Modeling the Supply & Demand of Florida’s Physician Workforce: 2013-2025

SNHAF Study Findings

July 18, 2014
Presentation Overview

- Study goals
- Executive summary
- Modeling methods and results
  - Physician demand
  - Physician supply
- Summary of key findings and conclusions
- Study strengths and limitations
- Potential next steps
- Q&A
Study Goals

• Obtain an accurate picture of the current and projected future adequacy of physician supply in Florida through 2025
  – Impact of pipeline and supply determinants
  – Impact of changing demographics on demand
  – Impact of the Affordable Care Act
  – Impact of other trends affecting care use and delivery

• Identify current or projected future gaps between supply and demand (supply compared to national average level of care)
  – By individual specialty
  – By specialty categories
    • Traditional (core) primary care: family practice, general internal medicine, pediatrics, geriatric medicine
    • Expanded primary care: core specialties + general surgery, emergency medicine, ob-gyn
    • Non-primary care specialties
Key Finding #1: Moderate Shortfall of Physicians Projected to Persist if Current Trends Continue

- Florida has estimated 11% shortfall of physicians
- Supply growing at slightly faster rate than demand (29% vs 24%)
- By 2020, project 7% shortfall
Key Finding #2: Small Primary Care Physician Shortfall, but Supply & Demand Converging

- Florida has current small shortfall of primary care physicians
  - 6%-expanded
  - 3%-traditional
- Supply and demand converging
  +2%-expanded
  +5%-traditional
Key Finding #3: Continued Shortfall of Specialists

- Florida’s current shortfall (18%) of non-primary care specialties will likely persist
- 19% shortfall in 2025
Key Finding #4: Large Shortfalls Projected for Some Specialties by 2025

- Psychiatry: Demand 3,340, Supply 2,150
- General Surgery: Demand 2,170, Supply 1,450
- Radiology: Demand 3,150, Supply 2,450
- Cardiology: Demand 2,420, Supply 1,930
Overview of Modeling Approach

• Study used state-of-the-art microsimulation models
  – Healthcare Demand Microsimulation Model
  – Health Workforce Supply Model
• Models are used to develop projections for approx. 40 health professions for the federal Bureau of Health Professions
• Models used to support workforce studies for other states, professional associations, hospital systems
• Published information on the models
  – *Health Affairs* (2013): An Aging Population and Growing Disease Burden will Require a Large and Specialized Health Care Workforce by 2025
  – *Journal of Women's Health* (2013): Estimated Demand for Women's Health Services by 2020
• Models adapted to Florida using Florida-specific data where available
Conceptual Model for Projecting Physician Demand

Utilization Patterns
Relationship between patient characteristics and health care use

Population Database
Demographic, socioeconomic, & health risk factors

External Factors
Trends or changes in policy, prices, economic conditions, technology

Service and Product Demand

Hospital
Inpatient Days
By diagnosis category
Emergency Visits
By diagnosis category

Ambulatory
Provider Office Visits
By occupation/specialty
Outpatient Clinic Visits
By occupation/specialty
Dentist Office Visits
By occupation/specialty

Post-acute/Long Term
Nursing Facilities
Residential Care
Home & Hospice Visits
By occupation

Staffing Patterns
By occupation/specialty & setting

Health Workforce Demand
By occupation/specialty and setting

Other Employment
Public health
School health
Academia
Other
Microsimulation Approach for Modeling Physician Demand

• Individual patients are the unit of observation
  – Predict use of health care services by individual
  – Determine how care will be provided to individuals
  – Sum across individuals to produce aggregate statistics

• Approach
  – Develop population health database with health profile for representative sample of the population
  – Develop predictive equations to model health care use using regression analysis
  – Translate health care encounters into demand for physicians
    • Use data on how physicians divide their time between care delivery settings and patient encounters to create estimates of patient encounters per full time equivalent physician
Health Profile for Each Person in Stratified Random Sample

Demographics & Socioeconomics
• Demographics
  – Age
  – Sex
  – Race/ethnicity
• Socioeconomics
  – Household income
  – Insurance (private, public non-Medicare, Medicare, uninsured)

Risk Factors & Chronic Conditions
• Obese/overweight*
• Smoking status *
• Diagnosed with
  – Hypertension *
  – High cholesterol *
  – Coronary heart disease *
  – Diabetes *
  – History of stroke *
  – History of cancer *
  – Asthma
  – Arthritis *

Key Data Sources
• Florida’s official population projections (2012-2025)
• Center for Disease Control and Prevention: Behavioral Risk Factor Surveillance System (2011-2012 data for Florida)
• Census Bureau: American Community Survey (2012 data for Florida)

* Information available for adults only

The Source for Critical Information and Insight™
Example: Healthcare Utilization for Cardiologist and Cardiology-Related Services

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Office Visits(^1)</th>
<th>Outpatient Visits(^1)</th>
<th>Emergency Visits(^2)</th>
<th>Hospitalization(^2)</th>
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<tr>
<td><strong>Race-Ethnicity</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Hispanic</td>
<td>0.78**</td>
<td>0.67**</td>
<td>1.02**</td>
<td>0.86**</td>
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<td>0.97**</td>
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<td>1.00</td>
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<td></td>
<td></td>
</tr>
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<td>Male</td>
<td>1.13**</td>
<td>1.62**</td>
<td>0.92**</td>
<td>0.99</td>
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<tr>
<td>18-34 years</td>
<td>0.13**</td>
<td>0.12**</td>
<td>0.45**</td>
<td>0.25**</td>
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<tr>
<td>35-44 years</td>
<td>0.32**</td>
<td>0.59**</td>
<td>0.84**</td>
<td>0.53**</td>
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<tr>
<td>45-64 years</td>
<td>0.53**</td>
<td>0.72**</td>
<td>0.83**</td>
<td>0.69**</td>
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<tr>
<td>65-74 years</td>
<td>0.88**</td>
<td>1.35**</td>
<td>0.91**</td>
<td>0.90**</td>
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<tr>
<td>75+ years</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td><strong>Smoker</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.77**</td>
<td>0.62**</td>
<td>0.97</td>
<td>0.95</td>
</tr>
<tr>
<td>Non-Hispanic black</td>
<td>1.34**</td>
<td>1.31**</td>
<td>2.50**</td>
<td>1.91**</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>7.03**</td>
<td>6.37**</td>
<td>2.60**</td>
<td>3.30**</td>
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<tr>
<td><strong>Diabetes</strong></td>
<td>1.81**</td>
<td>1.51**</td>
<td>1.08**</td>
<td>1.25**</td>
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<tr>
<td><strong>History of heart attack</strong></td>
<td>1.07**</td>
<td>0.80**</td>
<td>2.38**</td>
<td>2.53**</td>
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<tr>
<td><strong>Arthritis</strong></td>
<td>1.04**</td>
<td>1.06**</td>
<td>1.05</td>
<td>1.09**</td>
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<tr>
<td><strong>History of cancer</strong></td>
<td>1.15**</td>
<td>0.83**</td>
<td>0.93**</td>
<td>0.91**</td>
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<tr>
<td><strong>Insured</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Medicaid</strong></td>
<td>1.29**</td>
<td>1.59**</td>
<td>1.57**</td>
<td>1.42**</td>
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<tr>
<td><strong>Garment</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>&lt; $10,000</td>
<td>0.89**</td>
<td>0.64</td>
<td>1.66**</td>
<td>1.53**</td>
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<tr>
<td>$10,000 to &lt; $15,000</td>
<td>0.83**</td>
<td>0.64**</td>
<td>1.36**</td>
<td>1.51**</td>
</tr>
<tr>
<td>$15,000 to &lt; $20,000</td>
<td>0.85**</td>
<td>0.86**</td>
<td>1.10**</td>
<td>1.28</td>
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<tr>
<td>$20,000 to &lt; $25,000</td>
<td>0.93**</td>
<td>0.39**</td>
<td>1.35**</td>
<td>1.32</td>
</tr>
<tr>
<td>$25,000 to &lt; $35,000</td>
<td>0.88**</td>
<td>0.78**</td>
<td>1.56**</td>
<td>1.36**</td>
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<tr>
<td>$35,000 to &lt; $50,000</td>
<td>1.03**</td>
<td>0.69**</td>
<td>1.17**</td>
<td>1.16**</td>
</tr>
<tr>
<td>$50,000 to &lt; $75,000</td>
<td>0.99</td>
<td>0.80**</td>
<td>1.06**</td>
<td>1.09**</td>
</tr>
<tr>
<td>$75,000 or higher</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td><strong>Body Weight</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not available</td>
<td>0.80**</td>
<td>0.89**</td>
<td>2.26**</td>
<td>1.98</td>
</tr>
<tr>
<td>Normal</td>
<td>0.97**</td>
<td>0.97</td>
<td>1.14**</td>
<td>1.02</td>
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<tr>
<td>Overweight</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Obese</td>
<td>1.04**</td>
<td>0.69**</td>
<td>1.09**</td>
<td>1.12</td>
</tr>
<tr>
<td>Metro area</td>
<td>1.35**</td>
<td>0.94**</td>
<td>1.04</td>
<td>0.93</td>
</tr>
</tbody>
</table>
Projected Growth in Service Demand by Setting and Source

- Across care settings growth in service demand from changing demographics and ACA will impact Florida more than the U.S. by 2025

<table>
<thead>
<tr>
<th>Care Setting</th>
<th>Growth from Changing Demographics</th>
<th>Growth from Insurance Coverage Expansion under ACA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Florida</td>
<td>U.S.</td>
</tr>
<tr>
<td>Office visits</td>
<td>19%</td>
<td>14%</td>
</tr>
<tr>
<td>Outpatient visits</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>Emergency visits</td>
<td>17%</td>
<td>12%</td>
</tr>
<tr>
<td>Hospital inpatient days</td>
<td>27%</td>
<td>23%</td>
</tr>
</tbody>
</table>
Projected Service Demand by High Growth Specialty/Setting

- High projected growth by 2025 in service demand across care settings for specialties treating a growing and aging population

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Hospital Inpatient Days</th>
<th>Emergency Visits</th>
<th>Physician Office Visits</th>
<th>Outpatient Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geriatric medicine</td>
<td>40%</td>
<td></td>
<td>42%</td>
<td>42%</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>30%</td>
<td>23%</td>
<td>25%</td>
<td>21%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>30%</td>
<td>22%</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>27%</td>
<td>19%</td>
<td>23%</td>
<td>25%</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>30%</td>
<td>17%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Oncology</td>
<td>24%</td>
<td>19%</td>
<td>22%</td>
<td>21%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>27%</td>
<td>16%</td>
<td>21%</td>
<td>19%</td>
</tr>
<tr>
<td>Nephrology</td>
<td>35%</td>
<td></td>
<td>24%</td>
<td>23%</td>
</tr>
<tr>
<td>Allergy &amp; Infectious Diseases</td>
<td>30%</td>
<td>15%</td>
<td>17%</td>
<td>20%</td>
</tr>
<tr>
<td>Orthopedic Surgery</td>
<td>29%</td>
<td>17%</td>
<td>20%</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Total Growth (all specialties)</strong></td>
<td><strong>27%</strong></td>
<td><strong>17%</strong></td>
<td><strong>19%</strong></td>
<td><strong>20%</strong></td>
</tr>
</tbody>
</table>
Statewide Projected Physician Demand by Specialty

- Projected growth in physician demand is highest for geriatric medicine (41%) and vascular surgery (33%)
- In absolute terms growth is highest for internal medicine (2,050 FTEs) and general and family practice (1,560 FTEs)
Projected Growth in Florida Primary Care Physician Demand (2013-2025)

- Changing demographics will influence demand growth for primary care specialties (12%-41%) more than ACA insurance expansion (0%-7%)
Projected Growth in Florida Specialist Demand (2013-2025)

- ACA demand impact for non-primary care specialties (2%-8%); changing demographics (17%-32%)
Conceptual Model for Projecting Physician Supply

- Microsimulation model, individual physicians are unit of analysis
- Primary data source: combined 2009-2013 Physician Workforce Licensure Surveys administered by Florida DOH
Demographics of Current Statewide Physician Supply: 2013

- 42,610 licensed and active physicians
  - 21,830 (51%) in primary care (using expanded definition*)
  - 20,780 (49%) in non-primary care specialties
- Gender
  - 31,530 (74%) males
  - 11,080 (26%) female

* Includes general and family practice, general internal medicine, general pediatrics, geriatric medicine, general surgery, obstetrics and gynecology, and emergency medicine.
Annual New Entrants to Florida’s Physician Workforce

• Estimated 2,230 new physicians entered FL workforce in 2013
  – Includes physicians completing residency/fellowships, and physicians moving into Florida from other states
  – 1,220 (55%) in primary care specialty (expanded definition)
  – 1,010 (45%) in non-primary care specialty
• Gender
  – 1,450 (65%) males
  – 780 (35%) females
• Age Distribution
  – Most new entrants enter the workforce in their late thirties and early forties

Age Distribution of New Entrants

The Source for Critical Information and Insight™
Florida Physician Workforce Attrition

- On average, about 1,080 Florida physicians will retire annually between 2013-2025
- Male/female physicians have similar attrition patterns
- Variation by specialty
- Sources:
  - FL licensure survey question: “Intend to retire in next 5 years?”
  - CDC mortality rates
Florida Physician Outmigration

- Based on analysis of 2012 & 2013 FL Licensure Survey, asks respondents if they plan to relocate to another state within the next five years.
- Probability of outmigration is highest for younger physicians; slightly higher for men versus women.
Physician Average Weekly Patient Care Hours Worked (Cont.)

- Average patient care hours worked differ by gender, age, specialty

**Primary Care (expanded def)**

**Non-Primary Care**
Supply Projection Scenarios vs Demand

- Future growth in physician supply is modeled under seven scenarios varying retirement patterns, hours worked and numbers of new entrants.
Summary and Conclusions

- Current overall shortage likely to persist, but narrowing
  - Demand growth: 47,230 to 58,660 (+11,430, 24%)
  - Supply growth: 42,610 to 53,970 (+12,360, 29%)
  - Specialty mix might need adjusting

- Current and projected demand exceeds supply for many medical specialties in Florida
  - Supply of core primary care specialties (family practice, GIM, pediatrics, geriatric medicine) currently short by 3% to provide a “national average” level of care; supply growing faster than demand → 5% excess by 2025
  - Supply of specialists growing slightly slower than demand (23% vs 25%); current shortages likely to persist for many specialties
Summary and Conclusions, cont.

- Adequacy of supply varies by specialty
  - Dermatology, pediatrics, plastic surgery supply looks more than adequate at state level to provide national average level of care
  - Psychiatry, neurology, endocrinology, other specialties have large, persistent shortfalls
  - Some specialties in Florida are difficult to assess because there could be demand factors unique to Florida
    - Examples: Emergency care, critical care/pulmonology, dermatology
    - Unique factors: “Snowbirds”, large number of tourist, climate/sun exposure
Conclusions, cont.

• Demographic trends will increase physician demand in Florida more so than the U.S.

• Florida’s efforts to attract and retain physicians come at a time when other states are pursuing similar efforts
  – Florida will face increased competition from other states with growing and aging populations to attract and retain physicians

• Potential competition heightens the need to better understand the drivers of future trends in physician supply, including:
  – Growth in annual numbers of newly licensed physicians which increased 57% between 2007 and 2013 (from 2,610 to 4,100)
  – Factors influencing physician in- and out-migration and residency choice decisions
  – Growth in medical school and GME/residency training capacity
Study Strengths and Limitations

• Strengths
  – **Robust supply and demand data**: used detailed and recent Florida-specific workforce and population data
  – **Models and modeling approach**: microsimulation models represent latest approaches for workforce modeling
    • Models used to support federal government’s projections; used by professional associations; used by hospital systems for community needs assessments

• Limitations
  – **Supply and demand data gaps**: Data is needed to assess factors influencing Florida’s ability to attract and retain physicians and how care delivery patterns might change in response to evolving market factors
  – **Statewide versus local adequacy of supply**: Study focus at the state level; substantial geographic variation in access to care
  – **The non-physician workforce**: Understanding adequacy of physician supply should be considered within context of physician extender workforce
  – **Emerging care delivery models**: Care use and delivery patterns will evolve over time
Potential Future Workforce Modeling Initiatives

- Future workforce modeling initiatives to consider
  - Forecasting future demand for healthcare services and selected physician specialties by other geographic areas
    - Hospital/health system service area to support community health needs assessments and strategic planning
    - Developing physician supply and demand projections by county and/or Florida Medicaid Region
  - Projecting demand for selected physician specialties under emerging care delivery models of interest
    - Accountable Care Organizations, Patient Centered Medical Home, Team-based care
  - Forecasting future state-wide and/or county-level demand for other health professions such as physician extenders, nurses, etc.

- Supply and demand projections should be updated every few years to reflect latest trends and data
IHS Workforce Study Team

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- April Semilla, Consultant
- Will Iacobucci, Consultant