ACCELERATING CHANGE IN MEDICAL EDUCATION

Science of Health Care Delivery Education at Mayo Clinic School of Medicine: Curriculum Development

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Mayo Clinic School of Medicine
Mayo Clinic School of Medicine
One school, three campuses

Arizona Campus
4 years
July 2017

Minnesota Campus
4 years

Florida Campus
Yrs 3 & 4

Science of Health Care Delivery
SHCD ≈ HSS

Mayo Clinic Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery

ASU School for the Science of Health Care Delivery
Core curriculum (Mayo + ASU):
- Required; integrated across 4 years
- Students earn MMS-ASU SHCD certificate with MD

Deeper dive (Mayo + ASU):
- MMS SHCD Year 1 and 2 selectives
- SHCD scholarship for research requirement

Masters in SHCD (ASU): Option for integrated degree
Core Curriculum

**Assumptions**

- No change in basic/clinical science time
- Blended learning with online modules
- Fixed ‘footprint’ (opportunities for face-to-face)
  - Yr 1: Two 2-week blocks
  - Yr 2: One week after Step 1 USMLE
  - Yr 3: One week (December)
  - Yr 4: One week (March)
- Phase in over years (first cohort 2015-16)
- Implemented at both 4-year campuses starting 2017
Curriculum Development

- Problem ID, general needs assessment
- Targeted needs assessment (SMEs, stakeholders)
- Learning outcomes (content)
  
  *What is ideal vs. meaningful and feasible?*

- Educational strategies, delivery, ongoing improvements
  
  *In progress*

- Implementation  *In progress*

- Evaluation & assessment  *In progress*

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Learning Outcomes

1. **Scope** of SHCD content → curricular framework

   \[ \text{SHCD} = \text{all the factors that keep basic 
   \& clinical sciences from having full 
   impact on the Triple Aim} \]

2. **Opportunities for clinical application**
   (meaningful & feasible)
Scope of content?

- Lit search
- Mayo SMEs
- Dartmouth HCDS Masters outcomes
- Mayo value equation
- IOM dimensions of quality
- IHI Triple Aim
- ASU SHCD content
- ACGME 2013 milestones

Stakeholders

- Medical school, ASU faculty
- Students
- Mayo Clinic leaders
  - Education
  - Practice
Mayo Clinic School of Medicine – Arizona State University

SHCD curricular framework
Focus on individual patients

- Shared decision-making (SDM)
- Minimally disruptive medicine
- Individualized care
- Patient advocacy
- Health coaching
Focus on populations of patients

- Social determinants of health
- Health disparities
- Population health management
- Advocacy
- Public/global health
- Data analytics
- Community engagement
Thinking value: perspectives, classifying & measuring quality gaps, micro → macrosystems, patient safety & culture

Creating value:
- EBM
- Quality improvement
- High value, cost-conscious (HVCC) care
- Human factors, systems engineering
  - Diagnostic errors

Value = quality of care

cost of care over time
Focus on team approach to care

- Inter & intra-professional interdependency
- Personality styles and impact on team dynamics
- AHRQ TeamSTEPPS
- Care transitions/handoffs
Focus on national level of the system & informatics

- Healthcare policy, law, regulatory agencies
- Healthcare economics
- Health insurance
- Healthcare workforce
- Clinical informatics
Focus on leading microsystems and macrosystems

- Transformational and emergent leadership
- Leadership in high performing health care organizations
- Leadership style
- Emotional intelligence
Domain Teams

- Creation, delivery, student assessment, ongoing curricular improvements
- Mayo-MN*, Mayo-AZ*, ASU SME, ASU instructional designer
- 90 day planning cycle, each team with 3 to 5 learning outcomes; retreat to merge plans
  - Sequencing
  - Learner level (UME vs. GME), feasibility, sustainability
  - Redundancy/integration across domains
  - Judicious use of classroom, clinical time
Clinical application

Health coaching
SDM
HVCC care
Data analytics

Core knowledge

Skills practice

Patient care

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Milestones

*SHCD milestones for UME grounded in GME*

- Adapted from 2013 GME milestones
- Mapped to AAMC EPAs
- Intentional ‘hand-off’ UME to GME

Committee views each student’s milestone progression over time
Student Assessment

- Workplace assessments
  - OSCE, QI project design, systems error analysis, checkbook exercise
  - NBME HSS exam, projects, reflections
  - MCQ questions in modules; NBME HSS exam
OSCE

- Formative assessment of SHCD skills
- Curriculum evaluation
  - High-value, cost-conscious care
  - Shared decision-making
  - Transition of care
  - Error disclosure

Disseminating across 10 AMA grant schools and Mayo Clinic GME
## Curriculum evaluation

Armstrong G.  
*Jt Commission J Qual Saf 2012*

Leep A.  *Acad Med* 2016  
Singh M.  *QIKAT-R Acad Med* 2014  

<table>
<thead>
<tr>
<th>Education Outcome</th>
<th>Example</th>
<th>Module MCQs, HSS exam, SHCD OSCE, QIKAT</th>
<th>Team questions on clinical evals</th>
<th>SOAP-V?</th>
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<tbody>
<tr>
<td>1. Reaction</td>
<td>End-of-experience student feedback</td>
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<tr>
<td>2a. Modification of attitudes/perceptions</td>
<td>Pre- and post-student responses to written assessment of attitudes related to health care quality, patient safety, and interprofessional teamwork</td>
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<td>2b. Acquisition of knowledge/skills</td>
<td>Assessment of ability to read a case scenario, identify an improvement need, write an aim statement, identify an appropriate measure, and propose a change to test</td>
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<td>3. Behavioral change</td>
<td>During a clinical rotation, 360-degree assessment of behaviors consistent with collaboration and teamwork</td>
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<td>4a. Change in organizational practice</td>
<td>Change in care as a result of an improvement initiative</td>
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<td>4b. Benefits to patients/clients</td>
<td>Change in patient outcomes related to an improvement initiative</td>
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Acknowledgements

- AMA
- Arizona State University
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