New Directions for 'Clerkship' Education: Lessons from Three Schools
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New Directions for Medical Education
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Albert Einstein College of Medicine
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Longitudinal Integrated Clerkships: The Year III Alternative Curriculum
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Associate Dean for Administration
The George Washington University School of Medicine and Health Sciences

Definition of LIC
Longitudinal Integrated Clerkships are those having the central element of clinical education where medical students:
- Participate in the comprehensive care of patients over time
- Have continuing learning relationships with these patients' clinicians;
- Meet, through these experiences, the majority of the year's core clinical competencies across multiple disciplines simultaneously.
Content

- Background: Program Demographics
- Motives
- Objectives
- Process for selecting students
- Structure
- Assessment of Learning
- Challenges
- Outcomes

Background: Demographics

- Initiated in 2002-2003 AY
- Developed in conjunction with major curriculum reform that began in mid-1990's
- Developed by Year 3-4 Curriculum Committee
- Barriers
- Selects up to 12 students in competitive application process

Motives

- Shrinking range of clinical problems in inpatient settings
- Lack of opportunities to experience electives
- Lack of substantive continuity experiences in women's health/obstetrics, primary care specialties, psychiatry
- Limited exposure to attending faculty physicians for education and assessment
- Limited exposure to ‘realistic’ practice environments

Objectives

- Learning Objectives were the same as for the standard curriculum
- Link students to a small number of clinical faculty in ambulatory practices
- Provide flexibility in choice of practice-type (private, integrated, community-based)
- Provide longitudinal patient care experiences
- Provide elective opportunities
- Provide flexible time to pursue special Scholarly Project
Process to Select Students

- Students must apply to the program
- Selection criteria include:
  - Academic qualifications
  - Rationale for choosing program (essay)
  - Quality of proposed Scholarly Project

Structure of LIC

- Two 6 month blocks
  - one exclusively inpatient (not integrated)
  - one exclusively ambulatory (integrated)
- Scholarly Project

Structure of LIC

- Inpatient Block
  - 6 continuous weeks of Internal Medicine
  - 6 continuous weeks of General Surgery
  - one month inpatient Pediatrics
  - one month inpatient Psychiatry
  - one month inpatient OB/GYN

Sample Inpatient Schedule

<table>
<thead>
<tr>
<th>Didactic: ½ day per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine: 6 weeks</td>
</tr>
<tr>
<td>General Surgery: 6 weeks</td>
</tr>
<tr>
<td>Pediatrics: 4 weeks</td>
</tr>
<tr>
<td>OB/GYN: 4 weeks</td>
</tr>
<tr>
<td>Psychiatry: 4 weeks</td>
</tr>
</tbody>
</table>
### Structure of LIC

- 6 month ambulatory block
  - 1.5 days ambulatory Internal Medicine/Family Medicine
  - One half day ambulatory women’s health
  - One half day elective
  - One half day small group seminars or free time
  - Two days of ambulatory pediatrics for three months
  - One day of ambulatory psychiatry for three months
  - 16 emergency room shifts over three months and completion of the core emergency medicine curricular requirements

### Sample Ambulatory Schedule

#### First 3 months:

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WED</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Med./Fam.Med</td>
<td>Ob/Gyn</td>
<td>Electives</td>
<td>Pediatrics</td>
<td>Pediatrics</td>
</tr>
</tbody>
</table>

#### Second 3 months:

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WED</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
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<td>Med./Fam.Med</td>
<td>Ob/Gyn</td>
<td>Electives</td>
<td>Emed shifts</td>
<td>Psychiatry</td>
</tr>
</tbody>
</table>

### How Does This Differ from the Regular Curriculum?

- Much longer ambulatory pediatrics exposure
- Much longer ambulatory internal medicine/family medicine exposure
- Longitudinal women’s health exposure
- New ambulatory psychiatry curriculum
- More opportunities to experience electives
- Opportunity to complete emergency medicine in Year 3 instead of Year 4
- More time for Scholarly Project

### Assessment of Learners

- Faculty use standard evaluation form for subjective evaluation of clinical performance
- Students complete the same OSCE exams and NBME Subject Exams, but on their own flexible schedule.
- Assessments are incorporated into the 6 core clerkship grades.
Challenges

• Only 12 students can be assigned per year. Expansion considered too difficult
• Scheduling is very complex
• Suitable ambulatory psychiatry and ob/gyn sites are very difficult to find
• Although longitudinal experiences are much longer, they are probably still too short to have fidelity with real practice
• Students are assigned to preceptors, not to a cohort of ‘their own’ patients. Preceptors/patients are not all in a single integrated delivery system.

Outcomes

• Highly rated by students (of course, they self-select!!)
• Case-control study of first 6 cohorts shows no difference in:
  • Clerkship grades
  • Step 2 CK scores
  • NBME subject exam scores
  • End-of-third year OSCE scores
  • Specialty choice
  • Match rates

Content

• Background: Program Demographics
• Motives
• Objectives
• Process for selecting students
• Structure
• Assessment of Learning
• Challenges
• Outcomes
Background: the UME Context

- Superb, diverse students and faculty
- Rich clinical culture of excellence and variety
- Defined and limited clinical core
- Transformed “preclerkship” curriculum
- Pride in outcomes (except ‡ grads=faculty)
- National leadership in innovation
- Universal challenge: transform clinical learning

Recent Change Process

Guiding features:
- Continuity with patients
- Continuity of site; system
- Relevant core curriculum
- Continuity with peer cohort
- Continuity with faculty
- Experience w/ “undifferentiated” patients

Current Context: Carnegie Recommendations

- Integration
  - Connect knowledge and experience
- Habits of inquiry and improvement
  - Focus on excellence
- Standardization and individualization
  - Set outcomes and allow flexibility in learning
- Identity formation
  - Develop professional values and dispositions

Motives: Challenges in Traditional Third Year

- Erosion of relationship with the patient, the inpatient team, faculty and the course of illness.
- Lack of authentic roles in patient care.
- Lack of exposure to undiagnosed patient.
- Fragmentation of medical care (e.g. inpatient/outpatient, specialty clinics/services, 80 hour work week, shorter attending rotations).
- Limited observation of skills, professionalism, communication.
- Lack of continuity between rotations regarding skills development across third year.
Definition of LIC

Longitudinal Integrated Clerkships are those having the central element of clinical education where medical students:
1) participate in the comprehensive care of patients over time
2) have continuing learning relationships with these patients' clinicians,
3) meet, through these experiences, the majority of the year's core clinical competencies across multiple disciplines simultaneously.

Structure: PISCES Program Overview

• One-year integrated longitudinal clerkship (third year) at major academic medical center and practices
  • 2007-2008: Pilot with 8 students
  • 2008-9: Expanded to 16 students
  • 2009-10: stable at 16 students

Structure: PISCES Program Overview

• Core Elements
  - Patient cohort
  - Longitudinal Preceptor clinics
  - Advising/mentoring program
  - Longitudinal curriculum
  - ED, OR, and “call” sessions
  - Inpatient immersion
  - Comprehensive student assessment
  - Program assessment

Key Element: Patient Cohort

• Students acquire their own cohort of patients (50-75) via acute care sessions, call and preceptorships
• Students follow patients wherever they go
• Pager notification when cohort patients @ ED, L&D, admissions, OR and clinics
• Patients selected to target core competencies for each discipline, and for continuity
Structure:
Core Competencies

- Anesthesiology
- Family and Community Medicine
- Internal Medicine
- Neurology
- Obstetrics and Gynecology
- Ophthalmology
- Orthopedic Surgery
- Otolaryngology
- Pediatrics
- Psychiatry
- Surgery
- Urology

Assessment of Students

- Comprehensive and Integrated
  - RIME structure, quarterly review
  - Preceptor observation and feedback
  - OSCE’s
  - Integrated shelf exam
  - Chart review exercise/peer evaluation
- Comparable discipline specific
  - All assessments and grades of traditional clerkship
- Comparable global
  - CPX

Sample Student Schedule Week 1

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery Rounds 7-8am</td>
<td>Medicine Rounds 8-9am</td>
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<tr>
<td>If students have a patient in their cohort or who they are following after a surgical procedure, they will round with the surgical resident in the morning.</td>
<td>If students have a patient in their cohort or who they are following who is in the hospital, they will round with the medical resident in the morning.</td>
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<td></td>
</tr>
<tr>
<td>AM Clinic</td>
<td>Internal Medicine</td>
<td>OB/GYN Surgery Clinic</td>
<td>Neurology</td>
<td>Pediatrics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-12</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Directed &amp; Cohort Learning</td>
<td>PISCES School</td>
<td>Self-Directed &amp; Cohort Learning</td>
<td>Emergency Department</td>
<td>Self-Directed &amp; Cohort Learning</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Evening/Night</td>
<td>6p - 7a</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>One evening per week, students will take call in the evenings with Emergency Department, Pediatric ER/Urgent Care or discipline specific call 4 hours.</td>
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</tr>
</tbody>
</table>

Challenges

- Administrative
  - intensity and complexity
- Preceptor:
  - recruitment, support, development
- Students:
  - integrating from outset is overwhelming
  - delayed grading
  - balance of specialty patients
Outcomes: 2 Years LIC v. Traditional

- Students more satisfied with
  - Faculty teaching
  - Observation of clinical skills
  - Feedback
  - Structured didactics
- Perform better on clinical examinations
  - Information gathering

LIC Outcomes (cont.)

- Student attitudes towards patients
- Patient attitudes towards students
- Preceptors
  - Satisfaction with teaching, investment
- Career choice
  - Full range

Outcomes: Patient Experience

- Positive impact of students
  - LIC and Traditional Clerkship Patients
    - Patient education
    - Interpersonal connection
  - LIC patients
    - Continuity of care
    - Coordination of care

Patient education

- Interpersonal connection
  - LIC patients
  - Continuity of care
  - Coordination of care

Outcomes 2007-2010: Structured v. Traditional

Strengths Perceived in Clinical Experience

Structured (SCP)

- More support for patient centered behavior
- Better ratings for FCM and Pediatrics
- Better performance in clinical skills exams

SCP + Traditional

- Opportunities to:
  - See same patients
  - Work with stable cohort of peers, faculty
- Experience non-evaluative mentoring
- Be at same site over time
Columbia-Bassett: A Goal of Training Modern Physicians
Henry Weil, MD
Assistant Dean for Education at Bassett Healthcare Columbia University

Background: A blank slate…
- Bassett Healthcare Network had Columbia students rotating since 1932, and various residencies
- The track campus idea gave us the opportunity to think about a 2.5 year experience
- How would our strengths be put to best use in terms of societal needs?

Motive: Healthcare Networks
- Physician CEO and board chairman
- 300 docs, 150 Advanced Care Practitioners
- All salaried
- 700,000 visits
- Strong quality metrics

Motive: Bassett Service Area
- Albany
- Buffalo
- Syracuse
- New York City
**Motive: High Value Population Care**

- Affiliated hospital
- Clinic
- School based
- Multispecialty complex
- Skilled Nursing
- Home Health
- DME

70 Miles

80 Miles

**Purpose: A Bassett faculty retreat**

- Collective thinking on strengths
- Columbia P & S roots
- Emphasis on relationships/quality
- A model system of care
- A seasoned faculty
- Arts in our community
- How to deploy strengths
- Mission

**Purpose: C-B Mission**

To graduate socially responsible physicians who place relationships at the center of care, and possess superb clinical skills – physicians who use integrated systems to deliver optimal care and service to patients in their community

**Purpose: C-B Mission**

- To attempt training of a modern physician
- An LCME medical school track
- Two-threaded longitudinal integrated curriculum
- Course objectives of Columbia, plus…
- Systems/leadership/integration/management
- Standardized curriculum/evaluation
- Electronic Portfolios for centering
- Arts participation
Purpose: Recruitment/numbers/time

- Direct application to a 4 year experience
- Merit-based scholarships comparable to Columbia need-based scholarships
- 10 students/year
- Orientation week in Cooperstown
- 18 months in NYC
- 2.5 years LIC, based at Bassett Healthcare Network, with periodic returns to NYC

Status of Columbia-Bassett

- Major components piloted with Albany Medical College
- Have admitted one class
- Now in NYC for 18 months

A Few Products

Product 1: Recruitment

- Direct Admissions
  - Tried to promote opportunity for students to explore relationships (LIC) and learn health delivery management (also longitudinal)
- Expectations
- Results
Website: Year-to-Year Activity

Product 2: Curriculum over 4 years

Product 3: Standardized Curriculum

- Mission
- Evaluation
- Evaluator
- Cross-referenced course objectives
Product 4: E-Portfolios

- EMR-based teaching tool
- Uses and records the course objectives
- Guides learning
- Tracks progress
- Same day feedback

Product 5: SLIM

- Stands for Systems, Leadership, Integration and Management
- Physicians are de facto managers of the largest industry in the world ($2.3 trillion, 90% spent by physicians)
- Virtually no management training!
- Few physicians understand transition to more integrated environments, but greater integration will depend on physician agreement, participation and leadership
### Table 1: SLIM Competencies, Activities and Assessment

<table>
<thead>
<tr>
<th>ID</th>
<th>Competency</th>
<th>Activity</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>To understand the structure of current healthcare systems</td>
<td>Conversations with Major stakeholders</td>
<td>90%</td>
</tr>
<tr>
<td>I</td>
<td>To recognize the forces shaping the current</td>
<td>Conversations with Major stakeholders</td>
<td>85%</td>
</tr>
<tr>
<td>M</td>
<td>To develop and manage standardized processes of care aimed at improving the health of individuals and populations</td>
<td>Functional Team projects, Population research projects, Business/Public Health didactics</td>
<td>90%</td>
</tr>
<tr>
<td>ME</td>
<td>To use problem solving methods to continuously improve clinical, operational and financial performance in healthcare systems</td>
<td>Functional Team projects, Population research projects, Group discussions in PI, Bi/Public Health didactics</td>
<td>80%</td>
</tr>
<tr>
<td>ME</td>
<td>To motivate and empower patients to be actively engaged as partners in using the healthcare system to maintain and improve their own health</td>
<td>Clinic activities with longitudinal patients, Business school lectures</td>
<td>90%</td>
</tr>
<tr>
<td>ME</td>
<td>To work effectively in integrated, team-based healthcare systems</td>
<td>Clinic-based rotations, Functional Team membership</td>
<td>85%</td>
</tr>
<tr>
<td>ME</td>
<td>To be critical users of evidence-based healthcare information</td>
<td>EBM conference, Clinic-based rotations, Clinic preceptor evaluations</td>
<td>75%</td>
</tr>
</tbody>
</table>
Evaluation

- Surveys
- Ethnographic study

Summary

- Columbia-Bassett had advantages in creating curriculum from a blank slate rather than emulating existing curriculum
- The LIC has worked well in this rural group employed model hospital, a different environment from Cambridge Hospital or UCSF
- Learning health care delivery management and performance improvement is highly attractive to applicants and those taking the course now

Finally, thank you…

- To Barbara Ogur and David Hirsch of HMS: Pioneers in creating and evaluating integrated longitudinal curriculum
- References

Student Perspective

Kathryn Boling, MSIV
George Washington University
Discussion