Health Workforce Everywhere:
Understanding the Breadth and Depth of the Health Workforce

Center for Health Policy
Fairbanks School for Public Health Indiana University
November 26, 2018

Bianca K. Frogner, PhD
Associate Professor, Department of Family Medicine
Director, Center for Health Workforce Studies
Deputy Director, Primary Care Innovation Lab

Follow us on Twitter @uwchws & @uwpcilab
Agenda

• Intro to myself and UW centers
• Where health workforce research has been
• What we are learning
• Where we need to go
Agenda

• Intro to myself and UW centers
• Where health workforce research has been
• What we are learning
• Where we need to go
UW Center for Health Workforce Studies (CHWS)

- Established in 1998 in Department of Family Medicine, UW
- Multidisciplinary team of researchers
- Primarily funded by contracts and grants from state, federal, and private organizations
- Houses 2 of 9 Center grants funded by the Health Resources and Services Administration (HRSA) to address 1) the allied health workforce and 2) health equity and health workforce diversity
- **Mission**: To elevate the importance of workers in the delivery of health care in policy discussions, which we accomplish by:
  - Conducting health workforce research to inform health workforce planning and policy
  - Providing consultation to local, state, regional and national policy makers on health workforce issues
  - Developing and refining analytical methods for measuring health workforce supply and demand
UW Primary Care Innovation Lab (PCI-Lab)

- Established in 2015 in Department of Family Medicine, UW
- Multidisciplinary team of researchers
- Primarily funded by contracts and grants from federal agencies and private-public partnerships
- **Mission**: To accelerate design, implementation, and productive use of technology that has potential to improve primary care practice and patient health, which we accomplish by:
  - Engaging companies with cutting-edge technologies
  - Produce evidence at every step of product development
  - Disseminate evidence to stakeholders
Agenda

• Intro to myself and UW centers
• Where health workforce research has been
• What we are learning
• Where we need to go
Focus of workforce discussions over last 20 years …

• Debates about physician surplus → shortage
  • Debate about investment in GME $
  • Debate about IMG impact on supply
  • Concern about maldistribution in rural areas & move away from primary care

• Greater investments in nursing education
  • 2010 IOM Future of Nursing report calling for 80% of RNs to have Bachelor’s degree

• More states moving towards NP/PA independent scope of practice
  • Growing evidence of equal care quality and safety to physicians
  • NPs/PAs more likely to work in rural areas and in primary care
Do we have a shortage? If so, where?

• Debatable whether we have a national physician or nursing shortage
**Brief History of Physician & Nurse Workforce Projections**

Expansion of medical schools, GME funding, IMG enrollment

1959 Bane Report: 1975: 40K shortage

1981 GME National Advisory Council:
- 1990: 70K surplus
- 2000: 145K surplus

1990: 70K surplus

2000:
- 145K surplus

1994 COGME:
- 2000: 80K surplus (specialists)
- 2020: 120K surplus (specialists)

1994 COGME:
- 2000: 80K surplus (specialists)
- 2020: 120K surplus (specialists)

Assumptions: Rapid HMO growth, reduction funds to medical schools, IMG admissions increase

2000s Nursing Projections:
- 2020: 500K – 1M RN shortage

Weiner, 1994:
- 163K surplus (specialists)

Cooper 2000/02:
- 2020: 200K shortage (specialists)

Growing recognition of aging population

2006 HRSA:
- 2020: 85K shortage (mostly specialists)

AAMC calls to increase med school enrollment by 30%, increase GME slots

2006 HRSA:
- 2020: 85K shortage (mostly specialists)

2010 AAMC:
- 2020: 91.5K shortage (~50% specialists)
- 2025: 185K shortage

ACA passes; GAO calls for HRSA projections

2010 AAMC:
- 2020: 91.5K shortage (~50% specialists)
- 2025: 185K shortage

Recognition of increasing role of NP/PA

2013 HRSA:
- 2020: 6.4K – 20.4K shortage

Assumes changing delivery system

2013 HRSA:
- 2020: 6.4K – 20.4K shortage

2015 AAMC:
- 2025: 46K – 90K shortage (~66% specialists)

Concern about aging population

2015 AAMC:
- 2025: 46K – 90K shortage (~66% specialists)

2018 AAMC:
- 2025: 46K – 90K shortage (~66% specialists)

2018 AAMC:
- 2025: 46K – 90K shortage (~66% specialists)

2018 HRSA: 2025: 23.6K shortage (primary care), BUT
- No shortage w/ full use of NP/PA & delivery system changes

2018 HRSA: 2025: 23.6K shortage (primary care), BUT
- No shortage w/ full use of NP/PA & delivery system changes

2018 Auerbach et al said:
- 2030: Variable picture around 9 Census regions

2018 HRSA said:
- 2030: RN surplus except AK, CA, GA, NJ, SC, SD, TX

2018 HRSA said:
- 2030: RN surplus except AK, CA, GA, NJ, SC, SD, TX

2018 Auerbach et al said:
- 2030: Variable picture around 9 Census regions

2018 Auerbach et al said:
- 2030: Variable picture around 9 Census regions
Do we have a shortage? If so, where?

- Debatable whether we have a national physician or nursing shortage
- Where shortages may exist:
  - In rural and underserved communities
  - For primary care and long-term care settings
  - With skills and training in behavioral health
  - Shortage of “low-skilled” workers
Agenda

• Intro to myself and UW centers
• Where health workforce research has been
• What we are learning now
• Where we need to go
More recent health workforce discussions...

- Moving away from “nose counting” to predict supply
  - Recognition of geographic variability
  - Monitoring and evaluating new and novel ways in which health care workers are being used

- Recognition of the wider “team” or “other” healthcare workers
  - New occupations as other occupations experience “degree creep”
  - Unclear career pathways
  - Other health professions beginning to invest in collecting more data
Occupations within Healthcare Industry, 2017 (n=16,523,690)

Healthcare Practitioners & Technical Occupations: 40%

Examples: Physicians, Dentists, Pharmacists, Therapists, Physician Assistants, Nurses - APRN, - RN, - LPN/LVN

Healthcare Support Occupations: 21%

Examples: Nursing Assistants, Home Health Aides, OT/PT Assistants

Non Direct Care Occupations: 39%

Examples: Home/Personal Care Aides, Community Health Workers, Social Workers, Administrative/Financial/Management, Grounds/Maintenance, Food Preparation

Medical Assistants, Pharmacy Aides, Dental Assistants
Occupations Projected with Highest Percent Change of Employment, 2016-2026

Healthcare jobs dominate list of fastest growing occupations, and most require less than a Bachelor’s degree to enter.

Source: https://www.bls.gov/ooh/fastest-growing.htm
Number of Additional Jobs between 2013 and 2022 (Reported in Thousands)

Health care jobs are growing in US:
3-4M new health care jobs over next decade
- 40% related to demand increase from ACA
- Home health biggest driver

Recent Headlines

**Health & Science**

*The Washington Post*

The disabled and the elderly are facing a big problem: Not enough aides

**Forbes**

*Chicago Tribune*

The Shortage Of Home Care Workers: Worse Than You Think

Mental health care appointments often come with a long wait. 3 ways to cope while help is delayed
Ten Most Common Prior Year Industry for Entrants and Current Year Industry for Leavers of the Health Care Industry Between 2003 and 2013

<table>
<thead>
<tr>
<th>Entrants’ Prior Year Industry (N=15,742,141)</th>
<th>Leavers’ Current Year Industry (N=23,729,493)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in the labor force or unemployed (excluding in school)</td>
<td>13.0%</td>
</tr>
<tr>
<td>Leisure and hospitality</td>
<td>11.0</td>
</tr>
<tr>
<td>Retail trade (excluding pharmacies and drug stores)</td>
<td>8.8</td>
</tr>
<tr>
<td>Educational services</td>
<td>8.4</td>
</tr>
<tr>
<td>In school</td>
<td>6.9</td>
</tr>
<tr>
<td>Professional, scientific and technical services</td>
<td>6.3</td>
</tr>
<tr>
<td>Public Administration</td>
<td>6.0</td>
</tr>
<tr>
<td>Management, administrative and support, and other services</td>
<td>5.7</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>5.1</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Industry and Occupation Transitions, 2003-2013

<table>
<thead>
<tr>
<th>Industry</th>
<th>Entry from what industry?</th>
<th>Most common occupation of entrants</th>
<th>Exit to what industry?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Health Care Services</td>
<td>14% Hospitals</td>
<td>42% Nursing, psych &amp; home health aides</td>
<td>33% Out of labor force</td>
</tr>
<tr>
<td></td>
<td>14% Nursing care facilities</td>
<td>23% Personal care aides</td>
<td>18% Unemployed</td>
</tr>
<tr>
<td>Nursing Care Facilities</td>
<td>18% Hospitals</td>
<td>37% Nursing, psych &amp; home health aides</td>
<td>27% Out of labor force</td>
</tr>
<tr>
<td></td>
<td>12% Leisure &amp; hospitality</td>
<td>10% Registered nurses</td>
<td>19% Unemployed</td>
</tr>
<tr>
<td>Residential Care Services</td>
<td>14% Leisure &amp; hospitality</td>
<td>21% Personal care aides</td>
<td>25% Out of labor force</td>
</tr>
<tr>
<td></td>
<td>8% Out of labor force</td>
<td>13% Food preparation</td>
<td>16% Unemployed</td>
</tr>
</tbody>
</table>

# SES Characteristics of Transition Groups, 2003-2013

<table>
<thead>
<tr>
<th>Industry</th>
<th>% not a citizen</th>
<th>% rural residence</th>
<th>% disabled</th>
<th>% below poverty</th>
<th>% full-time</th>
<th>Wages from past year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home Health Care Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrants</td>
<td>10%</td>
<td>20%</td>
<td>4%</td>
<td>18%</td>
<td>74%</td>
<td>$19,666</td>
</tr>
<tr>
<td>Leavers</td>
<td>9%</td>
<td>20%</td>
<td>10%</td>
<td>22%</td>
<td>59%</td>
<td>$15,289</td>
</tr>
<tr>
<td>Stayers</td>
<td>11%</td>
<td>19%</td>
<td>4%</td>
<td>14%</td>
<td>66%</td>
<td>$19,799</td>
</tr>
<tr>
<td><strong>Nursing Care Facilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrants</td>
<td>8%</td>
<td>24%</td>
<td>2%</td>
<td>16%</td>
<td>75%</td>
<td>$20,677</td>
</tr>
<tr>
<td>Leavers</td>
<td>7%</td>
<td>25%</td>
<td>8%</td>
<td>16%</td>
<td>72%</td>
<td>$17,409</td>
</tr>
<tr>
<td>Stayers</td>
<td>8%</td>
<td>26%</td>
<td>2%</td>
<td>8%</td>
<td>78%</td>
<td>$22,527</td>
</tr>
<tr>
<td><strong>Residential Care Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrants</td>
<td>6%</td>
<td>17%</td>
<td>4%</td>
<td>14%</td>
<td>74%</td>
<td>$19,517</td>
</tr>
<tr>
<td>Leavers</td>
<td>7%</td>
<td>17%</td>
<td>8%</td>
<td>13%</td>
<td>73%</td>
<td>$16,123</td>
</tr>
<tr>
<td>Stayers</td>
<td>6%</td>
<td>19%</td>
<td>3%</td>
<td>5%</td>
<td>79%</td>
<td>$21,203</td>
</tr>
</tbody>
</table>

Figure 7: Percentage of Part- versus Full-Time Healthcare Workers at Financial Risk among Those Employed in Occupations Requiring Bachelor’s Degree or Below by Work Setting

- **Financial Risk**
  - Earnings below $15 per hour
  - At or below federal poverty level
  - Uninsured

<table>
<thead>
<tr>
<th>Work Setting</th>
<th>Part-time</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Full-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>13.4%</td>
<td>5.6%</td>
<td>7.4%</td>
<td>3.8%</td>
<td>1.0%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Ambulatory Care</td>
<td>11.8%</td>
<td>7.0%*</td>
<td>10.8%</td>
<td>7.9%</td>
<td>8.4%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Long-term Care</td>
<td>17.9%</td>
<td>16.8%</td>
<td>20.1%*</td>
<td>14.8%</td>
<td>12.8%</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

*Significant differences at p<0.001 between part-time versus full-time by financial risk category conducted using unpaired two sample t-test

Note: Financial risk defined as individuals earning below $15 per hour, being at or below the poverty level, or being uninsured

Agenda

• Intro to myself and UW centers
• Where health workforce research has been
• What we are learning
• Where we need to go
Ripe areas for future health workforce research

• What health workforce is needed for complex and transforming health system?
  • More complex modeling and growing availability of data
  • Integrating workforce and coordinating across settings
  • New roles/occupations emerging

• How do we align reimbursement to support the health workforce we need
  • Increasing use of home health → How to translate to good career for workers?
  • Incentivizing high value care through “high value” providers

• “Future of work”
  • Gig economy
  • Automation of jobs
Projection Modeling - Physicians

This data are largely non-existent for many other professions
→ Keep working toward better projection models

IMGs: US & Foreign-Born

Medical School
MD v. DO
- New schools

Residency

Practice
Work hours
- Gender/Age

New Delivery Models:
Health IT, telemedicine, other providers, team-based care

Demand Side: Population health (gender, age, disease), economic status (income, insurance coverage), geographic distribution
Job Search Engines to Monitor Health Workforce Trends

- Burning Glass Technologies, Monster, Payscale, Linkup, LinkedIn

### Top Five Healthcare Occupations with Job Ads Referencing an Emerging Role in 2015

<table>
<thead>
<tr>
<th>Care Coordination</th>
<th>Disease Management</th>
<th>Navigation</th>
<th>Patient Education</th>
<th>Peer Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=114,463</td>
<td>n=14,754</td>
<td>n=1,392</td>
<td>n=10,407</td>
<td>n=965</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>Registered Nurses</td>
<td>Registered Nurses</td>
<td>Registered Nurses</td>
<td>Registered Nurses</td>
</tr>
<tr>
<td>(60.8%)</td>
<td>(62.5%)</td>
<td>(78.6%)</td>
<td>(43.6%)</td>
<td>(47.8%)</td>
</tr>
<tr>
<td>Licensed Practical/Vocational Nurses</td>
<td>Physician and Surgeons</td>
<td>Healthcare Social Workers</td>
<td>Licensed Practical/Vocational Nurses</td>
<td>Nursing Assistants</td>
</tr>
<tr>
<td>(15.5%)</td>
<td>(6.0%)</td>
<td>(5.6%)</td>
<td>(8.4%)</td>
<td>(18.1%)</td>
</tr>
<tr>
<td>Healthcare Social Workers</td>
<td>Nurse Practitioners</td>
<td>Licensed Practical/Vocational Nurses</td>
<td>Medical Assistants</td>
<td>Nurse Practitioners</td>
</tr>
<tr>
<td>(4.4%)</td>
<td>(5.1%)</td>
<td>(4.3%)</td>
<td>(8.2%)</td>
<td>(6.6%)</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>Licensed Practical/Vocational Nurses</td>
<td>Physician and Surgeons</td>
<td>Physical Therapists</td>
<td>Physical Therapists</td>
</tr>
<tr>
<td>(2.1%)</td>
<td>(5.0%)</td>
<td>(7.4%)</td>
<td>(6.9%)</td>
<td>(5.9%)</td>
</tr>
<tr>
<td>Physical Therapists</td>
<td>Medical Assistants</td>
<td>Nurse Practitioners</td>
<td>Nurse Practitioners</td>
<td>Physician and Surgeons</td>
</tr>
<tr>
<td>(2.1%)</td>
<td>(4.7%)</td>
<td>(2.3%)</td>
<td>(5.5%)</td>
<td>(4.9%)</td>
</tr>
</tbody>
</table>

### Percentage of Records Falling Within Each HIT Domain*

- App: Application Support
- Dat: Database Management
- Pri: Project and Program Management
- Har: Hardware and Network Support
- Inf: Information
- Ana: Analytics

*HIT = Health IT; General: App = application support; Dat = database management; Pri = project and program management; Har = hardware and network support; Inf = information; Ana = Analytics.
Washington’s Health Workforce Sentinel Network

**Industry Sentinels**
- Employer/workforce input:
  - Changes in needed skills and roles
  - New workforce demand signals
  - Review results to identify actionable findings

**Data Hub**
- Web-based data collection and analysis
- Rapid dissemination on the Workforce Board website:
  - Recent results from industry
  - Trends
  - Relevant health workforce data from other sources

**Education/Training & Policy Stakeholders**
- Review and respond to actionable information emerging from the Data Hub and Health Workforce Council:
  - Address emerging skills needs
  - Identify emerging roles
  - Respond to increases and decreases in demand for specific occupations

Feedback to industry and data/information system

[http://wasentinelnetwork.org/](http://wasentinelnetwork.org/)
What Technologies Look Promising?

- Artificial Intelligence & predictive analytics to assist patient-provider communications
  - Chatbots to facilitate patient intake
  - Listening devices to scribe clinical notes
  - Diagnosis and treatment decision support tools

- Point of Care Technologies
  - Handheld ultrasounds
  - New diagnostic tests (including genetic testing) delivered at home or in provider office

- Remote patient monitoring
  - Telehealth
  - Sensor devices & internet of things
  - Mobile health apps
What Limits Technological Disruption?

• Challenges
  • Limited input from providers in development of health tech
  • Technology often negatively impacts productivity upon adoption
  • Unclear reimbursement strategy to support integration of tech

• Potential Solutions
  • Develop stronger evidence before introducing technology into clinical workflow to better identify what support (financially and personnel) are needed
  • Provide forums for providers to engage with tech companies at early stages of development
  • Identify training needs to not only prepare workers for current technologies but to help develop next generation of technologies
Summary of Health Workforce Concerns

• Identify ways to recruit new workers to healthcare, retain existing workers, increase productivity and improve distribution of workers to meet increasing healthcare demand from aging demographic and health insurance expansion

• Train new and existing workers to keep up with the changing needs of a population experiencing high disease burden (e.g., opioid use disorder and other behavioral health problems)

• Monitor and evaluate evolving roles and emerging occupations often operating within restricted budgets and scope of practice to meet the needs of new delivery and payment models

• Deploy and connect workers in the community as care shifts away from hospital to keep elderly in their home
Take Away Thoughts

- Build workforce that matches patients’ needs
  - Focus less on headcounts
- Take a wider view of who works in healthcare
  - Focus less on siloed occupations and more on the team
- Clarify and plan for career pathways in healthcare
  - Including support for training and other social assistance
- Engage healthcare workers in development of future technologies
If you want to read more about our work:


More readings…


Thank you!

Contact

Bianca K. Frogner, PhD
Associate Professor, Department of Family Medicine
Director, Center for Health Workforce Studies
Deputy Director, Primary Care Innovation Lab
University of Washington
bfrogner@uw.edu
@biancafrogner
@uwchws
@uwpcilab

Visit us at:
https://depts.washington.edu/fammed/chws/
https://depts.Washington.edu/famed/pci-lab/
Changing Healthcare Landscape

**Call to Action:** Improve the healthcare system with “Quadruple Aim”
1) Improve patient experience of care; 2) Improve population health; 3) Reduce per capita cost of care; 4) **Improve provider work life**

**Actions:**
• Expansion of health insurance coverage through age eligibility of dependents, Medicaid (e.g., Apple Health) & Marketplaces (e.g., WA Health Benefit Exchange)
• Connect providers through **new models of delivery** (e.g., Accountable Care Organizations, Patient-Centered Medical Home Models, integration of care)
• Drive toward **value-based care** (e.g., bundled payment, MIPS, APM)
• Increase monitoring and engagement of patients through **technologies** (e.g., electronic health records, telehealth, mobile health, sensors)
Issue #1: Defining Need is Difficult

• Challenges
  • Projections of need focus on provider-to-patient ratios, which does not equate to access or quality
  • Limited discussion around available providers to fill the gap (e.g., Health Professional Shortage Areas designation focused only on few professions)
  • Insufficient data: 2+ year lags, poor geographic detail, limited availability for non-licensed professionals, and lack of information related to roles

• Approaches
  • Consider all members of the “care team” including patient at the center
  • Seek multiple perspectives, sources, and approaches to assess need
  • Use rapid and novel data collection methods such as WA Sentinel Network
Issue #2: Recruitment & Developing Pipeline

• Challenges
  • Access to providers significantly varies by patient geography (e.g., rural) and insurance type (e.g., Medicaid and uninsured)
  • While healthcare jobs have been a “job engine” for the economy and are among the fastest growing, healthcare will likely face increasing competition for low-skilled workers from hospitality, retail, and other service sectors.

• Approaches
  • Introduce students to wide range of healthcare careers early (K-12) through mentorship and experiential learning
  • Recruit students from rural and underserved communities
  • Provide training opportunities in rural and underserved communities
  • Expand healthcare apprenticeships especially in primary care and long-term care
Issue #3: Retention

• Challenges
  • **High turnover** especially in long-term care in part due to disability and tough work environment
  • **Unclear career pathways** especially for low-skilled workers
  • **Low pay** in part due to limited leverage to negotiate higher reimbursement rate

• Approaches
  • Clarify benefits/advantages of working in healthcare
  • Develop career advancement opportunities with clear pathways and training support
  • Provide security net (e.g., insurance, food support, transportation) especially for part-time workers and “gig” workers