	Rural	38	10	0.45	0.32	0.27	17%	13.2	46.3	10.6	20.1
Scio	Rural	38	12	0.00	0.18	0.04	16%	7.3	42.0	4.1	8.2
Canyonville	Rural	39	10	0.77	0.04	0.27	23%	13.9	63.4	8.0	13.1
Chiloquin	Rural	39	32	0.70	0.00	0.40	19%	10.0	114.3	3.7	12.1

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
McKenzie/Blue River	Rural	39	10	0.21	0.53	0.00	11%	15.5	69.4	4.8	11.8
Reedsport	Rural	39	10	0.83	0.26	0.35	17%	18.9	89.7	6.8	20.2
Arlington	Frontier	40	26	1.40	0.00	0.00	12%	16.6	44.4	4.2	7.2
Jordan Valley	Frontier	40	78	0.00	0.00	0.00	22%	0.0	0.0	0.0	4.4
Cottage Grove	Rural	40	10	0.54	0.77	0.26	15%	14.2	55.7	12.1	19.6
Elgin	Rural	40	10	0.42	0.00	0.21	13%	14.6	69.8	9.7	7.6
Florence	Rural	40	10	0.81	0.40	0.20	16%	11.7	92.3	5.8	15.0
Gold Beach	Rural	40	10	1.62	1.20	0.20	18%	16.1	106.1	8.7	23.1
Veneta	Rural	40	10	0.34	0.23	0.14	15%	10.7	66.5	3.9	12.3
Eugene West	Urban	40	10	0.61	0.43	0.20	14%	10.7	63.6	6.5	24.0
Estacada	Rural	41	10	0.28	0.00	0.14	12%	8.1	77.7	5.1	11.5
Glide	Rural	41	10	0.11	0.00	0.19	8%	9.7	69.6	8.8	11.7
Lowell/Dexter	Rural	41	24	0.15	0.88	0.18	11%	10.5	41.3	6.1	12.2
Mill City/Gates	Rural	41	10	0.71	0.04	0.16	14%	11.4	52.9	6.1	16.1
Milton-Freewater	Rural	41	17	0.13	0.13	0.29	19%	10.0	74.2	0.3	0.7
Condon	Frontier	42	22	1.41	0.00	0.31	25%	13.7	66.7	1.7	4.5
Eagle Point	Rural	42	10	0.40	0.35	0.09	15%	10.9	48.4	4.1	11.8
La Pine	Rural	42	10	0.49	0.37	0.19	15%	12.0	66.1	4.3	11.4
Madras	Rural	42	10	0.83	0.66	0.21	17%	9.7	84.1	10.8	17.2
Seaside	Rural	42	10	0.82	0.55	0.29	15%	14.2	73.2	8.8	26.6
Vernonia	Rural	42	10	0.40	0.00	0.19	11%	8.3	74.5	7.6	12.4
Willamina	Rural	42	10	0.67	0.37	0.29	13%	10.7	72.0	8.1	15.1
Irrigon	Frontier	43	10	0.44	0.00	0.00	11%	9.2	108.7	4.6	8.3
Maupin	Rural	43	10	0.50	0.05	0.26	17%	9.0	67.8	4.1	10.6
Lakeview	Frontier	44	10	1.45	0.47	0.55	17%	16.1	71.7	7.0	14.4
Brownsville	Rural	44	10	0.24	0.07	0.21	17%	7.6	61.3	3.4	8.7
Monroe	Rural	44	10	0.27	0.37	0.00	13%	7.5	55.1	4.1	12.5
Toledo	Rural	44	10	0.56	0.19	0.13	8%	9.5	51.3	11.8	16.0
Vale	Frontier	45	10	0.57	0.00	0.11	15%	6.5	95.7	2.8	6.5
Cloverdale	Rural	45	10	0.60	0.00	0.18	19%	11.0	23.4	4.4	11.3
Springfield	Urban	45	10	1.26	0.77	0.32	14%	12.7	66.6	10.1	20.5
Heppner	Frontier	46	10	0.97	0.63	0.00	18%	13.4	62.5	3.3	7.8
Applegate/Williams	Rural	46	13	0.07	0.16	0.32	8%	8.9	70.2	3.9	10.1
Coos Bay	Rural	46	10	0.93	1.31	0.42	12%	18.4	68.5	9.6	26.7
Lebanon	Rural	46	10	1.00	0.34	0.29	13%	12.9	41.8	5.9	15.8
Lincoln City	Rural	46	10	0.87	0.73	0.27	14%	12.0	63.4	10.0	20.8
Oregon		46.2	12.3	0.93	1.68	0.45	12%	8.6	56.5	4.7	16.3

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
Dallas	Rural	47	10	0.48	0.55	0.16	13%	7.7	51.4	6.2	13.5
Phoenix/Talent	Urban	47	10	0.44	0.69	0.15	8%	10.3	55.3	5.7	15.9
Portland Outer S.	Urban	47	10	0.79	0.89	0.39	16%	9.4	99.2	7.1	24.4
Boardman	Frontier	48	10	0.65	0.09	0.29	18%	5.4	106.3	2.3	9.4
John Day	Frontier	48	10	1.05	0.36	0.53	14%	12.9	104.2	3.5	12.2
Moro/Grass Valley	Frontier	48	10	0.66	0.00	0.00	17%	7.6	0.0	3.6	9.1
Grants Pass	Rural	48	10	1.05	0.96	0.47	15%	13.3	71.2	5.3	19.7
Nehalem	Rural	48	10	0.38	1.15	0.17	17%	11.4	46.9	2.1	12.4
Sandy	Rural	48	10	0.25	0.26	0.18	12%	7.9	40.2	3.1	11.4
Tillamook	Rural	48	10	0.89	1.08	0.38	16%	13.0	51.9	7.8	23.4
Union	Rural	48	10	0.25	0.18	0.24	12%	10.5	44.0	4.8	7.1
Wemme	Rural	48	10	0.26	0.00	0.13	12%	6.5	60.1	3.2	10.8
Junction City	Rural	49	10	0.16	0.96	0.22	11%	9.9	69.2	4.2	11.5
Baker City	Frontier	50	10	0.59	0.95	0.39	15%	10.0	63.2	10.4	11.5
Halfway	Frontier	50	10	0.37	0.00	0.37	14%	10.2	80.5	1.4	4.9
Nyssa	Frontier	50	10	0.45	0.00	0.37	13%	5.9	131.1	2.4	11.0
Ontario	Frontier	50	10	1.82	0.70	0.69	13%	8.6	125.6	6.6	17.7
Astoria	Rural	50	10	1.08	1.65	0.42	13%	12.8	55.2	6.5	21.2
Klamath Falls	Rural	50	10	1.07	0.86	0.45	14%	10.6	63.2	7.0	18.9
Stayton	Rural	50	10	0.72	0.07	0.35	11%	11.1	46.5	7.0	13.9
Harrisburg	Rural	51	10	0.18	0.37	0.04	7%	6.1	40.6	3.2	11.0
Hermiston	Rural	51	10	0.96	0.38	0.34	15%	7.8	77.2	4.4	11.5
The Dalles	Rural	51	10	1.16	1.53	0.46	13%	12.4	49.0	9.6	15.4
Burns	Frontier	52	10	1.17	1.23	0.24	18%	10.1	54.2	4.5	12.8
Wallowa/Enterprise	Frontier	52	10	1.28	0.99	0.25	12%	21.1	39.9	4.0	10.0
Pendleton	Rural	52	10	1.01	1.24	0.45	14%	9.6	83.7	6.8	14.3
Roseburg	Rural	52	10	1.32	1.62	0.54	16%	11.9	38.7	9.6	21.1
St. Helens	Rural	52	10	0.45	0.63	0.28	11%	10.5	62.4	2.1	12.1
Medford	Urban	52	10	1.33	1.67	0.59	15%	12.3	60.2	6.4	22.1
Milwaukie	Urban	52	10	0.40	1.56	0.41	12%	8.9	49.7	6.0	18.4
St. Johns	Urban	52	10	0.41	1.07	0.20	10%	8.5	54.7	4.1	15.4
Canby	Rural	53	10	0.39	0.13	0.30	12%	7.4	49.5	2.9	10.5
McMinnville	Rural	53	10	0.66	1.02	0.34	12%	9.6	39.3	7.6	17.3
Woodburn	Rural	53	10	0.57	0.51	0.20	16%	6.7	55.8	2.3	8.4
Gresham	Urban	53	10	0.70	0.84	0.41	12%	8.3	65.8	4.9	17.4
Portland Outer N.	Urban	53	10	0.98	1.09	0.66	13%	10.1	81.3	5.1	18.3
Salem North	Urban	53	10	0.52	0.74	0.36	14%	7.7	53.3	3.9	12.3
Brookings	Rural	55	10	0.79	0.53	0.47	18%	6.7	72.7	1.3	10.4

Service Area	Designation	Total Score	Travel Time to Nearest PCPCH	Primary Care Capacity Ratio	Mental Health Providers per 1,000	Dentists per 1,000	138-200% of Federal Poverty Level	Preventable Hospitalizations per 1,000	Inadequate Prenatal Care Rate	Emergency Dept Dental Visits per 1,000	Emergency Dept Mental Visits per 1,000
La Grande	Rural	55	10	1.17	1.39	0.36	11%	10.6	53.9	9.3	10.2
Albany	Urban	55	10	0.66	1.15	0.38	13%	6.3	38.4	6.9	14.9
Eugene South	Urban	55	10	0.29	1.23	0.46	11%	7.3	67.4	3.1	11.6
Salem South	Urban	55	10	1.24	2.30	0.66	14%	8.5	60.6	5.2	19.3
Newport	Rural	56	10	1.07	2.56	0.57	9%	9.0	60.7	9.4	21.3
Redmond	Rural	56	10	0.57	0.51	0.40	12%	7.9	38.1	4.8	14.4
Ashland	Rural	60	10	1.15	3.31	0.40	10%	5.1	68.4	4.0	13.9
Silverton/Mt. Angel	Rural	60	10	1.14	0.65	0.20	11%	7.1	38.0	2.9	8.9
Albina	Urban	60	10	1.59	3.66	0.19	8%	8.3	39.9	3.6	18.8
Oregon City	Urban	60	10	1.89	2.13	0.63	9%	6.8	65.0	4.2	14.8
Portland Middle S.	Urban	60	10	1.23	2.95	0.49	10%	7.3	41.4	3.1	18.0
Beaverton	Urban	63	10	0.48	0.92	0.56	11%	5.6	45.0	2.1	11.3
Hillsboro/Forest Grove	Urban	63	10	1.04	1.22	0.43	11%	5.5	47.5	3.9	12.7
Newberg	Rural	64	10	0.93	1.60	0.39	11%	7.4	29.2	4.0	11.2
Eugene/University	Urban	64	10	1.93	6.57	0.96	9%	8.4	68.2	4.0	22.5
Fossil	Frontier	65	10	0.92	0.71	0.54	10%	10.4	56.6	0.7	5.9
Bend	Urban	65	10	1.14	2.38	0.51	11%	6.0	30.9	2.8	13.2
Corvallis/Philomath	Urban	65	10	1.21	2.27	0.40	10%	4.0	51.0	2.1	14.4
Sisters	Rural	67	10	0.53	0.82	0.46	9%	6.0	9.9	1.1	8.4
Portland Downtown	Urban	68	10	3.75	13.86	1.32	8%	10.0	46.3	3.4	55.6
Portland Inner S.	Urban	68	10	1.06	6.37	0.73	9%	4.9	41.7	1.7	15.9
Hood River	Rural	70	10	1.54	1.93	0.80	9%	5.9	29.4	2.7	9.0
Tigard	Urban	70	10	1.01	1.45	0.65	8%	5.8	38.2	1.8	11.0
Lake Oswego	Urban	71	10	0.69	1.74	0.64	7%	5.5	35.3	1.4	9.1
Portland West	Urban	72	10	1.08	2.19	0.52	6%	4.3	32.4	1.0	9.7

METHODOLOGY

Primary Care Service Areas

County geographies in most of the United States are relatively small and homogenous, so county-level data is widely used to analyze information. Oregon's 36 counties, however, vary greatly in size, geography, and population. As a result, sub-county geographies needed to be developed to more accurately represent community use of health care services.

Among the established small geographic boundaries, only postal ZIP Code areas follow transportation and market patterns. ZIP Codes are also linked to a large amount of demographic, socioeconomic and health status information. In 1985, the Oregon Office of Rural Health, with the help of other state and local agencies, chose ZIP Codes to be the building blocks of sub-county service areas and grouped all of Oregon's 470+ ZIP Codes into Oregon "Primary Care Service Areas" using the following criteria:[1]

1) Health resources are generally located within 30 to 40 minutes travel time.
2) Defined areas are not smaller than a single ZIP Code and ZIP Codes used are geographically contiguous and/or follow main roads.
3) Defined areas contain a population of at least 800 to 1,000 or more people.
4) Defined areas constitute a "rational" medical trade or market area considering topography, social and political boundaries, and travel patterns.
5) Additional considerations for service areas are boundaries that:
   a) Are congruent with existing special taxing districts (e.g., health or hospital districts); and
   b) Include a population which has a local perception that it constitutes a "community of need" for primary health care services, or demonstrates demographic or socioeconomic homogeneity. The population should be large enough (800-1000 or more) to be financially capable of supporting at least a single midlevel health care provider.

The criteria remain the same, but the areas are updated when necessary according to changes in population and health utilization. The last change was made to Lakeview in 2013.

There are 130 Oregon Primary Care Service Areas:
Urban: 26 | Rural + Frontier[2]: 104 | Rural Only: 86 | Frontier Only: 18

Six-page demographic, socioeconomic, and health status profiles for each of the rural and frontier service areas are updated continuously and available for free. A sample profile, and more information, are available here.

[1] Van Eck, Ethan; Bennett, Marge et. al. *Strategic Plan for Primary Health Care in Rural Oregon*, 1985-1990. September 30, 1985. (Available through the Office of Rural Health)
[2] Using the Oregon Office of Rural Health's definition —Rural is a geographic area 10 or more miles from the centroid of a city of 40,000 or more. Frontier areas are those in counties with 6 or fewer people per square mile.

The Variables Used in the AUHCN Calculation

The Oregon Office of Rural Health researched academic publications and collected studies from other State Offices of Rural Health to determine the measures that would be used for the new report. This data was brought to a stakeholder group with knowledge of health utilization, hospital data, primary care, dental, and mental health services (list of individuals and members below).

Data Limitations:

- Data points must be available at the ZIP Code geographic level.
- Data must be updated annually, at minimum.
- Data must be available to the Oregon Office of Rural Health.

The following 9 variables were identified as the best currently available to measure access to primary care, dental and mental health services. More detail on the sources and methodology for each variable is included in the following pages.

Category One: Availability of Providers—*Are needed providers available locally?*

1) Travel Time to Nearest Patient Centered Primary Care Home (PCPCH)
2) Primary Care Capacity (Percent of Primary Care Visits Able to Be Met)
3) Mental Health Providers per 1,000 Population
4) Dentists per 1,000 Population

Category Two: Ability to Afford Care—*Is it affordable to see these providers?*

5) Percent of Population Between 138% and 200% of Federal Poverty Level (FPL)

Category Three: Utilization—*Are primary physical, mental and oral health care being used?*

6) Ambulatory Care Sensitive Conditions (ACSC)/ Preventable Hospitalizations per 1,000 Population
7) Inadequate Prenatal Care Rate per 1,000 Births
8) Emergency Department Non-Traumatic Dental Visits per 1,000 Population
9) Emergency Department Mental Health/Substance Abuse Visits per 1,000 Population

The Oregon Office of Rural Health would like to thank the stakeholder group for their participation:

Greater Oregon Behavioral Health, Inc.
Paul McGinnis, CCO Integration Director

Oregon Association of Hospitals & Health Systems
Katie Harris, Director of Program Management
Andy Van Pelt, Executive Vice President

Oregon Health Authority
Jackie Fabrick, Behavioral Health Policy Analyst
Marc Overbeck, Primary Care Office Director
Amanda Peden, Health Policy Analyst
Jeffery Scroggin, Policy Analyst

Oregon Health & Science University
Eli Schwarz, Chair of Department of Community Dentistry

CATEGORY ONE: AVAILABILITY OF PROVIDERS

1) TRAVEL TIME TO NEAREST PATIENT CENTERED PRIMARY CARE HOME (PCPCH)

Description:
PCPCHs are health care clinics that have been officially recognized by the Oregon Health Authority (OHA) for providing high quality, patient-centered care. All PCPCHs have to pass a minimum set of 11 criteria. For this report, three criteria were considered good indicators of community access to primary care and in preventing misuse of the emergency room. These include: screening and referral for mental health and substance abuse, 24/7 access to live clinical advice by telephone, and ongoing management of chronic diseases.

Data Source:
Patient-Centered Primary Care Home Program, Oregon Health Authority (May 2018)

Methodology:
Google Maps is used to determine driving times from the largest town in the Primary Care Service Area to the town where the nearest PCPCH is located. Locations that already have a PCPCH in the largest town are defaulted to a drive time of 10 minutes.

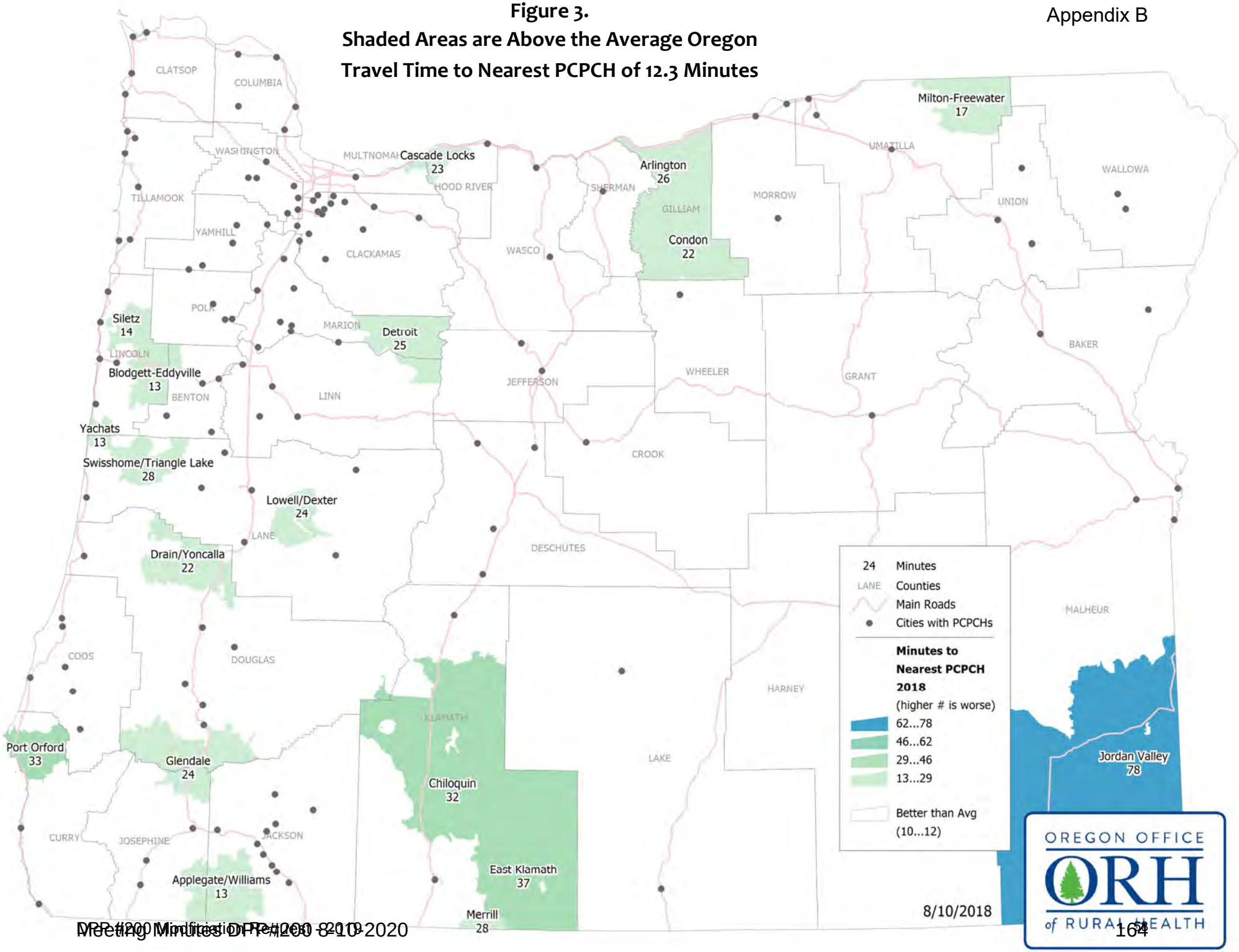
V_1 = Drive time in minutes

Results:
Average drive time to the nearest PCPCH for all 130 Primary Care Service Areas in Oregon is 12.3 minutes. There were 6 new PCPCHs in rural areas this year, shortening the average drive time from 13.6 minutes last year. Nineteen service areas do not have a PCPCH, and the drive times for these areas range from 12 (Scio) to 78 minutes (Jordan Valley).

Overall Results	***In Minutes***
Oregon	12.3
Urban	10
Rural (without Frontier)	12.3
Rural (including Frontier)	12.8
Frontier	15.3

5 Longest Travel Times to PCPCH	
Jordan Valley	78
East Klamath	37
Port Orford	33
Chiloquin	32
Swisshome/Triangle Lake	28

Figure 3.
Shaded Areas are Above the Average Oregon Travel Time to Nearest PCPCH of 12.3 Minutes



2) Primary Care Capacity (Percent of Primary Care Visits Able to Be Met)

Description:
This measure compares the estimated visits the primary care providers in the service area should be able to supply, with the estimated primary care visits needed by the local population. Primary care providers include general and family physicians, pediatricians, obstetrician-gynecologists, internists, primary care physician assistants, and primary care nurse practitioners.

Data Sources:
Estimated Primary Care Visits Provided:
Physician, physician assistant, and nurse practitioner patient care FTE: Oregon Health Authority's Health Care Workforce Reporting Program Database: licensure survey (2017)[3] using both primary and secondary work locations

Estimated number of visits provided per year by primary care specialty: Medical Provider FTEs and Encounters for Calendar Year 2016 for Oregon FQHCs, from Oregon Primary Care Association (OPCA)

Estimated Primary Care Visits Needed:
Annually adjusted rates from the National Ambulatory Medical Care Survey: State and National Summary Tables, National Center for Health Statistics (2015)[4]

Local population data: Claritas (2018)

Methodology:

a) Estimated primary care visits provided:

Specialty	Estimated Number of Visits Provided Per Year
General and family physicians	2204
Pediatricians	2216
Obstetrician-gynecologists	2063
Internists	1861
Physician assistants	2013
Nurse practitioners	2368

Total Visits Provided = $p_1(2204) + p_2(2216) + p_3(2063) + p_4(1861) + p_5(2013) + p_6(2368)$ where:

p_1 = FTE of General and family physicians
p_2 = FTE of Pediatricians
p_3 = FTE of Obstetrician-gynecologists
p_4 = FTE of Internists
p_5 = FTE of Primary care physician assistants
p_6 = FTE of Primary care nurse practitioners

[3] https://www.oregon.gov/oha/HPA/ANALYTICS/Pages/Health-Care-Workforce-Reporting.aspx
Data from the Oregon Health Authority's Health Care Workforce Reporting Program Database was used to produce this product. Statements contained herein are solely those of the authors and the OHA assumes no responsibility for the accuracy and completeness of the analyses contained in the product.
[4] https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2015_namcs_web_tables.pdf

b) Primary care visits needed:

Total # of Primary Care Visits Needed = 0.8[5] x
(([Female Population 0-14] x 2) +
([Female Population 15-24] x 2.4) +
([Female Population 25-44] x 3) +
([Female Population 45-64] x 4.2) +
([Female Population 65-74] x 6.1) +
([Female Population 75+] x 7.4) +
([Male Population 0-14] x 2.1) +
([Male Population 15-24] x 1.2) +
([Male Population 25-44] x 1.3) +
([Male Population 45-64] x 3.1) +
([Male Population 65-74] x 5.6) +
([Male Population 75+] x 8))

c) Total visits provided is divided by the total number of primary care visits needed. The final variable is a ratio of need being met, using the following formula:

$$V_2 = \frac{\text{Total Visits Provided}}{\text{Total \# of Primary Care Visits Needed}}$$

Results:
The estimated ratio of primary care visits able to be met for the state of Oregon is 0.93. A ratio of 1 means that supply should be equal to demand, if access and affordability were equal for everyone. A lower ratio means more demand. A higher ratio means more supply. There are 9 service areas (all rural) that don't have any primary care providers, with the highest ratios located in urban areas: Portland Downtown (3.8), and Eugene/University (1.9).

We refined this calculation this year by using patient care FTE from both primary and secondary locations in the provider surveys, counting only primary care physician assistants and nurse practitioners, and using a new annually-updated and Oregon-specific estimate for visit numbers provided by primary care specialty.

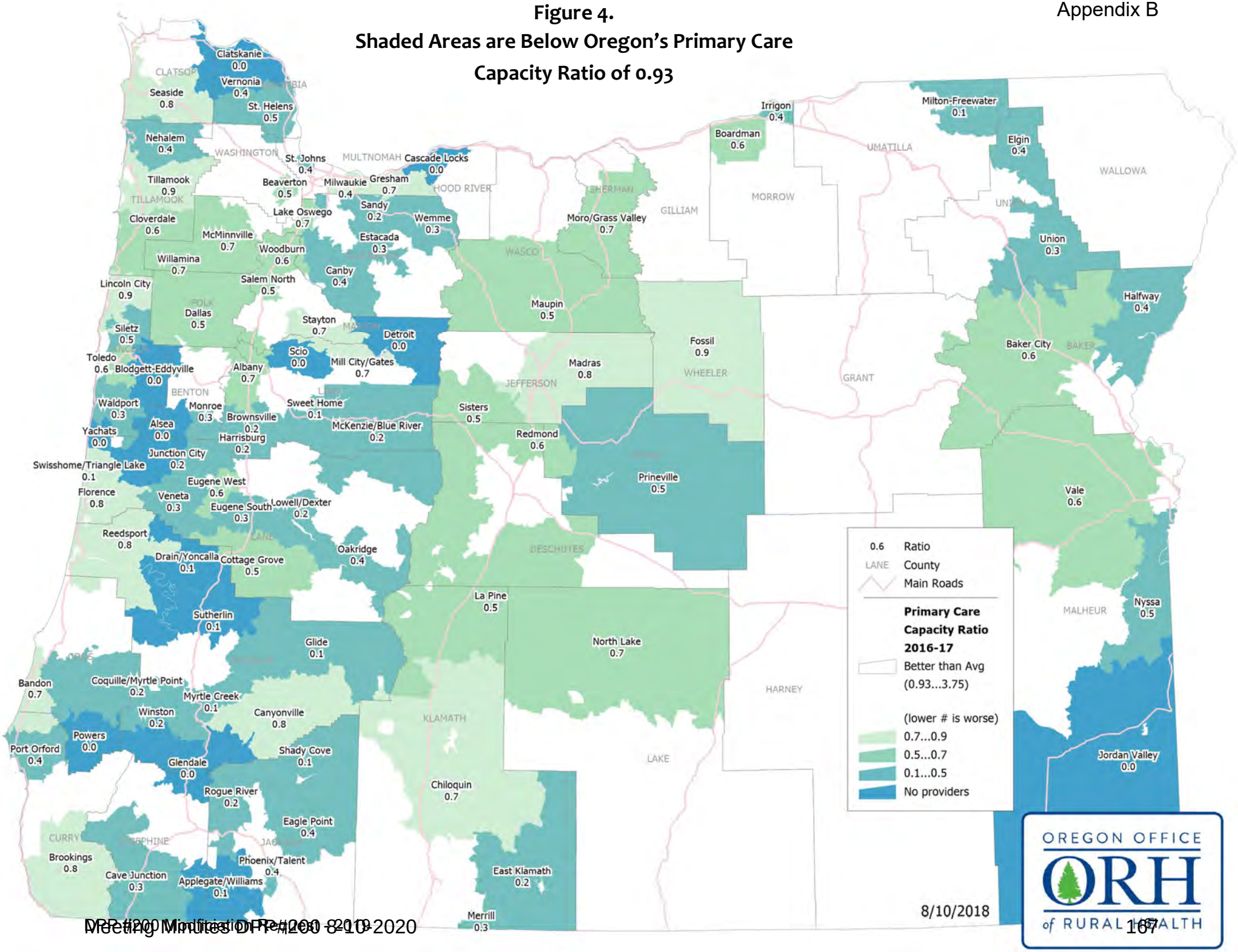
Primary Care Service Areas with no primary care provider FTE:
Detroit, Blodgett-Eddyville, Yachats, Powers, Alsea, Glendale, Cascade Locks, Scio, and Jordan Valley

Overall Results

Oregon	0.93
Urban	1.05
Rural (without Frontier)	0.70
Rural (including Frontier)	0.72
Frontier	1.04

[5] All multipliers are from the National Ambulatory Medical Care Survey; which estimates visits to ALL types of physicians. Since primary care in rural areas accounts for 80% of those visits, the calculation here is multiplied by 0.8.

Figure 4.
Shaded Areas are Below Oregon's Primary Care Capacity Ratio of 0.93



3) MENTAL HEALTH PROVIDERS PER 1,000 POPULATION

Description:
Count of Psychiatrist FTE, Psychiatric Nurse Practitioner FTE, Marriage and Family Therapist FTE, Psychologists, and Clinical Social Workers compared to local population.

Data Sources:
Psychiatrist, psychiatric nurse practitioner, and marriage and family therapist patient care FTE: Oregon Health Authority's Health Care Workforce Reporting Program: licensure survey (2017) for both primary and secondary work locations

Psychologist active licensure count: Oregon Board of Psychologist Examiners (2017)

Clinical social worker active licensure count: Oregon Board of Clinical Social Workers (2017)

Local population data: Claritas (2018)

Methodology:

$$V_3 = \frac{\text{Sum of 5 mental health providers} \times 1000}{\text{Local population}}$$

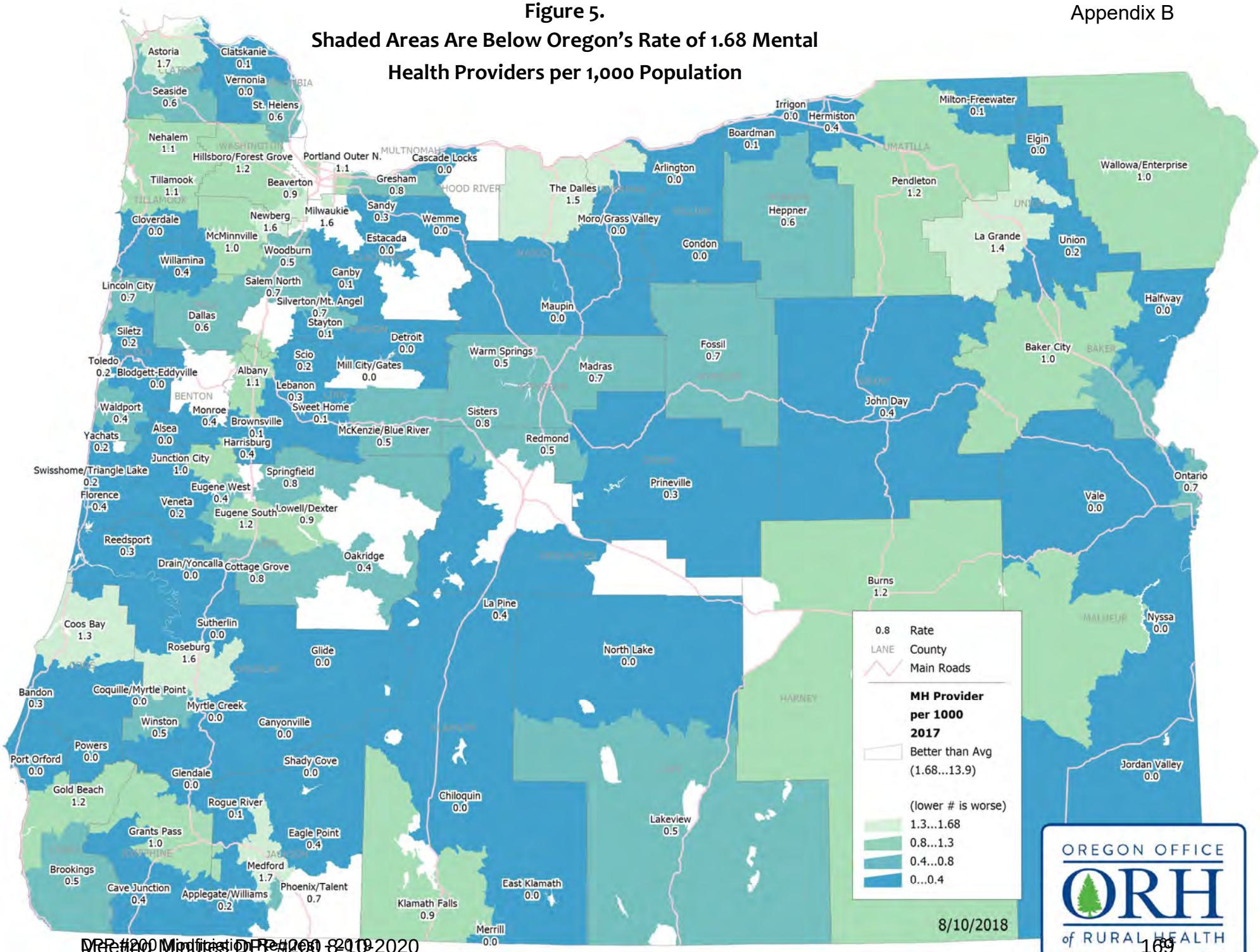
Results:
There are 1.7 mental health providers per 1,000 people in Oregon. Twenty-eight of 130 service areas (all rural or frontier) had no mental health providers. An additional 39 service areas (all rural or frontier except for one) have 0.5 or fewer mental health providers per 1,000 people. The highest numbers per 1,000 are in the urban areas of Portland Downtown (13.9), Eugene/University (6.6) and Portland Inner South (6.4).

Patient care FTE were collected for the first time this year for marriage and family therapists, and both primary and secondary work locations were calculated for these as well as for psychiatrists and psychiatric nurse practitioners.

Primary Care Service Areas with no mental health providers:
Alsea, Arlington, Blodgett-Eddyville, Cascade Locks, Chiloquin, Cloverdale, Condon, Detroit, Drain/Yoncalla, East Klamath, Elgin, Estacada, Glendale, Glide, Halfway, Irrigon, Jordan Valley, Merrill, Moro/Grass Valley, North Lake, Nyssa, Port Orford, Powers, Shady Cove, Sutherlin, Vale, Vernonia, and Wemme

Overall Results	*Per 1,000 Population*
Oregon	1.7
Urban	2.2
Rural (without Frontier)	0.74
Rural (including Frontier)	0.73
Frontier	0.56

Figure 5.
Shaded Areas Are Below Oregon's Rate of 1.68 Mental Health Providers per 1,000 Population



4) DENTISTS PER 1,000 POPULATION

Description:
Patient care FTE of local dentists compared to local population.

Data Sources:
Dentist patient care FTE: Oregon Health Authority's Health Care Workforce Reporting Program: licensure survey (2017) for both primary and secondary work locations

Local population: Claritas (2018)

Methodology:

$$V_4 = \frac{\text{Dentist patient care FTE}}{\text{Local population}} \times 1{,}000$$

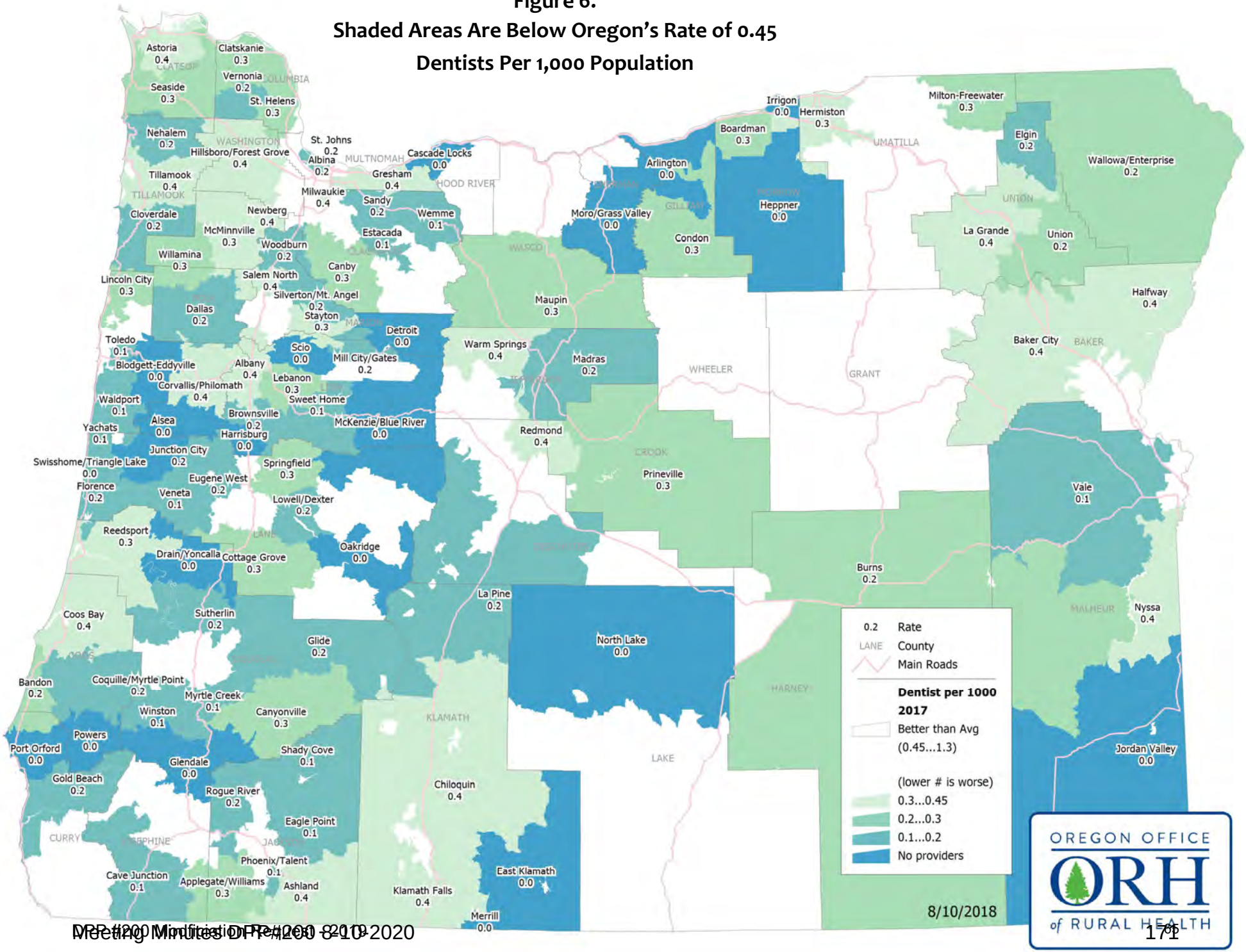
Results:
Oregon has 0.45 dentist patient care FTE per 1,000 people. Twenty primary care service areas (all rural or frontier) have no dentists. The urban areas of Portland Downtown (1.3) and Eugene/University (0.96) have the highest numbers of dentists per 1000 people.

Secondary work locations were added to the patient care FTE calculations for this year.

Primary Care Service Areas with no dentists:
Alsea, Arlington, Blodgett-Eddyville, Cascade Locks, Detroit, Drain/Yoncalla, East Klamath, Glendale, Heppner, Irrigon, Jordan Valley, McKenzie/Blue River, Merrill, Monroe, Moro/Grass Valley, North Lake, Oakridge, Port Orford, Powers, Swisshome/Triangle Lake

Overall Results	*Per 1,000 Population*
Oregon	0.45
Urban	0.52
Rural (without Frontier)	0.31
Rural (including Frontier)	0.31
Frontier	0.38

Figure 6.
Shaded Areas Are Below Oregon's Rate of 0.45
Dentists Per 1,000 Population



Category Two: Ability to Afford Care

5) Percent of Population Between 138% and 200% of the Federal Poverty Level

Description:
The percentage of the local population that is above the Medicaid cutoff of 138% of Federal Poverty Level (FPL), but still too poor to get health insurance on their own (unless they have jobs that provide health insurance).

Data Source:
American Community Survey (2012-2016)[6]

Methodology:
V_5 = 200% FPL – 138% FPL

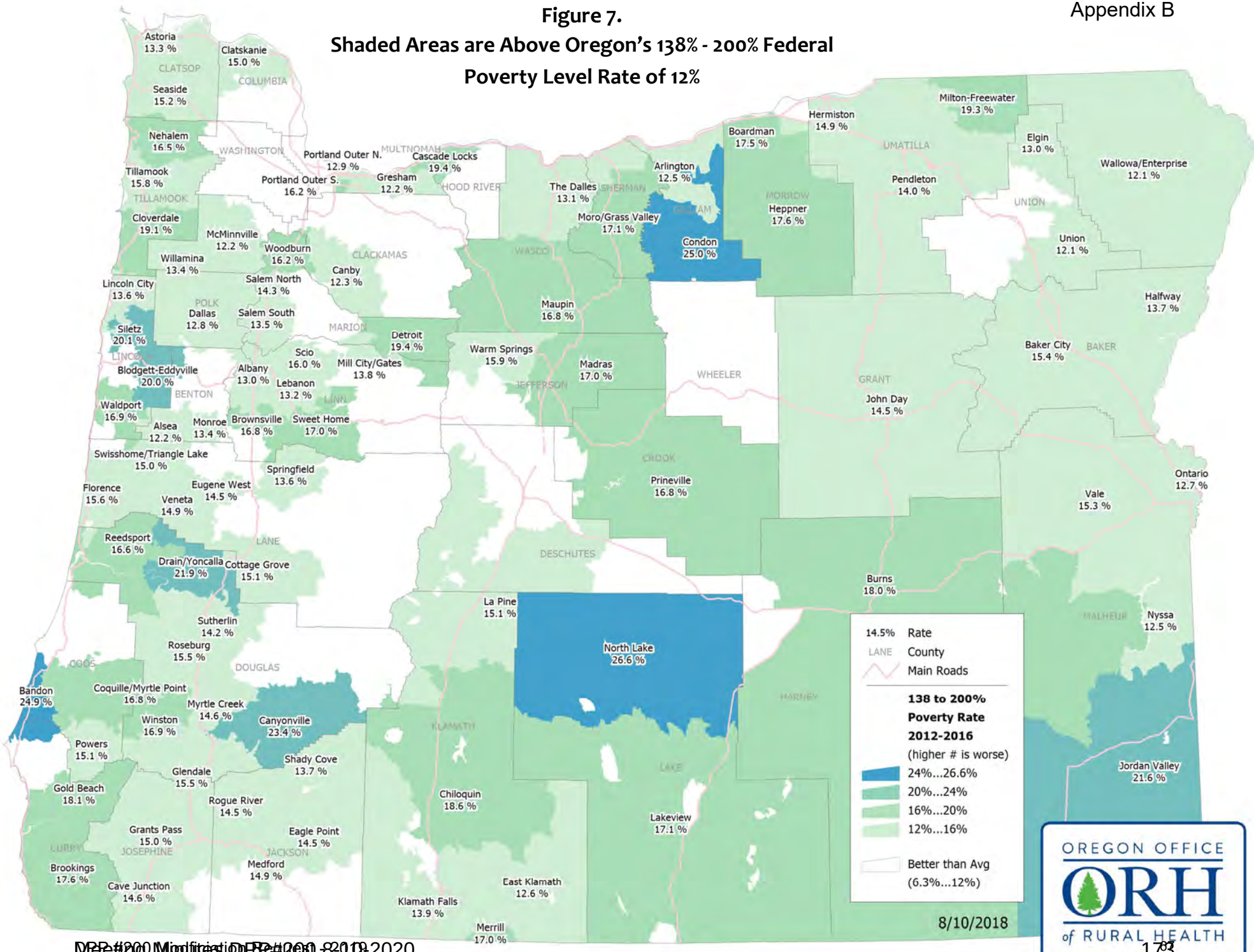
Results:
12% of the population in Oregon are between 138% and 200% of the Federal Poverty Level. The rate ranges from 6% in Portland West and 7% in Harrisburg, Lake Oswego, and Port Orford, to a high of 27% in North Lake and 25% in Condon and Bandon.

Overall Results	
Oregon	12%
Urban	11%
Rural (without Frontier)	14%
Rural (including Frontier)	14%
Frontier	15%

5 Highest 138-200% Federal Poverty Level Rates	
North Lake	27%
Condon	25%
Bandon	25%
Canyonville	23%
Drain/Yoncalla	22%
Jordan Valley	22%

[6] Because American Community Survey data is based on samples, they are subject to a margin of error, particularly in places with a low population, and are best regarded as estimates.

Figure 7.
Shaded Areas are Above Oregon's 138% - 200% Federal Poverty Level Rate of 12%



CATEGORY THREE: UTILIZATION

6) AMBULATORY CARE SENSITIVE CONDITIONS/PREVENTABLE HOSPITALIZATIONS PER 1,000 POPULATION

Description:
Ambulatory Care Sensitive Conditions (ACSC), also known as preventable hospitalizations, are a set of inpatient discharges that may have been preventable had they been treated with timely and effective primary care. These include common conditions such as asthma, diabetes, hypertension, and pneumonia.

Data Sources:
All Oregon and Washington hospital inpatient discharges for the latest 3 calendar years (2015-2017) from Apprise Health Insights.

Primary diagnoses filtered using the ACSC ICD-9 and ICD-10 codes introduced and updated by John Billings.[7-8]

Local population: Claritas (2018)

Methodology:

$$V_6 = \frac{\text{Average ACSC Discharges per Year}}{\text{Local population}} \times 1{,}000$$

Results:
Oregon has an ACSC rate of 8.6 per 1,000 people. Since only Oregon and Washington hospital data are collected, any Oregon residents who go to hospitals in other states are not counted in this calculation. For a few communities near the Oregon border whose closest hospital is in the adjacent state, this means that only part of their hospital usage is captured, and is most likely higher than reported here. This affects places like Jordan Valley (0.0)—the lowest result—and Brookings (6.7).

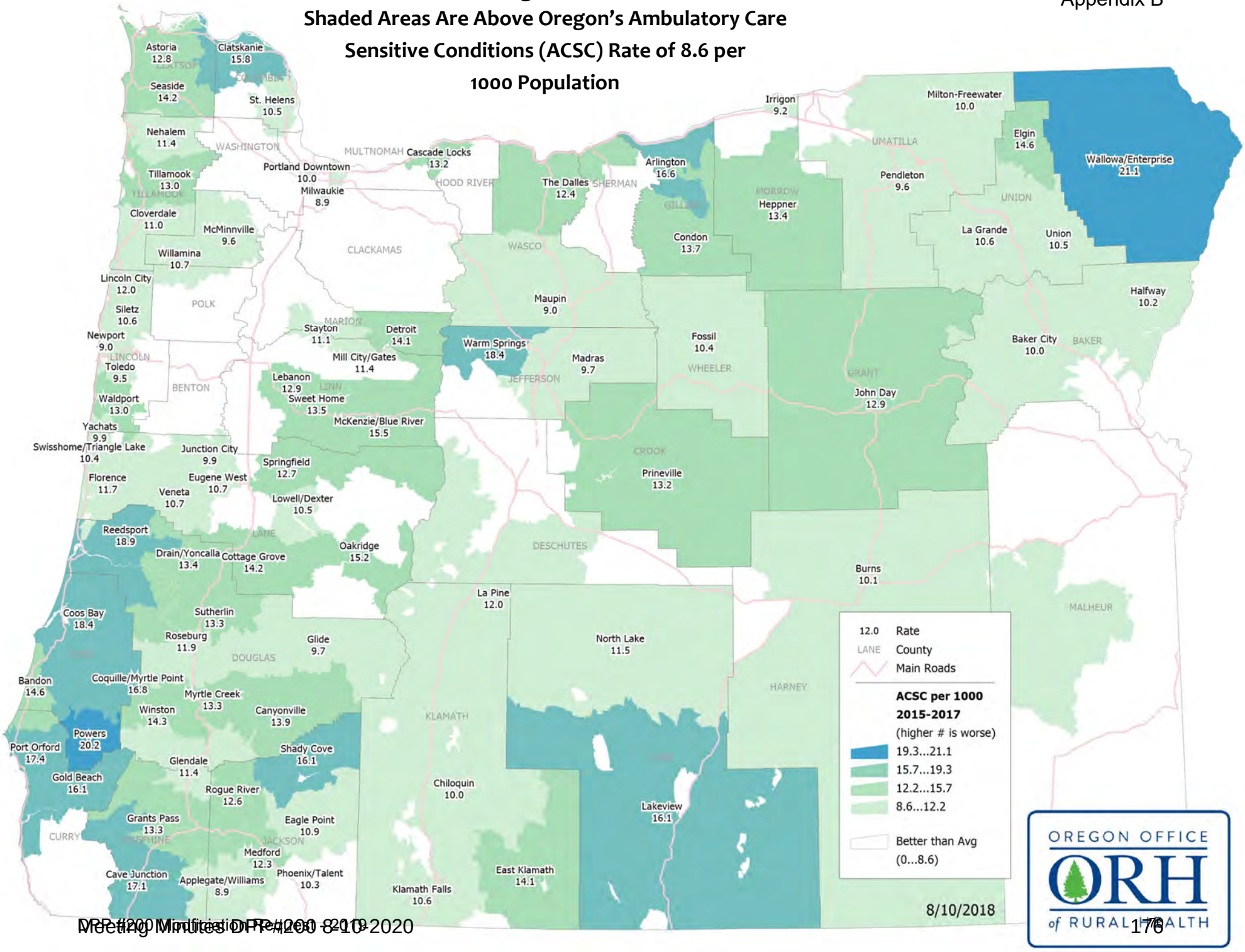
For the very first time since we began calculating this measure in 2002, Warm Springs no longer has the highest ACSC rate. It has since dropped down to 4th. The number of statewide preventable hospitalizations has also been declining in the past 3 years:
2015: 39,981
2016: 35,181
2017: 32,557

Overall Results	*Per 1,000 Population*
Oregon	8.6
Urban	7.5
Rural (without Frontier)	10.6
Rural (including Frontier)	10.7
Frontier	10.6

[7] Introduced: Billings J., Zeitel L., Lukomnik J., et al. Impact of socioeconomic status on hospital use in New York City. Health Affairs (Spring 1993): 162-173.
[8] Updates available at: https://wagner.nyu.edu/faculty/billings/acs-algorithm

5 Highest ACSC Rates	
Wallowa/Enterprise	21.1
Powers	20.2
Reedsport	18.9
Warm Springs	18.4
Coos Bay	18.4

Figure 8.
Shaded Areas Are Above Oregon's Ambulatory Care Sensitive Conditions (ACSC) Rate of 8.6 per 1000 Population



7) Inadequate Prenatal Care Rate Per 1,000 Births

Description:
Inadequate prenatal care is defined in Oregon as care that began in the third trimester, or consisted of less than 5 prenatal visits. In addition to revealing the frequency of required primary care utilization, low birthweight rates are much higher for women who received inadequate prenatal care.[9]

Data Sources:
Latest 5 years (2012-2016) of inadequate prenatal care data from Oregon Health Authority Center for Health Statistics.

Methodology:
$V_7 = \frac{\text{5 years of inadequate prenatal care births}}{\text{5 years of total births}} \times 1000$

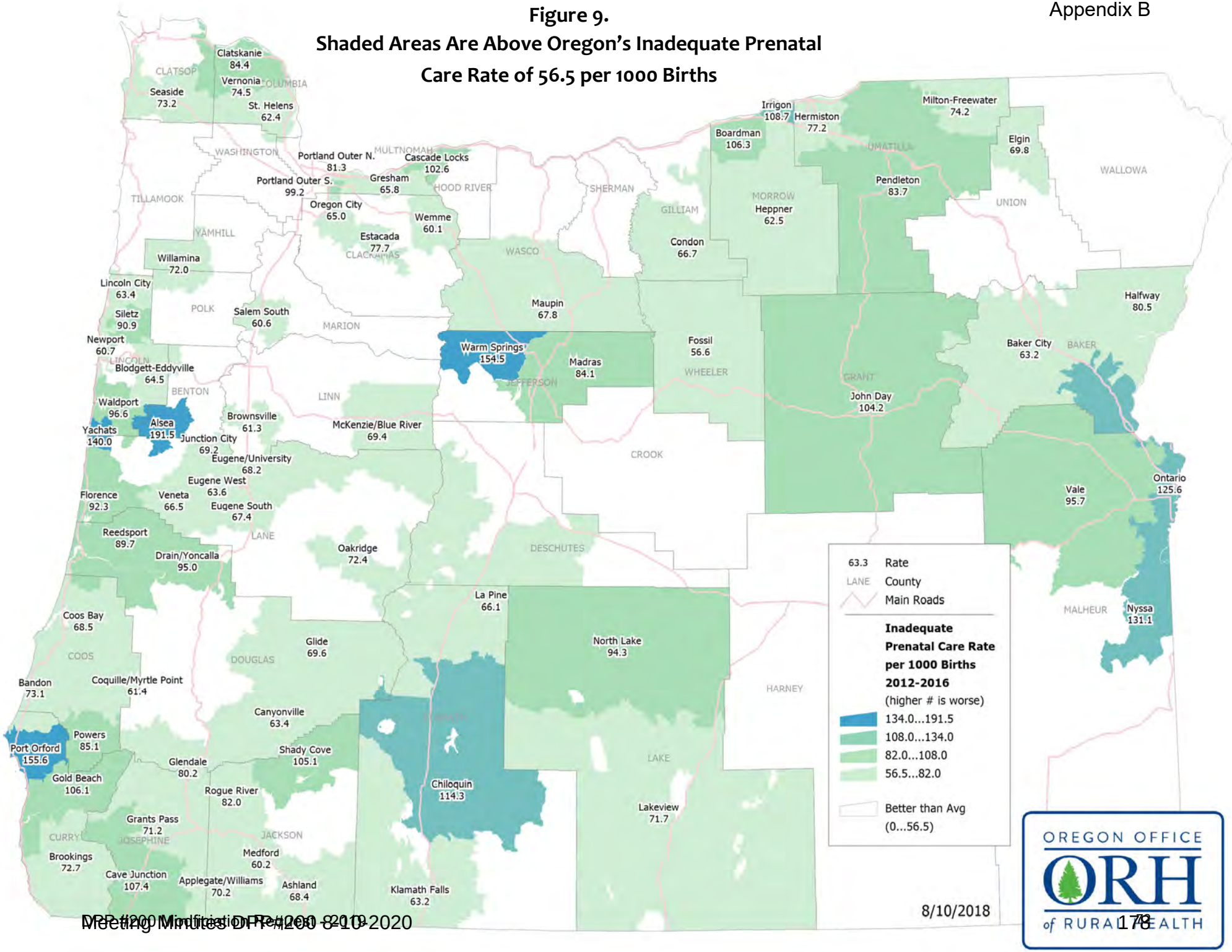
Results:
Oregon has an average inadequate prenatal care rate of 56.5 per 1,000 births. Detroit, Moro/Grass Valley, and Jordan Valley have no inadequate prenatal care births in the last 5 years, likely because of the few births that occur there (4 per year in Detroit, 9 per year in Moro/Grass Valley, and 6 per year in Jordan Valley). Places like Alsea, Port Orford, and Warm Springs have rates almost triple the state average.

Overall Results	***Per 1,000 Births***
Oregon	56.5
Urban	54.4
Rural (without Frontier)	57.7
Rural (including Frontier)	60.2
Frontier	92.7

5 Highest Inadequate Prenatal Care Rates	
Alsea	191.5
Port Orford	155.6
Warm Springs	154.5
Yachats	140.0
Nyssa	131.1

[9] *Oregon Vital Statistics Annual Report 2015, Volume 1.* Oregon Health Authority, Public Health Division. 2-10

Figure 9.
Shaded Areas Are Above Oregon's Inadequate Prenatal Care Rate of 56.5 per 1000 Births



8) EMERGENCY DEPARTMENT NON-TRAUMATIC DENTAL VISITS PER 1,000 POPULATION

Description:
Visits to the Emergency Department (ED) with a primary diagnosis of dental problems that are not a result of trauma. ED visits for oral health conditions are often a result of limited access to dental care.[10] Most of these visits resulted in opioid and antibiotic prescriptions rather than definitive dental care.[11]

Data Sources:
All Oregon hospital inpatient and outpatient ED visits for the latest 3 calendar years (2015-2017) from Apprise Health Insights.

Primary diagnoses filtered for non-traumatic dental ICD-9 and ICD-10 codes used in the published article: "Emergency Department Visits for Non traumatic Dental Problems: A Mixed-Methods Study."[12]

Local population: Claritas (2018)

Methodology:

$$V_8 = \frac{\text{Per Year Average Non-Traumatic Dental ED Visits}}{\text{Local Population}} \times 1000$$

Results:
Oregon has an average non-traumatic dental ED visit rate of 4.7 per 1,000 per year. Only Oregon hospital data is collected, so any Oregon residents who go to hospitals in other states are not counted in this calculation. For a few communities near the Oregon border whose closest hospital is in the adjacent state, this means that only part of their hospital usage is captured, and is most likely higher than reported here. This affects places like Jordan Valley (0.0), Milton-Freewater (0.3)—the two best results—and Brookings (1.3).

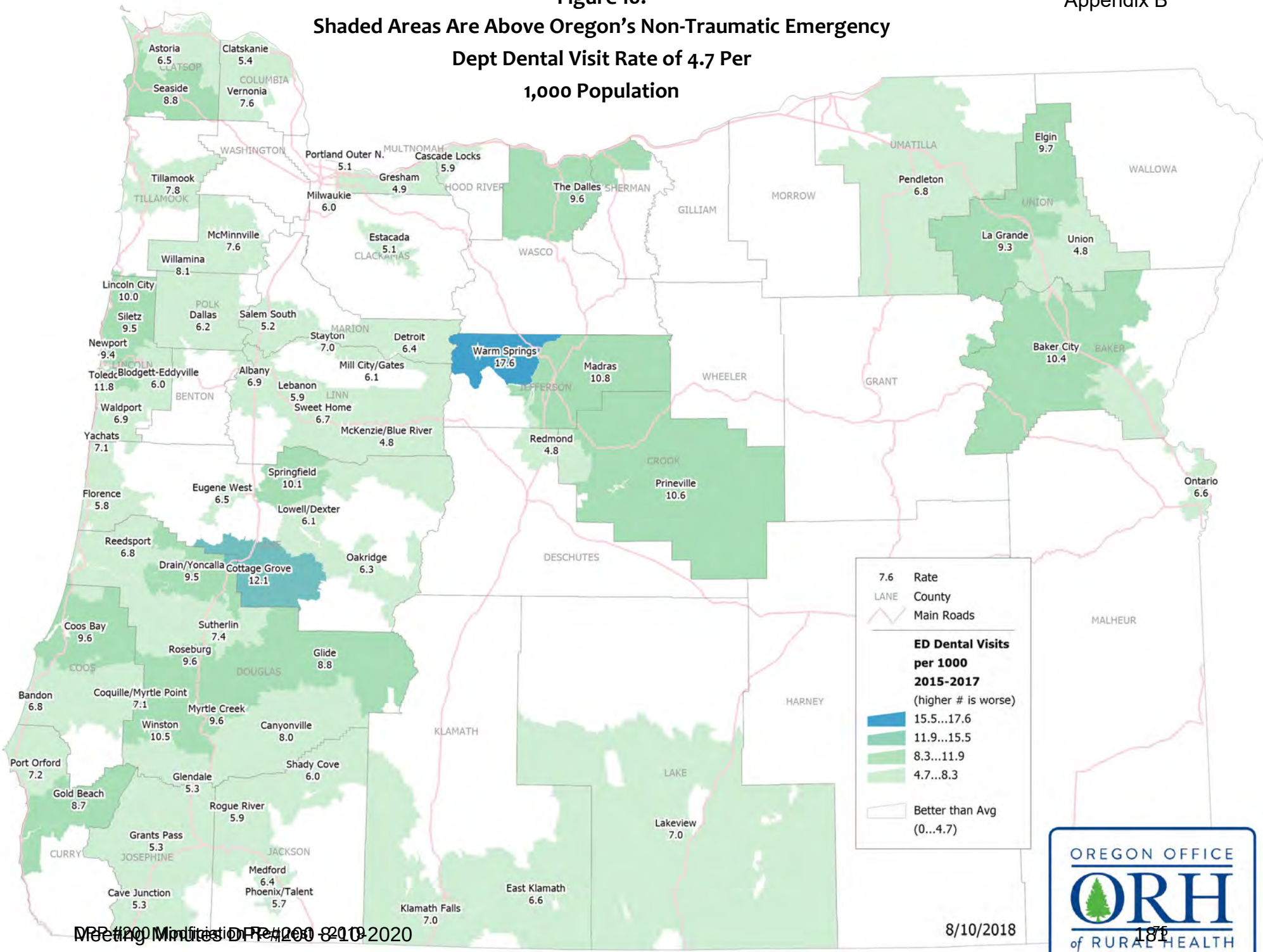
The number of statewide outpatient non-traumatic dental visits to the ED has been declining for the past 3 years:
2015: 21,058
2016: 19,853
2017: 17,789

Overall Results	***Per 1,000 Population***
Oregon	4.7
Urban	4.0
Rural (without Frontier)	6.0
Rural (including Frontier)	6.0
Frontier	5.3

[10] Sun BC, Chi DL, Schwarz E, et al. Emergency Department Visits for Non traumatic Dental Problems: A Mixed-Methods Study. *American Journal of Public Health*. 2015;105(5):947-955. doi:10.2105/AJPH.2014.302398.
[11] Ibid.
[12] Ibid.

5 Highest ED Dental Visit Rates	
Warm Springs	17.6
Cottage Grove	12.1
Toledo	11.8
Madras	10.8
Prineville	10.6

Figure 10.
Shaded Areas Are Above Oregon's Non-Traumatic Emergency Dept Dental Visit Rate of 4.7 Per 1,000 Population



9) Emergency Department Mental Health/Substance Abuse Visits Per 1,000 Population

Description:
Visits to the Emergency Department (ED) with a primary diagnosis of mood disorders, anxiety, alcohol, drug use, schizophrenia and other psychoses, suicide attempts and suicidal ideations. ED visits for Mental Health/Substance Abuse (MHSA) conditions are potentially preventable with adequate primary care.[13] They are twice as likely to result in a hospital admission[14], and the increasing rate of MHSA ED visits in the past few years is highest among low-income populations.[15]

Data Sources:
All Oregon hospital inpatient and outpatient ED visits for the latest 3 calendar years (2015-2017) from Apprise Health Insights.

Primary diagnoses filtered for the top 5 mental health diagnosis grouping codes (ICD-9 and ICD-10)[16], including suicide attempts and suicidal ideations.

Local population: Claritas (2018)

Methodology:

$$V_9 = \frac{\text{Per Year Average ED Mental Health/Substance Abuse Visits}}{\text{Local Population}} \times 1000$$

Results:
Oregon has an average mental health/substance abuse ED visit rate of 16.3 per 1,000 population per year. This is the only variable where rural areas as a whole have better results than urban areas. Only Oregon hospital data is collected, so any Oregon residents who go to hospitals in other states are not counted in this calculation. For a few communities near the Oregon border whose closest hospital is in the adjacent state, this means that only part of their hospital usage is captured, and is most likely higher than reported here. This applies to places like Milton-Freewater (0.7), Jordan Valley (4.4)—the two best results—and Brookings (10.4).

The number of statewide outpatient mental health/substance abuse visits to the ED has been increasing for the past 3 years:
2015: 55,906
2016: 61,142
2017: 62,419

The number of outpatient ED visits for suicidal ideation alone has also increased in the past 3 years:
2015: 2478
2016: 3259
2017: 4774

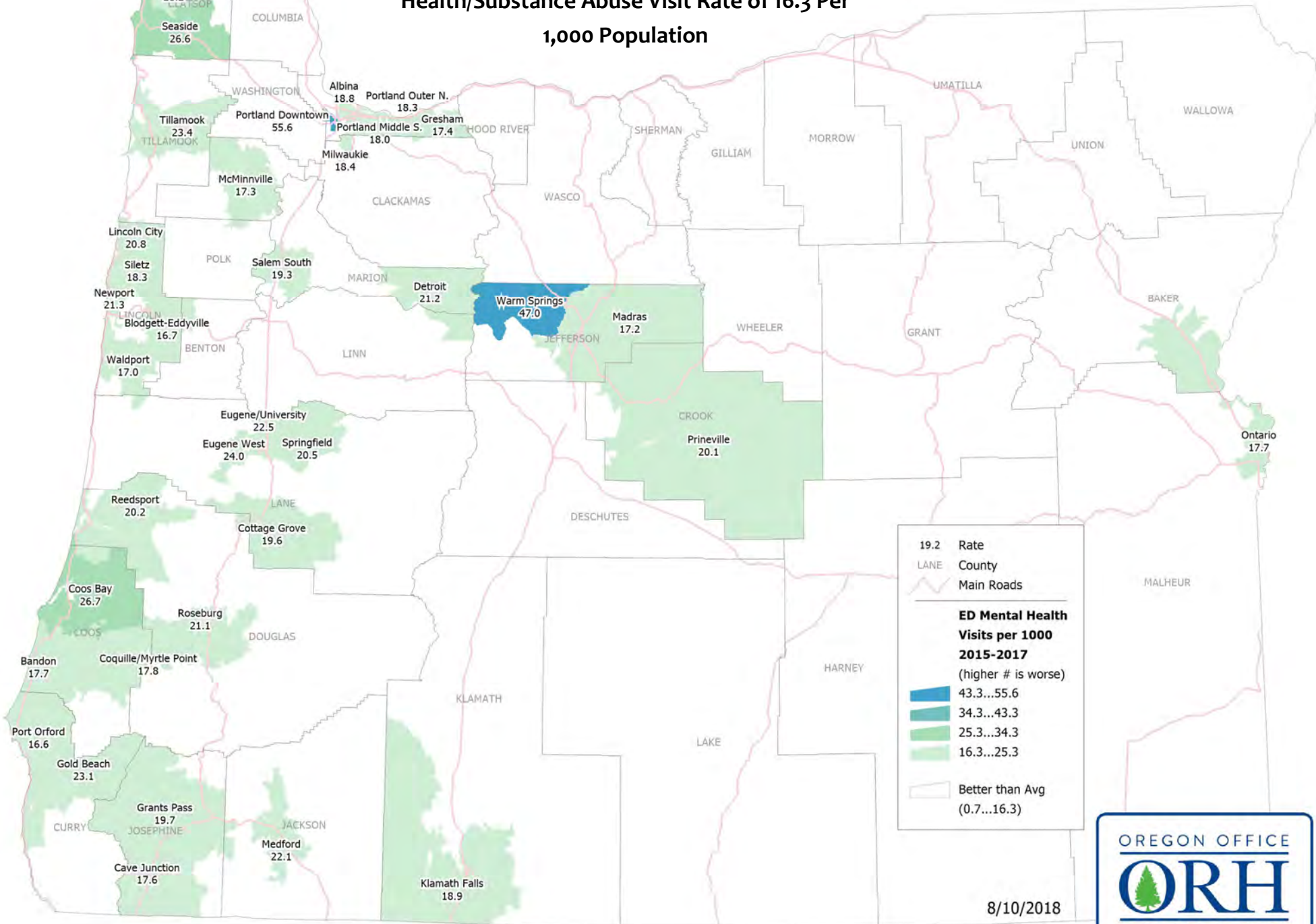
---

[13] Rockett IRH, Putnam SL, Jia H, Chang C, Smith GS. Unmet substance abuse treatment need, health services utilization, and cost: a population-based emergency department study. *Annals of Emergency Medicine*. 2005; 45(2):118–27.
[14] Owens PL, Mutter R, Stocks C. Mental Health and Substance Abuse-Related Emergency Department Visits Among Adults, 2007. HCUP Statistical Brief #92. July 2010. Agency for Healthcare Research and Quality, Rockville, MD.
[15] Weiss AJ, Barrett ML, Heslin KC, Stocks C. Trends in Emergency Department Visits Involving Mental and Substance Use Disorders, 2006–2013. HCUP Statistical Brief #216. 2016. Agency for Healthcare Research and Quality, Rockville, MD.
[16] Owens PL, et al. Mental Health and Substance Abuse-Related Emergency Department Visits Among Adults, 2007.

Overall Results	***Per 1,000 Population***
Oregon	16.3
Urban	17.0
Rural (without Frontier)	15.1
Rural (including Frontier)	14.9
Frontier	11.9

5 Highest ED MHSA Rates	
Portland Downtown	55.6
Warm Springs	47.0
Coos Bay	26.7
Seaside	26.6
Portland Outer South	24.4

Figure 11.
Shaded Areas Are Above Oregon's Emergency Dept Mental Health/Substance Abuse Visit Rate of 16.3 Per 1,000 Population



TOTAL SCORES

Methodology:
A score of between 0 (worst) and 10 (best) is calculated for each of the variables, depending on the variances of the lowest and highest numbers from the mean. The scores are added together to produce a final Unmet Need Total Score:

$V_1 + V_2 + V_3 + V_4 + V_5 + V_6 + V_7 + V_8 + V_9$ = Unmet Need Total Score (0 to 90)

Results:
The highest scoring primary care service area is Portland West (72 out of 90), and the highest scoring rural service area is Hood River (70). Drain/Yoncalla has the lowest score of 20 (it also had the lowest score last year). All but 2 of the 67 service areas that fall under the mean are either rural or frontier. Only a quarter of the 15 highest scoring service areas are rural or frontier.

An interesting bit of good news in the results is the standing of Fossil, in the frontier county of Wheeler in north-central Oregon. It scored 65 points, just making it into the top 10, with results as good as or better than the state average in all but 2 variables (ACSC and mental health providers). It only has 1405 people, but 39.4% are employed by the government, and 27.8% are Medicare enrollees.

One caveat about the ranking is that all 3 of the hospital utilization variables (ACSC, ED Dental, and ED Mental) utilize data from Oregon and Washington hospitals only (ACSC) or Oregon hospitals only (ED Dental and Mental). Three rural service areas—Brookings, Jordan Valley, and Milton-Freewater—mostly use hospitals that are located in adjacent states, so their visit numbers for these variables are incomplete and might give the impression that they are in better shape than reality. Their respective total scores (55, 40, and 42) should be interpreted with this in mind.

Mean (Average) Score by Geographic Area

Oregon	46.2
Urban	58
Rural (without Frontier)	42.5
Rural (including Frontier)	43.3
Frontier	47.2

Top 10 Areas With the Lowest Total Unmet Need Scores

Drain/Yoncalla	20
Cascade Locks	23
Port Orford	26
Detroit	27
Glendale	27
Powers	28
Blodgett-Eddyville	29
East Klamath	30
Shady Cove	31
Siletz	31
Swisshome/Triangle Lake	31

Oral Health and Aging:
Troubling news for Oregon's growing 65+ population

Oral Health Affects Overall Health

Gum Disease* is linked to

- Diabetes
- Respiratory Disease
- Heart Disease
- Other Chronic Diseases

70% of U.S. adults 65+ have gum disease. The severity increases with age.

84% of Oregonians 65+ on Medicaid with diabetes had **NO** dental visits last year.

Of Oregon adults 65+:

1 in 3 had no dental visits in 2015.

15% have **NO** teeth, which makes it harder to eat healthy foods.

1 in 3 had **at least 6** teeth removed due to cavities or gum disease.

Of U.S. adults 65+:

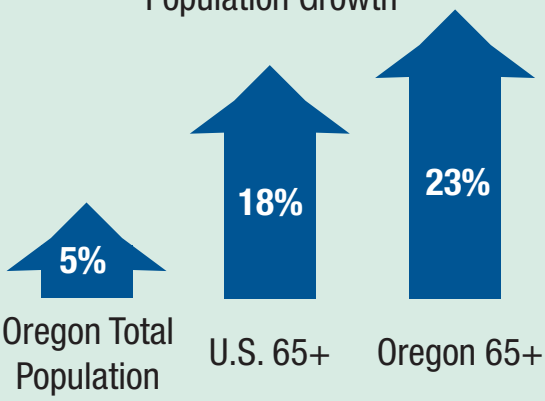
44% of mouth and neck cancers are diagnosed among people aged 65+.

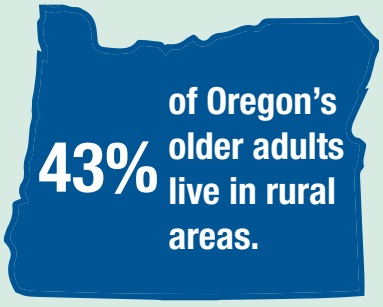
1 in 5 had untreated cavities, with higher rates among people of color.

$72M is spent on non-accident related dental conditions seen in ERs.

From 2010 to 2015, the Oregon 65+ population grew faster than the entire Oregon population and the U.S. 65+ population.

Population Growth





In 2015, Oregonians living in rural areas were the least likely to receive dental care.

For more information contact the Oral Health Unit at 971-673-0348 or oral.health@state.or.us.

Oregon Health Authority

Oral health needs, dental care utilization, and quality of life perceptions among Oregonian seniors

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ABSTRACT

Background: For a relevant planning process and advocate for improvement in oral health conditions of the senior population up-to-date data are necessary. The objective of this study was to assess the oral health status, dental care utilization and quality of life perceptions of seniors in Clackamas County in Oregon.

Methods: Data were collected in a cross-sectional study on institutionalized and community dwelling older adults where participants completed a self-reported oral health survey, the short-form Oral Health Impact Profile (OHIP-14 questionnaire) and had clinical screenings.

Results: Overall, the participants (n = 177) reported mean OHIP-14 score of 0.6 ± 1.1, with "physical pain" as the highest scored domain. Seniors who were white, had teeth, dental insurance, were having a regular dentist and living in the community were 4.2 to 33.1 times more likely to visit the dentist in the previous 12 months compared to those respondents who were nonwhite, edentulous, uninsured, not having a regular dentist and living in long-term care facility ($r^2 = 0.67$, $p < 0.05$).

Conclusion: Clackamas county senior population has considerable oral health needs, dental utilization, and quality of life issues. Better dental insurance plans, health literacy opportunities and culturally competent dental providers may help to improve the oral health situation and reduce barriers.

KEY WORDS: seniors, oral health, quality of life, dental care utilization

Introduction

At the national level, the problem of oral healthcare for seniors was highlighted in 2000, in the Surgeon-General's report, Oral Health in America, which emphasized that "a silent epidemic" of oral diseases is affecting our most vulnerable citizens–poor children, the elderly, and many members of racial and ethnic minority groups.[1] Dental caries, periodontal disease, oral cancer, and other soft tissue lesions are commonly present in older adults.[2] In addition, various medical and psychiatric problems as well as physical and financial limitations present a significant challenge treating this population.[2] In spite of substantial evidence of the insufficient oral healthcare available to large proportions of the nation's seniors consecutive reports by Oral Health America (OHA) in 2003,[3] 2013,[4] and 2016[5] have documented that relatively little progress has been made by states to ensure basic oral healthcare for the growing population of seniors.

Data from the third National Health and Nutrition Examination indicate that 47% of 65-74 year olds and 56% of 75 year olds had decayed or filled root surfaces.[6] Caries risk management is especially important for the elderly population, given the additional risk factors, such as gingival recession, decreased salivary flow, removable partial dentures, physical disability, inability to pay for treatment, and limited access to dental care.[7] Recent reports indicate that periodontal disease in the older adult population is much more prevalent than hitherto assumed.[8] Although edentulism has declined among seniors from 46% in the early 1970s to 29% in 1988-1994, those with lower incomes are much more likely to be missing all their teeth.[2] As the edentulous population continues to decline and is replaced by older adults with increasing numbers of teeth requiring large amounts of restorative care, the need and demand for dental care by the elderly can be expected to grow.[9,10]

In addition to epidemiologic data, literature suggests that oral disorders can have a significant impact on the functional, social and psychological well-being of older adults.[11] Numerous studies have reported that a considerable proportion of the older population has daily living problems associated with oral health problems.[12–16] The term "oral health-related quality of life" (OHRQoL) is commonly used to describe the impact

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of oral health on everyday life experiences.[17] Measuring OHRQoL is important because it helps to assess the extent to which different oral diseases and conditions affect individuals' general well-being; in addition, assessment of changes in QoL over time may appear as a result of treatment or population level interventions and policies.[18–20] To a large extent, these national trends and disease characteristics are also reflected in the older adult population of Oregon, but with variations due to demographic, socioeconomic, and other local factors. However, local information on oral health of seniors is very limited. A study was carried out in 1991-1993 by the Health Division of the Oregon State, which comprised long-term care facility residents in three long-term care facilities in three different counties.[21] The study showed that over 36% of the dentate residents were in need of non-urgent dental care with an additional 17% in need of urgent care for pain or infection.[21] Almost half of the residents without teeth did not have a denture, while 37% had an upper and lower denture.[21] The report indicated that long-term care facility residents in Oregon have an oral health status far below that of adults attending senior centers throughout the United States.[21] Oral health surveillance of a more general kind is conducted on a regular basis by the Centers for Disease Control and Prevention (CDC) through the Behavioral Risk Factor Surveillance System (BRFSS), which has included questions on loss of teeth.[22] Data from 2002 to 2012 indicate that Oregonian older adults gradually retain more teeth, although at a slower rate than older adults' nationally.[22] No more recent data are available, and recent State strategic planning documents for healthy aging have no references to oral health or dental care.[23]

It is generally accepted that in order to carry out a relevant planning process and advocate for improvement in the oral health conditions of the senior population up-to-date data are necessary.

Consequently, the objectives of this study were to assess the oral health status, dental care utilization and quality of life perceptions of seniors in Clackamas County in Oregon and to use this information to be able to build a better case for addressing their problems.

Methods

The study protocol was approved by the Oregon Health and Science University Institutional Review Board (IRB00009667). Clackamas County is one of three counties constituting the Portland metro area. The county is the third largest in the state and comprises both urban and large rural areas. As recommended in the Basic Screening Survey (BSS) methodology developed by the Association of State and Territorial Dental Directors (ASTDD), two sampling frames were used to assess the oral health of two high-risk population groups—residents of long-term care facilities and congregate meal site participants.[24] Facilities in adult foster care, assisted living or residential care were excluded from this sample because of budget and time constraints as well to assure consistency in the target population of older adults. A list of licensed long-term care facilities in Clackamas County was obtained from the State of Oregon's Department of Human Services (n = 170). The list included address, total number of beds and number of Medicaid beds. Facility zip-code was used to classify facilities as urban or rural. The list was stratified by urban/rural status and a systematic probability proportional to size (PPS) sampling scheme in which units are selected at an equal probability irrespective of their size.[24] PPS was used to select 10 facilities to ensure sufficient representation of the larger clusters (facilities) and increase the efficiency of the survey, as larger clusters (facilities) are often more geographically concentrated in urban areas, thus decreasing survey travel time and costs.[24] If a facility refused to participate, PPS sampling was used to select a replacement facility within the same sampling stratum. Within each selected facility, all residents were invited to participate, irrespective of designated service priority level. Altogether 10 congregate meal sites were identified in the county, which were located in both urban and rural communities. According to the sampling scheme, eight should be selected, but it was decided to include all 10 sites. All sites were invited by a letter from the study principal investigator together with a support letter from the Clackamas County Director of the Department of Health and Human Services. Shortly after the mailing, this was followed up by a phone conversation with the facility long-term care director or the director of social services. Several of the facilities were visited prior to the study being initiated there.

Consent was obtained from the participants at the time of data collection. The participants completed a self-reported oral health survey, which comprised general demographic information, questions about perceptions of general and oral health, dental care and visit habits, and the short-form Oral Health Impact Profile (OHIP-14 questionnaire). The OHIP-14, developed by Slade and Spencer (1994) is one of the most widely used instruments for the measurement of disability and discomfort due to oral conditions.[25] OHIP-14 comprises 14 items divided into seven subscales, which include functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap.[26] The OHIP-14 is less time consuming, more feasible, and has comparable reliability and validity to the long (49-item) version.[25,27,28]

Responses to the OHIP-14 questions were based on a recall period of 12 months and were scored on a five-point Likert scale: "Very often" = 4; "Fairly often" = 3; "Occasionally" = 2; "Hardly ever" = 1; and "Never" = 0. Thus, higher scores indicate less favorable OHRQoL. Clinical screenings were performed by a trained and calibrated dentist (RK) for the congregate meal sites and an experienced expanded practice dental hygienist (SN) for long-term care facilities. In order to account for the variation in the clinical screenings by two different examiners, nine participants were examined together prior to collecting formal clinical examination data. Any discrepancies between

the examiners were discussed and resolved. However, with the number of patients seen together and high concordance between the examiners, a formal kappa evaluation was not performed. Data were recorded on a modified version of ASTDD (Association of State and Territorial Dental Directors) Basic Screening Survey (BSS). The main modification was related to the dental examination. In contrast to the BSS, which records mainly presence/absence of for instance dentures, teeth, root fragments, etc.; the present survey recorded visible plaque index on six indicator teeth (presence or absence of visible plaque); presence of gingival inflammation (no, mild, severe); status of each tooth (sound, decayed, filled and decayed, filled without decay, missing, bridge abutment/implant, not recordable). Soft tissue lesion and tooth mobility were recorded as present or absent. Prosthetic need was recorded as 0: No prosthesis needed; 1: Full denture needed; 2: Partial denture needed; 3: Denture realignment needed. Root caries was recorded as 0: No exposed roots with active caries; 1: 1-3 roots with active caries; 2: Multiple roots with active caries. Dental treatment needs were recorded as 1: Preventive care (no active decay, due for check-up); 2: Routine dental care (stains/plaque/no prior dental care); 3: Non-urgent dental care (active decay, pain discomfort, bleeding gums); 4: Urgent dental care (swelling, large active decay, ongoing pain, and 5: Immediate emergency care (trauma, swelling, severe pain). The screening form was pretested and validated in a series of community outreach oral health screenings among low-income adults in Clackamas County.[29] Survey and clinical data were combined without identifying individuals. Since we did not have direct access to the study participants, we approached the participants/patients of congregate meal sites and long-term care facilities through the administrators, who provided us a list of seniors who were available and agreed to participate. Thus the total number of eligible participants was uncertain. There were 206 seniors who participated in the study—out of these, 22 had deficient cognitive ability that underwent clinical examination but could not complete the questionnaires. Further seven individuals had two or more missing values on the OHIP-14 questionnaires that were excluded from the data analysis. Thus, 177 individuals were included in the final analysis of this study. Any remaining missing values were replaced with the mean value for that item, computed from the values for respondents who gave valid responses. Mean scores were calculated for individual items, domains and overall OHIP-14 scores.[26]

Caries estimates in individuals were calculated from the clinical recordings of missing teeth (M), teeth with untreated decay (D) and those with fillings (F). DMFT (decayed, missing, and filled teeth), which is the measure of person's total lifetime tooth decay experience, was calculated by adding the number of D, M, and F teeth. Further data analysis included tests of associations between OHIP-14 impacts, mean DMFT scores and independent variables using ANOVA. The relative effect of selected variables on the pattern of dental visits during the last 12 months (dichotomous variable was dental visit yes or dental visit no) was explored by logistic regression analysis. Bivariate data analysis and logistic regression was conducted using SPSS v20.

Results

Characteristics of respondents

The study sample consisted of 177 seniors (39% males and 61% females) 65 to 101 years old (mean age = 77.8, s.d. = 8.5), Table *1*. Of these, only 1/4 had dental insurance, less than 1/2 had a regular dentist and 1/4 had seen a dentist for more than 5 years ago. The majority of the respondents were dentate (80.2%), were living in the community (53.1%), were white (93.2%), and had high school or higher education (95.4%).

Oral health status

Mean DMFT scores

The DMFT scores ranged from 11.0 to 32.0 with mean score of 25.2 ± 5.8).

Table 1. Characteristics of study participants (n = 177).

Characteristics	N = 177 (%)
Age group	
65-74	70 (39.5)
75-84	69 (39.0)
85 and older	38 (21.5)
Gender	
Males	68 (38.6)
Females	108 (61.4)
Education	
Primary/middle school	8 (4.6)
High school or higher	166 (95.4)
Ethnicity	
White	164 (93.2)
Others	12 (6.8)
Type of facility	
Congregate meal site	94 (53.1)
Long-term care facility	83 (46.9)
Dentate status	
Edentulous	35 (19.8)
Dentate	142 (80.2)
Dental insurance	
Yes	44 (26.2)
No	124 (73.8)
Regular dentist	
Yes	96 (54.5)
No	80 (45.5)
Last saw a dentist	
Within last year	77 (44.0)
>1 year	98 (56.0)

Note: Total number of study participants included in analysis = 177. Some participants had missed information on the above variables on study characteristics.

Average number of decayed, missing and filled teeth (FT) was 1.8 ± 3.6, 15.2 ± 11.0 and 8.2 ± 7.0), respectively (Table 2). The mean number of missing teeth (MT) increased from the youngest old (65 to 74), 14.2 ± 11.0 to the oldest old (85+), 16.6 ± 10.8. Statistically significant higher mean numbers of MT were found in those with primary/middle school education compared to those with high school or higher education (23.4 vs. 14.8, F = 4.6), in those living in a

Table 2. Mean DMFT scores by characteristics (n = 177).

Mean DMFT scores by characteristics	Mean DT (s.d.)	Mean MT (s.d.)	Mean FT (s.d.)	Mean DMFT (s.d.)
Age group				
65-74	1.8 (3.4)	14.2 (11.0)	8.2 (7.0)	24.2 (6.2)
75-84	1.8 (4.0)	15.4 (11.2)	8.4 (7.0)	25.6 (5.7)
85 and older	1.8 (3.4)	16.6 (10.8)	8.1 (7.2)	26.4 (5.1)
Gender				
Males	2.1 (4.0)	16.5 (11.1)	6.7 (6.0)[1]	25.3 (6.4)
Females	1.6 (3.4)	14.3 (10.9)	9.3 (7.4)[1]	25.2 (5.4)
Education				
Primary/middle school	1.0 (2.1)	23.4 (11.2)*	4.9 (6.1)	29.3 (4.5)*
High school or higher	1.9 (3.7)	14.8 (10.9)*	8.4 (7.1)	25.1 (6.0)*
Ethnicity				
White	1.9 (3.7)	15.0 (10.9)	8.4 (7.1)	25.3 (5.7)
Others	0.8 (1.4)	17.8 (12.5)	6.3 (6.6)	24.8 (6.7)
Type of facility				
Congregate meal site	1.8 (3.5)	12.4 (10.2)*	10.1 (6.9)*	24.3 (6.0)*
Long-term care facility	1.9 (3.8)	18.4 (11.1)*	6.1 (6.6)*	26.3 (5.5)*
Dental insurance				
Yes	1.7 (4.1)	10.6 (9.7)*	10.9 (6.7)*	23.2 (6.1)*
No	1.8 (3.6)	16.9 (11.2)*	7.5 (7.1)*	26.2 (5.4)*
Regular dentist				
Yes	1.7 (3.5)	11.9 (9.4)*	10.6 (6.6)*	24.2 (5.5)*
No	2.0 (3.8)	19.3 (11.5)*	5.4 (6.5)*	26.6 (5.9)*
Last saw a dentist				
Within last year	2.1 (3.9)	10.2 (8.5)*	11.5 (6.3)*	23.2 (5.7)*
>1 year	1.5 (3.2)	19.1 (11.3)*	5.7 (6.5)*	26.9 (5.4)*
Overall health perceptions				
Poor	1.2 (1.7)	6.1 (3.3)*	14.5 (3.8)*	21.8 (3.0)*
Fair to excellent	1.9 (3.7)	15.7 (11.1)*	7.9 (7.0)*	25.4 (5.9)*
Oral health perceptions				
Poor	1.0 (1.4)	6.4 (3.9)*	13.3 (3.7)*	20.7 (3.3)*
Fair to excellent	1.9 (3.7)	15.4 (11.0)*	8.1 (7.1)*	25.3 (5.8)*

*$p < 0.05$, ANOVA test.

long-term care facility compared to those in the community setting (18.4 vs. 12.4, F = 14.0), in those not having dental insurance compared to those having dental insurance (16.9 vs. 10.6, F = 11.0), in those not having a regular dentist vs. having a regular dentist (19.3 vs. 11.9, F = 21.9), in those with dental utilization greater than 1 year than those who saw dentist within the last year (19.1 vs. 10.2, F = 33.2), in those having perceptions of fair to excellent overall health compared to those with poor overall health (15.7 vs. 6.1, F = 7.5) and to those having perceptions of fair to excellent oral health compared to those with poor overall oral health (15.4 vs. 6.4, F = 4.6; $p < 0.05$).

Mean number of FT were significantly lower in males than females (6.7 vs. 9.3, F = 6.0), in those living in a long-term care facility vs. community setting (6.1 vs. 10.1, F = 15.7), in those without dental insurance vs. with dental insurance (7.5 vs. 10.9, F = 7.7), in those not having a regular dentist vs. having a regular dentist (5.4 vs. 10.6, F = 27.7), dental utilization greater than 1 year than those who saw dentist within the last year (5.7 vs. 11.5, F = 35.5), having perceptions of fair to excellent overall health than poor overall health (7.9 vs. 14.5, F = 8.8) and having perceptions of fair to excellent oral health than poor overall health (8.1 vs. 13.3, F = 3.7; $p < 0.05$).

Mean DMFT scores were significantly higher in those with primary/middle school education than high school or higher education (29.3 vs. 25.1, F = 3.9), living a long-term care facility than community setting (26.3 vs. 24.3, F = 5.6), not having dental insurance than having dental insurance (26.2 vs. 23.2, F = 9.6), not having regular dentist vs. having a regular dentist (26.6 vs. 24.2, F = 8.0), dental utilization greater than 1 year than those who saw dentist within the last year (26.9 vs. 23.2, F = 19.4), having perceptions of fair to excellent overall health than poor overall health (25.4 vs. 21.8, F = 3.8) and having perceptions of fair to excellent oral health than poor overall health (25.3 vs. 20.7, F = 4.4). All these differences were statistically significant ($p < 0.05$).

Of those who were dentate, 35.5% had visible plaque on 6 or more teeth, 28.8% had one or more exposed root surfaces with active caries and 11.5 % had a soft tissue lesion. Mild and severe gingival inflammation was present in 53.4% and 8.0% of the participants. Overall, 35.2% of the seniors needed preventive dental care (no active decay, due for check-up), 23.9% needed routine dental care (stains/plaque/no prior dental care), 34.1% needed non-urgent dental care (active decay/pain/discomfort/bleeding gums), and 6.8% needed urgent dental care (swelling/large active decay/ongoing pain).

Seniors who were white; had teeth; dental insurance, were having a regular

DRP #200 Modification Request 8-10-2020
Meeting Minutes DRP #200 8-10-2020

Table 3. Multiple Logistic Regression analysis of factors possibly associated with utilization of dental services in the last year (n = 177).

	Odds ratio	95% CI	*p* Value
Having insurance	4.2	1.3-13.8	0.02
Being white	11.6	1.1-126.1	0.04
Having a regular dentist	33.1	10.1-108.6	0.00
Being dentate	5.3	1.2-23.4	0.03
Living in the community	5.7	1.9-17.0	0.00

dentist and living in the community were 4.2 to 33.1 times more likely to visit the dentist in the previous 12 months compared to those respondents who were nonwhite; edentulous; uninsured, not having a regular dentist and living in a long-term care facility ($r^2 = 0.67$, $p < 0.05$; Table 3).

OHIP-14 scores

Overall, the mean OHIP-14 score reported was low, i.e., 0.6 ± 1.1, with higher scores indicating poorer quality of life. "Physical pain" was the highest scored domain (mean = 0.9 ± 1.1) followed by psychological discomfort (mean = 0.7 ± 1.2), psychological disability (mean = 0.6 ± 0.9), physical disability (mean = 0.5 ± 0.9), functional limitation (mean = 0.5 ± 0.8), handicap (mean = 0.3 ± 0.3), and social disability (mean = 0.3 ± 0.5). Mean item scores were higher for problems like discomfort while eating foods (mean = 1.1 ± 1.4), painful aching in the mouth (mean = 0.8 ± 1.1), feeling self-conscious (mean = 0.8 ± 1.3), and feeling tense (mean = 0.7 ± 1.2; Table 4).

OHIP-14 scores were significantly higher among respondents with primary/middle school education than those with high school or higher education (1.1 vs. 0.5, F = 5.8), living in community setting than long-term care facility (0.7 vs. 0.4, F = 9.3), not having a regular dentist vs. having a regular dentist (0.7 vs. 0.4, F = 7.2) and not having dental insurance vs. having dental insurance (0.6 vs. 0.3, F = 4.7). No statistically significant differences were found for OHIP-14 scores in characteristics like age group, gender, ethnicity, dentate status, last dental visit, overall, and oral health perceptions (Table 5).

Table 4. Mean scores of OHIP-14 domains and individual questions (n = 177).

OHIP-14 subscale and item	Mean score
Functional limitation	0.5 (0.8)
Had trouble pronouncing words	0.4 (0.8)
Felt that sense of taste has worsened	0.6 (1.1)
Physical pain	0.9 (1.1)
Had painful aching in the mouth	0.8 (1.1)
Was uncomfortable eating foods	1.1 (1.4)
Psychological discomfort	0.7 (1.2)
Has been feeling self-conscious	0.8 (1.3)
Has felt tense	0.7 (1.2)
Physical disability	0.5 (0.9)
Diet has been unsatisfactory	0.6 (1.1)
Has had to interrupt meals	0.5 (0.9)
Psychological disability	0.6 (0.9)
Finds it difficult to relax	0.5 (0.9)
Has been a bit embarrassed	0.6 (1.2)
Social disability	0.3 (0.5)
Has been irritable with other people	0.3 (0.7)
Has had difficulty doing usual jobs	0.2 (0.5)
Handicap	0.3 (0.3)
Has found life less satisfying	0.5 (0.9)
Has been totally unable to function	0.2 (0.6)
Total QoL scores	0.6 (0.7)

Discussion

This study is the first county-wide oral health study in Oregon on seniors, which assessed subjective perceptions of oral

Table 5. Mean OHIP-14 scores by characteristics (n = 177).

QoL scores by characteristics	Mean OHIP-14 (s.d.)
Age group	
65-74	0.6 (0.8)
75-84	0.6 (0.7)
85 and older	0.4 (0.6)
Gender	
Males	0.6 (0.8)
Females	0.5 (0.7)
Education	
Primary/middle school	1.1 (1.1)*
High school or higher	0.5 (0.7)*
Ethnicity	
White	0.5 (0.7)
Others	0.5 (0.6)
Type of facility	
Congregate meal site	0.7 (0.7)*
Long-term care facility	0.4 (0.7)*
Dentate Status	
Edentulous	0.5 (0.7)
Dentate	0.6 (0.8)
Dental insurance	
Yes	0.5 (0.7)
No	0.6 (0.8)
Regular dentist	
Yes	0.4 (0.6)*
No	0.7 (0.8)*
Last saw a dentist	
Within last year	0.5 (0.7)
>1 year	0.6 (0.7)
Overall health perceptions	
Poor	0.6 (0.8)
Fair to excellent	0.5 (0.7)
Oral health perceptions	
Poor	0.3 (0.3)
Fair to excellent	0.6 (0.7)

*$p < 0.05$, ANOVA test.

Meeting Minutes DPR #200 8-10-2020
191

health with a validated oral health-related quality of life instrument (OHIP-14) in addition to objectively assessed oral health needs and dental care utilization. The main finding of this study was that dental caries experience (DMFT index) was higher in those with primary/middle school education, living in assisted living facility, not having dental insurance, not having regular dentist, who did not see the dentist within the last year and had perceptions of fair to excellent overall health and oral health. Other studies have also reported that the home-bound and institutionalized elderly individuals have poorer oral health conditions than do seniors who are community dwelling in the same community,[30,31] which is largely an expression of existing social inequalities. As expected in older adults and reported in other studies,[32] the number of MT significantly contributed to high values of the DMFT index. Average value for DMFT in our study was higher than that reported in The National Health and Nutrition Examination Survey (NHANES) 1999-2004 study.[33] The average values for untreated decay (DT), MT and the number of FT were higher than that compared with NHANES 1999-2004 study (Trends in Oral Health Status: United States, 1988-1994 and 1999-2004). The prevalence rate of edentulism as 35% was quite high in our study population as compared to NHANES data 2009-2012 with the rate being 13.7% in 65-74 years olds and 24.1% in ≥75 years olds.[10] Oral health impacts reported by the respondents were also dependent upon socioeconomic factors like education and having a regular dentist; with poorer quality of life in lower educated elderly and those who do not have a regular dentist. Papaioannou *et al.*, in their study on Greek senior citizens, found that elderly who had lower education had perceived their quality of life as worse than those with higher education.[34] Further, the high cost of dental treatment in general and the lack of dental health benefits under Medicare may support our findings. Medicare only pays for dental services that are an integral part either of a covered procedure (e.g., reconstruction of the jaw following accidental injury), or for extractions done in preparation for radiation treatment for neoplastic diseases involving the jaw or oral examinations, but not treatment, preceding kidney transplantation or heart valve replacement, under certain circumstances.[35]

Oral health impacts were significantly higher in seniors living in independent community settings that those in long-term care facilities as found by Kotzer *et al.*[36] Since those living in assisted care facilities have other high priority medical problems, they might be accustomed to live with the dental conditions they have and might be more satisfied overall.

The individual OHIP items most commonly reported were from physical pain and psychological discomfort subscales of the measure, uncomfortable eating foods and feeling self-conscious. Similarly, Zhou *et al.* found that "Uncomfortable to eat" and "taste worse" were the two most common problems reported.[37] Similar findings were reported by Hodacova *et al.* in a Czech population[38] and Ikebe *et al.*, 2004 in Japanese seniors.[39]

There are limitations on the generalizability of findings from this study. Although we used stratified sampling as well as census data for better representation of older people in Oregon, because of limited resources, there was no attempt made for in-home visits for homebound individuals and those who are community dwelling but do not visit senior centers. Because this study was cross-sectional, we do not have information on their change in OHRQoL with age and other related factors. As with other quality of life studies which are dependent on patients' recall about particular incidents, this study is also subject to recall bias.

Despite the above mentioned limitations, this study has strengths. Our study provides good baseline information on oral health status and perceptions of seniors, which is very important in assessing trends in health and disease. The findings were suggestive of oral health access problems for seniors in the Clackamas County in Oregon, which might be present in other counties as well. This should be helpful in understanding various factors affecting the oral health and overall quality of life of the senior population and thus point to corrective strategies needed at the individual, local and state level.

Future studies should focus on longitudinal studies with standardized clinical measures as well as OHQoL instruments. Robust studies are needed on the impact of dental treatment and oral health policies on the overall quality of life. Although difficult to implement, qualitative studies with in-depth interviews may provide very good information on the expected oral health interventions needed to improve the quality of life.

Conclusions

The main findings of this study were that Clackamas county senior population has considerable oral health needs, dental utilization, and quality of life issues which are consistent with a low level of insurance coverage and irregular dental care. Better dental insurance coverage, health literacy initiatives, and culturally competent dental providers may help to improve the oral health situation and reduce barriers in this population.

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Conflict of interest

There is no conflict of interest in this study.

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