QUESTIONS FOR The Commonwealth Medical College

PROCESS OF CURRICULUM REDESIGN

- Why did you redesign your curriculum?
- What were your goals?
- What was the timeframe?
- What lessons were learned while constructing this curriculum?
- If you recently moved from a traditional curriculum that was heavily based on lectures into a new program that had limited lectures how did you assess what material was critical and incorporate this material into the curriculum?
- How were you able to obtain buy-in from all stakeholders?
- What would you have done differently?

TCMC is a new medical school, which opened in August of 2009 with 65 medical students and 13 Masters of Biomedical Science students. General planning for a school began in 2003, although planning of the curriculum began in earnest in 2007. Their first class is now in the middle of their third year.
GENERAL FRAMEWORK (BASIC STRUCTURE)

• What is the basic structure of years 1 – 4 (and 5, if applicable)?
• How and when is the student introduced to clinical medicine?
• Are there required, formal inpatient clerkships?
  ▪ Where do they appear in the curriculum?
  ▪ Are there other requirements for students while doing required clerkships?
• Where in the curriculum is the physical exam learned and how is this facilitated and evaluated?
• How are basic sciences presented? Are there an integrated basic science courses or modules separate from the clinical sciences? Are the basic sciences integrated with clinical sciences in individual blocks?

TCMC functions with a distributive model of medical education through three Regional Campuses (Scranton, Wilkes-Barre and Williamsport). Students get the majority of their pre-clinical education on the Scranton Campus. During these two years students spend three weeks each year on their Regional Campus shadowing physicians, working with their clinical mentor and assigned family, and investigating current public health issues. After these first two years, students move to their Regional Campus to complete their clinical education. The communities and hospitals at each Regional Campus sponsor a residency program that is closely affiliated with TCMC.

Right at the beginning of medical school, students are assigned one of the regional campuses – Scranton, Wilkes-Barre or Williamsport. They are also assigned a physician mentor and a multi-generational family for all four years of their education. They follow this volunteer family to really learn and understand medicine from the patient perspective. Students gain early clinical experience as they work with their physician mentor during three, one-week rotations in the regions in both years 1 and year 2 of their educational experience (in red in the curriculum map).

In addition to the Family-Centered Experience, students spend time in each of the 3 clinical weeks in M1 working on a group public health practicum on the assigned regional campus. The group practicum occurs over 3 weeks during the M1 year and is designed to enhance team building and to provide opportunities for independent learning. The purpose of the Community Health Research Project experience is to provide students with an opportunity to apply the concepts, strategies, and tools acquired through the course of their studies to public health research and greater understanding of societal needs and the demands on health care today.
The “Cellular and Molecular Basis of Life” course includes the fundamentals of genetics, biochemistry, molecular and cell biology of biological processes.

The “The Human Structure and Function” course is a multidisciplinary approach to Gross Anatomy, Normal Radiology, Development, Histology, and Physiology in an organ system format.

The “Physician and Society” course is designed to introduce the scientific method and various aspects of public health, including preventative medicine, the health care system, social influences on health and international health.

The “Patient Centered Medicine” course is designed to introduce the student to important principles related to being a practicing physician including introducing interviewing and examination skills.

The “Foundations” course is designed provide students with the core concepts that cut across disciplines represented in the “systems” courses that begin with neuroscience and continue across the second year. These “foundations” include immunology, microbiology, pathology and pharmacology.

This “Case Based Learning” course introduces problem based small group experiences that integrate content from the courses in the Year 1 curriculum. The cases are designed to complement material from the basic sciences that are being taught at that time.

“Neuroscience” is the first of the systems courses, which integrates basic and clinical science in the study of disease.
The “Systems” courses integrate basic and clinical sciences while the “Art and Practice of Medicine” course builds on the first year and includes interprofessional roles, medical ethics, diagnostic testing, evaluating therapeutic options, preventive medicine, medical informatics, EMR, CAM, domestic violence and abuse, and medical jurisprudence.

Year 3 (INTEGRATED)

The third year consists of a longitudinal integrated clerkship at one of the three clinical sites that they maintain. Students spend one half day weekly with an Internal Medicine clinician, a family practitioner, a pediatrician, an OB/GYN, a general surgeon and a psychiatrist in his/her office and will care for a panel of patients over the course of the year, in conjunction with the supervising attending. Students follow the patients through various settings including outpatient consultations, Emergency Room visits, and inpatient hospitalizations. Students are available to patients via pager, and discuss all emerging issues with the supervising attending.

In addition to ambulatory experiences, students will participate in a series of four day “inpatient bursts” in medicine and surgery. Students begin the week on call in the Emergency Department, admit three to four patients within that particular discipline, and follow the patients with the inpatient team over the course of the next three days. Patients are then followed throughout the transition to the outpatient setting.
They use simulated cases to expand the clinical experience. They maintain a subscription to the Simulated Internal Medicine Patient Learning Experiences (SIMPLE), the Computer-assisted Learning in Pediatrics Program (CLIPP) and the Family Medicine Computer-Assisted Simulations for Educating Students (fmCASES). They also are expected to participate in weekly case discussions that review basic science principles.

In the fourth year, students must do a minimum of 37 weeks of rotations. Four weeks must be in a Sub-internship in Internal Medicine, and another four weeks must be in a Sub-internship in a specialty of their choice. The other required rotations include 4 weeks in an acute care setting (2 weeks in critical care and 2 weeks in the Emergency Department), a 2-week interprofessional selective, and a 1-week senior seminar. In the interprofessional selective, students participate in multi-disciplinary teams, working with each member of the team over the two weeks. The senior seminar is a continuation of the Doctoring curriculum that is part of the M3 didactic sessions, and is a 1-hour session on each Monday at noon which the students attend in person or online.

Certain featured topics are “curricular threads,” which are viewed as longitudinal themes cutting across the horizontal structure of the four-year curriculum. The curricular threads include:

- Quality improvement and patient safety
- Bioethics
- Interprofessional education
- Professionalism
- Health policy and economics
- Medical informatics
- Diversity – cultural competency and health literacy

Each curricular thread has a designated leader who develops the complete learning objectives and syllabus. Curricular mapping ensures that the objectives and goals of these ‘threads’ are completed throughout the four years of medical education.
INTEGRATION (HORIZONTAL & LONGITUDINAL)

- If basic science is integrated into clinical discussions, how are the exercises developed, who is involved in delivering content and how is competency assessed? Do you utilize any innovative methods of integrating basic science into the clinical clerkships?
- Are there other mechanisms established for the integration of basic science into the clinical experiences? Are the basic scientists involved in teaching during the clinical experiences?
- How did you accomplish vertical integration within blocks of time? How did you accomplish horizontal integration over time through the curriculum?

The curriculum was integrated by the use of teams to design individual courses based on a number of specific objectives put forward by the teams. The “Cellular and Molecular Basis of Life” and the “The Human Structure and Function” courses included teams mostly of basic scientists, while the “Neuroscience” course and the “Systems” courses included both basic scientists and clinicians. There is a designated individual whose job it is to formulate objectives for the threads (see above) that cut across the four years and assure that this thread is considered at appropriate places in the curriculum. The cases were designed by an interdisciplinary team of basic and clinical scientists to incorporate all aspects.
LONGITUDINAL CLINICAL EXPERIENCE

• Are students assigned clinical mentors and patients to follow longitudinally?
• If there is longitudinal patient exposure, how does the student maintain this relationship if the patient receives care out of the system? How do you maintain exposure during required inpatient clerkships (if these exist)? How do you maintain exposure during required lecture, labs, and small group learning based activities?
• What is the mentorship relationship like (frequency of meetings, responsibility of mentors for clinical education, requirements to be a mentor, demands on mentors)? Are all of the mentors primary care providers?
• Are there teams of students and how do these interact with mentors? What role do these teams play in the clinical and basic science education of the students? Do these teams last all 4 years? Do students receive education about how to effectively work in teams? Are students involved in the evaluation of teamwork and participation of fellow students?

Students have a primary care mentor for all 4 years. Initially, there is periodic contact with brief (week-long) intensive clinic exposures in their mentor’s office, three times per year. They have had some difficulty maintaining contact with mentors during the periods back at the main campus. They are working on ways to improve this. In the third year, the students are based at the clinical campus on which their mentor practices. Also, students maintain contact with an extended family (including all aspects of their healthcare) for the entire 4 years. Again, there has been variable ability to maintain this contact when not “on site”. The mentors are all primary care physicians and, at this point, there is one student for a mentor, although they have picked up a junior student as their mentee has reached third year.

Team skills are evaluated in many places in the first two-years of the curriculum (many team-based exercises). Communication, professionalism and knowledge are assessed during intensive periods with mentors and by assessment of their longitudinal patients. Additionally, 360-degree evaluations are made during the integrated 3rd year clerkship.

As described above, the third year entirely consists of a longitudinal clinical experience with a panel of patients and a mentor in each of 6 disciplines.
STUDENT INDIVIDUALIZATION

• How do you deal with the variable level of student capability at the outset (i.e., stepwise introduction of clinical responsibility)?

• How does this look from the student perspective?
  ▪ How flexible is the program at dealing with students in unconventional tracks or those with advanced prior experience?
  ▪ Do students have the ability to test out of specific learning experiences, i.e., is duration and nature of progression through curriculum at all competency-based?
  ▪ What difficulties were encountered in terms of students experience if self-directed learning was introduced into the curriculum?
  ▪ Does your curriculum give students the opportunity to individualize their experience either through specific tracks of study, Masters or other mechanisms?

• How does the program support and teach student wellbeing?

There are opportunities for additional specialization in a Masters track; however this requires an additional year of study.

Generally, speaking, students are expected to progress with their cohort through the curriculum.
CURRICULUM CONTENT

• How much is expected and what type of instruction do the students with regard to understanding of non-medical aspects that influence their assigned patients healthcare (insurance, the regulatory environment, socioeconomic factors, family factors, etc.)?
• Are there formal mechanisms for introducing and assessing other procedural skills (Sim center exposures, practical exposures, etc.)?
• Is there a formal ethics curriculum? How many hours and what format?
• How is research introduced and encouraged in the curriculum?
  • Are there formal programs to match students with research projects?
  • Is there a research requirement?
• Are there central competencies and outcomes that drive the curriculum?

The “Physician and Society” and the “Art and practice of Medicine“ courses have primary responsibility for introducing aspects of medical practice including evidence-based practice, quality improvement, domestic violence, preventive medicine, healthcare utilization and non-clinical issues of medical ethics, the healthcare system and medicolegal issues.

There is extensive availability of the simulation center for practice and evaluation of clinical skills (including communication).

There is a community service requirement, but no research requirement. This is accomplished as a team, in partnership with a community service organization at the campus to which the student has been assigned. Although planning for the project is part of the “Physician and Society” course, the work is done during the three weeks spent at the clinical campus. They do have an intranet site with research opportunities and they maintain connections with DoD research laboratories and with Sanofi Pasteur, which provide research opportunities for students.

The ACGME core competencies are the curriculum driver.
METHODS
• How are clinical skills taught?
• What is the structure (and mix)? Lectures? Labs? PBL? Case-based learning? What percent of time is spent in each year in lectures, small group learning, laboratory learning, and self-directed learning? What are some examples of self-directed learning?
• Are there specific or unique educational technologies (including software) used to develop or enhance flexibility of their curriculum?

Clinical skills are introduced in small groups, with added extensive experiences in the simulation center. There are 3 periods of a week each where students are with their mentors in an outpatient clinical setting in both the first and second years.
FACULTY DEVELOPMENT/SITE DEVELOPMENT

- What support exists for site development (time and training)?
- ***Does your medical school provide funding for clinician teachers? In general terms, how much? What is the funding stream for that support? ***please use discretion in your contacts about this***
- What professional support is there for curriculum development, oversight and evaluation?
- How is mentoring supported? How are faculty/advisor relationships cultivated?
- How does this look from the faculty perspective?
  - Are there “master educators”?
  - Is there a formal faculty development program for medical education? Who organizes this?
  - Does your institution have an Academy of medical educators? How is membership determined?

The community-based faculty are volunteers. There is no academy of educators, although they are considering this for the future.
EVALUATION AND REMEDIATION

- How is the assessment of basic science competency made?
- If basic science is integrated into years three and four, how are students prepared for the basic sciences in step one?
- How does the program teach, evaluate and remediate professionalism and communication issues?
  - Are there 360-degree evaluations (including peers and patients)? Where and when does this take place?
  - Do students participate in clinical performance outcome reviews?
  - How are these used to assess student performance?
- What are the curricular mechanisms for development and remediation of communication skills?
- Is there formal support of psychometricians for program and student evaluation?

There is heavy reliance on clinical mentors and feedback from the volunteer families for identification of non-cognitive issues in the first two years. In the third year, students have 6 primary mentors, and they (as well as the student’s panel of patient) are involved in evaluation.

There are education specialists involved in curricular design and implementation, but not specifically psychometricians. They do make expensive use of OSCEs for student evaluation.