An Analysis of Primary Care Physician Workforce in Rural and Frontier Counties in Kansas

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Lay of the land
Kansas RUCA Map

Urbanized Area
Other Urban Area
Large Rural Core
Other Large Rural
Small Rural Core
Other Small Rural
Isolated Rural

Kansas
Kansas City
Wichita
Kansas Physician Workforce is OK…Right?

• When analyzing the overall picture for workforce in Kansas there are many positive findings
• Overall Primary Care workforce is growing
• The University of Kansas School of Medicine (KUSOM) has been consistently in the top 10th percentile for producing physicians working in rural areas. (AAMC Mission Management, 2016)

• KUSOM is one of the top schools in producing Students that match in Family Medicine. (Fam Med. 2015 Oct;47(9):712-6)
• The match is favorable for Family Medicine
AAMC Kansas Physician Workforce Profile

Kansas 40th
Kansas is a Primary Care State

Figure 1.4. Active Patient Care Primary Care Physicians per 100,000 Population by Degree Type, 2014

Kansas 35th
Other AAMC Workforce Data

- At the median for Female Physicians
- 32nd for total active physicians
- 23rd for physicians over 60
- 24th for number of medical students/100k
- 6th for number in public schools/100k
- 20th for in-state matriculation (70.8%)
- 25th for number of GME/100k
- 27th for UME/GME ratio
- 26th for UME retention (37.1%)
- 37th for GME retention (39.2%)
- 38th for UME-GME retention (57.2%)

2015 State Physician Workforce Data Book, Center for Workforce Studies; Nov 2015; https://members.aamc.org; Accessed 4-25-2016
Family Medicine Positions Offered and Filled in March 2006-2016

Source: National Resident Matching Program®
Advance Data Tables 2016
Kansas at the Center

• Basically we are at the center of physician workforce by the broader numbers
• We are excellent at training students wanting to work in rural places and family medicine.
• We are net exporters, compounding our workforce issues.
Kansas’ Future

• The Robert Graham Center, in a report about Kansas, states that we need 87 PCP in 2015 and a projection of 247 additional by 2030 for the state (adjusting for aging and population growth).
Storm on the Horizon
But there are problems…

• Taken as a whole, the state of Kansas is currently below the National Average for physicians per 100,000 population at 203 (US = 246)
• There is significant maldistribution in Kansas with many rural and frontier counties that are significantly underserved
• Kansans are aging in place
• Populations in rural areas are decreasing
• Local economies are strained
• County Health Care Systems are being stressed by current payment systems with 31 Kansas hospitals at risk for closure.
And then there are severe issues…

- In 2014, there are 7 counties in Kansas without a physician.
- There are now 38 rural and frontier counties in Kansas with less than 2 PCP-FTE to cover the entire county. Up from 29 in 2004.
Primary Care Physician Workforce

- Public reports by the Kansas Department of Health and Environment, Office of Primary Care & Rural Health.
- Study of the Primary Care Physician Fulltime Equivalent (PCP-FTE) for a 10 year period from 2004 – 2014.
Methods

• Published reports from KDHE on Physician Shortage Areas from 2004 to 2014 were compared and entered into a spreadsheet for examination of the county level changes in PCP-FTE.
• We correlated these changes with their Population Density Peer Groups.
• We then correlated the trends over time with the current PCP-FTE in the county to give the number of physicians needed to avoid a workforce crisis in each county.
• We also examined the ratio of population per PCP-FTE to determine the deviation from ideals.
Total PCP-FTE Counts for Kansas 1999-2014
Age Histogram of Frontier, Rural and DSR PCP in Kansas

Average age of retirement:
- Age over 65: 108
- Age over 55: 268
- Average Age: 51
- Max Age: 87
- Min Age: 30
What else is going on?

• Need to get granular
• Understand dynamics of small rural practice
## Population Peer Density Groups

<table>
<thead>
<tr>
<th>Peer Density Group</th>
<th>Criteria (pop/sqmi)</th>
<th>Number of Kansas Counties in Group</th>
<th>Number with &lt; 2.0 PCP-FTE in 2004</th>
<th>Counties that Lost more than 0.5 PCP-FTE over 10 years</th>
<th>Overall Net FTE Loss or Gain over 10 years</th>
<th>Number needed to get at least 2 FTE/CTY</th>
<th>FTE needed to get to KS Ave (1930:1)</th>
<th>FTE Needed to not be underserved (2695:1)</th>
<th>FTE to replace 10 yr losses (losing counties only)</th>
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</thead>
<tbody>
<tr>
<td>Frontier</td>
<td>&lt;6</td>
<td>36</td>
<td>22</td>
<td>11</td>
<td>-3.41</td>
<td>26</td>
<td>18</td>
<td>10</td>
<td>19</td>
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<tr>
<td>Rural</td>
<td>6-19.9</td>
<td>31</td>
<td>7</td>
<td>12</td>
<td>-7.01</td>
<td>5</td>
<td>28</td>
<td>15</td>
<td>21</td>
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<tr>
<td>DSR</td>
<td>20-39.9</td>
<td>22</td>
<td>0</td>
<td>12</td>
<td>-16.11</td>
<td>0</td>
<td>48</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Semi-Urban</td>
<td>40-149.9</td>
<td>10</td>
<td>0</td>
<td>7</td>
<td>-19.02</td>
<td>0</td>
<td>40</td>
<td>10</td>
<td>32</td>
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<tr>
<td>Urban</td>
<td>&gt;150</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>58</td>
<td>0</td>
<td>30</td>
<td>0</td>
<td>4</td>
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<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>105</td>
<td>29</td>
<td>43</td>
<td>12.5</td>
<td>31</td>
<td>164</td>
<td>56</td>
<td>98</td>
</tr>
</tbody>
</table>
Is there a relationship between lower PCP-FTE and gains or loss?

Frequency Distribution of Cumulative PCP-FTE change related to the beginning PCP-FTE peer group
No correlation
But when we look at beginning FTE values less than 6.5

Average Annual Change vs Starting PCP-FTE Range

$p=0.96$
Deviation from Kansas Average vs the 10 yr Change in PCP-FTE in Frontier and Rural Counties
Practice Instability

• 38 counties in 2014 have 2 or less physicians, 10 years ago that number was 29.

• In general counties with 2 physicians or less have instability in their health care system in the long term.

• These counties are susceptible to a single accident or injury leaving the remaining physician to provide solo coverage for an entire county.
Case 1

- Greeley county suffered the loss of one of its physicians in a private plane crash.
- There were 2.5 physicians
  - One worked half time
  - They provided OB services
  - They staffed a satellite clinic in an adjacent county that had no physicians
- After the accident the remaining physician has been on constant call
- They stopped providing OB
- They stopped the satellite clinic
Case 2

- Sheridan County Kansas lost one of its two physicians
- The other struggled for 4-5 years and ultimately quit practice
- The hospital closed for acute admissions and has a long-term care that remains open
Case 3

- Cheyenne County lost one of its 2 physicians.
- The other practiced solo for 5 years
- Stopped OB after 3 years
- Recruited another physician then stayed for 6 months and left for the west coast.
- The remaining physician recently recruited a partner and they started OB again.
Granularity is Needed

- County level workforce analysis is needed to understand the level of physician need.
- Special attention to small 1-2 physician practices is needed to avoid a health care crisis in frontier and rural areas.
- State average for PCP-FTE shows that it actually increased slightly at 12.5 FTE
  - But there were substantially more physicians going to urban areas (58)
IN 2014 26 counties have 1-2 Physicians and 9 (35%) have physicians that are over 65
Summary

- Kansas would need 31 additional PCP-FTE to have at least 2 physicians per county.
- Would need 98 PCP-FTE to replace all loses in the last 10 years.
- Kansas is projected to lose 30% (268) of its rural and frontier PCP workforce due to retirement in the next 10 years.
National Level Data

• Kansas is at the median for most workforce markers
• Using state level numbers grossly underestimates the frontier and rural needs.
  – Graham Center est. for next 10 years = 190
• Using straight ratios misses the effect of instability and unsustainability in counties with 2 or less physicians
Best Estimates w County Data

62 to replace just the losses from last 10 years
31 to get at least 2 physicians per county
268 to replace retirement attrition over next 10 years

361 New PCP-FTE in the next 10 years in Frontier, Rural and DSR Kansas!
Bottom-line

• Kansas’ rural and frontier PCP workforce is, as predicted, heading for significant strains in the next several years.
• The issue is further compounded by maldistribution of the primary care physician workforce.
• Over the past 10 years frontier and rural workforce has declined to unsustainable levels in 38 of 105 counties.
• Kansas will need to consider policies to address the shortcomings expected due to the unsustainable nature of rural and frontier practices with less than two physicians.
• Current reporting and modeling of workforce in Kansas does not have the granularity to predict these needs.
References

- KDHE Office of Primary Care and Rural Health; Primary Care Health Professional Underserved Areas Report, 2004-2014; http://www.kdheks.gov/olrh/rural.html
- 2015 State Physician Workforce Data Book, Center for Workforce Studies; Nov 2015; https://members.aamc.org; Accessed 4-25-2016