Healthcare Improvement Sciences in UME

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ACMQ Future Leaders in Quality & Safety
December 2014
Dedicated to inspiring diverse and promising students to lead and transform medicine for the betterment of humanity.
Traditional Undergraduate Medical Education

- **System Design**
  - Teacher-centered
  - Lectures
  - Memorization of facts
  - Siloed approach
  - No education on quality, safety, systems design

- **Results**
  - Forget great deal of basic sciences
  - Missed connections
  - Problem solving and applications skills can be improved
  - No team prep
  - IOM reports
Healthcare Improvement Sciences (HIS)

- Quality
- Safety
- Value (Quality/Cost)
- Systems-Based Practice
- Practice-Based Learning & Improvement
- Interprofessionalism
### Integrated Curriculum Overview: 1st 100 Weeks

<table>
<thead>
<tr>
<th>Curricular Components</th>
<th>First 100 Weeks</th>
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</thead>
<tbody>
<tr>
<td>From the Person to the Professional</td>
<td>The Biologic Imperative (BI)</td>
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<tr>
<td>Challenges, Privileges, and Responsibilities (CPR)</td>
<td>Continuity and Change: Fueling the Body (FTB)</td>
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<tr>
<td></td>
<td>Continuity and Change: Homeostasis (HOM)</td>
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<tr>
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<td>Interacting with the Environment (IE)</td>
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<td>The Human Condition (HC)</td>
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<td>Preparation for USMLE Step I</td>
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<tr>
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<td>Preparation for Advanced Clinical Experience</td>
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</tbody>
</table>

#### Mechanisms of Health, Disease, and Intervention
- Physiology, Pathophysiology, Therapeutics
- Form & Function in Health and Disease; Introduction to Organ Systems; Principles of Pharmacology; Core Clinical Skills
- Cell, Molecular, and Developmental Biology; Genetics; Reproductive and Endocrine Systems; Cells of Immunologic System
- Metabolism; Gastrointestinal System
- Cardiac, Pulmonary, Renal Systems
- Microbiome; Infectious Disease; Host Defense; Musculoskeletal System
- Nervous System; Brain and Behavior

#### Structure
- Anatomy, Pathology, Embryology, Imaging, Physical Diagnosis
- ICE-EMT Certification
- ICE-Medicine, OB/GYN
- ICE-Medicine, OB/GYN, Surgery
- ICE-Medicine, OB/GYN, Surgery
- ICE-Medicine, Pediatrics
- ICE-Pediatrics, Psychiatry

#### Research & Scholarship
- Communication Skills, Professionalism, Continuum of Care, Social Context, Responsibility, Quality and Effectiveness, Scientific Discovery, Decision Making and Uncertainty

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*Hofstra North Shore-LIJ School of Medicine at Hofstra University*
**PEARLS=Foundation of Curriculum**

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>8:00am</td>
<td>PEARLS Case 1</td>
<td>Self-Directed Learning</td>
<td>PEARLS Case 1 (continued)</td>
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<td>PEARLS Case 2 (continued)</td>
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<td>9:00am</td>
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<tr>
<td>10:00am</td>
<td>Large/ Medium/ Small Group</td>
<td>Review &amp; Reinforcement</td>
<td>Large/ Medium/ Small Group</td>
<td>Structure</td>
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<td>4:00pm</td>
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<td>Self-Directed Learning</td>
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Goals of PEARLS=Content & Process

**Biomedical Science Goals**
- Acquiring knowledge of biomedical sciences
- Life-long learning
- Critical thinking

**Healthcare Improvement Science Goals**
- Leadership
- Teamwork
- Practice-Based Learning
- Systems-Based Practice
PEARLS and Healthcare Improvement Sciences

• Content
  ▫ Case topics
  ▫ Continuous charge to integrate cost and best practices

• Process
  ▫ Group process: roles, check in, wrap-up, action plans
  ▫ Wrap-up framings
PEARLS Content - Case Topics
PEARLS Content-Case Topics
Interactive Exercise Tie to PEARLS
PEARLS and Healthcare Improvement Sciences

- **Content**
  - Case topics
  - Continuous charge to integrate cost and best practices

- **Process**
  - Group process: roles, check in, wrap-up, action plans
  - Wrap-up framings
PEARLS Content - Continuous Charge

Choosing Wisely

An initiative of the ABIM Foundation

International Federation of Health Plans

2013 Comparative Price Report
Variation in Medical and Hospital Prices by Country
PEARLS Content - Continuous Charge: Cost

Health Care Costs (First Year Students)

• Variation in cost-within U.S.; U.S. and other countries
• Financing of healthcare and how that impacts cost and access
• Cost of procedures - imaging, biopsies
• Cost of medications - one vs. another, same medication for two different indications and variance in cost
PEARLS Content - Continuous Charge: Cost

- Health Care Costs (First Year Students)
  - Retinoblastoma
    - What is cost of procedures? Will they be covered by insurance? Why surgeons fees for same procedures vary?
  - HPV
    - Pap smear has value as diagnostic tool due to low cost & high sensitivity; What is cost HPV vaccine in U.S. vs. developing countries?
  - Lung Cancer
    - In countries with single payer systems, medication decisions based on being effective and efficient for society-how does that work? What is cost of genetic testing? Cost of chemotherapies?
  - Breast Cancer
    - What is cost of MRI vs mammography? Cost of tamoxifen prophylaxis? Cost of biopsies resulting from false positive screening?
  - Prostate Cancer
    - Discussed relative cost of finasteride 1mg for hair restoration as more expensive than finasteride 5mg for prostate cancer and why that might be
PEARLS Content - Continuous Charge: Cost

Health Care Costs (Second Year Students)

- Costs for medications & procedures
- Influence of patents on cost
- Influence of cost on ordering tests
- Variation in coverage of insurance policies and rationale
- Cost to health system vs. cost to patient
- Impact of paying cash vs. insurance on doctor-patient relationship
PEARLS Content - Continuous Charge: Cost

- **Health Care Costs (Second Year Students)**
  - **Familial Mediterranean Fever**
    - Biologics are expensive! Why did cost of colchicine became more expensive through a special patent between government and industry?
  - **Bare Lymphocyte Syndrome**
    - Costs of flow cytometry, ELISA, Western Blot - which is cost effective to order first if indicated? What is cost of BMT and subsequent follow up care based on plan with $3000 deductible, 70% coverage, $15,000 max out of pocket?
  - **T-cell ALL**
    - Aetna’s policy for when BMT will be covered? Cost of monoclonals? Are patients treated better when paying cash?
  - **Influenza**
    - Cost to run a respiratory panel in our lab is $150 and charge for panel is $300-700 - why?
PEARLS Content-Continuous Charge: Best Practices

• Health Care Best Practices (Second Year Students)
  ▫ SCD Infections
    • Blood culture collection from different sites and why?
    • Ways to avoid medical errors during blood transfusions.
  ▫ E. Coli Outbreak
    • Why collect three stool specimens on patient with diarrhea?
  ▫ HIV
    • Guidelines for testing, treating and preventing HIV transmission.
  ▫ Tuberculosis
    • Gold standard for testing.
  ▫ Influenza
    • Practices for preventing infection control.
    • Indications and non-indications for Tamiflu.
PEARLS Content - Continuous Charge

- Need tool to assess knowledge - any ideas/suggestions most welcome!
PEARLS and Healthcare Improvement Sciences

• Content
  ▫ Case topics
  ▫ Continuous charge to integrate cost and best practices

• Process
  ▫ Group process: roles, check in, wrap-up, action plans
  ▫ Wrap-up framings
# PEARLS Process and Healthcare Improvement Sciences

## Process
- Student & Faculty Development
- Groups (teams) & Facilitator
- Check-in
- Roles in group (team)
- Function of group (team)
- Self and Group Assessments
- Action Plans
- Wrap-up Frames

## Healthcare Improvement Science Goals
- Leadership
- Teamwork
- Practice-Based Learning Improvement
- Systems-Based Practice
PEARLS Assessments and Healthcare Improvement Sciences

- Communicates effectively; does not dominate or sidetrack conversations
- Listens attentively and considers alternative explanations and suggestions provided by other teammates
- Every time when leader, demonstrates the ability to manage the team and coordinate the activities of team members
- Initiates and/or participates constructively in discussions of health care costs
- During wrap-up provides an analysis of the group’s (system’s) processes
PEARLS Assessments and Healthcare Improvement Sciences

- During Monday check-in, performs self-assessment of learning from prior week
- During wrap-up, performs specific, constructive self-assessment
- During wrap-up, provides suggestions for improvement
- Creates and comments upon a personal action plan from week to week
- Modifies behavior based upon areas identified during self-assessment, group feedback and mid-course meeting.
- Initiates and/or participates in discussion of health care best practices
Didactic Sessions and Healthcare Improvement Sciences

Figure 1. Laparoscopic adjustable gastric band
Figure 2. Vertical banded gastroplasty
Figure 4. Roux-en-Y gastric bypass
Future Opportunities in Healthcare Improvement Sciences
Areas for Opportunity & Thought in Healthcare Improvement Sciences and UME

• What should be the UME curriculum in HIS? Work backwards...
• Role modeling? Experiential opportunities?
• How will we define success?
Many thanks!

MAKE NO LITTLE PLANS; THEY HAVE NO MAGIC TO STIR MEN'S BLOOD.

Daniel Burnham