# SCHOLARLY CONCENTRATION APPROVAL FORM

**Name: Clinical Quality, Safety and Evidence Based Medicine** (Improving patient care and decreasing medical errors; a curriculum about clinical quality, safety and EBM)

**Director/Co-director:** Eric Thomas and Donald Molony

**Administrative coordinator:**

# Mission:

1. To teach students how to apply the principals of safe and evidence-based care.
2. To introduce students to research methods for generating the robust evidence that defines quality and safe healthcare.

# Maximum number of students per year: 10

**Student selection process:** Each student will write a 250-word essay about why they wish to pursue a scholarly concentration in this area of study.

# Concentration requirements (didactic and experiential- original research):

**Didactic:**

1. 1st year students all take the Institute for Healthcare Improvement’s online classes about quality and safety as part of their required curriculum during year 1.

Students in this scholarly concentration will:

1. At the end of MS year 1, list the IHI modules they have completed and indicate which modules may have been completed voluntarily that were not otherwise required of all students.
2. At the end of their research experience, reflect on the application of the IHI principles to their specific research and write a summary of how they applied the principals covered in the IHI curriculum to their summer reach project. This reflection will include considerations of how their research might address issue related to safety and quality in clinical care.
3. Summer of 1st year, scholarly concentration students during their research experience will participate in the summer student research curriculum offered by the Center for Surgical Trials and Evidence Based Practice (C-STEP). Lecture topics may include but are not limited to:
   1. Developing a research hypothesis –

What is a PICO question and how do I develop one?

* 1. Now that I have a question, how do I do a literature search?
  2. How do I appraise the literature?
  3. What basic statistics do I need to know?
  4. Ethics in human subjects research
  5. What study design (cohort study, randomized trial, etc) should I use?
  6. Now that I have results, how do I write an abstract and make a poster presentation?
  7. How do I give a presentation?
  8. Translational research

1. 2nd year students who will have had epidemiology and an introduction to critical appraisal in year 1 of their curriculum, and additional critical appraisal sessions in the first semester of year 2, will conduct a literature search on the topic of their summer research, list the major papers identified by that search, critically appraise at least one paper from the medical literature and draft a paragraph for an introduction for their summer research presentation, abstract, or manuscript. Dr. Molony will provide feedback on the search and critical appraisal. This will be due prior to the summer research poster presentation in the fall of year 2.
2. 3rd year the students will attend 3 Departmental M&M conferences (or equivalent in the department of their choice) in the Fall / Spring semesters and provide a paragraph summary of their impression with supporting evidence pro and con of the effectiveness of the particular discussion where the discussant reviewed any evidence of either or both effectiveness and safety. They will discuss these observations with their scholarly concentration mentor and their summaries (fully de-identified) will be included in their scholarly portfolio.

V. 4th year students have a choice of options for fulfilling year 4 SC requirements:

1. 4th year students who are concentrating principally on the Evidence-based Medicine (EBM emphasis) of this scholarly concentration, will be encouraged to participate in the EBM- student elective; Course Director: Dr. Molony. In this elective, students provide evidence-based reports in response to consultation requests from the ward teams and in response to questions that arise from Resident’s Report. As part of this elective students will continue work on a systematic review that complements their research or another topic of current interest.
2. As an alternative, 4th year students focusing on **safety** (Safety emphasis) may elect to observe the functioning of a hospital or UT Physicians quality committee, in particular, following from identification to completion of the analysis one or more root cause analyses.
3. Alternatively, any student in this concentration may elect to frame and initiate in collaboration with residents and faculty in a particular department a quality improvement project focused on safety.
4. Students who are asked to present to a “residents case review” departmental conference on a topic of safety, quality or EBM may use this conference presentation as documentation of application of their principals of Quality, Safety and EBM in year 4. A powerpoint presentation from this presentation will be included in the student’s scholarly concentration portfolio.

VI. In addition to these specific didactic exercises, students in this concentration will be exposed to the principles of evidence-based medicine and epidemiology, observational and experimental study designs as part of the longitudinal theme in the core medical school curriculum in each of the four years of medical school.

**Experimental:**

Students in this scholarly concentration will be required to participate in a scholarly research project during the summer between their first and second year of medical school. After selection for this scholarly concentration in the fall/spring of their first year, students will elect ideally by February 1 (and no later than May 1) of their freshman year to focus on either EBM or Safety so that they will have sufficient time to develop a related research project and obtain IRB approval prior to a June 1 (or equivalent) start of their summer research experience. They will select a mentor from the concentration faculty (or a mentor of their choice who will commit to helping the student achieve this scholarly concentration’s research goals) and with their mentor develop a research proposal (submitted in writing (brief summary), to be included in their portfolio prior to the start of research, June 1, year 1) and conduct the research project during the first summer. It is anticipated that some students will continue working with their mentors on their research projects beyond the first summer. Students, however, will be required to present their findings from their summer research to a symposium selected by the scholarly concentration committee and their individual mentors, or if in the Summer Research Program (SRP) supported by the Medical School, to the SRP symposium in October of their sophomore year.

These research projects may be of various types broadly in the area of EBM, Quality and Safety.

* 1. Some students will be able to participate in a quality improvement project as part of the Clinical Safety and Effectiveness Course.
  2. Students can work on clinical and quality/safety research projects in Departments of Medicine, Surgery, Pediatrics, Obstetrics and Gynecology; Anesthesia; Emergency Medicine (or equivalent with the directors’ prior approval) and in C-STEP, the Center for Clinical Research and Evidence-Based Medicine, and the UT-Memorial Hermann Center for Healthcare Quality and Safety.
  3. A Cochrane Collaboration Systematic Review or equivalent can fulfill the research requirements for this concentration.

# Timeline (year by year) for student completion of concentration requirements:

# Scholarly projects\*

1. **indicate the types of faculty-mentored student scholarly projects available to students (e.g., basic research, clinical research, public health analysis, curriculum development, literature review, etc.):**

Clinical research, research on healthcare quality and safety, health information technology research (EMRs), quality improvement projects, evidence-based evaluations of clinical effectiveness, evidence-based systematic reviews of the literature (e.g. Cochrane Reviews).

# indicate the procedure used to review and evaluate the students’ scholarly projects and outcomes (scholarly product):

All students will present their scholarly project to faculty and other students in the concentration during a series of seminars following the summer. Additionally, they will

be required to present their findings at a poster session of a local (Medical School or TMC) or State or National scientific meeting.

# indicate strategies for dissemination of the scholarly product:

Presentations at national and local meetings, for example the UT System Clinical Safety and Effectiveness annual meeting (also the local meeting of the same course). Present systematic reviews and guideline updates to MHHS Healthnet Providers/Committees.

Whenever appropriate, students will be encouraged to submit their findings for presentation at a national scientific meeting.

\*a traditional student-authored manuscript describing his/her project and its outcome is required.

This manuscript will be included in the student’s scholarly concentration portfolio along with the original research proposal and any abstracts, posters etc prepared for national meetings.

**Student Evaluation:** Students will successful complete the requirements of this scholarly concentration and receive a certificate of their accomplishments but completing all of the required didactic sessions / courses and the scholarly project. Satisfactory completion of these requirements will be adjudicated by a committee consisting of the co-directors and at least one other faculty sponsor. The student’s mentor will provide a brief written evaluation of the students’ research project (evaluation form to be developed) that will form the basis of the assessment of this core item. The concentration portfolio will be used to catalogue successful completion of each of the elements of this concentration.

**Scholarly Concentration Programmatic Oversight and Evaluation:** A committee of the Directors and Supporting Faculty will meet on a regular basis to evaluate the success of this educational initiative and to consider changes and or additions to the concentration as dictated by resource availability and regular evaluation. It is anticipated that additional research and didactic features will be further developed for the program during the medical students’ penultimate year so that they may demonstrated in a summative fashion the skills acquired and may come to closure with their projects. Students will be surveyed each year to provide the faculty with timely programmatic feedback.

**Scholarly Concentration Faculty**

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| Faculty Name | Contribution(s) to Concentration | Department |
| Eric Thomas | Co-Director | Internal Medicine |
| Donald Molony | Co-Director | Internal Medicine |
| Lillian Kao | Faculty sponsor | Surgery |
| Bela Patel | Faculty sponsor | Internal Medicine |
| Kevin Hwang | Faculty sponsor | Internal Medicine |
| Josh Samuels | Faculty sponsor | Pediatrics |
| Dean Sittig | Faculty sponsor (research on  EMRs/HIT in particular) | SHIS, Center for Healthcare Quality  and Safety |
| Jon Tyson | Faculty sponsor | Pediatrics, Center for Clinical Research and Evidence Based Medicine |
| Joyce Samuels | Faculty sponsor | Pediatrics and Center for Clinical Research and Evidence Based Medicine |
| Susan Wootton | Faculty Sponsor | Pediatrics |
| Steven Canfield | Faculty Sponsor | Urology |
| Robert Murphy, MD | Faculty Sponsor | UT School of Bioinformatics |
| Memorial Hermann Hospital System / Adjunct Faculty SHIS-UTH | | |
| Siraj Anwar, MBBS, MS | Faculty Sponsor | Clinical Informaticist (Clinical Decision Support) |
| Mano Selvan, PhD | Faculty Sponsor | Clinical Informaticist (Outcomes &  Research) |
| Peter Killoran, MD, MS | Faculty Sponsor | Chief Medical Informatics Officer - Academic Operations  Memorial Hermann Hospital – Texas Medical Center  And  Associate Professor  UT Health Department of Anesthesiology | School of Biomedical Informatics |