Appendix A:
April 21 meeting materials
UW Advisory Council on Medical Education Access and Affordability

April 21st, 2014
10:00AM-2:00PM
WSU Spokane Campus
Nursing Building Room 205

10:00-10:15AM: Call to order and introductions

10:15-11:00AM: WWAMI Medical Education 101
- Dr. Paul Ramsey, CEO, UW Medicine and Dean, UW School of Medicine
- Presentation and Q&A

11:00-11:25AM: WSU Medical School Feasibility
- Lisa Brown, PhD, Chancellor, WSU Spokane
- Presentation and Q&A

11:25-11:55AM: Next Generation WWAMI
- Suzanne Allen, Vice Dean for Regional Affairs, UW School of Medicine
- Presentation and Q & A

11:55AM-12:00PM: BREAK/LUNCH

12:00-12:45PM: Working lunch & WWAMI Student roundtable discussion
- Kevin Critchlow, 1st year WWAMI student
- Peter Boothman, 2nd year WWAMI student
- Mary Eguia, 3rd year WWAMI student
- Jaime Fair, 2nd year resident

12:45-1:30PM: Spokane community roundtable discussion
- Theresa Sanders, City Administrator, City of Spokane
- Marty Dickinson, Executive Vice President, Sterling Bank
- Dr. Gary Knox
- Dr. Rodolfo Arevalo, President, Eastern Washington University

1:30-2:00PM: Advisory committee discussion of framework and next steps
- The Honorable Dan Evans, Chair (facilitator)
The WWAMI Program
WWAMI 101

- UW School of Medicine is the medical school for the five-state region including Washington, Wyoming, Alaska, Montana and Idaho
- WAMI is a 42-year partnership (Wyoming joined in 1996 as the second “W”)
- Partner universities include Washington State University, University of Wyoming, University of Alaska, Montana State University, and University of Idaho
The Path to Becoming a Physician

Baccalaureate Education

“Pre-Med”

Undergraduate Medical Education

Basic Sciences

Clinical Sciences

Y1 Y2 Y3 Y4

Graduate Medical Education

Residency (3-7 Years)

Fellowship (1-3 Years)

Y1 ... Y3 ... 10+

Medical School

BA/BS Degree

MD Degree

Board Certification
The WWAMI Model

Undergraduate Medical Education

Basic Sciences

Yr. 1

Yr. 2

Yr. 3

Yr. 4

Clinical Training

University of Washington
Washington State University
University of Wyoming
University of Alaska
Montana State University
University of Idaho

Seattle, Spokane pilot

Clinical training region-wide
WWAMI Spokane Model
UW-WSU Partnership

Basic Sciences

WSU Faculty

Yr. 1

Yr. 2 (Pilot)

Clinical training

UW Faculty

Yr. 3

Yr. 4

Spokane

Clinical training in Spokane and/or region-wide
The Benefits of Partnership

- High quality, cost effective
  - Recognized as the #1 primary care, family medicine, rural medicine program in the nation
  - Provides medical education at less than the national average by avoiding unnecessary duplication
  - Students pay in-state tuition

- Leverages local assets
  - Expanded residency network
  - Regional research network

- Family medicine and rural focus

- Community-centered medical education
WWAMI Works
WA Student Return Rates 2013

- National Average: 39%
- WWAMMI Average: 64%
WAMI Region
1974
Family physicians in WWAMI

Center for Workforce Studies, 2005
GWAMI Residency (GME) Partnerships

- GME: Best predictor of where a physician will stay
- Family Medicine Residency Network
  - 24 programs (14 in Washington)
  - 181 first-year positions (108 in Washington)
  - 515 total positions (279 in Washington)
  - Cost saving
- Other models (internal medicine, pediatrics, psychiatry)
- **CHALLENGE**: Federal resources frozen since 1997
WWAMI Research Partnerships

- Institute for Translational Health Sciences
  - NIH Clinical Translational Science Award: $64.4M 2012-2017, renewal upcoming
  - 160 experts helping innovators advance research, translate discoveries into practice
  - WWAMI partners key component

- Regional Center of Excellence for Infectious Diseases

- Community-based research

- UW/WSU-funded research partnerships: ~ 40 total projects; most multidisciplinary
Regional Collaborations Program
- WWAMI Practice and Research Network (WPRN): 44 primary care clinics/organizations
- Regional Clinical Research Center Network (RC2) includes: Providence Medical Research Center and Clinical Pharmacology Unit, WSU Spokane
- June ’13–March ’14: 471 users-43% in E WA
Thank you

Questions?
WSU’S ROLE IN MEETING THE STATE’S HEALTH CARE NEEDS

April 21, 2014
HISTORY OF CAMPUS

Community Investments

- 25 year history of community working together to create a health sciences education and research campus
- 1989 legislation
- Current second year medical education in Spokane funded by community
- Health Sciences and Services Authority and other community investors
- Innovate Washington’s Spokane Technology Center
HISTORY OF CAMPUS
WSU Investments

- Colleges:
  - Nursing 1999
  - Pharmacy relocated 2014
  - Medical Sciences-May 2014 approval
- Sleep and Performance Research Center
- Health Sciences Education and Research designation in 2010
- Completion of Pharmaceutical and Biomedical Sciences building
HISTORY OF CAMPUS

Health Sciences Education and Research Programs:

- Translational Addiction Research Center
- Nutrition and Exercise Physiology
- Speech and Hearing Sciences
- Health Policy and Administration
- Area Health Education Center
- Child and Family Research Center
- EWU: Occupational Therapy, Physical Therapy, Regional Initiatives in Dental Education (partnership with UW), Dental Hygiene, Public Health
- UW: MEDEX Physician Assistant program
HISTORY OF CAMPUS

Legislative Investments:

- 1994 SIRTI $13M, 60,200 SF
- 1996 Phase 1 Building $17M, 119,600 SF
- 2002 Health Sciences Building $39M, 146,000 SF
- 2005 South Campus Building $6M, 63,700 SF
- 2006 Academic Center and Library $34M, 108,144 SF
- 2009 Nursing Building $35M, 89,000 SF
- 2013 Pharmaceutical and Biomedical Sciences Building $80M, 125,000 SF
PHYSICIAN SHORTAGES

RATIO OF PHYSICIANS TO POPULATION, STATE OF WASHINGTON

Physicians per 10,000 residents

medicine.wsu.edu/
MEDICAL SCHOOL SEATS

- Since WWAMI began in 1971 Washington’s population has grown by 100% (3.5 million to 7 million) while medical education seats for Washington students have grown by less than 40% (84 to 120 with 20 due to 2008 expansion in Spokane)

- Washington second only to Vermont in the lowest percentage of in-state medical students enrolled at publicly funded medical schools

- Washington: 120 medical school seats for in-state

- National average for states of our size: 440

- Connection between medical school location and practice: 45%
RESIDENCIES

- Washington: 1600
- Central and Eastern Washington: 100
- Connection between residency location and practice: 49% stay
- Combined connection between medical school location, residency location and practice: 71%
SPOKANE TEACHING HEALTH CENTER

Consortium:
Empire Health Foundation, Providence Health Care, WSU Spokane

Federal appropriation that will:

- Increase Family and Internal Medicine residencies by 18 (6 per year) that will ease physician shortage

- Provide inter-professional, team-based clinical opportunities for campus faculty and clinical staff, medical residents and students

- Provide primary care to the community; possibly provide student health services
FEASIBILITY STUDY

- Phase 1: Assessment of available assets
- Phase 2: Documentation of need
- Phase 3: Criteria and cost for LCME accreditation
FOR YOUR CONSIDERATION
Next Generation WWAMI
Next Generation WWAMI Goals

- Increase the number of primary care physicians in Washington, especially in rural and underserved areas
- Grow graduate medical education (residency training)
- Provide the highest quality medical education to the next generation of healthcare leaders and professionals
- Cost effectively expand and operate medical education
# Next Generation WWAMI

<table>
<thead>
<tr>
<th>Current WWAMI</th>
<th>Next Generation WWAMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Years 1-4 in Spokane</td>
<td>• Years 1-4 in Spokane</td>
</tr>
<tr>
<td>• Year 2 pilot</td>
<td>• Year 2 permanent</td>
</tr>
<tr>
<td>• 20 students per class in Spokane</td>
<td>• 80 students per class in Spokane</td>
</tr>
<tr>
<td>• FM residencies – Spokane, Colville, Yakima</td>
<td>• Expanded residency sites throughout WA, with a focus on Eastern Washington and underserved areas</td>
</tr>
<tr>
<td>• IM - Spokane</td>
<td></td>
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<tr>
<td>• 2 years basic science</td>
<td>• Early clinical exposure/integration</td>
</tr>
<tr>
<td>• 2 years clinical training</td>
<td>• Interprofessional/team-based care</td>
</tr>
<tr>
<td>• Strong research presence in Eastern Washington through ITHS</td>
<td>• Competency-based</td>
</tr>
<tr>
<td></td>
<td>• Strengthen research presence and integration in Spokane further</td>
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</tbody>
</table>
WWAMI Curriculum Renewal

Phases:

**Phase 1:**
Integrated Basic Science & Clinical Training

**Phase 2:**
Patient Care/Required Clerkships

**Phase 3:**
Career Exploration & Expanded Research Opportunities
Why now? Why Spokane?

- **Rapidly changing healthcare landscape**
  - Federal healthcare reform

- **Community need**
  - Ongoing need for primary care physicians in Eastern Washington
  - Interest in additional student options and educational opportunities

- **Community capacity and commitment**
  - Spokane is a major medical hub with the largest concentration of healthcare services between Seattle and Minneapolis
  - Strong community leadership and momentum

- **Economies of scale**
  - Most cost-effective, scalable solution to healthcare workforce challenges
Timeline

- September 2013: WWAMI expansion announced at Greater Spokane Incorporated by Lisa Brown and Paul Ramsey
- Spring/Summer 2014 – Advisory council engagement and review
- Fall 2014 – Advisory council recommendations to President Young
- Winter 2014 – Submit proposal to Governor and state legislature
- 2015-2020 – Implementation of Next Generation WWAMI
Thank you

Questions?
UW Advisory Council on Medical Education Access and Affordability

May 22nd, 2014
10:00AM-2:00PM
Kadlec HealthPlex
Tri Cities Economic Development Council (TRIDEC)

10:00-10:15AM: Welcome and introductions
- Dan Evans, Chair
- John McCarthy, WWAMI assistant dean, eastern and central Washington
- Margaret Shepherd, UW Director of State Relations

10:15-10:45AM: Graduate Medical Education Overview and Kadlec Family Medicine Program Overview
- Judy Pauwels, Program director, Family Medicine Residency Network
- Rand Wortman, FACHE, President/CEO, Kadlec Health System
- Dale Hoekema, MD, FCCP, Intensivist, VPMA/CMO/DIO, Kadlec Health System
- Erick Isaacson, MD, FAAFP, Family Medicine Program Director
- Amy Carrasco, MA, BS, Director of Graduate Medical Education
- Stacy Jackson, BA, Graduate Medical Education Assistant

10:45-11:30AM: Tour of Kadlec Graduate Medical Education Training Sites

11:30AM: Travel to TRIDEC

11:45AM-12:30PM: Working lunch on clinical training in central and eastern Washington
- John McCarthy, WWAMI assistant dean, eastern and central Washington
- Saira Tandon, MD, Faculty for UW/OB Clerkships
- Dale Hoekema, MD, FCCP, Intensivist, VPMA/CMO/DIO, Kadlec Health System
- Matt Lawrence, MD, Family Medicine Residency faculty
- Erick Isaacson, MD, FAAFP, Family Medicine Program Director

12:30-1:55PM: Tri Cities leadership community presentations and roundtable discussion
- Heather Phipps, DO, MBA, Director of Medical Education, Trios Health
- Barbara Mead, Vice President of Behavioral Health & Physician Clinics
- Rand Wortman, FACHE, President/CEO, Kadlec Health System
- William A. Cavanagh, Vice President, R&D IsoRay Medical
- Richard Cummins, President Columbia Basin College
- Cindy Johnson, City manager, City of Richland
- Matt Watkins, Mayor, City of Pasco
- Richard Grizzell, Operations Manager, SIGN Fracture Care International
- Dr. Karin Rodland, Chief Scientist, NIH Programs, PNNL

1:55-2:00PM: Closing remarks and public comment
- Dan Evans, Chair
NEW AND DEVELOPING RESIDENCY PROGRAM DEVELOPMENT

University of Washington WWAMI Network

Judith Pauwels, MD
Developing Program Liaison
Overview

- Graduate medical education: the need for new programs
- Critical conversations for communities developing new residency programs
- ACGME and AOA considerations
- WWAMI Family Medicine Residency Network:
  - What it is
  - What it brings to existing programs
  - What it brings to developing programs
GME: the need for new programs

- June 2013 NEJM analysis of undergraduate vs graduate medical education positions:
  - Undergraduate:
    - MD increasing 30% to over 21,000 students by 2016
    - DO colleges increasing by over 200% to over 21,000 students in 2012
    - IMGs: about 12,500 yearly
  - Graduate: only growing about 0.9%/year
Critical initial conversations

- Mission for program
- Sponsoring institution
- Level of community support
- Family Medical Center planning
- Attractiveness to potential resident applicants
Program Mission: why do this?

- New providers for community
- Meeting regional workforce needs
- Meeting local service needs
- Quality improvement
- *Mission fit with your organization*
Sponsoring Institution and Affiliations

- Sponsoring Institutions:
  - Hospital
  - Community health centers
  - Consortium

- Possible affiliations:
  - Medical school
  - Area Health Education Consortiums
  - Other hospitals
  - Other organizations
Community support

- Family physicians
  - Program director / faculty
- Hospital(s)
- Other medical staff
- Community engagement
Family Medical Center

- Concept
- Location
- Existing patient population
- Unmet needs

- Hospital site vs. community site
- Already established practice in the community vs. new practice
Attractiveness to applicants

- Current training programs in region
- Match rates and quality
- *What you will have to offer THEM?*
Financial Planning

- Funding Projections - Income
  - DME/IME (federal, state)
  - State budget lines
  - Patient care revenues
  - Other

- Funding Projections – Expenses
  - Initial/start-up
  - Ongoing
Funding overview

- Initial/start-up costs
  - $500,000 plus for operations
  - FMC costs additional
  - No initial revenues

- Ongoing costs
  - Expenses up to $250,000 per resident per year

- Potential reimbursement
  -IME/DME – average - $80,000 – 120,000 per resident per year
    - Highly variable
  - Practice Income – up to $100,000 per resident per year
  - Other – DSH, Medicaid, State, Medical School
  - Hospital contribution
AOA vs. ACGME accreditation

- American Osteopathic Association:
  - Shorter initial timeline
  - Can be smaller programs (2-2-2)

- ACGME (MD programs):
  - Longer initial timeline
  - More rigorous process
  - Dual accreditation

- NEW: Combined GME system by 2020
Timeline for planning

- Anticipate 2-3 years for program startup before first residents arrive

Year 1:
- Initial assessment
- Sponsoring Institution commitment, Board approval, start Graduate Medical Education Committee
- Hire Program Director and assistant
- Initial FMC concept, if needed
- Apply for Institutional Accreditation (for new sponsors)
Timeline for planning

- Year 2:
  - Affiliation agreements
  - Hiring faculty
  - Obtain other faculty commitments
  - Curricular design/objectives
  - Evaluation systems
  - Polices and procedures development
  - Practice development
  - Apply for RC-FM Accreditation
Timeline for planning

• Year 3:
  • Receipt of program approval notification
  • Enrollment in ACGME and/or AOA match systems
  • Recruitment of residents (October-February)
  • Ongoing preparation, organization of Residency Management System....
  • Residents Arrive! (June/July)
WWAMI Family Medicine Residency Network

- What it is:
  - Organization of 20 ACGME-accredited family medicine programs in the 5-state region, all affiliated with the University of Washington
  - All are independently owned and operated through their sponsoring institutions (only one UW-”owned”)

WWAMI Family Medicine Residency Network

- What it brings to those programs:
  - Shared resources (residency management software system; information and advice)
  - Faculty development (5-week seminar series; monthly webinars; special conferences)
  - Program director development and support (quarterly training and meetings)
  - Strategic initiatives benefiting all programs
WWAMI Family Medicine Residency Network

- What it brings to new programs:
  - Intensive consultation regarding the process of program accreditation
  - Sponsoring institution
  - Programs
  - Regional collaboration on systems and operations needs
  - Financial analysis, including maximizing GME funding
Questions?

- Graduate medical education: the need for new programs
- Critical conversations for communities developing new residency programs
- ACGME and AOA considerations
- WWAMI Family Medicine Residency Network:
  - What it is
  - What it brings to existing programs
  - What it brings to developing programs
Meeting the Needs of Rural Washington
May 22, 2014
Kadlec Regional Medical Center

- **1944** - Built by the Army for the Hanford Engineering Works (Manhattan Project)

- **1955** - Converted from federal ownership to private control in 1955

- **1969** - Community control with self-appointed board

- **Today** - Independent, private, not-for-profit, 270 bed hospital.
  - 2600 employees. 30 Clinics.
  - Offering Cardiac Surgery, Neuroscience Center, NICU, and Comprehensive Therapy Services.
Admissions to Kadlec Regional Medical Center

Inpatient Admissions to Kadlec from All Zips – Total Cases per Year

Source: Intellimed International Corp., 2013; excludes normal newborns
Kadlec E.R. Visits 2000-2013

FISCAL YEARS

TOTAL VISITS

MAIN ED VISITS

FSED VISITS


24,032 26,128 28,244 32,496 34,462 39,735 43,022 47,135 50,749 58,202 60,176 61,754 59,206 59,446 69,076 9630

0 10,000 20,000 30,000 40,000 50,000 60,000 70,000 80,000


24,032 26,128 28,244 32,496 34,462 39,735 43,022 47,135 50,749 58,202 60,176 61,754 59,206 59,446 69,076 9630

0 10,000 20,000 30,000 40,000 50,000 60,000 70,000 80,000
Kadlec’s Reach
Motivation for Residency

National Capitation is a Limiting Factor

Residency Positions v. Applicants

Figure 1: Applicants and 1st Year Positions in The Match, 1952 - 2012
Eastern vs. Western Washington for Physicians

Current State: Physician Need in C/E Washington

There is a physician shortage in Central / Eastern Washington when compared to the rest of the state and the country overall.

- West: 25.7
- East: 18.5

21.3 physicians per 10K population
Physician Residents per 100,000 population

Central/Eastern Washington ratio of 6.8 residents per 100K population falls significantly below the United States average of 35.7 residents.

<table>
<thead>
<tr>
<th>Region</th>
<th>Residents</th>
<th>Population</th>
<th>Residents per 100K population</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>108,488</td>
<td>304.059 million</td>
<td>35.7</td>
</tr>
<tr>
<td>Western Washington</td>
<td>1,517</td>
<td>5.084 million</td>
<td>29.8</td>
</tr>
<tr>
<td>Central/Eastern Washington</td>
<td>100</td>
<td>1.465 million</td>
<td>6.8</td>
</tr>
</tbody>
</table>
Why UW Residency at Kadlec?

- By training the next generation of physicians in area, ~65% of residents will remain in area.

- Residency can fill the unmet need with outreach to rural community practices and Kadlec Clinics.

- As an ACGME accredited program, Kadlec will accept allopathic and osteopathic (MD & DO) students.
Kadlec invests in education and the entire region of S.E. Washington benefits

- Led the way by increasing the supply of RNs, Surgical Techs, Imaging Techs, EMT with a $2 million to Columbia Basin College. Also $2.5 million to WSU for their ARNPD program.

- 2013 Kadlec hosted 30 medical students during their 3rd and 4th year clerkships.

- Affiliated with 85 local and 65 national institutions for healthcare student experiences. On average there are 175 students at Kadlec each month.
Kadlec Invests in Education

- 77 colleges + 8 school/institution
- 85 active student contracts
Family Medicine Residency Timeline

- Submission of Institutional Accreditation: November 2013
- Institutional Accreditation Approved: January 2014
- Program Application Submitted: March 31, 2014
- ACGME Site Visit: April 15, 2014
- ACGME Family Medicine Review Committee Decision: May 22, 2014
- Residency Interviews: October 2014 – February 2015
- National Match Process: March 2015
- FM Residents Arrival (6): June 2015
Family Medicine Residency

• Kadlec has been working with the WWAMI Network for seven years to establish a family medicine residency program.

• WWAMI Network has been supportive, collaborative, and transparent in helping Kadlec obtain accreditation.
Commitment & Opportunities

Financial Commitment:
• In 2013-2014, Kadlec committed $300,000 for Family Medicine Residency and will incur ongoing annual expenses.

Future Opportunities:
• Internal Medicine residency
• Obstetrics residency
  – With support from UW for ACGME Dept. of OB/GYN requirements
Summary

• Time is critical!
• Many challenges facing healthcare.
• Rural hospitals face even greater challenges.
• We must work together.
• To serve entire state, we have responsibility to address the needs of the rural communities
UWSOM
Medical Education - Eastern & Central Washington

John McCarthy, MD
UWSOM-WWAMI

- UW School of Medicine is the sponsoring institution for WWAMI, the five state regional medical school for Washington, Wyoming, Alaska, Montana and Idaho
UWSOM-WWAMI

- WAMI is a 42-year partnership (Wyoming joined in 1996 as the second “W”) providing high-quality, cost-effective medical education

- Partner universities include Washington State University, University of Wyoming, University of Alaska, Montana State University, and University of Idaho
The WWAMI Model

- Students complete first year at their home state university.
- All students are in Seattle for second year with a pilot second year program in Spokane.
- Students are able to complete clinical rotations in their 3rd and 4th years in locations across the region.
## Larger Community Rotations

**Required Clerkships/Rotations**

<table>
<thead>
<tr>
<th>Community</th>
<th>3rd Yr. Clerkships/Rotations</th>
<th>4th Yr. Clerkships/Rotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spokane</td>
<td>Six/123</td>
<td>Three/51</td>
</tr>
<tr>
<td>Wenatchee</td>
<td>Five/28</td>
<td>N/A</td>
</tr>
<tr>
<td>Yakima</td>
<td>Two/19</td>
<td>One/2</td>
</tr>
<tr>
<td>Tri-Cities</td>
<td>One/6</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Attributes of Successful Clerkships

- Good Physicians
- Good Administrative Support
- Reasonable Housing
Benefits of Teaching

- Affiliation with Academics & UWSOM
- Sharpens your Game
- Recruitment Potential
- Six/Twelve Week Transitions
- Residency Connection
- Payment (Small)
Benefits in This Community

- Spanish Speaking Population
- Wide Open Opportunities
- Supportive Administration
Required Clerkships

Third Year….
- Family Medicine
- Internal Medicine
- Pediatrics
- OB/Gyn
- Psychiatry
- General Surgery

Fourth Year…
- Neurology
- Chronic Care
- Emergency Medicine
Steps to Establish Clerkship

If student to start July of 2015….

Need completed site application by September 2014

Site/Regional office ➔ UW Department ➔ UWSOM Curriculum

- Includes site visit by UW Academic Department
- Includes approval by UWSOM Curriculum Office
- Allow minimum three months for process
Questions???
Bill Cavanagh

VP, Research and Development
Very Early History of Radiation Therapy of Cancer

1895 – Wilhelm Roentgen discovers “X-rays”

1900 – “Roentgenotherapy” used to treat (skin) carcinomas

1898 – Madam Marie Curie discovers Radium-226

1901 – Use of Radium-226 direct application and emanation (Radon)
Therapeutic X-ray Delivery Apparatus 1915 (Wikipedia)
Modern Therapeutic X-ray Delivery Systems/
Linear Accelerators (LINACs)
Multiple Intensity Modulated Beams (IMRT) Delivered by Linear Accelerator
Dosimetric Outcome – IMRT of Prostate Cancer

Note collateral dosing of uninvolved anatomy
and three-quarters hours (19 as long as observed). Next day the same situation obtained, whereupon one-sixtieth grain of atropin was given hypodermically and within an hour the secretion had ceased, but there was a delay in motility up to three and one-half hours.

Repeating these experiments, but giving the atropine by mouth showed an increase in acidity, and the hypersecretion continuing for seven hours, motility unaffected.

(8) Olive Oil: Does it Affect Gastric Acidity? A slight rise of total acids, no effect on motility.

(9) Administering of Alkalies in Divided Doses During Digestion. The previous observations of the effects of alkalies on gastric acidity having demonstrated, first a primary neutralization, and second a compensatory reaction with excessive acid production, an attempt was made to cause a continuous depression of the acid curve by dividing the single dose of alkali into equal portions and distributing these portions over the course of the digestion.

Magnesium oxide used. Five-grain doses given every half hour, beginning forty-five minutes after the onset of digestion, and continued for four doses. The effect was a gradual and permanent depression of the acid curve.

...errors as well as in the general control of hygiene and manner of living of each individual patient.

- Charles N. Hensel.

THE COMPARATIVE VALUE OF RADIUM AND ROENTGEN RADIATION: R. H. Boggs (The American Journal of Medical Sciences for November, 1918), compares the therapeutic effect of radium and X-rays. He says that all things being equal, radium is preferred where a localized reaction is desired, and Roentgen Rays should be used when large areas are to be treated. In many instances radium should be used locally, while the adjacent lymphatics should be treated by the X-rays.

No tissue is unaffected by either the rays from radium or the Roentgen tube, providing the intensity be sufficiently great and the exposure of adequate duration. There is always a latent period after application of either type of ray. The larger the dose the shorter the latent period will be. Every kind of tissue reacts in its own specific way. The gland cells will be destroyed by a dose which will not destroy cellular tissue or skin; that is, there is a selective action. The lymphatics are very sensitive, being cicatrized by destruction of lym-
Brachytherapy Tongue Implant

Radium-226 Needles 1960s
Brachytherapy is “Close” Therapy
## IsoRay Medical

<table>
<thead>
<tr>
<th>Introduced</th>
<th>Isotope</th>
<th>Half-Life</th>
<th>Energy</th>
<th>90% Dose</th>
<th>Total Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Cs-131</td>
<td>9.7 days</td>
<td>30.4 KeV</td>
<td>33 days</td>
<td>115 Gy</td>
</tr>
<tr>
<td>1986</td>
<td>Pd-103</td>
<td>17 days</td>
<td>20.8 KeV</td>
<td>58 days</td>
<td>125 Gy</td>
</tr>
<tr>
<td>1965</td>
<td>I-125</td>
<td>60 days</td>
<td>28.5 KeV</td>
<td>204 days</td>
<td>145 Gy</td>
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</tbody>
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The Role of Biologically Effective Dose (BED) in Clinical Oncology

B. Jones\textsuperscript{1}, R. G. Dale\textsuperscript{1}, C. Deehan\textsuperscript{2}, K. I. Hopkins\textsuperscript{3} and D. A. L. Morgan\textsuperscript{4}

\textsuperscript{1}Imperial College School of Medicine, Hammersmith Hospitals NHS Trust, London, \textsuperscript{2}The Royal Marsden Hospital, London, \textsuperscript{3}Bristol Oncology Centre, Bristol and \textsuperscript{4}Nottingham City Hospital, Nottingham, UK

\begin{equation}
\text{BED} = D \left[ 1 + \frac{d}{(\alpha/\beta)} \right]
\end{equation}

BED is regarded as a measure of the true biological dose delivered by a particular combination of dose per fraction and total dose to a given tissue characterized by a specific \( \alpha/\beta \) ratio. It follows from equation (2) that, even if total dose (\( D \)) is kept constant, the BED will increase if dose per fraction is increased, the increment in BED being greater for tissues with a low, rather than a high, \( \alpha/\beta \) ratio value. This is demonstrated in Table 1.

The bracketed term in equation (2) is called the relative effectiveness (RE) per unit dose so that:

\text{Biological dose (BED)} = \text{Total physical dose} \times \text{RE}
Lane Bray
Iodine-125  versus  Cesium-131

Median PSA Follow-up: 44 months

60-month Biochemical Control: 97.9%
Increasingly De-differentiated Prostate Cells
The “Gleason Grade”
## Intermediate Risk Prostate Ca

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Treatment</th>
<th>bRFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone 1999</td>
<td>152</td>
<td>I-125/Pd-103 Mono</td>
<td>58-85% @ 4 yr</td>
</tr>
<tr>
<td>Zelefsky 2000</td>
<td>85</td>
<td>I-125 Mono</td>
<td>77% @ 5 yr</td>
</tr>
<tr>
<td>D’Amico 2000</td>
<td>15</td>
<td>Pd-103 Mono</td>
<td>35% @ 5 yr</td>
</tr>
<tr>
<td>Jones 2008</td>
<td>476</td>
<td>Cryo</td>
<td>73% @ 5 yr</td>
</tr>
<tr>
<td>Hernandez 2007</td>
<td>&gt;1,000</td>
<td>Prostatectomy</td>
<td>77% @ 5 yr</td>
</tr>
<tr>
<td>Vassil 2010</td>
<td>64</td>
<td>Lap. Prostatectomy</td>
<td>60% @ 5 yr</td>
</tr>
<tr>
<td>Moran 2010</td>
<td>75</td>
<td>Cs-131 Mono</td>
<td>91% @ 4 yr</td>
</tr>
<tr>
<td>Prestidge (91 Pt series subm)</td>
<td>37</td>
<td>Cs-131 Mono</td>
<td>96% @ 5 yr</td>
</tr>
</tbody>
</table>
Five-Year Biochemical Outcome in Patients Treated with $^{131}$Cs Brachytherapy as Monotherapy for Prostate Cancer

Malolan S. Rajagopalan, MD$^1$, Sushil Beriwal, MD$^1$, Ryan P. Smith, MD$^1$, Christopher J. House, MS$^3$, Ronald M. Benoit, MD$^2$. $^1$Radiation Oncology, University of Pittsburgh Cancer Institute, Pittsburgh, PA; $^2$Urology, University of Pittsburgh Cancer Institute, Pittsburgh, PA.

**Purpose:** $^{131}$Cs is a radioisotope with a half-life of 9.7 days that is being increasingly used for prostate brachytherapy (PB). Due to its shorter half-life than other radioisotopes, including $^{125}$I and $^{103}$Pd, $^{131}$Cs may be associated with a shorter duration of irritative urinary symptoms. The outcome data with this isotope is very limited. We present the intermediate-term outcome of patients treated with Cs-131 PB monotherapy.

**Materials and Methods:** A prospective database for all patients treated with $^{131}$Cs PB was maintained since September 2006. Patients were treated with an intraoperative planning technique that was designed to deliver 115 Gy. Patients were followed with serial PSA, drawn every 3 months for the first year and every 6 months thereafter. For analysis, all patients with a minimum followup of 24 months were included. Actuarial analysis was performed to assess freedom from biochemical failure (bNED) using the Kaplan-Meier method.

**Results:** One hundred sixty-two patients were available for analysis. The median age was 65.9 years (range: 50 – 83 y) and the median Gleason score was 6 (range: 5 – 8). Mean pretreatment PSA was 5.9 (range: 1.0 – 15.3). 57.4% of patients were low-risk, 42.0% were intermediate-risk and 0.6% were high-risk. Median followup was 36 months. There were a total of 4 biochemical failures which occurred after a median of 42 months (range: 18-60 months). These failures accounted for 2.2% (n=2) of the low-risk, 1.5% (n=1) of the intermediate-risk, and 100% (n=1) of the high-risk patients. Actuarial bNED was 92.6 ± 4.4% overall.

**Conclusions:** We present the outcomes of patients who have undergone PB monotherapy with $^{131}$Cs. The results indicate that PB monotherapy with $^{131}$Cs is able to achieve excellent outcomes with an actuarial 5-year bNED rate of 92.6 ± 4.4% among all patients.

A Comparison of AUA Symptom Scores following Permanent Low-Dose-Rate Prostate Brachytherapy with Iodine-125 and Cesium-131

Amit B. Shah, MD, Arnav A. Shah, Gregory A. Fortier, MD. Radiation Oncology, York Cancer Center, Wellspan Health, York, PA.

**Purpose:** To assess whether radioisotope selection alters pattern of urinary morbidity after PBT.

**Materials and Methods:** Since 1999 York Hospital has performed PBT with $^{125}$I, and in 2007, with Cs-131. A computerized prospective database

![Graph showing AUA Symptom Scores over time for $^{125}$I and Cs-131]

**Conclusions:** Our data suggest that shorter half-life of Cs-131 versus $^{125}$I (10 versus 60 days) results in a more rapid resolution of urinary side effects and lower intensity of urinary morbidity beyond the initial three months.
Cesium-131 BrachyMesh provides the ultimate in conformal radiation to your surgically-managed NSCLC patient.
Cs-131 Lung Mesh Dosimetry
Patterns of Recurrence in GBM

80% of all recurrences are local and are within 2 cm of the resection cavity

GliaSite Radiation Therapy System
Cs-131 Brain Brachytherapy Post Resection: A Preliminary Report

David G. Brachman, M.D.,*; Kris A. Smith, M.D.,*; Peter Nakaji, M.D.,*; Theresa Thomas, M.S.; Steven Sorensen Ph.D.*

*St Joseph's Hospital, *Barrow Neurological Institute, *Arizona Oncology Services Foundation, all in Phoenix, AZ, USA
Recurrent Anaplastic Meningioma – Surg x 2 / RT x 2
Implementation and early clinical results utilizing Cs-131 permanent interstitial implants for gynecologic malignancies

Charles Eric Wooten a, Marcus Randall a, Jason Edwards a, Prakash Aryal b, Wei Luo b, Jonathan Feddock a, k

a Department of Radiation Medicine, Markey Cancer Center, University of Kentucky, Lexington, KY, USA
b Division of Medical Physics, Markey Cancer Center, University of Kentucky, Lexington, KY, USA
Appendix C:
June 17 meeting materials
UW Advisory Council on Medical Education Access and Affordability

June 17th, 2014
10:00AM-1:00PM (Full meeting)
1:00PM-2:00PM (Council-only discussion)
Harborview Medical Center

10:00-10:10AM: Welcome and introductions
  • Dan Evans, Chair

  • Sue Skillman, MS, Deputy Director, UW Center for Health Workforce Studies and Area Health Education Center (AHEC)
  • Roger Rosenblatt, MD, Vice Chair of UW Department of Family Medicine, Founder WWAMI Rural Health Research Center

11:30-11:55AM: Research Opportunities in Eastern Washington
  • Paul Ramsey, MD, Dean, UW School of Medicine

11:55-12:00PM: Break to gather lunch

12:00PM-12:45PM: Working lunch roundtable with UW residents
  • Meghan Johnston, Primary Care Internal Medicine Resident
  • Richard Waters, Family Medicine Resident
  • Jennifer Wild, Pediatrics Chief Resident
  • Whitney Benz, Pediatrics Resident

Council member only discussion

1:00-2:00PM: Review work to date and next steps
  • Dan Evans, Chair
Washington’s Physician Workforce, 2014

Susan Skillman, MS
Bert Stover, PhD

WWAMI Area Health Education Center,
Center for Health Workforce Studies, and
Rural Health Research Center
University of Washington
Goals

To describe the size, distribution and source of Washington State’s 2014 practicing physician supply

- How many physicians overall and by specialty group?
- How are they distributed by county, and by eastern compared with western WA?
- How many relative to state and county population?
- Did they graduate from UW School of Medicine?
- Did they complete a residency in WA? In any of the WWAMI states?

To frame estimates of future physician workforce demand in the context of health care transformation
Workforce analysis: Data and type of analysis depend on the question being asked

- **How many physicians are licensed in Washington?**
  Use state license records

- **How many physicians are providing care in Washington?**
  Use AMA Masterfile data – allows identification of physicians providing direct patient care and at practice locations in WA

- **How many patient visits can be provided by licensed and practicing physicians in Washington?**
  Use data source that identifies practicing physicians, where they practice, and their FTE or visits/week provided (e.g., survey)

- **How many physicians are providing primary care in Washington?**
  Ask directly by survey or estimate by using specialty information from AMA Masterfile data
What we did

- Analyses based on AMA Physician Masterfile dataset:
  - Reasonably good and available data on physician supply
  - Includes more information about practice status and specialty than many other data sources (e.g., license records)
- We selected physicians age < 75 yrs, post-residency, providing direct patient care, not federally employed
- Assessed “primary” and “secondary” specialties and reassigned as needed
  - E.g., someone with “Family Medicine” and “Neurosurgery” was assigned to specialty surgery
  - Resulted in approx. 6% of all WA physicians being assigned to a different specialty than their AMA-designated primary specialty
## Washington physicians 2014 - Overall

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Number per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total physicians</td>
<td>19,260</td>
<td>274.9</td>
</tr>
<tr>
<td>Total practicing physicians (providing direct care)</td>
<td>15,421</td>
<td>220.1</td>
</tr>
<tr>
<td>Generalists</td>
<td>5,504</td>
<td>78.6</td>
</tr>
<tr>
<td>Family practice/general practice</td>
<td>2,854</td>
<td>40.7</td>
</tr>
<tr>
<td>General internal medicine</td>
<td>1,727</td>
<td>24.7</td>
</tr>
<tr>
<td>General pediatrics</td>
<td>923</td>
<td>13.2</td>
</tr>
<tr>
<td>Surgeons</td>
<td>1,703</td>
<td>24.3</td>
</tr>
<tr>
<td>General surgery</td>
<td>366</td>
<td>5.2</td>
</tr>
<tr>
<td>Obstetrics-gynecology</td>
<td>814</td>
<td>11.6</td>
</tr>
<tr>
<td>Other surgery</td>
<td>523</td>
<td>7.5</td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>675</td>
<td>9.6</td>
</tr>
<tr>
<td>Other Specialists</td>
<td>7,539</td>
<td>107.6</td>
</tr>
</tbody>
</table>
Comparing WA physician supply to other state and national estimates

- It is difficult to make comparisons
  - There are many physician supply estimates from different sources

- Example: Measures of physicians per 100,000 population
  - Some are based on all licensed physicians
  - Some are based on all practicing physicians
  - Some use persons, some use FTEs per capita
  - Some estimate primary care, some estimate generalists

- Important to know if comparisons are “apples to apples” to determine if differences are meaningful
Physicians per 100,000 population: WA compared with US estimates

- Total Physicians
  - WA 2014 (AMA): 275
  - US 2012 AAMC (AMA): 261

- Practicing Physicians
  - WA 2014 (AMA): 220
  - US 2012 AAMC (AMA): 226

- Generalists/Primary Care
  - WA 2014: 79
  - US 2012 AAMC (AMA): 66

- Psychiatrists
  - WA 2014 (AMA): 10

Source: University of Washington
Washington physician supply in 2014
East compared with West

Practicing Physicians Per 100,000 Population

<table>
<thead>
<tr>
<th></th>
<th>All Practicing Physicians</th>
<th>Generalists</th>
</tr>
</thead>
<tbody>
<tr>
<td>All WA</td>
<td>220</td>
<td>79</td>
</tr>
<tr>
<td>E. WA</td>
<td>181</td>
<td>70</td>
</tr>
<tr>
<td>W. WA</td>
<td>231</td>
<td>81</td>
</tr>
</tbody>
</table>
Washington physician supply in 2014
Urban-rural distribution

Practicing Physicians Per 100,000 Population

<table>
<thead>
<tr>
<th></th>
<th>Generalists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>82</td>
</tr>
<tr>
<td>Rural - Overall</td>
<td>57</td>
</tr>
</tbody>
</table>
WA practicing physicians per 100,000 population, 2014
WA practicing generalist physicians per 100,000 population, 2014
## Impact on state physician supply: Completing medical school or residency in state

<table>
<thead>
<tr>
<th>Washington Practicing Physicians 2014</th>
<th>Graduated from UW SOM</th>
<th>Completed residency in WA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,262</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Generalists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family practice/general practice</td>
<td>605</td>
<td>21%</td>
</tr>
<tr>
<td>General internal medicine</td>
<td>261</td>
<td>15%</td>
</tr>
<tr>
<td>General pediatrics</td>
<td>148</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Surgeons</strong></td>
<td>217</td>
<td>13%</td>
</tr>
<tr>
<td>General surgery</td>
<td>37</td>
<td>10%</td>
</tr>
<tr>
<td>Obstetrics-gynecology</td>
<td>126</td>
<td>16%</td>
</tr>
<tr>
<td>Other surgery</td>
<td>54</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Psychiatrists</strong></td>
<td>109</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Other Specialists</strong></td>
<td>922</td>
<td>12%</td>
</tr>
</tbody>
</table>
Graduating from UW SOM:
Contribution to E. WA and W. WA physician supply

<table>
<thead>
<tr>
<th>Washington Practicing Physicians 2014</th>
<th>Attended UW SOM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E. WA physicians</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Total</td>
<td>382</td>
</tr>
<tr>
<td>Generalists</td>
<td>190</td>
</tr>
<tr>
<td>Family practice/general practice</td>
<td>130</td>
</tr>
<tr>
<td>General internal medicine</td>
<td>48</td>
</tr>
<tr>
<td>General pediatrics</td>
<td>12</td>
</tr>
<tr>
<td>Surgeons</td>
<td>34</td>
</tr>
<tr>
<td>General surgery</td>
<td>5</td>
</tr>
<tr>
<td>Obstetrics-gynecology</td>
<td>22</td>
</tr>
<tr>
<td>Other surgery</td>
<td>7</td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>8</td>
</tr>
<tr>
<td>Other Specialists</td>
<td>150</td>
</tr>
</tbody>
</table>
## Completing a residency in WA: Contribution to E. WA and W. WA physician supply

<table>
<thead>
<tr>
<th>Washington Practicing Physicians 2014</th>
<th>Completed a residency in WA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E. WA physicians</td>
<td>W. WA physicians</td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>523</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Generalists</strong></td>
<td>308</td>
<td>30%</td>
</tr>
<tr>
<td>Family practice/general practice</td>
<td>217</td>
<td>37%</td>
</tr>
<tr>
<td>General internal medicine</td>
<td>84</td>
<td>28%</td>
</tr>
<tr>
<td>General pediatrics</td>
<td>7</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Surgeons</strong></td>
<td>36</td>
<td>12%</td>
</tr>
<tr>
<td>General surgery</td>
<td>12</td>
<td>18%</td>
</tr>
<tr>
<td>Obstetrics-gynecology</td>
<td>15</td>
<td>10%</td>
</tr>
<tr>
<td>Other surgery</td>
<td>9</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Psychiatrists</strong></td>
<td>22</td>
<td>28%</td>
</tr>
<tr>
<td><strong>Other Specialists</strong></td>
<td>157</td>
<td>12%</td>
</tr>
</tbody>
</table>
Residents and fellows per 100,000 population, 2012 by state

Washington
Primary care residents and fellows per 100,000 population, 2012 by state:

Washington
The health care landscape is changing: Impact on future physician demand?

ACO
ACOs: Accountable Care Organizations
HIT
Bundled Payment
Telehealth
Teams

PCMH
Patient-Centered Interprofessional

Exchange
Value vs. volume

EHR
Meaningful Use
“Quality not quantity”
Projections and forecasts

• New era – health care transformation and changes in payment incentives are in process
• Impact on the health workforce is difficult to predict
  • Old forecasting models (based on past history) aren’t very useful looking to the future
• Care settings and approaches are shifting
  • Hospital → clinic → home
  • Physician → other clinicians → teams → community
  • Face to face → virtual (telehealth, phone, email)
National growth overall in the largest health occupations (2010-2020)

- Dental hygienists: 37.7%
- Physical therapists: 39.0%
- EMTs/paramedics: 33.3%
- Pharmacists: 25.4%
- Dental asst's: 30.9%
- Health care managers: 22.4%
- Clin lab techs: 13.0%
- Pharmacy techs: 32.4%
- Recreation workers: 19.0%
- Diagnostic techs: 29.9%
- Medical assistants: 30.9%
- Support techs: 29.6%
- Social workers: 24.8%
- Physicians: 24.4%
- LPNs: 22.4%
- Personal care aides: 70.5%
- Home health aides: 69.4%
- Nursing aides: 20.1%
- RNs: 26.0%

Factors affecting health care job growth

By some estimates, across health occupations:

- **15%** of growth attributable to:
  - ACA: Expanded coverage and payment changes

- **85%** of growth attributable to:
  - Growth of the population, and
  - Aging of the population
Contact Information

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University of Washington, WWAMI AHEC
Deputy Director, Center for Health Workforce Studies
Investigator, WWAMI Rural Health Research Center

skillman@uw.edu
206-543-3557
http://depts.washington.edu/uwchws/
http://depts.washington.edu/uwrhrc
http://depts.washington.edu/ahec/
Physician Workforce Needs in Washington State: UW Advisory Council, June 17, 2014

Roger A Rosenblatt MD, MPH, MFR
Department of Family Medicine
University of Washington School of Medicine
Shortages have been a challenge for the last 5 decades: Some of us may have been younger back then.
The Big Picture
Total Active Physicians in the U.S

Year


142 144 148 161 180 202 226 238 260 276 286 286

220 242 260 292 334 394 460 538 594 684 780 872

physicians per 100,000 population
total physicians (1,000s)
The major problems are specialty and geographic distribution

- Total Physicians
  - WA 2014 (AMA): 275
  - US 2012 AAMC (AMA): 261

- Practicing Physicians
  - WA 2014 (AMA): 220
  - US 2012 AAMC (AMA): 226

- Generalists/Prim. Care
  - WA 2014 (AMA): 79
  - US 2012 AAMC (AMA): 66

- Psychiatrists
  - WA 2014 (AMA): 10

(AMA data)
Who are the primary care providers?

- Family physicians
- General internists
- General pediatricians
- Nurse practitioners
- Physician assistants
What is Primary Care?
(Institute of Medicine)

- Accessibility
- Comprehensiveness
- Coordination
- Continuity
- Accountability
Growth of Number of Recognized Medical Specialties

# of subspecialties, ABMS

Percentage of Primary Care and Non-Primary Care Physicians in the U.S.

<table>
<thead>
<tr>
<th>Year</th>
<th>Primary Care</th>
<th>Non-Primary Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>1949</td>
<td>59%</td>
<td>41%</td>
</tr>
<tr>
<td>1960</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>1965</td>
<td>45%</td>
<td>55%</td>
</tr>
<tr>
<td>1970</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>1981</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>1988</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>1995</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>2000</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td>2010</td>
<td>28%</td>
<td>72%</td>
</tr>
</tbody>
</table>
Generalists as a Percentage of Physicians: Selected Nations

- United Kingdom: 73%
- Germany: 54%
- Belgium: 53%
- Canada: 47%
- Netherlands: 38%
- U.S.: 34% (13% GP/FP)
Supply of Nonphysician Clinicians 1990-2015

- Nurse practitioners
- Physician assistants
- Certified nurse-midwives
Supply of Alternative Clinicians 1990-2015

- Chiropractors
- Acupuncturists
- Naturopaths
The second major problem is geographic maldistribution: Most physicians are in urban areas.
Rural areas are primarily dependent on generalist physicians
Washington shows the same pattern of geographic maldistribution. Five times as many physicians per capita in urban v rural counties.
How many more primary care doctors will we need by 2025 in the U.S.? One estimate:

- Current Supply = 209,000
- Number needed by 2025 = 261,000
- Additional doctors needed = 52,000
  - 33,000 because of population growth
  - 10,000 because of aging of the population
  - 9,000 because of increased insurance (ACA)

- An additional 357,000 people will be eligible for Medicaid plus another 200,000 through exchange.
- Only King County has apparent surplus of doctors willing to accept these patients.
- Most other urban areas should be able to manage.
- All of the rural areas have serious shortages.
Selected Recommendations on Workforce from Health Care Authority’s Leadership Summit.

- Increase WA primary care residency slots
- Expand state loan repayment program
- Implement regional workforce planning
- Better integration of primary care & mental health
- Require inter-professional training in health schools
WWAMI is a unique decentralized medical education model.
Promising new WWAMI Innovation: The TRUST Program
Can TRUST help solve the problem?

- How does TRUST work within WWAMI?
- Have similar programs worked elsewhere?
Optimal Programmatic Components

• Selective Admissions

• Special Medical School Track

• Family Medicine Residency with Rural Emphasis
Admissions

- Rural / disadvantaged background
- Prior career experience
- Prior relevant volunteer experience
- Strong service commitment
- Preference for public college graduates
Medical School Curriculum

- Pre-matriculation rural placement
- Enhanced TRUST-oriented curriculum
- Strong targeted mentorship
- Rural Underserved Opportunities Program (RUOP)
- Longitudinal Integrated Clinical Clerkships
Residencies are an essential component

- Expand number of Family medicine residencies
- Selected complementary residencies – e.g. general surgery
- More residencies within rural areas or with strong rural rotations – e.g. rural training tracks
Six Similar Long-Term programs in the U.S
(Rabinowitz HK, Academic Medicine, 2008)

- RPAP – University of Minnesota
- Duluth Campus – University of Minnesota
- Upper Peninsula Program – Michigan State
- PSAP – Jefferson Medical College
- RMED – SUNY
- RMED – Univ of Illinois at Rockford
Common Denominators of Successful Programs

- Primary goal to increase supply of rural physicians
- A defined cohort of medical students
- Focused admissions and extended rural clinical curriculum (>6 months)
Per Cent of Graduates in Rural Practice: Long-term results of 6 TRUST-like programs
Selective Admissions (Best evidence)

- Rural upbringing (extrapolate for underserved)
- Plan to become family physician (earlier the better)
- Size and type of undergraduate college
- Objective unbiased uniform admissions process
Integrated longitudinal curriculum

- Intensive long-term relevant clinical curriculum
- Multiple primary care courses and rotations
- Residency program which reinforces primary care values, and provides relevant skills
Other Factors

- Manageable student debt (<$150,000)
- Strong psychosocial support for students
- Institutional values and commitment
- Zeitgeist
It’s all about the people:
A RUOP and PA student working in Chelan, Washington
Appendix D:

September 16 meeting materials
UW Advisory Council on Medical Education Access and Affordability

September 16th, 2014
10:00AM-2:00PM
Avista Boardroom

10:00-10:15AM: Call to order
- The Honorable Dan Evans, Chair (facilitator)

10:15-11:15AM: Report out on survey of regional WWAMI deans
- Tyler Scott, Ph.D. candidate, Evans School of Public Affairs
- Presentation and Q&A

11:15-11:55AM: Report out on recent UW/WSU/Community meetings
- Scott Morris, CEO Avista
- Mike Worthy, WSU Regent
- Orin Smith, UW Regent

11:55AM-12:00PM: BREAK/LUNCH

12:00-12:30PM: Working lunch
- Council Q&A and discussion on UW/WSU/Spokane meetings

12:30-1:30PM: Development and discussion of preliminary recommendations
- The Honorable Dan Evans

1:30-1:45PM: Discussion of next steps
- Margaret Shepherd, staff to the council

1:45-2:00PM: Public comment and concluding remarks
- The Honorable Dan Evans
Findings from interviews with regional WWAMI leadership

A report to the Advisory Council on Medical Education Access and Affordability

Principal Investigator: Tyler Scott | Ph.D. Candidate, University of Washington | tscott1@uw.edu
Extended interviews with regional WWAMI leadership

- Assistant Deans at regional 1st/2nd year sites
- Assistant Deans of clinical regions (3rd/4th year)
Goals

- Evaluate WWAMI from regional perspective
- Evaluate whether current controversy is a discrete incident or evidence of systemic problem(s)
Interviews

- Describe regional sites, operations
- Pressing challenges, internal/external pressures
- Benefits/costs of distributed model
- Collaboration with UWSOM, other sites
- More/less input and support
- “What else should the Committee know?”
Summary of Findings

- WWAMI excels in depth/breadth of programs, standard of education, and value to participants

- Difficulties largely attributable to classic institutional tensions
  - flexibility vs. firmer control
  - economies of scale vs. challenges of scale
Program Design

Stakeholders value current design: diverse opportunities, access to UWSOM (research, expertise, placement), cost-effective

Challenge
Maintain quality while expanding number of students

Recommendation
Increase site administrative capacity in student affairs, faculty development, and government affairs
Program Implementation

Administrators desire greater procedural flexibility, but also recognize inherent tensions (accreditation, centralization benefits)

Challenge
Balancing control and flexibility to produce best possible outcomes

Recommendation
Evaluate rationale for centralization and decentralization; emphasize congruity of outcomes
Managing Change

UWSOM very responsive to regional issues and concerns; however, reactive/complaint-based model sends wrong message

Challenge
UWSOM committed to responding to regional needs, but partners often feel that UWSOM is unconcerned

Recommendation
Proactive engagement of stakeholders; make efforts so stakeholders feel input is valued and prioritized
Managing Subcomponents

Geographic and disciplinary diversity both of great value; UWSOM departments provide access to leading research, expertise

Challenge
Departmental administration of regional clerkships and training challenging for WWAMI sites and UWSOM departments

Recommendation
Avoid requiring individual WWAMI sites to manage relationships with individual UWSOM departments.
Evaluation and Transparency

Administrators believe WWAMI has more benefits and fewer costs than alternatives (e.g., independence, UC-Denver); lack data and evaluation tools to demonstrate this.

**Challenge**
Pressure from policymakers to demonstrate program effects and value of investment in WWAMI.

**Recommendation**
Transparency and accountability measures in operations and outcomes, particularly use of partner-state funds.
Overarching Themes

● WWAMI faces common institutional tensions; these are ongoing challenges, not programmatic flaws

● Concerns not evidence of deep structural flaws, address with incremental changes to policies and procedures

● Similar tensions within any new independent medical school formed in the region
Questions?