Final Report of the Lifelong Learning Committee (LLC)

University of Washington School of Medicine Curriculum Renewal

Executive Summary
The focus of the work of the Lifelong Learning Committee (LLC) is captured in our value statement: “Our students faced with continued rapid growth in medical knowledge and a rapidly changing healthcare system require lifelong learning skills focused on evidence-based medicine, problem-solving, and critical thinking in order to provide optimal patient care”. What our graduates should be able to do at the end of medical school is captured in our vision statement: “When our students in clinical practice are faced with a clinical question, they should in a timely fashion be able to find an answer, critically assess the evidence associated with that answer, present their findings to their attending physician and patients, and apply it”. In the context of this framework we identified four key competencies related to medical information: Find, Assess, Present, and Apply. The “Present” competency may better fit in the communication committee’s scope than the LLC’s. Part of the “Apply” competency includes faculty and student modeling of LLC skills and a respectful attitude of collaborative teamwork, recognizing the role of students in problem solving, clinical decision making and lifelong learning. One LLC working group identified skills for each of the competencies for each of the three phases of the proposed new curriculum and the corresponding knowledge necessary to perform these skills. Another LLC working group addressed approaches to integrate LLC concepts into the new curriculum. The Committee recommends that: a) the knowledge and skills to find, assess, present and apply knowledge be concentrated in blocks in each phase of the curriculum, and b) opportunities to practice the skills and competencies should be applied throughout that phase (e.g. in other blocks or in clerkships). The Committee recommends that digital tools for each of the competencies (find, assess, present and apply) should be provided to students and faculty during medical school and during clinical practice.

Committee Members:
- Co-chairs: Peter Tarczy-Hornoch, Misbah Keen
- Members: Sudha Amarnath, Dallin Andersen, Tania Bardyn, Michael Campion, Matt Cunningham, Kenn Daratha, Herbie Duber, Heather Evans, Nicole Gibran, Pehr Hartvigson, Lilian Ho, Bryan Kestenbaum, Stephanie Lyden, John Marshall, Tom Pendergrass, Tim Robinson, Matthew Sather, Craig Scott, Paul Swanson, Erin Van Antwerp, Keir Warner

Process
The committee developed consensus value and vision statements related to the overall charge to the committee of “...recommendations...related to curricular approaches to evidence-based medicine, problem-solving, and critical thinking.” The LLC developed and recommends four competencies related to Find, Assess, Present, and Apply as well as 16 corresponding skills that progress in a spiral fashion (building upon each other) through the 3 phases of the proposed new curriculum (see page 4 for overview of value, vision, competencies and skills). An LLC working group then mapped, refined and linked each of these competencies and skills to those required by external bodies (USMLE, ACGME, AAMC) and those felt to be key to LLC values/vision internally (LLC committee, curriculum renewal process, and existing courses particularly HuBio 590 Medical Information for Decision Making and HuBio 530 Epidemiology). Specific knowledge elements needed to perform these skills and competencies and were likewise mapped to external and internal knowledge elements. The resulting map of LLC competencies, skills and knowledge elements are included in the working group report in Appendix A (pages 5-12). In parallel another LLC working group focused on how to integrate LLC concepts into the proposed new curriculum structure of 3 phases with blocks in the foundations phase. This working group solicited best practices from members and reviewed the current literature on best ways to teach LLC skills. The working group members then came up with ideas that were more likely to be applicable to our setting after having reviewed the vision and pre-curriculum committee recommendations. The resultant recommendations are in the working group report in Appendix B (pages 13-14). The Committee reviewed, refined and approved the reports of the two working groups (see i. Summary of Values/Vision/Competencies/Skills, ii. Appendix A and iii. Appendix B pages 4-14).
Response to Charge

Charge 1: "Critically assess current curricular programs that work well and those that need improvement with respect to LLC focus".

- The mapping effort above identified that what works well is the majority of the knowledge elements for LLC are being covered in the current Medical Information for Decision Making (HuBio 590) and Epidemiology (HuBio 530) curricula.
- The mapping effort identified that current HuBio 590 and 530 course offerings do not allow much opportunity to practice the LLC skills and competencies. More importantly, the LLC determined that currently other pre-clinical courses and clinical rotations have not been systematically using and reinforcing LLC competencies and skills. Put another way LLC skills should be revisited, applied and critiqued at the “teachable moment”

Charge 2: "Recommend new programs and/or approaches to advance and improve the curriculum in and approaches to LLC"

- Page 4 and Appendix A (pages 5-12) capture what needs to be taught for LLC but not how
- Overall the LLC believes a) the knowledge and skills need to be taught in blocks in each phase of the curriculum (in other words in a more concentrated fashion) then b) the skills and competencies applied during other parts of that phase (e.g. in other blocks or in clerkships).
  - LLC concepts should be taught (knowledge) at each of the 3 phases of the curriculum and that within each phase there should be multiple opportunities for application/reinforcement of the skills/competency for that phase of the curriculum
  - Coursework should be buttressed by the availability of a collection of digital tools for each of the competencies (find, assess, present and apply)
- A summary of recommendations of the working group focused on integration of LLC concepts into the proposed curriculum follows (details in Appendix B pages 13-14) (NOTE: the summary represents refinement of the work presented in Appendix B)
  - There is need for a concentrated teaching of a combination of LLC knowledge and skills in the early foundations phase using active learning modalities and minimizing passive lectures.
    - For example as a part of the first block Tier 1 LLC skills/knowledge could be taught using a flipped classroom and team/problem based learning with core content made available to all students and faculty for use/reference in later blocks/clerkships.
  - LLC skills should be used in the new “ICM” to integrate LLC into basic clinical skills.
  - Longitudinal themes / activities
    - Integrate LLC skills into all blocks and clerkships
    - All blocks and clerkships should clearly define, state and evaluate relevant LLC skills
    - LLC skills performance should be part of the final grade of all blocks and clerkships
    - LLC skill sessions run by students and faculty should be part of the intersessions
    - Important: Oversight/governance will be key to ensure LLC concepts are integrated into blocks and clerkships. Example: propagating implementation down to the bedside to the faculty and residents doing the point of care teaching and assessment. Evaluations of the integration of LLC into blocks/clerkships likely will be an important part of the implementation.
  - Faculty Development
    - Building faculty capacity for teaching and modeling LLC skills is critical.
    - Faculty development should include using the UWSOM HS Library resources and could include distance active learning strategies (for example online games)
    - LLC exemplars need to be identified and their best practices disseminated.
      Exemplars are faculty / senior students who use and can model the LLC skills being taught in that block / clerkship
  - Hierarchy of how the skills should be taught
    - Foundations Phase - Learn/Practice LLC knowledge/skills (Tier 1)
    - Clinical phase – Apply + Teach/Model LLC skills (Tier 2)
    - Career Exploration Phase – Continue to Apply + Teach / Review LLC skills (Tier 3)
    - All Phases: Reassess how you are learning
Charge 3: Work collaboratively with other curriculum renewal committees to ensure education related to LLC is an integral, integrated and vital part of UWSOM curriculum

- LLC has raised the question of whether more statistics background prior to entry to medical school should be considered
- We have communicated with other curriculum renewal committees and the curriculum renewal committee regarding our responses to Charge 2 which involve integration of LLC into the three phases of the proposed new curriculum
- Numerous synergies and no fundamental objections/issues have been identified
- A recurring thread from LLC is the need to be sure appropriate assessment and evaluation is done (for skills, competencies and knowledge). For examples see comments in Appendix A (pages 5-12). Assessment and evaluation were not addressed further as this was believed to be the charge of the assessment committee

Other Points from LLC Committee Regarding Educational Approach

- The teaching of the LLC competencies lend themselves to active learning, flipped classroom
- Spiral model of education (continually building up iteratively LLC competencies, skills and knowledge)
- Increasing efficiency of learning during in-class time by implementing measures for learning and performing clinical contextual skills in classroom.
  - Medical Student Comment: I’m a little weary of standard lecture model, because although in class time is important and helpful. I’ve found that the time I spend on my own reading and studying is usually my highest efficiency learning time.
  - Comment: The faculty will continue to play a critical role in the classroom in active learning environments by guiding learning, by clarifying misconceptions, and by answering student questions
- Multimedia, textual tools are high yield when in a to-the-point format and, though greater time investments initially, have more focused impact.
- Tools to increase out-of-class study efficiency involve short, focused video segments, quizzes, and MIDM in a Nutshell (HuBio 590, Medical Information for Decision Making).
  - Digital tools to refer to/apply the material in 2nd and 3rd phases of curriculum
- Efficiency of learning and opportunities to apply lessons must increase to create lifelong learning habits. Otherwise, students will lose germane points on the “what” and the “how” as is often the case in traditional lecture-exam curriculum format.
  - Comment: I still believe that LL is a cultural goal. The lifelong learner is imbued with a discomfort and need for expanding knowledge, skill, competence and performance without being overwhelmed by how broad and difficult the task is. They see it as part of their professional persona
- Value: Our students faced with continued rapid growth in medical knowledge and a rapidly changing healthcare system require lifelong learning skills focused on evidence-based medicine, problem-solving, and critical thinking in order to provide optimal patient care
- Vision: When our students in clinical practice are faced with a clinical question, they should in a timely fashion be able to find an answer, critically assess the evidence associated with that answer, present their findings to their attending physician and patients, and apply it
- Approach: We believe a) the knowledge and skills need to be taught in blocks in a given phase of the curriculum (in other words in a more concentrated fashion) then b) the skills and competencies applied during that phase (e.g. in other blocks or in clerkships). Digital tools for each of find, assess, present and apply should be provided

1. Competency: Find best document(s) (or resource(s)) to address a clinical question
   a. Tier 1 Skill: Be able to translate a clinical question into searchable terms to find the most relevant evidence from a given database/resource
   b. Tier 1 Skill: Find a single document (or resource) relevant to a query and decide if the single document answers (is relevant to) the clinical question
   c. Tier 2 Skill: Find one or more relevant documents (or resources) and select best (most relevant) one(s) to answer the clinical question
2. **Competency:** Critically **assess** the evidence in the document(s) (or resource(s)) in a clinical context
   a. Tier 1 Skill: Assess the validity of a single document (or resource) with respect to the clinical situation
   b. Tier 2 Skill: Given multiple relevant document(s) (or resource(s)) assess which one(s) provide best evidence (highest validity) within a clinical context
   c. Tier 3 Skill: Decide if document(s) (or resource(s)) are of sufficient validity to warrant a change in your practice with respect to the clinical question

3. **Competency:** **Present** material and plan based on document(s) (or resource(s)) to both attending and patient
   a. Tier 1 Skill: Communicating what you learned from doing a search and assessing a document to a supervisor and to a patient in an introductory clinical context
   b. Tier 2 Skill: Communicate and defend rationale for a proposed clinical decision on the basis of a search and assessment of documents to a supervisor and to a patient in a clinical practice setting
   c. Tier 3 Skill: Integrate both evidence based findings (Tier 1 and 2) as well as the patient’s own perspective, beliefs and desires to generate a recommendation
   d. Tier 3 Skill: Educate patients, families, other providers (and self) regarding basis of a clinical decision/recommendation

4. **Competency:** **Apply** the information to the care of the patient
   a. Tier 1 Skill: Compare two documents in the context of a clinical question and choose the better one
   b. Tier 2 Skill: Compare relevance and validity of a collection of documents to a clinical situation to come up with a course of action
   c. Tier 3 Skill: Ability to keep up with the flood of new information and new clinical decision making tools and resources
   d. Tier 3 Skill: Develop a clear understanding that personal approaches for keeping up to date in partnership with trainees and colleagues will need to be periodically revisited throughout ones career
   e. Tier 3 Skill: Develop personalized approaches to keep up to date given that the answer to a clinical question can change over time thus doing a search once is

Sources: USMLE Step 1 and 2 content outline, AAMC/HHMI “Scientific Foundations for Future Physicians”, ACGME competencies for residents (V1.3), recommendations from SOM, consensus of UW SOM Lifelong Learning Committee. All informed by material from HuBio 590 Medical Information for Decision Making (MIDM), material from HuBio 530 Epidemiology and clinical clerkships