Primary Care workforce implications of new models of care

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Workforce Analysis as Usual

• Assume we want to continue today’s production function for health care, more or less
  – Same number of providers of each type per unit population

• Look at the pipeline
  – Trainees
  – Providers exiting workforce

• Account for demographic trends

• Voila! Shortage, surplus, or just right
Medical Homes: Changing the Health Care Production Function

• Key medical home components:
  – Better teamwork within practices
  – Greater coordination in “medical neighborhood”
  – New capital investment
  – Reallocation of provider effort

• Complex relationships possible between provider quantity, skills, and activities

• Argues for a broader view of what “workforce analysis” might include
Medical Home Production Function

Primary care practices

- Physicians
- NPs
- Clinical staff
- Capital investments

Specialists, hospitals, and other providers

Activated patients

Efficient, high-quality, patient-centered care
Better Teamwork May Change “Right Mix”

Primary care practices

- Physicians
- NPs
- Clinical staff
- Capital investments

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Efficient, high-quality, patient-centered care
Better Coordination: Lesser Need for Specialist and Hospital Care?

Primary care practices

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Efficient, high-quality, patient-centered care
New Capital: Substitute for Labor?

Primary care practices

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- Specialists, hospitals, and other providers
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Efficient, high-quality, patient-centered care
Controversies in provider laborforce forecasting

• Widely differing assumptions about...
  – Trends in specialty choice
  – Effect of growth in insurance coverage
• HRSA (2008): 7,000 PCP surplus in 2020
• AAMC (2013): 45,000 PCP shortage in 2020

Most forecasting models have one major assumption in common:

The number of physicians required to care for a given population is fixed
What if new models change the numbers of providers needed to care for a population?

- New models of care may use different staffing
  - Patient-Centered Medical Homes (PCMH)
  - Nurse Managed Health Centers (NMHC)

Our approach:

1. Estimate how new models are staffed
   - Physician (MD/DO), Nurse Practitioner (NP), Physician’s Assistant (PA)

2. If different: project provider demand (use) if these models become more prominent

3. Compare implied provider demand to projected provider supply
1. How does staffing of new models differ?

Data sources

• Patient-Centered Medical Home (PCMH)
  – Literature survey
    • Advisory board study
  – Data from Pennsylvania Chronic Care Initiative
    • >100 practices in PA (54 currently analyzed with complete data) received extra payments to improve NCQA medical home scores
    • RAND evaluation supported by Commonwealth Fund

• Nurse-Managed Health Center (NMHC)
  – Own survey of convenience sample of ~25 NMHCs
Medical home staffing
(provider mix and panel size)

– Advisory Board survey
  • Self-designated medical homes use 20% more NPs per MD/DO and 10% more PAs, relative to control practices
  • Panel sizes similar but Medical Homes expect to grow 20%

– Other literature
  • Medical homes appear to have smaller panel size

– Pennsylvania survey
  • Define medical homes two ways (structure/process):
    – Quality tools index (e.g. reminders for chronic disease)
    – Access index (e.g. extended-hours care)
  • Compare staffing as a function of ‘medical home-ness’
# Pennsylvania PCMH staffing mix

<table>
<thead>
<tr>
<th>Internal staffing ratio</th>
<th>Number of sites</th>
<th>Initial (NP + PA) per MD/DO</th>
<th>Final (NP + PA) per MD/DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites with a large improvement in medical home quality index</td>
<td>33</td>
<td>0.39</td>
<td>0.57</td>
</tr>
<tr>
<td>Sites with little or no improvement in medical home quality index</td>
<td>21</td>
<td>0.39*</td>
<td>0.45</td>
</tr>
<tr>
<td>Sites with a large improvement in medical home access index</td>
<td>33</td>
<td>0.24</td>
<td>0.33</td>
</tr>
<tr>
<td>Sites with little or no improvement in medical home access index</td>
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<td>0.24*</td>
<td>0.29</td>
</tr>
</tbody>
</table>

*The ‘initial’ number of NPs and PAs per MD/DO was renormalized (proportionally) to the same level as the other sites to make figures more comparable*
NMHC staffing

• Of 25 practices with complete data:
  – Typical NP panel sizes are ~1000
  – Staffing ratio: for a 10,000 patient panel:
    • 10 NPs
    • 1 MD
    • 7 MAs
    • 5 RNs
    • 0 PAs
  – MDs appear more likely present in states with restrictive NP scope of practice
**Model staffing per 10,000 US residents**

Assumptions:
- PCMH uses ~10% more NPs and PAs per MD/DO (medium uncertainty)
- PCMH panel sizes are roughly the same as non-PCMH (high uncertainty)
Supply vs demand projections

• Demand for primary care providers increases 8%
  – Population aging (6%, Martini et al, HSR, 2007)
  – Affordable Care Act (2%, CBO “Key Issues…”, 2008)

• Default modeling assumptions
  – Use staffing provider mix as shown
  – Vary (in alternative forecasts)
    • Growth of PCMH (~15% of primary care today)
    • Growth of NMHC (~0.5% of primary care today)
    • PCMH panel size (very uncertain)

• Compare demand to projected supply
Current and projected primary care supply

PCP from HRSA, Colwill et al (2008); NP from Auerbach (2012); PA from recent enrollment trends
Shortage forecasts

• Primary care provider supply and demand scenarios
Conclusions/questions

- Shortage projections are very sensitive to changes in primary care delivery models
  - Standard laborforce projections don’t account for changing models of primary care delivery
- Growth of the PCMH and NHMC models would ameliorate projected provider imbalances
- Physician shortage/surplus projections are also highly dependent on PCMH panel size
- Physician shortages can be eliminated under various reasonable scenarios without modifying the current “training pipeline” for physicians
Variation in PCMH panel sizes

• Altschuler et al (2012): Ideal panel sizes can vary between 1,387 and 1,947 per physician based on degree of delegation of tasks to non-clinicians

• Group Health Cooperative: Medical home transformation reduced panel sizes 23%

• Rushika Fernandopoulle: Lessons from Iora Health suggest panel sizes could be doubled by maximizing use of technology, etc.