Training “Clinicians Plus”: A New Paradigm of Medical Education

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Warren Alpert Medical School, Brown University
Learning Objectives

• Recognize the importance of Population Medicine in Undergraduate Medical Education

• Describe the creation and components of the Primary Care-Population Medicine Program at Brown

• Define the outcomes for success of the Primary Care-Population Medicine Program
United States Health Care 2016

Most technologically advanced, responsive, and expensive healthcare in the world

• Suboptimal health outcomes
• Non-system system
• Unaligned incentives
• >7% uninsured & 23% underinsured
Commonwealth Fund Recommendations

- Revise Medicare physician fees
- Strengthen primary care and support team-based care
- Bundle hospital payments
- Adopt payment reform
- Adopt malpractice reform
- Simplify and unify administrative policies

www.commonwealthfund.org
“Although primary care and public health share a goal of promoting the health and well-being of all people, these two disciplines historically have operated independently of one another. Problems that stem from this separation have long been recognized, but new opportunities are emerging for bringing the sectors together in ways that will yield substantial and lasting improvements in the health of individuals, communities, and populations.”
Triple Aim

1. Improved Patient Experience
2. Reduced Cost
3. Improved Population Health
Health Systems Science

• Third Science of Medicine
• Preparing students for 21st Century practice in the broader context of patient’s lives and population health
• Seamlessly integrate with the First Science and the Second Science
PRIMARY CARE – POPULATION MEDICINE PROGRAM

Warren Alpert Medical School of Brown University
# Definitions

<table>
<thead>
<tr>
<th>Public Health (WHO)</th>
<th>All organized measures (whether public or private) that prevent disease, promote health, and prolong life among the population as a whole</th>
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<tbody>
<tr>
<td>Population Health (IHI)</td>
<td>The health outcomes of a group of individuals, including the distribution of such outcomes within the group</td>
</tr>
<tr>
<td>Population Medicine (IHI)</td>
<td>The design, delivery, coordination, and payment of high-quality healthcare services to manage the Triple Aim for a population using the best resources we have available within the healthcare system</td>
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Vision for the Program

A bold and innovative scholarly program that trains “clinicians-plus” with a primary care and population medicine focus

- 4-year program – dual degree MD-ScM
- Up to 24 students per class
- Methods for integrated, active learning
- Interdisciplinary and leadership training
- Longitudinal integrated clerkship
- Scholarship in primary care, population medicine, and health policy
Expected Outcomes of the Program

• Primary Care “clinicians plus”
• Halo effects – on faculty and mentors, physician groups, hospitals, and healthcare systems
• Extension of innovations to the traditional MD program
• Improvement in the outcomes, quality, and cost of healthcare in Rhode Island
• Foster further research in primary care, population medicine, and health policy
• Enhancement to the reputation of Brown and Alpert Medical School
The Four Year Continuum

- Active Learning/Flexibility/Creativity/Scholarship
- Basic Sciences and Population Medicine
- Clinical Sciences and Population Medicine
Master’s in Population Medicine

- Health Systems Science I and II
- Research Methods in Population Medicine
- Quantitative Reasoning
- Independent Study/Thesis Research
- Leadership
- Population and Clinical Medicine I and II
- Capstone in Population Medicine
Year I

**IMS I**
- Scientific Foundations of Med
- Histology
- Gen Path
- Population Medicine I (Health Systems Science I)
- Human Anatomy I
- Doctoring I

**IMS II**
- Brain Sciences
- Population Medicine II (Research Methods)
- Head/Neck Anatomy
- MSk Anatomy
- Doctoring II

**Summer between Year 1 and 2:** Pop Med III, IV and V

**SS, Supporting Structures** (Orthopedics, Rheumatology, Dermatology)

Health Systems Science I

- **Module 1:** Health Systems & Social Determinants of Health
- **Module 2:** Environmental Factors in Health
- **Module 3:** Vulnerable Populations
- **Module 4:** Population Health & Advocacy
- **Module 5:** Epidemiology
- **Module 6:** Quality Improvement & Patient Safety
- **Module 7 (PC-PM only):** Chronic Disease, Policy & Advocacy
Research Methods

- Deciding on a study design
- Biostatistics
- Qualitative research epidemiology
- Quality improvement research
- Research ethics and misconduct
- Human subjects protection
- Data interpretation
- Manuscript writing skills
- Presentation of research
- Choosing a journal and peer review process
Health Systems Science II

- **Module 1**: The US Health Care System and Healthcare Reform
- **Module 2**: Health Insurance
- **Module 3**: Health Care Costs and Value-Based Reforms
- **Module 4**: Health Care Quality and Patient Safety
- **Modules 5-7**: Tools for Health Policy & Systems Change
- **Modules 8-9**: Public Health Policy
All blocks integrate systemic physiology, pathophysiology, pathology and pharmacology with relevant nutrition, genetics, and epidemiology.

**Year II**

<table>
<thead>
<tr>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
</table>

**IMS III**
- Cardio
- Pulm
- Renal
- Endo
- Repro

**IMS IV**
- Heme
- GI

**USMLE Step 1**

**Begin Clerkships**

**Clinical Skills Clerkship**

**Pop Med VI: Leadership**

**Doctoring III**

**Doctoring IV**
Leadership is...a practice of accepting responsibility for enabling others to achieve shared purpose under conditions of uncertainty
Assumptions

Leadership ...
...can be learned
...is developmental
...is a process
...is situational
The **leadership** curriculum is...

- Experiential
- Team-focused
- Integrated
- Service-oriented
Goals & Objectives

Educational **Goal:**
- To develop physician-leaders who improve the quality of health care and wellness of the population
Goals & Objectives

Learning Objectives:

• Identify as a health care leader
• Demonstrate and apply core leadership attributes
• Apply relationship-building skills to improve team dynamics and effectiveness
Goals & Objectives

Learning Objectives:

• Demonstrate effective communication skills
• Demonstrate critical thinking skills
• Manage change effectively in a team environment
Knowledge

Competencies
- Leadership theory
- Group dynamics
- Organizational culture
- Healthcare acumen

Strategies
- Case-based learning
- Team exercises
- Large group presentations
- Teamwork training
Skills

Competencies
• Effective communication
• Empathetic listening
• Leading teams/motivating others
• Management skills
• Advocacy

Strategies
• Case simulations
• Public speaking/media training
• Application exercises
• Peer feedback
• Writing assignments
Qualities

Competencies

• Emotional intelligence
• Personal integrity
• Self-motivation
• Innovative thinking
• Adaptability

Strategies

• Self-assessment tools
• Leadership inventory
• Reflective writing exercises
• Leadership advisory team
Leadership Action Project

• Capstone “change” initiative
• Includes elements of quality improvement and leadership
• Collaborative
• Solution-focused
• Mentored
• Final proposals/presentations to health care leaders
Year III

Quarter 1
- Longitudinal Integrated Clerkship (LIC)
  - Internal Medicine
  - Surgery
  - Pediatrics
  - Obstetrics & Gynecology
  - Family Medicine
  - Psychiatry/Neurology

Quarter 2

Quarter 3

Quarter 4

Pop Med VII and VIII: Population and Clinical Medicine
Longitudinal Integrated Clerkship

Inpatient

• 6-week inpatient immersion (3 weeks of medicine/3 weeks of surgery)
• 2-week rotations “sprinkled” in (pediatrics, OB-GYN, and psychiatry/neurology)
• ER shifts

Outpatient

• 32 weeks with weekly sessions (pediatrics, medicine, surgery, family medicine, OB-GYN, psychiatry/neurology)
• Weekly didactics
• Morning report
• Shelf exams (last half of year)
## LIC vs. Traditional Clerkship

<table>
<thead>
<tr>
<th></th>
<th>LIC</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialties represented</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td># of inpatient weeks</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td># of outpatient weeks</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>Elective weeks</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4th year requirements</td>
<td>Sub-internship (4 weeks); ICU (4 weeks)</td>
<td>Sub-internship (4 weeks); surgery selectives (6 weeks)</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Shelf exam, OSCE, direct observation</td>
<td>Shelf exam, OSCE, direct observation</td>
</tr>
<tr>
<td>Didactics</td>
<td>Integrated, scheduled across entirety of LIC (includes pop med content)</td>
<td>Not integrated, scheduled per block rotation</td>
</tr>
<tr>
<td>Sites</td>
<td>Based on outpatient link</td>
<td>Variable</td>
</tr>
</tbody>
</table>
LIC and Timing of Clinical Evaluations

Longitudinal Integrated Clerkship Outpatient Block

Stage A  Stage B  Stage C  Stage D

Inpatient Medicine (3 weeks)
Inpatient Surgery (3 weeks)
Inpatient Pediatrics (2 weeks)
Inpatient OB/GYN (2 weeks)
Inpatient Neurology (1 week)
Inpatient Psychiatry (1 week)

Outpatient LIC (32 weeks)
Family Medicine
Internal Medicine
Psychiatry/Neurology
OB/Gyn
Surgery
Pediatrics

Elective (4 weeks)

Evaluation points
# Sample Outpatient LIC Weekly Schedule

<table>
<thead>
<tr>
<th>AM</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Medicine Outpatient</td>
<td>Open (for continuity patients, etc)</td>
<td>Open (for continuity patients, etc)</td>
<td>OB/GYN Outpatient</td>
<td>Family Medicine Outpatient</td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td>Neurology alt with Psychiatry Outpatient</td>
<td>Pediatrics Outpatient</td>
<td>Surgery Outpatient</td>
<td>Open (for continuity patients, etc)</td>
<td>LIC Didactics</td>
</tr>
</tbody>
</table>
Student Considerations

• Student learning style
• Student personal circumstances
• The community
• The faculty

• Bottom line: The LIC is not for every student (maybe)
Challenges

• Communication
• Didactics
• Students felt disadvantaged regarding exam preparation
• Social isolation
• Inpatient Medicine exposure inconsistent/lacking
• Scheduling nightmares
Student Evaluations

• All would do it again
• Excellent balance between autonomy and supervision
• Excellent level of observation
• Greater degree of longitudinal patient experiences
• Greater sense of involvement in patient care
Student Performance

No differences in

– Shelf scores
– Clerkship grades
– The Match
– Anything else!
Confidence and Satisfaction

Months

Confidence and Satisfaction
Lessons Learned

• Choose the students carefully
• Don’t underestimate the amount of time necessary to administrate the program
• Expect a rocky start
• Prepare for faculty failures
• Expect comparisons with the block
• Check-in regularly
Faculty Development

• Different kind of teaching
  – Longitudinal and developmental
  – Greater individual responsibility

• Office staff development

• Patient development
Clinical & Population Medicine

Clinical Medicine
- One physician/team; one patient
- History and physical
- Treatment plan for patient
- Monitor using symptoms, labs, etc.

Population Medicine
- One physician/team; populations
- Patterns of disease
- Programs that “treat” groups
- Monitor using population-level data
Population-Based Topics

- Incarceration
- Homelessness
- Race
- Immigrant health issues
- Adolescent and elderly patients
- LGBT patients
- Chronic pain
- Substance abuse
Systems-Based Topics

- Group visits
- Patient-Centered Medical Home
- Advocacy
- Behavior change
- End-of-life care
- Dental care
- Community Health Centers
- Caring for oneself while caring for others
Longitudinal Components

• Social and Community Context of Care (SACC)
• Quality Improvement (QI)
• Leadership
Social & Community Context

• Get to know the community
• Review public health data
• Explore community resources
• Talk to patients
• Talk to community figures

Logistics
• Propose a community-based intervention
• Implement and evaluate the intervention
Quality Improvement

• Understand how quality improvement can be used to enhance services for medically underserved populations
  – Hands-on practice
  – Provider and practice-level data
Quality Improvement Project

- Consider areas in the clinical care of patients in which a measurable improvement could be made
- Propose a quality improvement project that will address that area
- Storyboard assignment to present results of that project
Leadership

• Describe general principles of leadership and their application to the practice of medicine
• Assess own leadership qualities
• Apply leadership principles to implementation of SACC and QI projects
Year IV

- **Residency Interviews**
  - May
  - Jun
  - July
  - Aug
  - Sept
  - Oct
  - Nov
  - Dec
  - Jan
  - Feb
  - Mar
  - Apr
  - May

- **Subinternship, Electives, ICU**

- **Pop Med IX: Capstone in Population Medicine**

- **Thesis Completion**
Admissions & Incentives

Admissions

• Expansion to 144 students
• Indicate interest on secondary application
• Admissions Committee determines acceptance into Alpert Medical School; PC-PM acceptance later in year
• Program for Liberal Medical Education, Early Identification, and post-baccalaureate students eligible

Incentives

• Increased stipend during medical school
• Graduate Medical Education in a Rhode Island primary care residency (“saved” positions)
Imagine that you are approached by a multibillionaire philanthropist who wants to donate a substantial fund of money to a single project with the goal of “fixing the US healthcare system.” He/she asks for your expert opinion on what project this money should go towards; what would you advise and why?
• Often when we talk about medicine, we focus on the individual physician-patient relationship. Why should medical schools train future physicians to care for communities and populations as a whole, and not just individual patients?
Admissions & Incentives

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## Applicants and Matriculants

<table>
<thead>
<tr>
<th>Class Year</th>
<th>MD 2019</th>
<th>MD 2020</th>
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<tbody>
<tr>
<td>Total AMCAS Applications</td>
<td>8,153</td>
<td>8,133</td>
</tr>
<tr>
<td>Total Secondary Applications</td>
<td>6,174</td>
<td>6,374</td>
</tr>
<tr>
<td>Total PC-PM Applications</td>
<td>783</td>
<td>757</td>
</tr>
<tr>
<td>PC-PM Matriculants</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Traditional</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>PLME</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EIP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Post-baccalaureatte</td>
<td>2</td>
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Master’s Thesis Projects

• A baseline assessment of Rhode Island physician engagement in population health alternative payment models
• Developing a clinical decision rule for EMS to determine whether intoxicated patients require hospital-based care
• Long-term outcomes for the path of freedom mindfulness curriculum
Master’s Thesis Projects

• Examining the impact of insurance status and changes in insurance availability on access to and utilization of care by chronically ill children and young adults

• Air pollution and emergency department visits and hospitalizations for respiratory-related diseases in Rhode Island

• Health experience of Syrian refugees living in Jordan
Master’s Thesis Projects

• The impact of incorporating formal end-of-life care training in resident education
• Barriers to buprenorphine treatment in primary care settings in Rhode Island
• Major trauma outcomes for patients with psychiatric disorders
• Use of salivary vesicles as a biomarker for traumatic brain injury in martial arts
Master’s Thesis Projects

• Risk-adjusting Medicare Advantage plans for socio-economic status
• Evaluation of the Commodity Supplemental Food Program for low-income elderly Rhode Island recipients
• The narrative of living with serious illness while incarcerated in Rhode Island’s prisons
Master’s Thesis Projects

• Impact of distance on the Summer Food Service Program on participation in children aged 6-12 years in Newport, RI
• The effectiveness of palliative care interventions on outcomes to patients, CHF quality metrics, and health systems
• Outcomes of the uninsured after major trauma
Evaluation: Plans

- # who successfully complete program
- # who enter primary care residencies
- # who remain in Rhode Island
- Clinical competency
- Presentations
- Publications
- Satisfaction
Evaluation: Plans

• Empathy
• Tolerance of ambiguity
• Attitudes in working with underserved
• Ability to work in healthcare teams
• Residency Director surveys
• # who become physician leaders
Evaluation: Early Key Findings

Methods: focus groups, surveys, meetings with student representatives

• No differences in metrics for students applying to PC-PM program and traditional MD program
• Additional workload in PC-PM program not an issue (at least in Year I)
• Students enjoyed the LIC model (piloted with those not in the PC-PM program)
AMA Grant

• Accelerating Change in Medical Education
• Consortium Medical Schools
  – Alpert Medical School of Brown University
  – Brody School of Medicine
  – Indiana University
  – Mayo Medical School
  – New York University School of Medicine
  – Oregon Health & Science University School of Medicine
  – Penn State College of Medicine
  – UC Davis School of Medicine
  – UC San Francisco School of Medicine
  – University of Michigan Medical School
  – Vanderbilt University School of Medicine
AMA Grant

• Formative Site Visits
  – AMA Division of Medical Education
  – Healthcare/Education Experts
• Focused Workshops
• Collaborative Projects
• Consortium Expansion
• Team Conferences
  – Meetings at Host Schools (AMS in Spring 2018)
• Define Outcomes
  – NBME, ACGME, LCME, National Center IPE
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- Sybil Cineas, MD
- AMS Students & Staff
- AMS Clerkship Directors
- Department Chairs
- PC-PM Advisory Council
- AMA
At the conclusion of the program, please fill out your evaluation.

Thank You!

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