Early Integration of Public Health into Medical Education:
The Case Western Reserve University School of Medicine Experience
CGEA Spring Conference 2014
Association of American Medical Colleges
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Overview
- Background: Population Health at CWRU
- CWRU Curriculum Structure
- Public Health and Medicine
- Block 1 Goals and Philosophy
- Block 1 Structure and Content
- Epidemiology and Biostatistics
- Discussion

Background: Population Health in the WR₂ Curriculum
"The School of Medicine at Case Western Reserve University embarked on a fundamental curricular revision in 2004 with two major goals. These goals were: first, creating opportunity for every student to engage in meaningful research through a required medical student thesis and second ensuring that three key areas formed the backbone of the curriculum; mastery of clinical skills, civic professionalism, and leadership. Because understanding systems and population health approaches are critical to effective civic professionalism, key components of public health were to be embedded throughout the new curriculum."
**Population Health in the WR Curriculum**

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**Western Reserve Curriculum**

<table>
<thead>
<tr>
<th>Year I</th>
<th>Year II</th>
<th>Year III</th>
<th>Year IV</th>
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<tbody>
<tr>
<td><strong>Foundations of Medicine and Health</strong>&lt;br&gt; (20 months, including vacation)&lt;br&gt;BASIC SCIENCES&lt;br&gt;PHYSICAL DIAGNOSIS&lt;br&gt;COMMUNICATION SKILLS&lt;br&gt;COMMUNITY INTERNIST PRACTICE&lt;br&gt; (CPCP)&lt;br&gt;Core Clinical Rotation&lt;br&gt;IQ+ Program&lt;br&gt;Research &amp; Scholarship&lt;br&gt;(10 weeks, flexible scheduling)&lt;br&gt;Advanced Clinical and Scientific Studies&lt;br&gt;Areas of Concentration&lt;br&gt;Electives&lt;br&gt;(9 weeks, flexible scheduling)</td>
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**Institute of Medicine**

"Ensuring that members of society are healthy and reaching their full potential requires the prevention of disease and injury; the promotion of health and well-being; the assurance of conditions in which people can be healthy; and the provision of timely, effective, and coordinated health care. A wide array of actors across the United States— including those in both primary care and public health—contribute to one or more of these elements, but their work is often carried out in relative isolation."

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**Public Health and Primary Care**

"...we must understand and re-explore the current and future relationship between population-based or public health services and personal medical services at the primary care level. This question is no less than that of addressing our ability as a society to ensure and improve the health of our diverse populations in a dynamically changing delivery, financing, and accountability environment..."
"The idea of a sharp distinction between health and disease is a medical artifact for which nature, if consulted, provides no support."

Pickering (1937)

Definitions

- **Public Health**: Improving the health of populations through community intervention. The efforts organized by society to protect, promote, and restore the people's health.

Public Health and Medicine

- **Medicine**
  - Individual
  - Disease Model
  - Preventive Medicine
  - Independence
  - Beneficence as individual good
  - Interpersonal communication
  - Incentives for care of the insured

- **Public Health**
  - Population
  - Wellness Model
  - Health Promotion
  - Interdependence
  - Beneficence as public good
  - Social Marketing and Health Communication
  - Incentives for universal health care

Public Health

- **Population**
- **Wellness Model**
- **Health Promotion**
- **Interdependence**
- **Beneficence as public good**
- **Social Marketing and Health Communication**
- **Incentives for universal health care**

Why Population Health Is

- The call to population health is a consequence of the failures of public health and medicine
  - Medical error
  - Health inequities
  - Cost of and access to healthcare
  - Difficulty managing the explosion of medical knowledge and technologies
  - Limitations of the biomedical model
  - Limited effectiveness of large-scale preventive programs
  - Impatience of the public and young professionals

The Tools of Population Health

- Epidemiology
- Biostatistics
- Health Policy
- Health Behavior
- Environmental Health
- Health Services Research
- Quality Improvement
- Community Participatory Research
- Genetic Epidemiology
- Health Informatics
### Block 1 Goals

1. Provide a strong epidemiology and biostatistics foundation to support effective application in clinical practice and interpretation of the scientific literature.
2. Illustrate effective means to understand, measure, and affect the health of populations.
3. Provide a basis for understanding social, behavioral, structural, and environmental determinants of health.
4. Provide a broad understanding of health systems.
5. Emphasize continuous process and system improvement as a mechanism for limiting medical error and improving both individual and population outcomes.

### Block 1 Philosophy: The Lens

- Create a strong foundation on which to build during the remainder of medical school
- Create context for understanding health in a broad sense
  - Foundation includes teaching how to measure, understand, and affect the health of populations
  - Foster integration of concepts learned in all activities
- Goal to coordinate with other faculty curricular leaders to ensure a cohesive curriculum that serves our students and community well

### Intentional emphasis on...

- Interprofessional importance, team-based practice
- Diverse faculty: training, expertise, specialty, experience
- Representation across Cleveland: CCBH, CDPH, SHHD, VAMC, MHMC, CCF, UH
- Highlight tremendous community health work in our area to solidify concepts taught throughout the block

### Block 1 Structure and Content

#### Weekly Themes

<table>
<thead>
<tr>
<th>Week</th>
<th>Problem-based learning (PBL) Core</th>
<th>Unnatural Causes</th>
<th>Community Field Experiences</th>
<th>Team-based Learning</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Population Health</td>
<td>Pandemic Flu</td>
<td>In Sickness and in Health: Not Just a Paycheck</td>
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<tr>
<td>Week 2</td>
<td>Determinants of Health</td>
<td>Inequity: Determinants of Health</td>
<td>When the Bough Breaks: Race Matters</td>
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<td>Week 3</td>
<td>Health Systems</td>
<td>Mr. Prince: Medical Error</td>
<td>Collateral Damage: Becoming American</td>
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<tr>
<td>Week 4</td>
<td>Patient-centered care</td>
<td>Mrs. Sanchez: Diabetes Meds</td>
<td>CHC/Safety Net: Global Health System Comparisons</td>
<td></td>
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<tr>
<td>Week 5</td>
<td>&quot;Bringing It All Together&quot;</td>
<td>Jack Lee: Well Maker Care</td>
<td>Chronic Disease</td>
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**Weekly Themes**

- **Week 1**: Population Health - Pandemic Flu, In Sickness and in Health: Not Just a Paycheck
- **Week 2**: Determinants of Health - Inequity: Determinants of Health, When the Bough Breaks: Race Matters
- **Week 3**: Health Systems - Mr. Prince: Medical Error, Collateral Damage: Becoming American
- **Week 4**: Patient-centered care - Mrs. Sanchez: Diabetes Meds, CHC/Safety Net: Global Health System Comparisons
- **Week 5**: "Bringing It All Together" - Jack Lee: Well Maker Care, Chronic Disease
**Integration of Curricular Content**

- Goal to foster reflection and integration of core concepts across the block
- Multiple venues to encourage connection of various learning activities with each IQ case

**Highlights of longitudinal curriculum**

- Health promotion step challenge
- Bioethics thread across block
- Google+ field experience reflection blog
- Online modules (IHI, APTR*)
- Unnatural causes
- Epidemiology/Biostatistics

*IHI = Institute for Healthcare Improvement;
APTR = Association for Prevention Teaching and Research

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**Health Promotion Step Challenge**

- Goal: To illustrate health behavior activity, continuous process improvement
- Foster friendly competition and camaraderie
- Open to faculty and staff as well
- Prizes
  - Top PBL (IQ) group
  - Top individuals (staff, faculty, and students)
  - Students who achieve average of 10,000 steps every day = 280,000 steps

2013 IQ Winner!

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2013 Individual Winner!

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**Bioethics**

- Incorporation into key elements of Block 1:
  - Pandemic flu exercise – Week 1
  - Incorporation into individual v. population health didactics (theory) – Week 1
  - Health disparities – Week 2
  - Field experiences (practical application) – Weeks 2-4
  - IQ discussions – Weeks 2-4
  - General Bioethics Introductory Session – Week 5
Field Experiences

- Determinants of Health/Social Work
- Community Health Center/Safety Net
- Chronic Disease
- Neighborhood Correlations
- IQ facilitators will receive guide for each week with trigger questions to facilitate Google+ posts and small group discussion

Google+

- Field experiences
  - Social work
  - Community health center/safety net providers
  - Chronic disease
- Google+ IQ group pages (“communities” – hidden and secure) for reflection blogs to facilitate integrated discussion during IQ sessions
- IQ student leaders asked to protect time in Friday session for discussion

Online modules

- IHI Quality Improvement
  - Option for certificate of completion through IHI
  - Free for enrolled US medical students
- Association for Prevention Teaching and Research (APTR)
  - Population Health
  - Public Health Learning

Unnatural Causes

- Health disparities documentary series
  - 4 hours, 7 episodes
  - Associated health policy exercises for all stakeholders regarding health equity
  - www.unnaturalcauses.org

Epidemiology and Biostatistics

Organization of Curriculum

- Total of 11 hours of class time
- Large-group lectures
- Background of core concepts
  - Epidemiology
  - Biostatistics
  - Introduction to clinical study designs
- Critical evaluation of studies
  - Practice using “Journal club”
**Epidemiology Component**

**Goal:** To introduce the basic principles and terminology of Epidemiology and Clinical Epidemiology

**Topics Covered:**
- Introduction to Epidemiology
- Association and Cause
- Samples and populations
- Use and interpretation of diagnostic tests
- The role of screening and prevention

**Biostatistics Component**

**Goal:** To present statistics in the context of everyday clinical medicine and to highlight its use in clinical trials and the medical literature.

**Biostatistics Topics Covered**
- Types of Data
- Descriptive Statistics
- Hypothesis testing
- Chance and the p-value
- Confidence Intervals
- Potential errors (Type I and II)
- Power

**Critical Evaluation Skills**

**Goal:** To introduce common study designs and methods for critical evaluation of the medical literature.
**Critical Evaluation Skills**

- Study Designs Introduced:
  - Cross-sectional studies
  - Case-Control studies
  - Cohort studies
  - Randomized Controlled Trials
- Journal Club(s) to practice critical review skills.

**Student Response**

**Early Inclusion of Population Health**

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- Con

**Block 1 in the Literature**


**Thank you!**

Comments? Questions?

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