Graduate Medical Education: Will Supply Meet Demand?

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“If you don’t know where you are, you don’t know who you are”

• Quote from Wendell Berry, who settled to write on the bank of the Kentucky River, where he grew up and where his family lived for many generations.

• Wallace Stegner wrote in *The Sense of Place*: “a place is not a place until people have been born in it, have grown up in it, lived in it, known it, died in it – have both experienced and shaped it…”
My Idaho Connection
“America changes fastest west of the 100th meridian. Mining booms, oil booms, irrigation booms, tourist booms, culture booms as at Aspen and Sun Valley, crowd out older populations and bring in new ones.”

“Many western towns never lasted a single human lifetime. Many others have changed so fast that memory cannot cling to them; they are unrecognizable to anyone who knew them twenty years ago.”

Wallace Stegner
U.S. Physicians per Capita

Year

MDs to 100,000

1900
1930
1960
1980
2000
2010

175
125
140
202
276
283
U.S. Has Relatively Low Ratio of Practicing Physicians per 100,000 Population

Source: OECD Health Data 2009 (June 09)

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U.S. Faces Shortage of Physicians

- COGME, AAMC, AAFP, Cooper project shortages of between 124,000 and 159,000 physicians by 2025
- HRSA projects a deficit of 65,560 primary care physicians by 2020
- 2008 *JAMA* study projects additional 21,000 residency positions needed by next decade
- 33 states and 23 specialty groups already report shortages
Drivers of Future Demand for U.S. Physicians

- Population growth: 25 million/decade
- More elderly: Over 65s will double
- Better ability to treat serious illnesses
- More chronic diseases
- Unhealthy lifestyles
- Public expectations
- Surge of >32 million newly insured
Complexities of Physician Supply

Future Supply = (Current + New - Exiting) \times \text{Productivity}

# of Physicians \times \text{Work hours}

GME Slots

• Age/Retirement
• Economy
• Satisfaction

• Payment
• Regulation

• GME Policy & Reimbursement
• MD and DO Enrollment
• Debt and Specialty Choice
• IMGs and Immigration Policy

• Teams
• PAs, NPs
• Delivery systems
• HIT/EMR

• Regulations
• Payments
• Policies

Source: Modified from Center for Workforce Studies, March 2009
33 States Report Physician Shortages

- Illinois regional (2010)
- Vermont (2010)
- California (2009)*
- Missouri (2009)
- Montana (2009)
- New Jersey (2009)*
- Georgia (2008)
- Maryland (2008)
- Massachusetts (2008)
- Minnesota (2008)
- Nebraska (2008)
- Pennsylvania (2008)
- Wyoming (2008)
- Colorado (2007)
- Idaho (2007)
- Indiana (2007)
- Iowa (2007)
- Kentucky (2007)
- North Carolina (2007)*
- Virginia (2007)*
- Alaska (2006)
- Michigan (2006)*
- Nevada (2006)
- New Mexico (2006)
- Utah (2006)
- Arizona (2005)
- Florida (2005)
- Hawaii regional (2005)
- Oregon (2004)
- Mississippi (2003)
- Texas (2002)

*Predict shortages in 4-15 years

Source: AAMC 2011
Health Professional Shortage Areas (HPSA) - Primary Health HPSA Clinician Priority Scores

HPSA Scores
- 19 - 25
- 14 - 18
- 8 - 13
- 1 - 7
- Proposed Withdrawal or No Data Provided

HPSA Scores are developed for use by the National Health Service Corps in determining priorities for assignment of clinicians.

Scores range from 1 to 25.

Higher scores equal greater priority.

Source: Health Resources and Services Administration - HRSA, Bureau of Health Professionals; October 4, 2010.

Note: Alaska and Hawaii not shown to scale
• “Plunging into the future through a landscape that had no history, we did both the country and ourselves some harm along with some good.”

• “Neither the country nor the society we built out of it can be healthy until we stop raiding and running, and learn to be quiet part of the time, and acquire the sense not of ownership but of belonging.”

Wallace Stegner
Monitoring Distribution: State and Nation Faces Shortage of General Surgeons
GME Positions by State

Residents per 100,000 population

E. WA – 6.8 per 100,000
More Physicians Approaching Retirement Age

Number of Physicians Reaching Age 63

25,000 Physicians Enter Training Each Year

Source: AMA Physician Masterfile (January 2008).
One in Three Would Retire Today if They Could Afford to

Percent of active physicians over 50 who would retire today, by age

Source: 2006 AAMC/AMA Survey of Physicians 50 and Over.
Percentage of Women in Medicine is Rising Steadily

- **Medical School Graduates**
  - 1980: 23%
  - 1985: 29%
  - 1990: 34%
  - 1995: 39%
  - 2000: 42%
  - 2002: 44%
  - 2003: 45%
  - 2004: 46%
  - 2005: 47%

- **Practicing MDs**
  - 1980: 10%
  - 1985: 13%
  - 1990: 15%
  - 1995: 20%
  - 2000: 23%
  - 2002: 24%
  - 2003: 27%
  - 2004: 28%
  - 2005: 29%
Gender Matters: Work-Life Balance is More Important than Income for Women

<table>
<thead>
<tr>
<th>BALANCE</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time for family/personal life</td>
<td>66</td>
<td>82</td>
</tr>
<tr>
<td>Flexible scheduling</td>
<td>26</td>
<td>54</td>
</tr>
<tr>
<td>No / limited on call</td>
<td>25</td>
<td>44</td>
</tr>
<tr>
<td>Minimal practice mgmt resp</td>
<td>10</td>
<td>18</td>
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<table>
<thead>
<tr>
<th>CAREER/INCOME</th>
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<tbody>
<tr>
<td>Practice income</td>
<td>43</td>
<td>33</td>
</tr>
<tr>
<td>Long term income potential</td>
<td>45</td>
<td>36</td>
</tr>
<tr>
<td>Opportunity to advance professionally</td>
<td>29</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: AAMC/AMA 2006 Survey of Physicians Under 50
Physician Shortage Summary

- Physicians per capita will decrease
- Population growing; elderly will double
- People live longer; more chronic illnesses
- Elderly need more medical specialty care
- Best prevention will not eliminate disease, only delay it
25,059 Enter GME Training in ACGME and AOA Programs

Source: AOA 2006; ACGME 2007.
Growth in Medical School Enrollment Comes from New and Existing Schools

30% Target = 21,434

Source: AAMC 2011
Allopathic (M.D.) School Growth  Source: AAMC and AMA Physician Masterfile
Unmatched Seniors, Unfilled Positions 2002-2011

Unfilled PGY-1 Positions

U.S. Seniors Unmatched to PGY-1 Positions
## Unmatched Applicants 2011 NRMP

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>971</td>
<td>Seniors, U.S. Allopathic Medical Schools</td>
</tr>
<tr>
<td>764</td>
<td>Previous Graduates, U.S. Allopathic Medical Schools</td>
</tr>
<tr>
<td>617</td>
<td>Students/Graduates, Osteopathic Medical Schools</td>
</tr>
<tr>
<td>0</td>
<td>Students/Graduates of Canadian Medical Schools</td>
</tr>
<tr>
<td>1,885</td>
<td>U.S. Citizen Students/Graduates of International Medical Schools</td>
</tr>
<tr>
<td>3,938</td>
<td>Non-U.S. Citizen Students/Graduates of International Medical Schools</td>
</tr>
</tbody>
</table>
Are core training programs expanding enough to meet our nation’s needs?
Graduate Year One Residents (GYIs) and Residents Completing any GME Program 2001-2010

Completed any GME Program (14.5% increase)

GY1s (14.6% increase)
ACGME Accredited Program Growth
Number of Programs, 2001 - 2008

Source: ACGME 2010.
Residents Completing a Core Program (Including Medicine/Pediatrics) 2001-2010
No Growth in Obstetrics/Gynecology, General Surgery and Psychiatry Graduates 2001-2010
Hospital-based Core Specialties Showing Significant Growth 2001-2010

Anesthesiology (24% increase)

Emergency Med (28.3% increase)

Diagnostic Radiology (33.1% increase)
No Growth in Obstetrics/Gynecology, General Surgery and Psychiatry Graduates 2001-2010

- Ob/Gyne (1% decrease)
- General Surgery (1% decrease)
- Psychiatry (15% decrease)
Hospital-based Core Specialties Showing Significant Growth 2001-2010

- Anesthesiology (24% increase)
- Emergency Med (28.3% increase)
- Diagnostic Radiology (33.1% increase)
Subspecialty Graduates Increased By More Than 50% 2001-2010
Minimal Growth in Core Specialty vs. Significant Growth in Subspecialty Graduates 2001-2010

- Completed Core Program (4.8% increase)
- Completed Subspecialty (53.7% increase)
Growth of Subspecialty Graduates 2001-2010

- Completed a Subspecialty (53.7% increase)
- Completed Internal Med Subspecialty (32.6% increase)
- Completed Non-IM Subspecialty (77% increase)
Growth of Subspecialty Graduates 2001-2010

Completed a Non-Internal Medicine Subspecialty (77% increase)

Completed Internal Medicine Subspecialty (32.6% increase)
Growth of Internal Medicine
Core vs. Subspeciality

389 Increase in Core Program Graduates

1013 Increase in Subspeciality Graduates
Attrition Rate of Residents by Specialty 2000-2009

Source: Pugno, PA. AAFP
Attrition Rate of Residents by Specialty 2000-2009

Rad 1.5% Otol 1.48% ER Med 1.46% Int Med 1.4% Orth Surg 1.4% Urol 1.4% Derm 1.21% Total 2.66%

Source: Pugno, PA. AAFP
What We Don’t Know, But Should

- Reasons for drop outs from core programs (withdrawal vs. dismissal, program transfers within specialty, changes of specialty)
- Issues of work-life balance, breaks in training, opportunities for re-entry
- Impact of economics (debt, future earnings)
- Flexibility to change specialty choice
- Impact of gender and generation
- Do residencies “weed out” incompetence
- Number practicing with incomplete training
# U.S. GME Required for Licensure

<table>
<thead>
<tr>
<th>GME Required</th>
<th>U.S. MDs and DOs</th>
<th>IMGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>50</td>
<td>4</td>
</tr>
<tr>
<td>2 years</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>3 or more years</td>
<td>4</td>
<td>28</td>
</tr>
</tbody>
</table>
“Let’s just start cutting and see what happens.”
23 Specialty Groups Report Shortages

- Urology (2011)
- Neurology (2010)
- Gastroenterology (2009)*
- Geriatric Medicine (2009)
- Thoracic Surgery (2009)*
- Public Health (2008)
- General Surgery (2007)
- Oncology (2007)*
- Pediatric Subspecialties (2007)
- Rheumatology (2007)
- Allergy and Immunology (2006)*
- Child Psychiatry (2006)
- Critical Care Workforce (2006)
- Family Medicine (2006)*
- Generalist Physicians (2006)
- Neurosurgery (2005)
- Cardiology (2004)
- Medical Genetics (2004)
- Anesthesiology (2003)
- Endocrinology (2003)
- Psychiatry (2003)
- Dermatology (2002)

Source: AAMC 2011, American Urological Assn, 2011
*Predict shortages in 5-14 years
Physicians, Non-physician Clinicians, and Other Health Workers, 1850-2010

Health Employment per 100,000 of Population

Adapted from Kendix and Getzen and the Bureau of Labor Statistics
Generalist vs. Specialists

Generalists

• Lower pay
• Lower prestige
• Broader knowledge
• Less control of work
• Front line
• Office based

Specialists

• Higher pay
• Higher prestige
• Newer toys
• More control of work
• Referral practice
• Hospital based

Is this true in all professions?
General vs. Specialist
Generalists Retains the Core Mission of Being a “Doctor”

- Know the patient in his/her social context
- Accept responsibility for patient’s care
- Lead teams of health care providers
- Manage patient’s multiple health problems
- Advise among competing interventions
- Especially needed among underserved
- Help to gain access to shortage specialties
- Essential skills during a disaster response
Stewardship of Resources

- A fundamental competency of physicians
- Starts with education and training of medical students, residents, and subspecialty fellows
- Emphasizes high value, cost-conscious care
- Avoids overuse and misuse of diagnostic tests and therapies
- Avoids duplication of studies
- Prevents unnecessary hospitalizations and avoidable re-admissions

Needs for GME Funding

• Expand GME positions to keep up with population growth, disease burden and medical school expansion

• Innovative training models to address community needs in contemporary models of health care (medical homes; ACOs; chronic care models, etc)

• Fund new and emerging GME costs (e.g. technology, duty hour limits, simulation, faculty development)
Strategies State/Regional Stakeholders can Embrace for Political Action

• Collect state physician data to support the need to expand GME in underserved areas
• Foster incentives for students to chose specialties/careers to meet societal needs
• Explore alternative sources for GME funding (e.g. private payers, new ACOs)
• Reward efficient, effective, and safe practices
• Engage public stakeholders
• Advocate for legislation and regulation to support medical workforce and GME initiatives
• Utilize AMA Advocacy Resource Center support for state-based initiatives
## State-based GME Strategies

<table>
<thead>
<tr>
<th>State</th>
<th>Strategy Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maryland</td>
<td>All payers contribute to GME</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>All-payer GME through “connector” insurance</td>
</tr>
<tr>
<td>New York</td>
<td>All-payer GME through DSH payments</td>
</tr>
<tr>
<td>Michigan</td>
<td>All-payer GME system on hold</td>
</tr>
<tr>
<td>Vermont</td>
<td>Moving toward single-payer; GME details not known</td>
</tr>
<tr>
<td>Texas</td>
<td>Legislation to balance GME slots with medical student growth; no funding</td>
</tr>
<tr>
<td>Montana/Idaho</td>
<td>Thinking of all payer for GME</td>
</tr>
</tbody>
</table>
## State-based GME Strategies

<table>
<thead>
<tr>
<th>State</th>
<th>Strategy or Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>State health-care planning discussions have included expanding GME</td>
</tr>
<tr>
<td>Kentucky</td>
<td>Advocated for all-payer GME system</td>
</tr>
<tr>
<td>Georgia</td>
<td>GME workforce summit included legislative leaders; may fund 500 slots</td>
</tr>
<tr>
<td>California</td>
<td>Drafted legislation to close a MediCal managed care loophole for GME funds</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Introduced legislation calling for a workforce study in 2011</td>
</tr>
<tr>
<td>New Mexico</td>
<td>Introduced health workforce legislation to include a workforce commission</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Medical licensure fees to cover workforce assessment and planning</td>
</tr>
</tbody>
</table>
AMA Federal Advocacy

• Recommended adequate, stable GME funding for Community Health Centers, NHSC and Title VII Programs in April letter to Congress
• Supported the “Resident Physician Shortage Reduction Act of 2011”
• Joined the AAMC and 38 other physician, hospital and educational organizations urging the Joint Congressional Committee on Deficit Reduction to protect Medicare GME funding
Potential Policy Implications for Graduate Medical Education Funding

• Target funding to core programs
• Tie GY1 years to core training
• Provide flexibility to transfer between specialties
• Accommodate re-starts within specialties
• Accommodate delayed re-entry into GME
• Provide mid-career transitions
Solutions Supported by AMA

• Ensure adequate GME opportunities for qualified applicants including IMGs
• Ensure well-trained, competent medical workforce entering practice
• Create incentives for efficient, effective, safe and high quality medical practices
• Encourage medical workforce expansion to correct shortages by specialty and geography
Solutions Supported by AMA

• Seek all payer funding for core residency programs leading to initial board certification
• Align federal and state incentives through:
  – all-payer GME system (federal or state mandates)
  – GME funds to meet broader community needs
  – reduce disparities in medical access and quality
  – support GME in innovative health care systems (PCMHs and ACOs)
U.S. Spends $2.5 Trillion on Health Care

• ~$8,000 /person /year while U.S. median household income $50K
• There is enough in the “system” to rebuild doctor supply
• How should we pay for GME?
U.S. Spends $2.5 Trillion on Health Care

$317 Billion in U.S. Pharma Revenues
Pharmaceutical and Medical Device Manufacturers

- Pharma alone spends over $8 Billion on 100,000 “drug reps”
- Device reps are in our ICUs and ORs everyday
Pharmaceutical and Medical Device Manufacturers

- Pharma alone spends over $8 Billion on 100,000 “drug reps”
- Device reps are in our ICUs and ORs everyday
- Major conflicts of interest
U.S. Spends $2.5 Trillion on Health Care

$750 Billion-a-Year Industry
Teaching Hospitals

- Already support 12,000 GME positions above the BBA cap
- Many are safety net
- Have thin margins
- More physicians are directly employed by hospitals
Evidence from Three Experiments:
  two real and one virtual

1. How New York and Medicare GME funding intersected in the ’90s
2. How the Balanced Budget Act shaped the growth of GME positions
3. How IOM Duty Hours Standards would have added to GME costs
New York’s GME Funding Story

• 1992 – Highest number of physicians per capita in U.S. (294 per 100,000)
• 1995 – Received $3 billion for GME, exported graduates despite underserved state regions
• 1997 – BBA capped Medicare-funded positions
• 1997 – NY reduced residency positions but struck deal to keep ½ of GME funds
• 1998-99 – NY reversed course and restored all GME positions

• Residents are less expensive than replacements
1997 BBA Temporarily Slowed GME Growth, but ACGME Residents and Fellows up 9% since 2002

Total Residents and Fellows in ACGME Programs 1987-2009

*Data for 1987 excludes residents in combined specialty programs.
Source: JAMA Medical Education issues
Residents in Training Before and After the 1997 Balanced Budget Act

- 2002-2007 – number of resident physicians began increasing (8% net increase)
- Growth of resident physicians (financed by hospitals) was driven by:
  - 7.6% increase in new entrants, mostly international medical graduates
  - increasing subspecialization = longer training; fewer physicians entering generalist careers
- Residents are less expensive than replacements
IOM Duty Hour Recommendations Would Have Cost ~ $2 Billion

- Additional staff to handle transitions of patient care
- Additional residents to cover nap time
- Ensure safe transportation home after long shifts
- New ACGME standards estimated to cost $380M
- Residents are less expensive than replacements
Other GME Funding Sources

• **Medicaid** (annual state appropriations and matching federal payments)
  2002 – Medicaid GME funding totaled $2 billion
  2008 – Medicaid GME funds less than $2 billion

• **Veterans Administration** (10% of residents - $1 billion)

• **Department of Defense** (2,200 residents)

• **Private payers** (cost shifting is going away)
U.S. Spends $2.5 Trillion on Health Care

80% Medical Loss Ratio
Insurance Companies Could Finance GME

• Medicare (CMS) already bears it’s fair share = $9 B ~ 40% of cost
• In 2009, top five health insurers’ profits = $12.2 B (up 56%)
• 80% of patient care and doctor visits occur outside hospital
• HSR retains private insurance
• AMA policy advocates all-payer funding for GME
Health Insurers Should Want to Invest in Physician Education, especially GME

- **Access** – need competent providers with right knowledge and skills in right place and time
- **Quality** – starts with making correct diagnosis and implementing best therapies
- **Medical errors** – caused by system failures
- **Population outcomes** – insurers have data
- **Smart medicine is efficient and intellectual capital would be a good investment**