Teaching Portfolio
Chayan Chakraborti

Tulane University

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Section 1

Teaching Philosophy

When asked what I do, I've gotten into the habit of introducing myself as a teacher. When pressed further as to what I teach, I reply: medicine. The order, I feel, has become increasingly more significant. While I will always value and derive satisfaction from providing high quality patient care, that satisfaction is magnified when I have the opportunity to use patient interactions for education. Maintaining patient care excellence is hard; it represents a commitment to on-going self-instruction and self-reflection. But the most self-instructive moments occur in times of uncertainty, when the clear road is not apparent. These instances of situational anxiety let me know when I've been brought to the very edge of my comfort zone. "Learning edges", these were called in my fellowship, and I finally understand what the term means.

David Kern, Kelley Skeff, Bob Centor and others have talked about creating a certain degree of anxiety when posing questions to learners. Pose a probing question; wait for the silence to build. From this, one of 3 consequences will follow: (1) learners will fervently but silently hope that they are not called upon; (2) the silence will become untenable and the learner will submit an answer; (3) the questioner will succumb and provide the answer. In my medical education fellowship, we were encouraged to challenging learners's assumptions and then *listen to the silence*. I have found that it can be instructive. Allow the anxiety to build; deepen the moment, and see what happens. I find that eight out of 10 times, someone is unable to outlast the attending and submits an answer. Right or wrong, this is often an excellent lead in to a discussion.

I learned several important concepts while teaching high school including if someone is in a pre-contemplative stage of learning, the instructor's challenge is to nudge them into a stage in which they contemplate learning. That is to say, finding a "hook" to get someone interested – something I believe that exists for everyone. These educational strategies require significant attention to individual learners' needs. I feel that this is best achieved through interactions in small group environments, e.g., rounds, small didactic sessions. The smaller size and casual structure of these sessions allow me to provide the degree of attention that I feel in necessary to mentor appropriately. When learners incompletely understand a concept, I view this as a problem with my explanation and only rarely an issue with the learner.

"Lifelong learning" has become a buzzword in medical education. My interpretation of this phrase is engaging in critical self-reflection and to take steps to address those "learning edges". Just as I challenge learners to demonstrate if learning has occurred, I try to engage in immediate critical self-reflection as a way to continuously improve the quality of my efforts. Both of these processes, stem from Quality Improvement methodology, inasmuch as what is usually most effective is to make multiple small changes over time: assess —> intervene —> reassess —> re-intervene (repeat as needed). In this way, I hope to maintain a high-level of teaching and the continued growth of my own skills and to the benefit of the learners.

All of the items described above are perfectly captured by improvisational music, most notably, blues and jazz. In jazz, a performer listens to the overall picture of the piece, finds something interesting and changes it for an effect, challenging the convention. When performing, the jazz artist obtains feedback from the rest of the quartet and from the audience, weaving a tapestry of improvised notes around a familiar catchy refrain (a hook) that enriches the whole.

Miles Davis once said: "The thing to judge in any jazz artist is, does the man project and does he have ideas." How apropos for teaching as well.

Chayan Chakraborti, MD, FACP, FHM
Associate Professor of Clinical Medicine
Department of Medicine
Tulane University School of Medicine

Section 2

Teaching & Learning Responsibilities

For details on specific sessions, please refer to my Teaching Log, found in the Appendix [link].

Graduate Medical Education - Internal Medicine Residency

1. Ward service attending: Since 2005, I have served as teaching ward attending averaging about 7 months per year. While on service, I round with the inpatient medical team 6 days a week hearing case presentations by housestaff and 3rd & 4th year medical students. As a hospitalist, I remain in the hospital after rounds to attend hospital committee, be available to my team for teaching and guidance, supervise procedures, participate in family meetings, and meet with nursing, case management, and ancillary hospital staff.

2. Core Internal Medicine Teaching Conferences: teaching various topics in the core medicine curriculum.

Undergraduate Medical Education

1. Ward service attending: In addition to duties described above, I hold dedicated teaching sessions for the medical students. These generally cover ECG reading and interpretation, radiology rounds, and sessions on core inpatient medicine topics such as heart failure, acid-base disorders, COPD exacerbations, etc.

2. Medical Student Journal Club faculty advisor: Since 2008, I have been the faculty advisor. The journal club is largely student organized, soliciting other faculty to serve as guest discussants. My role is to guide the format of these sessions, help engage other faculty, and provide continuity from year to year for the student leadership of the journal club.

3. Foundations in Medicine Year 1 course director: Since 2011, I have been the director for the pre-clerkship clinical skills course at Tulane SOM. This is the course, similar to those at other institutions, that introduces skills such as medical interviewing/history-taking, communication, medical ethics, and physical diagnosis. Interviewing and communication are the focus of the first-year course.

4. Foundations in Medicine Year 2 course director: In the second-year of this course, the students are introduced to advanced interviewing skills such as end-of-life discussions, sexual & LGBT history taking, cultural & ethical issues. In addition, students are also taught principles of evidence-based medicine, biostatistics, and clinical reasoning.

5. HEAL-X curriculum MSK module director: With the introduction of a new curriculum at Tulane SOM for MD-PhD students (HEAL-X), I am the clinical director for the Musculoskeletal Module. I

determine the learning objectives, content, teaching methods and evaluation, and coordinate instructors for this 2 month module.

6. <u>HEAL-X curriculum Medical Interviewing & Clinical Skills director</u>: While I am the specific director for 1 module (MSK) as described above, I am also responsible for ensuring & overseeing that all the modules contain elements of medical interviewing, physical exam, and clinical reasoning.

Course Directorships

Director	Career Advising Program (Tulane)	2013-present
Course Director	Foundations in Medicine 1 (Tulane)	2011-present
Course Director	Foundations in Medicine 2 (Tulane)	2011-present
Course Director	Evidence-Based Medicine & Biostatistics (Tulane)	2009-present
Course Director	Interprofessional Patient Safety Course (Tulane)	2009-present
Module Director	HEAL-X: Anatomy & Musculoskeletal Module (Tulane)	2014-present
Module Director	HEAL-X: Musculoskeletal Module (Tulane)	2013-present
Clinical Skills Advisor	HEAL-X Curriculum (Tulane)	2013-present
Director	T4 Small Group Facilitator Course	2011-present
Clerkship Director	Community Health Clerkship (Tulane)	2010-2011
Faculty Director	Tulane Advanced Research Curriculum for Med Students	2009-2012
Faculty Director	Student Journal Club (Tulane)	2008-2013
Director	Code Grey Curriculum for IM Housestaff (Tulane)	2008-2012
Clerkship Director	4th Year Sub-Internship (George Washington University)	2007-2008

Additional Teaching

Instructor	Research Elective Month (medical school)	2008-present
Instructor	Research Elective Rotation (IM residency)	2008-present
Instructor	Medical Education Elective (MS 1 & 2)	2011-present
Instructor	Service Learning Elective (MS 1 & 2)	2011-present
Preceptor	Clinical Diagnosis Course (MS-2)	2008-present
Instructor	Interdisciplinary Seminar Title: So you wanna write a case report?	2008-present

Additional Teaching

Core Faculty	Fundamentals Module, HEAL-X	2013-present
Core Faculty	Anatomy Module, HEAL-X	2013-present
Core Faculty	GI Module, HEAL-X	2013-present
Core Faculty	Renal Module, HEAL-X (Tulane)	2013-present
Core Faculty	Pulmonary Module, HEAL-X (Tulane)	2013-present
Core Faculty	Ambulatory Medicine Clerkship (Tulane)	2008-2012
Core Faculty	Core Internal Medicine Resident Teaching Conferences (Tulane)	2008-2012

Clinical Teaching

Attending Physician - University Hospital/MCLNO-Interim Louisiana Hospital

26 weeks on clinical service; average 10 hours/week bedside teaching	2013
26 weeks on clinical service; average 10 hours/week bedside teaching	2012
30 weeks on clinical service; average 10 hours/week bedside teaching	2011
34 weeks on clinical service; average 10 hours/week bedside teaching	2010
36 weeks on clinical service; average 10 hours/week bedside teaching	2009
36 weeks on clinical service; average 10 hours/week bedside teaching	2008

Faculty Development

Member	Tulane Internal Medicine Faculty Development Steering Committee	2012-present
Core Faculty	Tulane Internal Medicine Faculty Development	2012-present

Grants Related to Medical Education

Grants Related to Medical Education	Amount	Date
Ettarh, R, Jerrett D, Chakraborti C, Krane K. (SGEA, AAMC) Research in Medical Education Grant. Funding for 2 years to examine the development of a model for evaluating knowledge retention.	$1800	2012
Chakraborti C. Office of Medical Education Mini-Grant. Funding for 1 year to develop a student research curriculum at Tulane School of Medicine.	$2450	2010

Section 3

Teaching/Learning Methods & Strategies

"Think Different."

The 1997 marketing slogan for Apple Computer, Inc. elegantly encapsulates my overarching goal for teaching and what I would like my learners to achieve. The specific strategies for accomplishing are thing which I have worked on and are forever being refined.

I believe that one of the most important things I can offer learners is my approach to a topic. That is to say, how I've put things together; how I have internalized concepts. I generally try to provide "off-the-cuff" discussions. If learners ask me to speak to them about a topic, say heart failure - I *could* come back the next day having prepared a PowerPoint presentation on the etiologies of heart failure. But truthfully, I think this amounts to a re-hashing of either review articles or textbook chapters; things the learners could do very well on their own.

Rather, I provide the learners with *my approach* and *my understanding* of the concept; in other words, how have I as a more seasoned clinician *internalized* a particular concept. By providing such a framework, I feel that the learners are better able to engage in active learning. They are challenged. They can review their existing understanding/approach and compare it to that of someone with a bit more experience. This, I believe, is the biggest challenge for adult learners in medicine: How does one know if one's understanding of a concept is near or far-off the mark? In this way, being an effective teaching includes being able to influence how learners perceive concepts or skills. Challenge their current way of thinking.

As an illustrative example: for the students with whom I work on the wards, part of my introductory comments and expectations for the month involves the discussion of Legos. I draw a parallel between each piece of data elicited or collected by the students on their patient is a Lego block; each item from the history, from the physical exam, the labs, tests, and studies. At the end of all this, you are left with countless Lego pieces of various sizes. You try to assemble these in doing so, there are several questions that you have to address: Did I get (elicit) all of the pieces? Of the pieces I obtained, do I use them all? If not, which ones do I leave out? What should the overall shape be? After assembly process, how does one know if one is right? If you were dealing in actual Legos, you would compare your structure to the picture on the front of the box. But what if there is no picture available? The answer, I tell the students, is to compare what you made (perhaps a ship), with what the interns (car) and resident (house) made, and finally what the attending pieced together (castle). From this process, the learner is able to refine the skill of synthesizing knowledge.

I try to follow this approach whether I am presenting a teaching topic or whether I am running rounds or morning report, or instructing a procedure, or teaching communication skills. In all cases, I endeavor to elucidate my approach, how I assimilate the points of a case or problem, and my reasoning behind various courses of action. Once these teachable moments are primed, I try to teach in short, bite-sized

pieces of learning during which I highlight small connections. The challenge is to create a framework, a neural net, which when facts are inserted and linked together, help elucidate topics. My immediate goal in a teaching encounter is to forge a logical chain in an effort to ultimately solidify the learner's reasoning. Thus, I try to make a clear distinction between knowledge and understanding. Knowledge, while necessary, is insufficient. I believe that a demonstrable step towards understanding is how that knowledge is used, or the Aristotelian activity of *praxis*.

However, the construction and delivery of this kind of teaching is also relevant. I feel it would be a disservice were I not to allow learners the opportunity to put forth their own reasoning, thoughts, and suggestions. Were I simply to pontificate, I would deprive learners of the teachable moment. It is in the comparison of the learner's internalization of a concept compared with mine that the teachable moment occurs. High achievers (such as medical students) are used to being right. It is important to note that educators have to create the right kind of learning environment so that learner will be will to put forth their own reasoning and are <u>willing to be wrong</u>.

Establishing the learning climate, then is as important as teaching skill. Teachers teach themselves to do this in two ways. First, through constant, rigorous self-assessment. After a teaching session, I review my teaching efforts (as often as possible), reflecting on questions such as: How did that session go? How could it have gone better? In addition to formal evaluations, I try to engage in immediate critical self-reflection as a way to continuously improve the quality of my efforts. In this way, I hope to maintain a high-level of teaching to the continued growth of my own skills and to the benefit of the learners.

Second, was I able to read the audience? For example, as I reflect on a session, I recall how my teaching audience reacted to a particular portion. I note how in places where I intended one thing, the meaning may have been misconstrued. Did the learners "get it"? This misconstrued meaning occasionally reveals a different way of looking at a concept that I had not considered, or identifies a critical conceptual error. Thus, in the next iteration of that teaching session, I can accommodate this different meaning and drive the conceptual point across more effectively. Both of these processes, reading the audience and critical self-reflection, serve to hone one's ability to establish the optimal learning environment and serves as a a critical step in conveying educational content.

Section 4

Methods to Assess & Evaluate Student's Learning

While evaluation is a critical part of educating learners, crafting the appropriate evaluation strategy is often overlooked. There are two parts to designing evaluation carefully: 1) that the evaluation method actually tests what the instructor intends, and 2) that what the instructor intended to evaluate is the best modality for the concept or learning objective involved.

I view this process akin to designing a scientific study. In scientific studies, the study question must appropriately address the aim of the study. The variables and outcomes to be studied must logically follow from the study aim and question. For example, if the study aim is to evaluate the relationship between hair color and height, an appropriate study question may be: are all blond individuals taller than non-blond individuals? The variable should be hair color (dichotomized to blond/non-blond) and the continuous outcome of height. In this example, the aim of interest, the question asked, the outcomes evaluated all demonstrate <u>congruence</u>.

This should be no different in the evaluation of learners. The study aims correspond to the educational goals and objectives, the questions relate to the objectives, the outcomes relate to the tests and assessments. Naturally, this also implies that the educational intervention involved is congruent not only with the intended learning objectives, but adequately addresses the variables and outcomes of interest. This, I feel, is where novice educators have difficulty. They know what content they want to teach, but are unable to form effective, measurable learning objectives, and thus the variables and outcomes included in their evaluations miss the intending target. Thus, in my opinion, novice (and veteran) educators might do better starting with the end goal in mind: what do you want the learners to demonstrate at the end of the educational intervention? This should drive the creation of learning objectives, the content to be delivered, the evaluation strategies employed, and measured outcomes.

One other factor plays heavily on my approach of evaluating students' learning. I prefer to see applied knowledge in my learners. Kirkpatrick's framework suggests that observation and interview time is required to adequately assess this third level in his hierarchy. I submit that the day-to-day business of healthcare (in general) and medicine (in particular) makes assessment of applied knowledge routine. Medicine is built upon interactions: between patients and physicians, between physicians and other physicians, between physicians and other healthcare providers, between physicians and aspects of the healthcare system. These are assessments of behaviors and each occurs countless times daily. Thus I focus on assessments of applied knowledge not because it is near the top of a hierarchical framework, but because it is the very foundation of our profession.

MS 1 and MS 2

- Focused Clinical Examinations (FEX) – this is the formalization of the observations that physicians see in our daily professional lives. By standardizing the process, observer variation is minimized. The appendix to this section includes a Teamwork FEX, which I developed, piloted, and implemented and is currently in use at the Johns Hopkins School of Medicine in the Patient, Physician, and Society course. This has also been adapted to the small group ethics sessions, patient safety sessions, and teamwork simulations employed in the Foundations course at Tulane.

- Simulation – I teach many sessions in patient safety and improving medical quality through collaboration and teamwork. Often the best learning occurs when a group working together initially proves ineffective. Thus, learners need a "safe" place/situation in which to fail and then learn from mistakes. Behavior errors can only be caught in such situations. Simulations, in particular, high fidelity simulations provide a solid environment to enact, review, and ultimately learner from controlled failures. I have included the TIPS Curriculum in the appendix, which provides an illustrative example.

- Knowledge-based tests – early in the educational pathway, knowledge-based tests are unavoidable. Frequently, the knowledge itself is secondary, while the process outcome of actually taking the test serves as a proxy for assessing whether the learners did the indicated assignment/homework. Applied knowledge is what is most desired; somewhat counter-intuitively, knowledge-based tests may not be the most appropriate way to assess this.

- Problem-Based Learning and Team-Based Learning group exercises elevate knowledge-based tests closer to applied knowledge. Often knowledge-based tests are included in TBL sessions, but these have to be employed to the benefit of the group. Collaboration of ideas and strategies is required to "solve" the questions or problems posed in the TBL groups. Pedagogically, TBL may be fairly new and revolutionary. However, collaborative study groups have existed for a long time. Providing these study groups with a formal structure and implementing them to students en masse serves to address the isolationism that plagues studying massive amounts of material common to medical school.

MS 3 and MS 4

- Simulation – used again in these years, though the focus is now on clinical reasoning. Structured tools such as the FEX can also be invaluable especially when combined with structured encounters like simulations. For more senior students, the combination of standardized patients and simulations serves to increase the fidelity of the encounter generally resulting in better responses from learners.

- Observation & Feedback of clinical reasoning – Clinical reasoning is the method by which physicians utilize their fund of knowledge, probe additional information from patients using good communication skills, which directs the next course of action, anticipating problems and their contingency plans in an effort to provide patient-centered medical care. Each step along this path requires critical review. Providing adequate feedback that is also constructive is the key to this process. Achieving facility in providing constructive feedback requires dedication of the instructor as well as reflection, which I acquired through participation in the Johns Hopkins Teaching Skills Faculty Development Course (certificate included in appendix).

House staff and Veteran Physicians

- Feedback – physicians who are still in their training seek to demonstrate that appropriate behaviors and interactions and that they can achieve the intended outcomes. Whether this is an interaction with a patient receiving bad news, managing a complex patient; refining behaviors are now the focus. Even junior faculty (recent matriculants from a residency program) have a new set of behaviors they are trying to master. While in residency they learned how to perform the functions of their chosen field, they now need to refine new skills: how to run a clinic, how to interact with the healthcare system, how to oversee others. Feedback in these areas is critical. The key to providing good, effective feedback is to establish clearly the learner's expectations and when providing feedback, describe specific actions or behaviors.

- Self-reflection/reflective practice – in addition to soliciting continued feedback; seasoned professionals will incorporate reflective practice in an effort of continuous self-improvement. With practice, this type of formative self-feedback becomes an integral part of lifelong learning. My experience in the Johns Hopkins Teaching Skills Faculty Development Course has prepared me for my own reflective practice and instilling this virtue in others.

Section 5

Assessment of Teaching Effectiveness

Success as a teacher occurs when students achieve that "a-ha!" moment and takes the initiative to instruct others in the same concepts. Both the illumination and the instruction of others, when demonstrated by those who are my learners, seem to be admirable goals to achieve. There is a long tradition in education of borrowing effective skills and behaviors; we learn these skill from mentors with whom we interact. Medicine is also learned as an apprenticeship—behaviors and skills are modeled and ingrained in mentees. Thus, I tell learners who spend time with me to "steal liberally and pay it forward"; by which I mean that when students observe behaviors (mine or others') that resonate with them: study them, borrow them, and carry it on to other situations and other students. Lead by example.

The converse is also true—shameful behaviors that are modeled by mentors are also borrowed by students or will be identified as such. Learners will vote with their feet, leaving poor educational efforts unattended and seeking out the most successful efforts.

With these things in mind, it is not for the educator to say that he or she is an effective teacher—that is for others to determine. The determination of teaching effectiveness comes from the evaluations of learners, assessments by peers and experts, and is demonstrated by success and productivity of an educators' mentees.

Selected Unsolicited Comments

The target audience, the learners, are for me the most valuable because as accomplished students, they have become discerning consumers of educational services. The included selections below are intended to reflect examples of my teaching style, philosophy, and methodology as described in Section 3. In particular, they are intended to provide evidence of establishing a good learning environment, emulating good behaviors, synthesizing information, and demonstrating applied knowledge and internalized concepts.

Source	Selected Unsolicited Comments
TeamSTEPPs Evaluation	Teamwork/patient safety training for faculty and administrators: Dr Chakraborti's instructor rating 90. Average other instructors = 83.1 (SD 8).
E-Value Comment	Question: Are there any comments about your attending you would like only the program director (Dr. Chad Miller) to know? Dr. C was phenomenal.

Source	Selected Unsolicited Comments
IM Clerkship Director	I'm getting more requests for your UH team than I have spots.
Student Comment	You are a role model for me about how to be an amazing doctor and an incredible student advocate.
Student Comment	I just wanted to take this opportunity again to express my utmost gratitude for all the help and guidance you gave me this past month. You provided me with a fresh and different perspective on how to manage patients and how to further understand and treat certain pathology. I truly feel that my month with you and the rest of the team at UH will be unrivaled by any other team during my other rotations. Once again, thank you for being a wonderful mentor to me this past month.
Student Comment	I had such a positive experience and really enjoyed being a part of your team. Thank you for all the teaching and for always being so patient with all of my questions! I felt our team was great and had a strong work ethic - stemming down from you! You helped facilitate the nurturing environment that I needed to best thrive. I really appreciated that! Thanks for going out of your way to help me understand things and for helping me become better with my history and physical-taking skills.
Student Response to feedback provided by me	I must commend you on your assessment as you are the first to ever comment on them within my earshot. Life has always been hard and so keeping an even keel and continuing, in spite of the chaos around me, has been a lifelong task; it is something I take great pride in. Additionally, I appreciate your recognition of my ability to relate to people at all levels.
Evaluation of Attending by Student	Dr. C is a great role model. He was very professional and I really enjoyed watching his bedside manner. He is definitely one of the few people that I have enjoyed so much that I plan to emulate.
Evaluation of Attending by Student	I appreciate the time Dr. C took to teach. Even post call he was able to fit in teaching points at the appropriate time. He was able to balance being time-efficient on rounds with teaching. I would love the opportunity to work with Dr. C again.
Evaluation of Attending by Student	He is the opposite of the "horror" stories of medical school, that students often hear about. That being said, he was kind, intelligent and an attending who uplifts the name of Tulane Internal medicine program.
Evaluation of Attending by Student	The man has no ego or superiority issue, no need to prove himself or show off or belittle others. He is just simply a master of the knowledge he possess, he is very comfortable with himself and has a great ability to understand and connect with people. People like Dr. C as teachers and mentors make Tulane the great school that is it.

Source	Selected Unsolicited Comments
Evaluation of Attending by Student	Dr. C's comfortable, laid-back attitude allows for a good forum in which to learn how to manage patients and their illnesses. He also is very good at communicating to us, his medical students, to be vocal about how he and the team could change/improve in order to optimize the learning experience. We met halfway through the 4 week rotation and Dr. C was able to give us constructive advice on how to get the most out of our learning experience by altering our communication tactics with our team members.
Evaluation of Attending by Student	Dr. C clearly loves to teach - he is patient, informative, and inquisitive without being intimidating. I think he is exemplary of what a professor of clinical medicine should be.
Evaluation of Attending by Student	Dr. Chakraborti was an excellent attending in every respect. He made his goals and expectations extremely clear from the beginning, He always took time to incorporate teaching points into rounds and lectures. He emphasized evidence based points, and often referenced recent literature when teaching. He also fostered a team mentality that made each shift much easier and led to an excellent learning experience.
Evaluation of Attending by Student	For the short time I was on Dr. C's team I saw that he is an amazing teacher who imparts a lot of knowledge and discussion for the benefit of the students. He has a relaxed personality but it is never at the expense of student education or patient care. He seems to think at a very high level without ever losing his cool - an enviable trait. Another student who was describing him to me said, "It is easy to please Dr. C but it is very difficult to impress him". So, a student can laugh, be jovial, and learn a lot on his team but should keep in mind that he still demands your best. Just because he is easy-going does not mean he is not noticing our work, input, presentations, and knowledge.

Selected Mentee Presentations

One facet of the role for an educator is in providing mentorship. This is more than simply providing guidance, since many learners receive such advice. True mentorship stems from a formal mentor-mentee relationship with mutually agreed upon goals, expectations, and communication. Frequent these involve a scholarly project. Thus, another method of evaluating the effectiveness of an educator is in the quality and productivity of this relationship. The selected examples below serve to demonstrate my effectiveness in shepherding mentees through scholarly projects and being these to fruition.

Selected Mentee Peer-Reviewed Publications

Germond A, Chakraborti C. A Tale of Two Chest Pains - a formal risk assessment of acute coronary syndrome. J La State Med Soc. 2013 May-Jun;165(3):159-62. PMID: 24015432.

Katz MJ, Peters MN, Wysocki JD, Chakraborti C. Delayed hemoperitoneum following therapeutic paracentesis: diagnosis and management. Proc (Bayl Univ Med Cent) 2013 Apr;26(2):185-6. PMID: 23543985.

Sequeira GM, Chakraborti C, Panunti BA. Integrating Lesbian, Gay, Bisexual, and Transgender (LGBT) Content Into Undergraduate Medical School Curricula: A Qualitative Study. Ochsner J. 2012 Winter; 12(4):379-82. PMID 23267268.

Selected Mentee Oral Presentation

Guitard J. Understanding change: financial modeling in a community clinic. Presented at the Southern Regional Society of General Internal Medicine meeting (SSGIM), New Orleans, LA. February 21, 2014.

Hanson S, Chakraborti C. Comparative effectiveness between intramuscular and intravenous antibiotics: a meta-analysis. Presented at the Southern Regional Society of General Internal Medicine meeting (SSGIM), New Orleans, LA. February 10, 2012.

Nair D, Chakraborti C, Beckman B, Sneed E. Analysis of admissions characteristics of minority applicants. Presented at the Southern Regional Society of General Internal Medicine meeting (SSGIM), New Orleans, LA. February 10, 2012.

Turnage T, Chakraborti C. Raising the red flags. Presented at the Southern Regional Society of General Internal Medicine meeting (SSGIM), New Orleans, LA. February 28, 2011.

Selected Mentee Poster Presentations

Wonderlich T. Vidrine S, Chakraborti C.A Muscle Building Supplement "As Good as Steroids" Resulting in Acute Cholestasis and Renal Failure. Presented at the Southern Regional Society of General Internal Medicine meeting (SSGIM), New Orleans, LA. February 10, 2012.

Ho S, Mannina E, Chakraborti C. Tossing out the "anchor"ing heuristic. Presented at the Southern Regional Society of General Internal Medicine meeting (SSGIM), New Orleans, LA. February 2010.

Le CP, Yanofsky A, Chakraborti C. The sensitivity and specificity of superficial wound cultures and their utility in diagnosis, a meta-analysis. Presented at the Tulane Health Science Research Day, New Orleans, LA. March 2010.

Smith A, Owen G, Chakraborti C. Brain abscess and differential CNS penetration of antimicrobial agents. Presented at the Society of Hospital Medicine Annual Meeting. Washington, DC. April 2010.

Sterett J, Richey L, Chakraborti C. Back to 'Bac'. Presented at the Society of General Internal Medicine (SGIM) Annual Meeting, Miami, Florida. April 2009.

Tehrani B, Chakraborti C. When does multiplication lead to ulceration? Presented at the Society of General Internal Medicine (SGIM) Annual Meeting, Pittsburgh, Pennsylvania. April 2008.

Peer Recognition

The hallmark of a good teacher is that they never stop being a learner themselves. The other prominent characteristic that I have found in my teaching mentors is that they do not teach to get awards. Nevertheless, recognition (particularly from learners) provides a type of feedback of its own. To be humble in receiving praise allows for self-reflection. Recognition by peers validates the efforts and helps educator know that they are generally on the right track. The examples below serve to provide some evidence for these.

Teaching Awards

School of Medicine Teaching Scholar Award   2014
Finalist/Runner-up, Tulane School of Medicine

W. Clifford Newman Award for Student Advocacy   2013
Teaching Award, Tulane School of Medicine Owl Club

Auxiliary Teaching Excellence Award   2012
Tulane University, Office of Medical Education

Departmental Award for Excellence in Teaching and Education   2012
Tulane University, Department of Medicine

W. Clifford Newman Award for Student Advocacy   2012
Teaching Award, Tulane School of Medicine Owl Club

Leonard Tow Humanism in Medicine Award   2011
Gold Foundation

Internal Medicine Attending of the Year   2011
Teaching Award, Tulane School of Medicine Owl Club

C. Thorpe Ray Resident Internal Medicine Award   2005
Tulane University Internal Medicine Residency

C. Thorpe Ray Student Award for Internal Medicine   2002
Tulane University School of Medicine

Research Award, Best Research Presentation   2001
Southern Section-American Federation for Medical Research

In addition to teaching awards, peer recognition manifests most obviously through peer-reviewed publications, presentations, workshops, and speaking engagements. The list below includes some of the success I have had in this area.

Peer-Reviewed Publications Related to Medical Education

Chakraborti C. Teaching evidence-based medicine using team-based learning in journal clubs. Med Educ. 2011;45(5):516-517. PMID: 21486338.

Chakraborti C, Kahn MJ, Krane NK. Operationalizing patient safety at academic medical centers [Perspective]. AHRQ WebM&M [serial online]. August 2010. Available at: http://www.webmm.ahrq.gov/perspective.aspx?perspectiveID=90.

Peer-Reviewed Publications Related to Medical Education

Windish DM, Reed DA, Boonyasai RT, Chakraborti C, Bass EB. Methodological rigor of quality improvement curricula for physician trainees: A systematic review and recommendations for change. Acad Med. 2009;84(12):1677-1692. PMID: 19940573.

Chakraborti C. A Simulation-Based Curriculum For 4th Year Medical Students During An Internal Medicine Acting Internship. MedEdPORTAL; 2009. Available from: www.mededportal.org/publication/1687

Chakraborti C, Boonyasai RT, Wright SM, Kern DE. A systematic review of teamwork training interventions in medical student and resident education. J Gen Intern Med. 2008;23(6):846-853. PMID: 18386100.

Boonyasai RT, Windish DM, Chakraborti C, Feldman LS, Rubin HR, Bass EB. Effectiveness of teaching quality improvement to clinicians: A systematic review. JAMA. 2007;298(9):1023-1037. PMID: 17785647.

Chakraborti C, Davidoff S, Kendrick D, DeSalvo, K, Lazarus C, Wiese JG. A firm-based residency program enables residents to apply systems of care principles to their clinical practice. ACGME Bulletin, November 2004, page 15.

Abstracts Related to Medical Education

Chakraborti C, Harlan TS, Franklin DS. Combining TBL and a cooking demo to teach lipid metabolism, nutrition and cardiovascular disease. Presented at the 11th Annual Team-Based Learning Conference, St. Petersburg, Florida. March 1-3, 2012.

Chakraborti C. Recasting an EBM course as a team-based learning journal club. AAMC Annual Meeting, Houston, Texas. April 2011.

Chakraborti C. A novel simulation-based evaluation for 4th year acting internship curriculum. Presented at the SGIM Annual Meeting, Pittsburgh, Pennsylvania. April 2008.

Chakraborti C, Boonyasai RT, Wright SW, Kern, DK. Does the use of more teamwork principles improve learner outcomes? A systematic review of teamwork training interventions in medical education. Presented at the SGIM Annual Meeting, Toronto, Canada. April 2007.

Symposia & Workshops Related to Medical Education

Chakraborti C, SGEA Small Group Discussion: Developing the Information-literate Medical Student and Patient: Information Management Competencies Within a Medical Education Curriculum (SGD5). SGEA 2012 Meeting, Lexington, Kentucky. April 20-22.

Symposia & Workshops Related to Medical Education

Chakraborti C, SGEA Small Group Discussion: Developing Pre-clerkship Clinical Skills Courses for the Future (SGD4). SGEA 2012 Meeting, Lexington, Kentucky. April 20-22.

Krane K, Haidet P, Madigosky W, Chakraborti C. SGEA/GSA Small Group Discussion: Implementing the inter-professional aspects of a patient safety medical school curriculum. AAMC 2011 National Meeting, Denver, Colorado. November 4-8, 2011.

Miller C, Chakraborti C, Burger A. Digging a Deeper Well for the Pipeline to QI and Patient Safety. AAIM-CDIM National Meeting, Anaheim, California. October 19-22, 2011.

Getting your vignette published. SGIM (Southern Regional) Meeting, New Orleans, Louisiana. February 12-14, 2009 and February 25-27, 2010.

Menard G, Landry M, Chakraborti C, Miller C, Panada M. Getting your vignette published. SGIM (Southern Regional) Meeting, New Orleans, Louisiana. February 25-27, 2010.

Menard G, Landry M, Chakraborti C, Panda M, Johnson BE. Getting your vignette published. SGIM 32nd Annual Meeting, Miami, Florida. May 13-16, 2009.

Menard G, Landry M, Chakraborti C, Estrada C, Panda M. Getting your vignette published. SGIM (Southern Regional) Meeting, New Orleans, Louisiana. February 12-14, 2009.

Teamwork in Contemporary Medicine. Department of Medicine Grand Rounds. George Washington University Hospital, Washington, DC. June 5, 2008.

**Formal Evaluations - Evaluation as Teaching Attending**

As an internal medicine attending, I have the privilege of working with students and residents on the inpatient general medicine wards. I believe the medicine wards to be the medical educator's wonderland. It is a microcosm of interpersonal interactions, patient interactions, team interactions, leadership, clinical reasoning, physical exams, and elucidation of concepts. The graph below demonstrates how I have performed relative to other Tulane Internal Medicine attendings, but truthfully, the mental playground of the internal medicine wards makes for the perfect environment to excel as a medical educator.
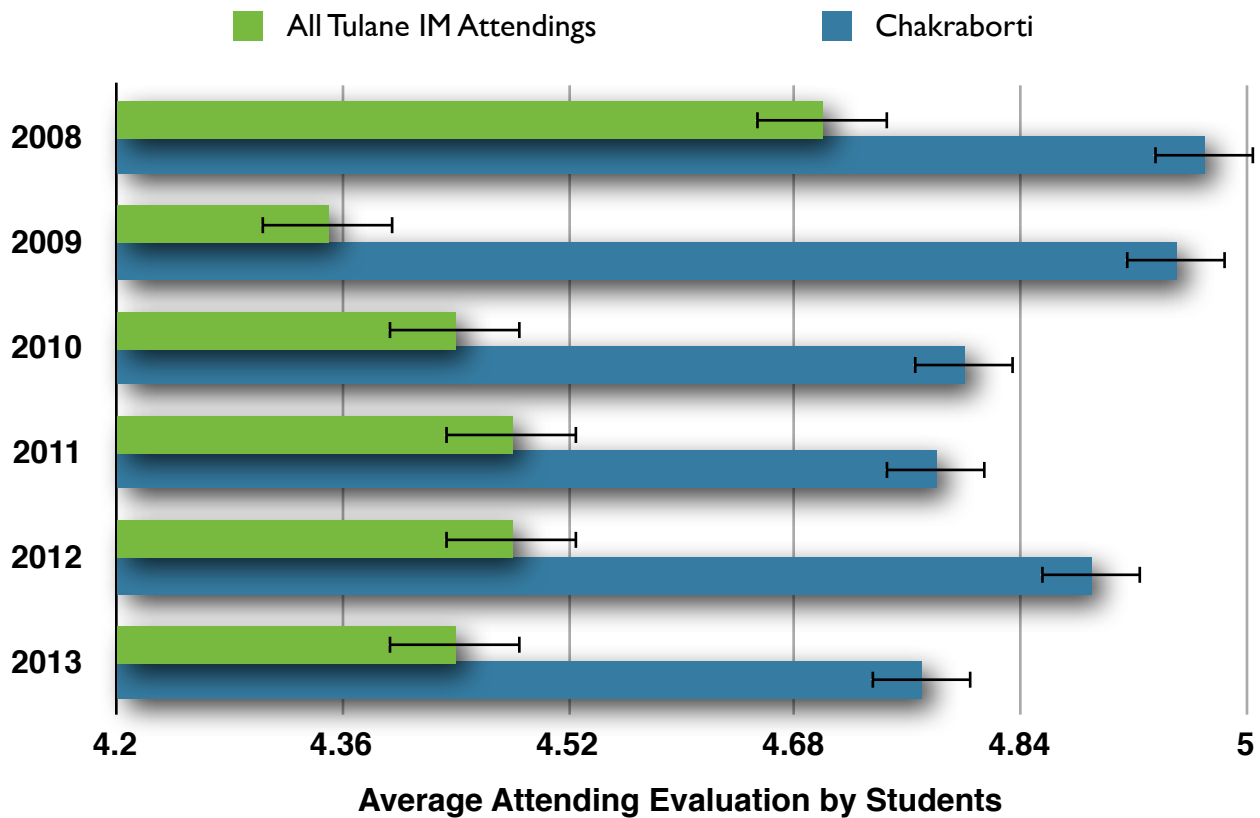
Evaluation scores of teaching/ward attending by clerkship and sub-internship students in Internal Medicine as compiled by the Internal Medicine Clerkship director.

Formal Evaluations - Course Evaluation

In 2011, I was selected to be the course director for the Tulane Foundations in Medicine (FIM) course. This 2-year course has been a mainstay of pre-clerkship clinical education at Tulane since the early 1990's and serves as the only clinical counterpoint to the basic science courses in the first 2 years of medical school. At other institutions this course is known as the "On Doctoring" or "Introduction to Clinical Skills". When I took over as course director, I was charged with taking the Foundations in Medicine course in a new direction. I was tasked to innovate within the FIM curriculum, to take advantage of the newer educational technologies, and to introduce emerging concepts such as teamwork training and simulation-based education. In addition, I was asked to help lead the charge to provide a truly integrative curriculum. On this last request, I have made my opinions and inclinations well known on the various curriculum committees of which I am a part. In the other areas, I rely on the end of course evaluations to provide some evidence that the changes I initiated in the FIM course have been increasingly well-received.
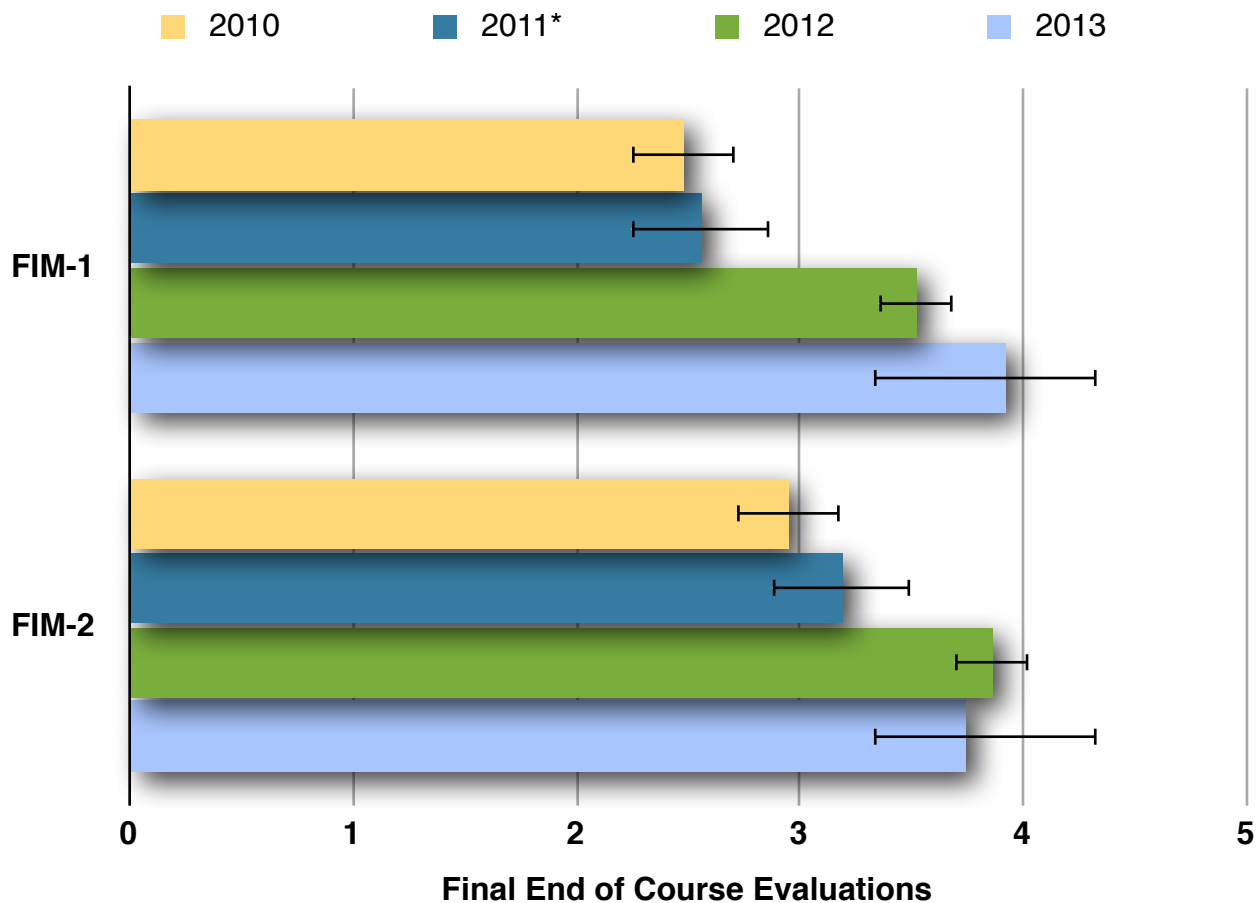
Average end-of-course (FIM 1 & 2) evaluations by students, as compiled by Tulane Office of Medical Education.
*Note: 2011 = first year with Chakraborti as course director

Section 6

Curriculum Development & Innovations in Medical Education

My fascination with curriculum development began with creating an internal medicine residency program "scorecard" while I was a senior resident. This interest inspired me to seek a medical education fellowship at Johns Hopkins. Within the fellowship, I took part in the Curriculum Development Faculty Development Course. I was fortunate in that the course instructors were the very same authors of one of the more well-respected textbooks on designing curricula for medical education.[1] David Kern, Pat Thomas, and Eric Bass became my mentors and through their vast experience I learned the skills that would come to serve me well in the future. A well-refined curriculum with solid educational foundations and methodology may, I believe, effect culture change — this, at least, has been my goal.[2]

Formal Curricular Evaluations

A. Boonyasai RT, Windish DM, Chakraborti C, Feldman LS, Rubin HR, Bass EB. Effectiveness of teaching quality improvement to clinicians: A systematic review. JAMA. 2007;298(9):1023-1037. PMID: 17785647.

   Comment: We assessed teaching quality improvement to clinicians by evaluating these curricula in terms of the use of adult learning principles, educational outcomes, and clinical outcomes.

B. Chakraborti C, Boonyasai RT, Wright SM, Kern DE. A systematic review of teamwork training interventions in medical student and resident education. J Gen Intern Med. 2008;23(6):846-853. PMID: 18386100.

   Comment: We reviewed curricula in the growing field of teamwork training interventions. We correlated the use of teamwork principles to increasing effect size of outcomes; reinforcing the idea of congruence between learning objectives and outcomes.

C. Windish DM, Reed DA, Boonyasai RT, Chakraborti C, Bass EB. Methodological rigor of quality improvement curricula for physician trainees: A systematic review and recommendations for change. Acad Med. 2009;84(12):1677-1692. PMID: 19940573.

   Comment: Medical education research is often maligned for lack of rigor. This paper validated a novel evaluation tool (MERSQI) for methodological rigor.

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[1] Kern, David E., Patricia A. Thomas, and Mark T. Hughes, eds. Curriculum development for medical education: a six-step approach. JHU Press, 2010.

[2] Chakraborti C, Kahn MJ, Krane NK. Operationalizing patient safety at academic medical centers [Perspective]. AHRQ WebM&M [serial online]. August 2010. http://www.webmm.ahrq.gov/perspective.aspx?perspectiveID=90.

Curricula Developed & Implemented

HEAL-X Musculoskeletal Curriculum
Implemented at: Tulane SOM (2012-Present)

Responsible for developing learning objectives, creating and delivering content, coordinating presenters for the MSK module of the newly implemented MD-PhD curriculum at Tulane SOM.

Foundations in Medicine 1 & 2
Implemented at: Tulane SOM (2011-Present)

Redesigned a 2-year longitudinal course on introduction to clinical medicine for 1st and 2nd-year medical students. This course integrates medical interviewing, medical and professional ethics, clinical reasoning with the concurrent basic science courses. This course also provides students with their first exposures to clinical medicine through preceptorship and service learning, focusing on obtaining communication skills with patients and other healthcare providers.

Tulane Advanced Research Curriculum for Students, T-ARCS
Implemented at: Tulane SOM (2010-Present)

I solicited input from local students regarding their ability to get involved in research. Their difficulties reflected my own challenges when I was a student. A grass-roots effort to get students involved in research at Tulane led to a national needs assessment and the development of a formal curriculum. This curriculum was fortunate to be competitive for a Tulane Mini-Educational Grant of $2,450.

Evidence Based Medicine/Biostatistics Curriculum
Implemented at: Tulane SOM (2009-Present)

My involvement with Practice-Based Learning and Improvement and my interest in quality improvement/patient safety led me to assume responsibility for the Evidence-Based Medicine/ Biostatistics course. One of my first actions was to redesign this course into a series of mini-journal clubs taught in a team-based learning format. This is an example of my commitment to applied knowledge; rather than have sessions on t-tests and normal distributions; these concepts were presented in the context of appraising the strength of journal articles. This was also reflected in the name change of the course from "Biostatistics" to "EBM". Clinical uncertainty abounds in medicine; thus, a further refinement involved the practice of turning to the literature when faced with such uncertainty. I involved the library scientists in strategies for effective literature searching.

Tulane Interprofessional Patient Safety (TIPS) curriculum
Implemented at: Tulane SOM (2010-Present)

In keeping with my interests in patient safety, the Tulane medical school administration deemed is necessary to develop a patient safety curriculum. In creating this curriculum under the mentorship of Kevin Krane (Vice Dean for Academic Affairs), it became apparent that patient safety concepts that exclude the other healthcare workers would be less effective. Thus, this curriculum is my first attempt at an interprofessional intervention that involves students from Xavier College of Pharmacy, Delgado School of Nursing, and Tulane University School of Medicine. With the curriculum now created, the logistical challenges are being addressed.

Community Clerkship Curriculum
Implemented at: Tulane SOM (2009-Present)

One month clerkship elaborating the complex facets of providing community-based healthcare and establishing a patient-centered medical home. After Hurricane Katrina, Tulane set out to compete for grants to assist in rebuilding the healthcare infrastructure of New Orleans. As success followed, it became apparent that an institutional commitment to community medicine should not lack the ability to train future community healthcare leaders. This became the Community Health Clerkship, the curriculum which I developed.

Code Grey Curriculum
Implemented at: Tulane SOM (2008-Present)

Three years after Hurricane Katrina, I returned to Tulane and was tasked with redesigning a formal curriculum for the hurricane response (Code Grey) group for our internal medicine residency program. This group consists of volunteers from the residency who elect to be on the "Shelter-in-place" teams or the "Relief" teams during a hurricane or other disaster activation. On top of their usual residency duties, these individuals participate in team training and presentations on disaster mitigation.

Curricula Developed & Implemented

4th year Acting Internship Curriculum
Implemented at: George Washington University SOM (2007)

In 2007, I was appointed clerkship director of the 4th year acting internship at GWU. Part of the conditions of the appointment was to assign formal learning objectives and evaluation strategy as the GWU School of Medicine was undergoing LCME review (Spring 2008). I found that 4th year acting internship course were woefully disregarded in the literature. I set about to create learning objectives and a novel evaluation strategy using high fidelity patient simulators. This curriculum and evaluation was peer-reviewed and accepted for publication in the AAMC website MedEdPortal: Chakraborti C. A simulation-based curriculum for a 4th year medical students during an internal medicine acting internship.

Association of American Medical Colleges (AAMC) MedEdPORTAL; 2009. https://www.mededportal.org/publication/1687

Patient, Physician, & Society
Implemented at: Johns Hopkins SOM (2005-2007)

Patient, Physician, and Society (PPAS) - In 2005, I was asked by the then-current course director of PPAS (Jean Ogborn) to help redesign the old curriculum and update it form a 2 year course to a longitudinal course spanning all 4 years of medical school at Johns Hopkins. A secondary requirement of the redesigned curriculum was that it be integrative with a new educational "genes-to-society" movement occurring at Hopkins at that time. The concept was to have educational outcomes that relate to the genetic underpinnings of diseases and behaviors, the developmental aspects of behaviors and phenotypes, and the refinement through education of adult skills, attitudes, and behaviors.

Section 7

Teaching & Learning Materials

The materials which I create and use are designed by starting with what would make a learner of X level really think…and then go just a bit beyond that. This is how I identify the concepts that should be included in a given session. From this starting point, I ask the question: what are the things that I would like the learner to get out of this session. The answers to this question becomes the learning objectives. Next, I consider the delivery of content and the learning modality. I general, I tend to naturally gravitate towards the application of knowledge and skill-based sessions.

My general formula, once the above steps are established, is to create and assign pre-session preparatory work and then design an activity which will require the learner to apply that background material, often with a twist.

I do believe in some degree of accountability, thus I often pair this formula with brief quizzes on the background material. These are not designed to assess baseline knowledge (although they might do so), but rather I have found that learners have trained themselves to believe that if material is important it will be quizzed or tested; if not, it deserves less of their attention. Or perhaps they believe the converse, that if an instructor does not test or quiz on material, that material is not as relevant. Thus the purpose of the quizzes are to provide some degree of accountability.

In choosing how to deliver this content, I look for hands-on activities, whether a standardized patient encounter, or a simulation session (as in the Patient Safety curriculum), or as in the EBM sessions on asking a clinical question and identifying the answers through a structured literature search.

The examples provided in the appendix serve to illustrate these points.

Note — Many of my teaching and learning materials utilize web-based materials.

These include:

- PBL/TBL & Clinical Reasoning cases (http://cchakra.wix.com/cases)

- Videos for SIM Center activities on the FIM Youtube Channel: SIM Video Playlist (link)

- Videos for SP Center activities on the FIM Youtube Channel: SP Video Playlist (link)

- Videos for EBM sessions on the FIM Youtube Channel: EBM Video Playlist (link)

- Videos for Patient Safety on the FIM Youtube Channel: Pt-Safety Video Playlist (link)

Section 8

Leadership in Medical Sciences Education

As early as 1975, Eugene Braunwald stated emphatically that "we live in an era when we desperately need true academic leaders not managers" (*J Clin Invest. 1975 Jul;56(1):I-VI. PMID: 11414286*). The topic of what comprises true academic leadership is the subject of innumerable books, fellowships, workshops, and seminars. My brief description here relates some of how I have internalized these concepts. As it pertains to medical education, leadership reflects my overarching view of teaching. My goals for teaching as I mentioned in section 3 are to "Think different"; here it is to challenge conventional notions. Being a leader then, is to be an agent for change; to inspire.

I have been a clerkship director (4th year sub-internship clerkship at GWU), and a course director (Foundations in Medicine). In both situations, I was tasked with revitalizing an existing course. I was the first to introduce a simulation curriculum in both of these situations. The changes I have made in FIM have resulted in steadily improving end of course evaluations for the last 3 years.

Since my arrival on the Tulane faculty in 2008, my interactions with the students have earned me the Student Advocacy award consecutively for the last 2 years (2012-2013). My bedside teaching has earned the Leonard Tow Humanism in Medicine Award (2011), the student-body (Owl Club) teaching award (2011), the Department of Medicine teaching award (2012), and the Office of Medical Education teaching award (2012), as well as student evaluations that are consistently higher than the average for other medicine attendings. Other institutional activities include membership in the General Medical Faculty Committee (as Secretary and now President-Elect), Admissions Committee, Student Affairs Committee, Curriculum Committee, and HEAL-X Committee. Recently, I was named by Dean Hamm as the Director for the new Career Advising Program at Tulane School of Medicine.

Below, I have listed the various leadership activities with which I am involved at the regional and national levels. In addition, I have included my publications related to medical education in Section 5.

National Activities Related to Medical Education	
Communications Skills Task Force Member National Board of Medical Examiners (NBME), Philadelphia, PA	2013
Careers in Medicine Workshop, AAMC, Washington, DC	2013
SGIM 2014 Annual Meeting Planning Committee, Innovations in Medical Education Chair, San Diego, CA	2013

National Activities Related to Medical Education

SGIM Annual Meeting, Innovations in Medical Education Chair	2014
Directors of Clinical Skills Courses - SGEA Representative	2013
Academic Hospitalist Task Force, Society of General Internal Medicine	2007-Present
TeamSTEPPS Master Trainer Certification (AHRQ)	2012
SGEA/GSA Small Group Discussion: Implementing the inter-professional aspects of a patient safety medical school curriculum. AAMC 2011 National Meeting.	2011
Society of Hospital Medicine Quality Improvement Resource Room (Complicated Skin, Soft-Tissue Infections), Content Expert	2008-2010
SGIM Annual Meeting, Clinical Vignette Subcommittee	2004-2010
SGIM Annual Meeting, Medical Education Scholarship Committee	2008 - 2009
SGIM Annual Meeting, Interactive/Resources in Medical Education (I/RIME) Subcommittee	2005 - 2006

Regional Activities Related to Medical Education

Society of General Internal Medicine (Southern Region), Secretary-Treasurer	2013
Southern Regional Meeting Vignette Committee Co-Chair, SGIM	2011-2013
SGEA Small Group Discussion: Developing the Information-literate Medical Student & Patient: Information Management Competencies Within a Medical Education Curriculum (SGD5). SGEA 2012 Meeting, Lexington, Kentucky. April 20-22.	2012
SGEA Small Group Discussion: Developing Pre-clerkship Clinical Skills Courses for the Future (SGD4). SGEA 2012 Meeting, Lexington, Kentucky. April 20-22.	2012
SGIM Southern Regional Meeting, Research Abstract Session Moderator	2008 - 2009
SGIM Southern Regional Meeting Planning Committee	2004 - 2005

Journal Activities Related to Medical Education

Journal of General Internal Medicine – Peer Reviewer	2010-Present
Annals of Internal Medicine – Peer Reviewer	2010-Present
SGIM Forum, Associate Editor Section Editor: Medical Education; Hospital Medicine	2011-2014
British Medical Journal – Peer Reviewer	2007-2008
Journal of Hospital Medicine – Peer Reviewer	2012-2013
American Journal of the Medical Sciences – Peer Reviewer	2011-2012
Journal of Graduate Medical Education – Peer Reviewer	2008-2009
Pediatrics – Peer Reviewer	2004-2005
Advance Studies in Medicine – Editorial Fellow	2005-2007

Section 9

Professional Teaching and Learning Goals

Two aphorisms have always come to mind when thinking of my long-term goals:

- You miss 100% of the shots you never take.

- Swing for the fences.

The first of these adages became a part of my life when, immediately after college, I taught high school and coached the freshman basketball. In an athletic setting, the meanings are quite literal, but has since evolved into an exhortation that nothing ventured results in nothing gained. This reflects back to my teaching philosophy of challenging assumptions or conventional ways of thinking: try something new --> see how it goes --> try another new thing. These riffs on convention are cornerstones of improvisation, as I mentioned in my teaching philosophy, and brings to mind another quote from Miles Davis: "Don't play what's there, play what's *not* there." Later, in my medical education fellowship, when I was ready to submit my first manuscript for publication, one of my mentors, Dr. Scott Wright, encouraged me to "swing for the fences", which I interpreted to mean "aim high".

These thoughts set the stage for my long-term goals professional teaching and learning goals. While I will always be a teacher, I have ideas for what and how things in medical education should be taught and the future direction of medical curricula. I intend to bring this vision to an institution as a dean for medical education or academic affairs. From this institutional role, I would hope that my attempts at innovation and scholarship are noticed nationally such that my ideas demonstrate the creativity needed to be recognized as a thought leader, shaping the future of medical education.