MEDICAL PRACTICE IN AMERICA...

...PAST, PRESENT, AND FUTURE
COULD THIS REALLY BE THE DOCTOR OF THE FUTURE?

QUALCOMM FOUNDATION: THE TRICORDER X PRIZE

$10 MILLION TO WHOEVER CAN CREATE A DEVICE THAT CAN DIAGNOSE 15 COMMON DISEASES WITHOUT INPUT OR OVERSIGHT OF A HEALTHCARE PROFESSIONAL

"We envision a future where mobile technology will bring consumers their healthcare diagnoses in a way that is more accurate, more accessible, and more understandable than today’s doctors.”
BUT BEFORE LOOKING FORWARD, LET’S JOURNEY BACK TO...

...“THE GOOD OLD DAYS”

STAGE ONE: HEROIC MEDICINE

THE AGE OF “HEROIC” MEDICINE
(Colonial times to 1750)

Midwives, herbalists, and patients themselves provided “primary care.”

Physicians were reserved for cases where “heroic measures” were called for.
What were these “heroic” measures?

“Surgery” was sharp, brutal, and occasionally effective.

Name the number one, all purpose medicine for everything from constipation to venereal disease?

Did you say calomel? The equivalent of prescribing meth – with many of the same effects.

Active ingredient? Mercury.
THE APPRENTICE WILL SEE YOU NOW

No college degree necessary to become a physician

Doctors trained through the apprentice system

STAGE TWO: MEDICINE AS A TRADE (1750 to 1910)

First medical society in America founded in 1766 (the New Jersey Medical Society)

A growing number of state medical societies develop their own training programs, regulations, standards of practice and certification, and “proprietary” medical schools
THE "PROPRIETARY" MODEL

- Medicine is taught in small trade schools, unaffiliated with a college or university, run to make a profit.
- In most cases, a college education, lab work and dissection are not required.

A SHORT TIMELINE

- 1810 1847 1849 1880 1880 1883 1891 1893 1900 1910

- 650 medical students, 100 medical graduates in the entire U.S.
- The AMA is formed
- Elizabeth Blackwell, the first female American MD, receives her degree
- Average daily cost to keep a patient in St. John's Hospital of New York: 80 cents
- Annual salary of St. John's house physician: $300
- Daniel Hale Williams, the first African American MD, receives his degree
- Dr. Williams founds Provident Hospital, the first non-segregated hospital in the U.S.
- Johns Hopkins founded, the first modern university medical center and the model for all others. Labs, full-time teachers, research, university affiliation and a hospital where physicians can get hands-on training.

Source: Journal of American Physicians and Surgeons, 2003
THE BIG CHANGE:  
THE FLEXNER REPORT, 1910

Abraham Flexner….not a physician nor a scientist. An educator. Visited all 155 U.S. and Canadian medical schools and published his report under the aegis of the Carnegie Foundation.

IRONY ALERT: Believed U.S. medical education should be based on the European model (now Europeans and all others except Canadians must complete a U.S. medical residency)
THE BIG CHANGE: THE FLEXNER REPORT, 1910

His description of Chicago’s 14 medical schools: “A disgrace to the state whose laws permit their existence...indescribably foul...the plague spot of the nation.”

THE FLEXNER REPORT ADVOCATES

- Reduce medical schools from 155 to 31 (no Canadian schools to close)
- Must have a high school education, at least two years of college
- Medical school should be four years
- Train doctors in a scientific manner, engage in medical faculty research
- No medical school can be created without permission of the state government
- Practical knowledge “medical education involves both learning and learning how; the student cannot effectively know unless he knows how”
- Adopt the Johns Hopkins model
POST FLEXNER – A NEW ERA

- By 1935, there are only 66 medical schools in the U.S., 57 of them are part of a university
- All “proprietary” schools closed
- Women students virtually eliminated due to fewer openings
- 1933 – Number of medical specialties offering board certification: 4


STAGE THREE


The Workshop

Specialization

Hospitals become the physician’s workplace. Physicians provide scientific knowledge, patient referrals; hospitals provide space, equipment, personnel and management.

Kaiser Steel and employment-based insurance, 1965/Medicare/Medicaid
TODAY: ANOTHER BIG CHANGE

“TURNED UPSIDE DOWN” WORKSHP HAS BEEN.


TODAY: ANOTHER BIG CHANGE

From Specialization to

*Primary care* medical home “quarterbacks”/chronic care coordinators driving the system
TODAY: ANOTHER BIG CHANGE

From fee-for-service

The new mantra:
“NO HEADS ON BEDS, NO OUTCOMES, NO INCOME”

TODAY: ANOTHER BIG CHANGE

The hospital as workshop to

✓ Major healthcare systems AND...
✓ Large medical groups
✓ Physician owned specialty hospitals
✓ Urgent Care centers
✓ Ambulatory surgery centers
✓ Free standing emergency departments
✓ Community Health Centers
✓ Retail clinics
✓ Employers
✓ Insurance companies
STAGE FOUR: THE AGE OF TEAMWORK (2000s AND BEYOND)

FROM “HEROIC” APPRENTICE, TO TRADESCPERSON, TO SPECIALIST TO...POINT GUARD?

- Runs the team
- "Dishes off" to other specialists, nurse practitioners, physician assistants, pharmacists, therapists
- Communicates
- Makes others better
- Knows the "scouting report" (makes data-driven decisions)
- Paid on wins, not points
- Performs in multiple venues (including "home games")
- Can watch perform on TV (telemedicine)
- There is a shortage of good ones

WHAT ARE TODAY’S DOCTORS UP AGAINST?

The maladies that accompany age, lifestyle, poverty

- 89 million people 65 or older by 2050 (more than double the number today)
- Additional Americans with hypertension 2010-2030: 27 million
- Additional Americans with coronary heart disease 2010-2030: 8 million
- Additional Americans with heart failure 2010-2030: 3 million
- Growth in number of Americans diagnosed with diabetes 2009-2034: 86%
- Growth in number of Americans diagnosed with Parkinson’s 2010-2030: 68%
- Growth in elderly (65+) population with Alzheimer’s: 40% (7.1 million)
- Growth in number of cancer survivors 2010-2020: 30% (18.1 million)
- Projected growth in adult primary care visits 2013-2025: 14%

Source: Health Affairs, November 2013
THE POVERTY QUESTION: “YOU SHOULD TAKE THE A-TRAIN”

Source: Richard Cooper, M.D. – University of Pennsylvania/The Wharton School
THE POVERTY QUESTION: “YOU SHOULD TAKE THE A-TRAIN”

Source: Richard Cooper, M.D. – University of Pennsylvania/The Wharton School
WHO IS ON THE TEAM TODAY?

The physician workforce:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total In Practice</td>
<td>697,101</td>
</tr>
<tr>
<td>Number in primary care (FP, IM, PED)</td>
<td>227,756 (32.7%)</td>
</tr>
<tr>
<td>Number in specialties</td>
<td>469,345 (67.3%)</td>
</tr>
<tr>
<td>Total residents and fellows</td>
<td>123,190</td>
</tr>
<tr>
<td>Total final year residents and fellows</td>
<td>32,600</td>
</tr>
<tr>
<td>Percent male</td>
<td>473,137 (67.9%)</td>
</tr>
<tr>
<td>Percent female</td>
<td>223,964 (32.1%)</td>
</tr>
<tr>
<td>Percent international medical graduates</td>
<td>173,616 (24.9%)</td>
</tr>
<tr>
<td>Percent 55 and older</td>
<td>294,945 (42.3%)</td>
</tr>
<tr>
<td>Percent 60 and older</td>
<td>196,020 (28.1%)</td>
</tr>
</tbody>
</table>

Source: AHA Master File

HOW DO WE STACK UP?

<table>
<thead>
<tr>
<th>Country</th>
<th>Physicians per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cuba</td>
<td>600</td>
</tr>
<tr>
<td>2. Greece</td>
<td>600</td>
</tr>
<tr>
<td>3. Monaco</td>
<td>600</td>
</tr>
<tr>
<td>4. Belarus</td>
<td>500</td>
</tr>
<tr>
<td>5. Austria</td>
<td>500</td>
</tr>
<tr>
<td>6. Georgia</td>
<td>500</td>
</tr>
<tr>
<td>7. Russia</td>
<td>400</td>
</tr>
<tr>
<td>8. Italy</td>
<td>400</td>
</tr>
<tr>
<td>9. Norway</td>
<td>400</td>
</tr>
<tr>
<td>10. Switzerland</td>
<td>400</td>
</tr>
<tr>
<td>11. Iceland</td>
<td>400</td>
</tr>
<tr>
<td>12. Netherlands</td>
<td>400</td>
</tr>
<tr>
<td>13. Kazakhstan</td>
<td>400</td>
</tr>
<tr>
<td>26. Germany</td>
<td>400</td>
</tr>
<tr>
<td>42. Egypt</td>
<td>300</td>
</tr>
<tr>
<td>45. United Kingdom</td>
<td>300</td>
</tr>
<tr>
<td><strong>46. United States (Active Only)</strong></td>
<td><strong>226</strong></td>
</tr>
</tbody>
</table>

Source: CIA World Factbook
WHAT IS THE VALUE OF A PHYSICIAN TODAY?

HOW IS TEAM MORALE?

A 2012 survey conducted by the Association of American Medical Colleges reveals:
- 33% of students were publicly humiliated at least once during medical school
- 15% were targets of sexist remarks
- 9% said they were required to run personal errands for doctors

Source: 2012 Association of American Medical Colleges Survey
An estimated 400 physicians commit suicide each year, the equivalent of one entire medical school class.

The physician suicide rate is 20% to 30% higher than the general public’s.

Source: Louise Andrew, M.D. ET AL. Physician Suicide, Medscape Reference, March 8, 2012
WHAT DO YOU PLAN TO DO IN THE NEXT ONE TO THREE YEARS?

- Continue as I am………………………………………………..49.8%
- Cut back on hours………………………………………………22.0%
- Retire………………………………………………………………13.4%
- Switch to concierge……………………………………………6.8%
- Relocate to another practice/community…………………10.9%
- Cut back on patients seen……………………………………9.6%
- Seek a non-clinical job within healthcare………………….9.9%
- Work part-time…………………………………………………6.5%
- Work locum tenens………………………………………...6.4%
- Seek a non-healthcare job/business…………………….6.4%
- Close my practice to new patients………………………4.0%
- Seek employment with a hospital…………………………5.6%
- Other…………………………………………………………….5.5%

THE COMMON DENOMINATOR?

PHYSICIANS WILL PRACTICE IN A GROWING NUMBER OF WAYS….MOST OF WHICH WILL REDUCE ACCESS TO THEIR SERVICES

- PART-TIME
- CONCIERGE
- HOSPITAL EMPLOYED
- LOCUM TENENS
- NON-CLINICAL ROLES
- ELIMINATE CERTAIN PAYERS (MEDICAID/MEDICARE/CHARITY)
- TRADITIONAL (INDEPENDENT)
- COMMUNITY HEALTH CENTERS

Source: A Survey of America’s Physicians: Practice Patterns and Perspectives, The Physician Foundation/Merritt Hawkins, 2012
CHANGING WORK PATTERNS

- Physicians are seeing 16.5% fewer patients per day than in 2008
- They are working 6% fewer hours
- They spend 22% of their time on non-clinical paperwork

Source: A Survey of America's Physicians: Practice Patterns and Perspectives, The Physicians Foundation/Merritt Hawkins, 2012

RESULT: A “SILENT EXODUS”

- A 6% reduction in work hours = a loss of 44,250 FTEs
- 16.5% fewer patients seen per = over 100 million fewer patient encounters
- 22% of time spent on paperwork = a loss of over 165,000 FTE’s
CURRENT PHYSICIAN SHORTAGE PROJECTIONS

Association of American Medical Colleges

20,000 too few physicians today

91,000 too few physicians by 2020

131,000 too few physicians by 2025

Source: Washington Post, September 2013

2013 PHYSICIAN APPOINTMENT WAIT TIME SURVEY

How long to schedule a physician appointment in 15 top metros?

<table>
<thead>
<tr>
<th>Metro Area</th>
<th>Average Wait Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>45.4</td>
</tr>
<tr>
<td>Denver</td>
<td>23.6</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>20.6</td>
</tr>
<tr>
<td>Portland</td>
<td>19.4</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>19.2</td>
</tr>
<tr>
<td>Detroit</td>
<td>17.8</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>17.8</td>
</tr>
<tr>
<td>New York</td>
<td>16.8</td>
</tr>
<tr>
<td>San Diego</td>
<td>16.2</td>
</tr>
<tr>
<td>Seattle</td>
<td>16.0</td>
</tr>
<tr>
<td>Atlanta</td>
<td>14.0</td>
</tr>
<tr>
<td>Houston</td>
<td>14.0</td>
</tr>
<tr>
<td>Miami</td>
<td>13.6</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>12.2</td>
</tr>
<tr>
<td>Dallas</td>
<td>10.2</td>
</tr>
<tr>
<td>Overall</td>
<td>18.5</td>
</tr>
</tbody>
</table>

Source: Merritt Hawkins 2013 Wait Time Survey
WHO ACCEPTS MEDICAID?

<table>
<thead>
<tr>
<th>Metro Area</th>
<th>Acceptance Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>73.0</td>
</tr>
<tr>
<td>Portland</td>
<td>63.5</td>
</tr>
<tr>
<td>Detroit</td>
<td>63.4</td>
</tr>
<tr>
<td>Houston</td>
<td>55.8</td>
</tr>
<tr>
<td>Miami</td>
<td>53.8</td>
</tr>
<tr>
<td>Seattle</td>
<td>48.0</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>47.3</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>43.1</td>
</tr>
<tr>
<td>New York</td>
<td>39.8</td>
</tr>
<tr>
<td>San Diego</td>
<td>39.4</td>
</tr>
<tr>
<td>Atlanta</td>
<td>37.0</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>36.4</td>
</tr>
<tr>
<td>Denver</td>
<td>34.4</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>23.6</td>
</tr>
<tr>
<td>Dallas</td>
<td>23.0</td>
</tr>
<tr>
<td>Overall</td>
<td>45.7</td>
</tr>
</tbody>
</table>

Source: Merritt Hawkins 2013 Wait Time Survey

THE $64,000 QUESTION: HOW WILL THE PHYSICIANS OF THE FUTURE COPE?
BY EMBRACING A NEW STAFFING PARADIGM

THE "CONE OF COMPLEXITY"

- Medical specialists
- Primary care physicians
- Pharmacists (PharmD)
- Advanced practice
  - Nurses/PAs
  - Nurse specialists
  - Therapists
- LPNs
- Nurses aides
- Case managers

THE ROLE OF NP’s AND PA’s – A SUPPLEMENT, NOT A SUBSTITUTE

155,000 NPs
86,000 PAs

17 states allows NPs a full, unsupervised scope of practice
THE NP OR PA WILL SEE YOU NOW... ONLINE

- April, 2010, Park Nicollet rolls out online diagnosis/12 month pilot program
- Online diagnosis of minor problems (cold, flu, acne, bladder infections/allergies)
- $25 per visit
- PAs provide diagnosis
- Available in Alaska, Colorado, Connecticut, Kentucky, Maryland, Massachusetts, Minnesota, New York, Rhode Island, Washington and Wisconsin

Source: Zipnosis

THE RETAIL BOOM

- Retail clinics relieve the burden of routine office visits on physicians
- 1400 retail clinics today
- Number of visits to retail clinics 2007: 1.4 million
- Number of visits to retail clinics 2010: 4.1 million
- CVS owns 750 “Minute Clinics” today, plans on 1,500 by 2017
- Walgreen’s own 400 Healthcare Clinics today, plans on expansion
- Average cost for a 14-day episode of 10 most common diagnoses in a retail clinic: $484-$543
- Average cost in doctors office, hospital outpatient department, or ED: $704

Source: Modern Healthcare, November 2013
THE COMPLEXIVIST WILL SEE YOU NOW

A term coined by Clement Bezold, PhD, at the Institute for Alternative Futures for Physicians, for physicians who will focus on care management of patients with multiple chronic conditions, treating illnesses, and monitoring physical activity, nutrition, and social/behavioral determinants of health.

Source: AMN’s Guide to Healthcare Staffing

THE THREE YEAR MEDICAL SCHOOL GRADUATE WILL SEE YOU NOW

• The chance to finish medical school early attracts students burdened with six-figure education loans
• Allowing students to finish medical school faster and reduce student loan debt entices medical students to move to primary care rather than more lucrative specialties
• NYU, Texas Tech University, and Columbia University have already launched three-year medical school programs

**THE EMOTIONALLY INTELLIGENT PHYSICIAN WILL SEE YOU NOW**

- The 2015 MCAT will include questions that focus on the psychological, social, and biological foundations of behavior
- Kaiser Permanente implemented training program focusing on empathy and patient satisfaction
- Since implementing program, member satisfaction scores have risen steadily while reducing costs
- Milt Hammerly, M.D., studied “emotional intelligence” and concluded that higher emotional intelligence leads to greater patient satisfaction and clinical outcomes

Source: Hospital and Health Networks, October 2013

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**THE GRAND-AIDE WILL SEE YOU NOW**

- Healthcare provider who possesses “the temperament and personality of a good grandparent”
- Improve preventive care and self-care while keeping people out of clinical settings who could be better cared for at home
- A 2012 Health Affairs study calculated the cost of each Grand-Aides encounter to be $16.88 – considerably less costly than a doctor or emergency department visit
- Allow physicians to focus their time on new patients and to give more attention to the most critical cases

Source: Journal of the American Board of Family Medicine
**THE PHYSICIAN WILL SEE YOU NOW... AND YOU, AND YOU, AND YOU...**

**Shared Medical Appointments**
- 6 to 15 patients
- 90 minutes
- Physicals
- Well-child check-ups
- Pre-natal care
- Chronic illness management

"There is sufficient data to support the effectiveness of group visits in improving patient and physician satisfaction, quality of care, quality of life and in decreasing emergency department and specialist visits."

**THE ROBOT WILL SEE YOU NOW**

- A growing number of hospitals are using “telepresence robots” to expand access to medical specialists
- Mobile videoconferencing machines that stand about on wheels and are about five feet tall with a large screen that projects the doctor’s face
- Approved by the USFDA

Source: Associated Press, November 2013
THE MOBILE APP WILL TRIAGE YOU NOW

There are more than 40,000 healthcare apps on iTunes

American Well in 2013 offers what it claims is the first live, immediate, virtual physician exams via mobile devices, the web, and at kiosks for $49 for 10 minutes with a physician — or just send a picture of your sore throat!

Source: National Journal, November 2013

THE ECHO WILL TEACH YOU NOW

Project ECHO (Extension of Community Healthcare Outcome)

- Began at the University of New Mexico Health Sciences Center
- Pairs specialists at academic medical centers with primary care physicians in rural areas via video teleconferencing so primary care providers can learn how to treat complex, chronic conditions such as Hepatitis C, asthma, diabetes, mental illness, and pain
- Now used by University of Washington, University of Chicago, Beth Israel Deaconess Medical Center, University of Utah, and others
"DO IT YOURSELF MEDICINE" CONNECTS YOU TO THE DOCTOR AND SAVES TIME

✓ Wireless home monitoring devices will increasingly connect patients to physicians
✓ Patients can take their own weight, blood pressure, and other key metrics and in doing so avoid those “everything is the same” doctor visits
✓ The Boston-area Center for Connected Health program enrolled 1,200 patients and produced a 50% reduction rate in heart failure related 30-day readmissions and a 44% reduction in non-heart failure readmissions
✓ Key: Pay doctors for non-face-to-face visits

Source: HealthLeaders, October 2013

GOODBYE “EMINENCE-BASED” MEDICINE

“Eminence Based Medicine”
Making the same mistakes with increasing confidence over an impressive number of years

~BMJ, Vol. 1 Sept 2001

“Evidence Based Medicine”
Rapidly integrating individual clinical expertise with the best available external clinical evidence from systematic research.
HELLO “ETIQUETTE-BASED” MEDICINE

Today’s residents generally do not bother with five acts of common courtesy when meeting patients at the hospital, according to a study at Johns Hopkins Hospital and the University of Maryland Medical Center:

<table>
<thead>
<tr>
<th>The 5 Acts of Etiquette-Based Medicine</th>
<th>Failed to perform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce yourself</td>
<td>60%</td>
</tr>
<tr>
<td>Explain your role</td>
<td>63%</td>
</tr>
<tr>
<td>Touch patient</td>
<td>35%</td>
</tr>
<tr>
<td>Sit down and talk</td>
<td>91%</td>
</tr>
<tr>
<td>Ask open-ended questions</td>
<td>25%</td>
</tr>
</tbody>
</table>

Source: HealthLeaders, October 2013

TELEPHONE MANAGEMENT INTERVENTION

- Keep patients (and doctors) out of the ED
- A study of Medicare Advantage enrollees showed that telephone management intervention delivered by nurses reduced diabetes-related hospitalizations by 37% and diabetes related ED visits by 29%
- Through case management, the study predicts overall demand for endocrinologists could be reduced by 4-5%

Source: Health Affairs, November 2013
**THE END OF END-OF-LIFE CARE AS WE KNOW IT?**

- Denmark may be the trendsetter
- After determining patients were not having their end-of-life wishes met, the country changed course from well over half of people dying at hospitals a decade ago to 92% dying at home today

Source: Pharma and Healthcare, July 2013

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**THE REAL AGE OF HEROIC MEDICINE?**

- “Targeted therapies” avoid the “carpet bomb” approach
- Reduced side effects, reduced doctor visits
- BioPrinters
- Face Transplants
- Teleradiology/Telemedicine
- Non-invasive Techniques
- Gene Therapy

Sandy Huffaker for The New York Times
IT’S NOT A TRICORDER, BUT...

A faster diagnosis
In the near future, your doctor will know what bug is making you sick within minutes, thanks to the Fast PCR (polymerase chain reaction) machine.

1. The cheek of a patient is swabbed to collect the DNA of the virus or bacteria causing a illness, enough copies of the DNA are made to determine the DNA’s identity.

2. The DNA is prepared with enzymes and placed in a Fast PCR machine.

3. What once took hours will take a few minutes, the fast PCR machine makes exact copies of the DNA and analyzes them, identifying the virus or bacteria for the doctor.

Fast PCR machine can recognize disease-causing pathogens by obtaining the bacterium or virus DNA and rapidly copying it to identify the illness

Submit a sample and have it processed while the doctor performs a check-up

Appropriate treatment could be decided upon before the exam is completed

Source: San Jose Mercury News, January 2014

...REAL LIFE WATSON?

Time will tell, but so far, nobody has picked up their $10 million prize
FOR FURTHER INFORMATION AND DISCUSSION...

*A Raised Hand* – Blog by Kurt Mosley

Follow on Twitter: [@Kurt_Mosley](https://twitter.com/Kurt_Mosley)

If you have any questions, please contact Kurt Mosley at:

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