

# Education Day 2009

The Haile T. Debas Academy of Medical Educators and the Office of Medical Education are proud to sponsor UCSF's Eighth Annual Education Day on Monday, April 27, 2009 from 10:00 am to 6:00 pm in the Millberry Conference Center.

Education Day 2009 features 52 abstracts covering a variety of important research questions and innovations in medical education. Eight have been selected for podium presentation based upon their collective relevance to the largest audience of medical educators. We are grouping the poster presentations according to their emphasis and have asked the primary authors to share a brief summary of their work in the poster hall. We hope that this approach will facilitate a deeper exchange of ideas among scholars and guests who view the posters.

This will be our third year presenting the AME Cooke Awards for the Scholarship of Teaching and Learning. Awards will be given to projects in two categories: outstanding curriculum development project and outstanding hypothesis-driven educational research project. Award nominations were made to top-scoring projects following blinded peer review of all Education Day abstract submissions. Award winners were determined by a ballot in which Scholarship Committee members ranked the blinded abstracts excluding those in which they were involved. Please join us for the awards announcement at the conclusion of today's plenary session.

We again offer a workshop in medical education and wish to thank the faculty members who are supporting Education Day as small group facilitators. The workshop is titled:

A Conceptual and Behavioral Approach to the Improvement of Teaching  
Kelley Skeff, MD, PhD, Stanford University

Attendees will be divided into individual workshops facilitated by:

Brad Sharpe, MD, University of California, San Francisco  
Judy Wofsy, MD, Alameda County Medical Center  
Peter Pompei, MD, Stanford University

This book captures some of the creativity and excitement being generated across the medical education continuum at UCSF. We extend thanks and congratulations to our community of medical educators for contributing so generously to this year's Education Day.

Jody Steinauer, MD, MAS  
Chair, Scholarship Committee

Molly Cooke, MD  
Director  
Academy of Medical Educators

# Workshop in Medical Education

## A Conceptual and Behavioral Approach to the Improvement of Teaching

Kelley Skeff, MD, PhD, Stanford University

The workshop will use both large and small group methods to:

- Introduce the participants to an educational framework for analyzing and improving their teaching and
- Focus on particular teaching behaviors that will enable teachers to establish a more effective learning environment

Other faculty trained by the Stanford Faculty Development Center will help facilitate the workshop, including Dr. Brad Sharpe of UCSF, Dr. Judy Wofsy of Alameda County Medical Center, and Dr. Peter Pompei of Stanford University.

Dr. Skeff is Professor of Medicine, Residency Program Director, and Associate Chair for Educational Programs in the Department of Medicine at Stanford University School of Medicine. His major educational focus has been his work in the Stanford Faculty Development Center, a train-the-trainer program for faculty to become local to international resources for the improvement of medical education (<http://sfdc.stanford.edu>). Over its duration, the program has trained approximately 300 facilitators from institutions in twelve countries. These faculty facilitators have in turn trained more than 15,000 clinical faculty and residents at their own and other institutions. Recently, the Stanford Center has focused on the improvement of not only clinical teaching, but also professionalism and basic science teaching in medical schools. He has received a number of awards for his accomplishments, including the first National Award for Career Achievement in Medical Education from the Society of General Internal Medicine, the AAMC/AOA Distinguished Teacher Award in the Clinical Sciences, the Flexner Award for Distinguished Service to Medical Education from the American Association of Medical Colleges, the Joy McCann Scholars for mentoring, and Mastership in the American College of Physicians.

# Schedule of Events

## **10:00-11:30 am - Faculty Development Workshop**

A Conceptual and Behavioral Approach to the Improvement of Teaching

Kelley Skeff, MD, PhD

George DeForest Barnett Professor in Medicine

Stanford University

## **Noon-3:00 pm - Plenary Session**

12:15 pm: Keynote Address: The Evolution of Medical Education: Opportunities for Teachers

Kelley Skeff, MD, PhD

## **1:00-3:00 pm: Podium Presentations**

1:00 pm – A Curriculum to Teach Emotional Intelligence, Cultural Humility & Humanism during Elective Global Health Experiences

1:15 pm – Peer-to-Peer Teaching of Medicare Part D: A Novel Approach to Interdisciplinary Health Policy Education for Medical/Nursing Students and Residents

1:30 pm – An Intervention to Teach Medical Students Ankle Reflex Examination Skills

1:45pm – Clinical Pearls from the Social and Behavioral Sciences: Tools for Translating Classroom Content into Clinical Care

2:00 pm – Correlation between Confidence and Performance of Non-Technical Skills by Pediatric Residents during Simulated Resuscitations

2:15 pm – Predicting Failing Performance on the Clinical Performance Examination

2:30 pm – Teaching Feedback to First-Year Medical Students: Long-Term Skill Retention and Accuracy of Student Self-Assessment

2:45 pm – Team-Based Continuity Practice – Improving Care for Patients and Education for Residents

## **11:00 am-5:00 pm - Poster Session**

11:00 am-Noon: Unattended, Unstructured Poster Viewing

3:00-3:30 pm: Attended Poster Viewing

3:30-5:00 pm Moderated Poster Presentations

## **5:00 pm - Award Presentations**

Finalists listed on next page

## COOKE AWARD FINALISTS 2009

### **Curriculum development projects**

CLINICAL PEARLS FROM THE SOCIAL AND BEHAVIORAL SCIENCES: TOOLS FOR TRANSLATING CLASSROOM CONTENT INTO CLINICAL CARE

George Saba, Jason Satterfield, Rene Salazar, Shelley Adler, Karen Hauer, Amin Azzam, Carrie Chen, William Shore

TEACHING FEEDBACK TO FIRST-YEAR MEDICAL STUDENTS: LONG-TERM SKILL RETENTION AND ACCURACY OF STUDENT SELF-ASSESSMENT

Marieke Kruidering-Hall, Pat O'Sullivan, Calvin Chou

PSYCHIATRY "COPING WITH PATIENT SUICIDE" CURRICULUM

Iljie Fitzgerald, Kristen Brooks, Matt Fitzpatrick, Uma Lerner, Ellen Haller

### **Educational research projects**

TEAM-BASED CONTINUITY PRACTICE- IMPROVING CARE FOR PATIENTS AND EDUCATION FOR RESIDENTS

Rebecca Shunk, Maya Dulay, Jeff Kohlwes, Laura Tarter, Harry Hollander, Pat Cornett

AN INTERVENTION TO TEACH MEDICAL STUDENTS ANKLE REFLEX EXAMINATION SKILLS

S. Andy Josephson, Leslie Gillum

PREDICTING FAILING PERFORMANCE ON THE CLINICAL PERFORMANCE EXAMINATION

Anna Chang, Christy Boscardin, Calvin Chou, Helen Loeser, Karen Hauer

# Abstracts of Podium Presentations and Posters

Presented at the

## Eighth Annual UCSF Education Day

Monday, April 27, 2009  
Millberry Conference Center



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# A CURRICULUM TO TEACH EMOTIONAL INTELLIGENCE, CULTURAL HUMILITY & HUMANISM DURING ELECTIVE GLOBAL HEALTH EXPERIENCES

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**PURPOSE:** We wanted to create a curriculum for US medical and pre-medical trainees pursuing global health medical experiences through Child Family Health International (CFHI), a US-based Nongovernmental Organization (NGO).

**BACKGROUND:** Humanism is a multi-dimensional structure that encompasses empathy, respect for others, nonjudgmental attitude, commitment to service, and sensitivity to culture, age, gender, and belief system.<sup>1-6</sup> Emotional intelligence (EI) is about utilizing self-awareness to manage and adapt one's emotions in order to create positive relationships with others.<sup>7</sup> Cultural humility attempts to define culture broadly and give physicians guidelines for working well with people.<sup>8</sup>

**METHODS:** In spring of 2008, CFHI piloted an educational intervention targeting students participating in global health immersion programs in Bolivia and Mexico. The 4-week curriculum consisted of a 30-minute online module, 8 hours of on-site small group discussions, and weekly journaling exercises. Process-oriented discussions about program experiences and culture shock were used as catalysts for examining attitudes and self-care strategies. Classroom techniques involved group contracting, self-reflection exercises, role-plays, self-assessment and action plans, critical incident reports, meditation/relaxation exercises, and short didactics about emotional intelligence theory.

**EVALUATION PLAN:** We evaluated our educational intervention using mixed methods in a time-series study design to assess the impact of the curriculum on student attitudes. Students were surveyed before and after their exposure to our curriculum. We also interviewed local faculty facilitators to evaluate the effect of this experience on their educator identities.

**DISSEMINATION:** We have presented our curriculum at 1 regional and 3 national conferences. We have been accepted to present at a forthcoming Global Health Education Consortium.

**REFLECTIVE CRITIQUE:** We have modified the curriculum slightly based on the first two pilot cycles. We are currently analyzing the qualitative student survey data and transcriptions of the facilitator interviews. This will provide the foundation for our education research project assessing the impact of our curriculum.

## REFERENCES

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## **PEER-TO-PEER TEACHING OF MEDICARE PART D: A NOVEL APPROACH TO INTERDISCIPLINARY HEALTH POLICY EDUCATION FOR MEDICAL/ NURSING STUDENTS AND RESIDENTS**

Cindy J. Lai, MD; Marilyn R. Stebbins, PharmD; Timothy Cutler, PharmD; Amanda R., Smith, MPH; Helene L. Lipton, PhD. University of California at San Francisco Schools of Medicine and Pharmacy

**BACKGROUND:** National organizations have called for the development of curricula on health policy and interdisciplinary collaboration. We developed a novel peer-to-peer teaching program with pharmacy students teaching health professional peers about the Medicare Part D drug benefit, the most significant policy change to Medicare since its inception in 1965.

**PURPOSE:** This innovation is part of a pharmacy student-led outreach and research program that helps underserved seniors maximize their Part D benefit. Goals: 1) To teach interdisciplinary students and residents about Part D and methods to optimize patient plans; 2) to promote interdisciplinary awareness and collaboration.

**METHODS:** Interdisciplinary faculty trained nine pharmacy students to present a lecture on Part D structure, coverage, and perspectives of three key stakeholders. Through case-based learning, pharmacy students taught residents and medical/nursing students how Part D policy and drug choices influence patient access to drug plans, out-of-pocket costs, and drug compliance.

**EVALUATION PLAN:** Pharmacy student peer educators gave 12 presentations to 470 interdisciplinary students and medicine residents from 4 academic institutions. Results of a Likert survey showed that learners would recommend the lecture to others (100%); the peer-to-peer format was an effective way to provide Part D education (99%); and peer-to-peer teaching promoted interdisciplinary collaboration (100%). As a result of the lecture, learners intended to collaborate more with pharmacists about drug selection (95%) and costs (97%).

**DISSEMINATION:** The lecture was integrated successfully into multiple venues across California, including grand rounds and health policy courses. This program recently expanded to 6 Schools of Pharmacy that will, in turn, deliver the presentation to their health professional schools.

**REFLECTIVE CRITIQUE:** Feedback from learners has been incorporated. If pharmacy students can add value to the curricula of other disciplines through peer teaching, it is equally likely that residents and medical/nursing students can become Peer Educators for their interdisciplinary colleagues.

## **AN INTERVENTION TO TEACH MEDICAL STUDENTS ANKLE REFLEX EXAMINATION SKILLS**

S. Andrew Josephson MD and Leslie A. Gillum MD, MPH  
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**PURPOSE:** Eliciting an ankle reflex is an important element of a screening neurologic examination, but many students and physicians perceive this skill to be difficult; as a result, this testing is frequently incorrectly performed or omitted entirely. We sought to rigorously test a new method of teaching the ankle reflex examination.

**BACKGROUND:** Little research has addressed methods used to teach neurologic examination skills including reflexes and better teaching would improve trainees' ability to guide appropriate neurologic workup.

**METHODS:** Twenty-two medical student volunteers of various levels of training took part in a blinded, randomized study of a brief intervention used to teach how best to elicit ankle reflexes. Six standardized patients were utilized with quantification of ankle reflexes using electrodiagnostic techniques, providing an objective gold standard.

**RESULTS:** Both the control and intervention groups improved over the course of the trial. Mean change scores for correctness (maximum=6) significantly increased from 2.68 +/- 1.5 to 4.23 +/- 1.2 ( $p=0.003$ ) before and after the training sessions. There was no difference in change scores between students receiving the intervention and those in the control group in the entire cohort ( $p=1.0$ ) or by year of training. In a multivariate model, no significant difference in change score was associated with the intervention teaching session.

**DISCUSSION:** Compared to the control session, the ankle reflex teaching intervention did not lead to significantly greater improvement in students' ability to master this difficult neurologic examination skill. This study demonstrates the feasibility of using a rigorous trial design to investigate methods of teaching students the neurologic examination. Further, larger trials are needed to define how best to teach these important skills. The study will be disseminated to the larger neurologic and medical education community in a publication (in press).

**REFLECTIVE CRITIQUE:** The project was modified based on discussions with a group from the Academy of Medical Educators.

## **CLINICAL PEARLS FROM THE SOCIAL AND BEHAVIORAL SCIENCES: TOOLS FOR TRANSLATING CLASSROOM CONTENT INTO CLINICAL CARE**

George Saba, Jason Satterfield, Rene Salazar, Shelley R. Adler, Karen E. Hauer, Amin Azzam, H. Carrie Chen and Bill Shore

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**PURPOSE:** To create a toolbox that facilitates students' incorporation of Social and Behavioral Sciences (SBS) knowledge and skills from their preclerkship years into their clinical clerkship experiences.

**BACKGROUND:** The SBS curriculum is taught throughout the preclerkship curriculum in various formats (e.g., lecture, small group). During clerkships, students face the challenges of recalling, integrating, and applying SBS content to clinical encounters. Faculty and housestaff may be unfamiliar with what students have been taught about SBS topics and unsure about how best to reinforce them in the context of clinical care.

**METHODS:** In 2008, we reviewed the SBS curriculum and identified 16 core content areas clinically applicable to all clerkships. We drafted one-page "pearls," or summaries, for each content area, including where in the curriculum the material was taught, definitions of terms, key concepts, examples of practical applications in patient encounters and resources. The SBS faculty revised the pearls and piloted them in Neuro/Psych's "Wednesday Night Live" case conferences and PISCES' Family Medicine Seminar. We will introduce them to (a) students during their third-year "Transitional Clerkship" and "Intersessions" courses and (b) clerkship directors for use by faculty and housestaff.

**EVALUATION PLAN:** Four senior medical students reviewed the pearls for clarity and practicality. Prior to and following the core clerkships, we will assess subsequent students' anticipated and actual use of these pearls and confidence in implementing SBS knowledge and skills into patient encounters.

**DISSEMINATION:** We will disseminate to each of the UCSF core clerkships, submit the curriculum to MedEd Portal and Family Medicine Digital Resources Library, and present our approach at regional and national educational meetings.

**REFLECTIVE CRITIQUE:** We have revised these materials based on feedback from faculty and students who participated during the pilot or served as formal reviewers. We will solicit feedback from target trainees to continuously improve these educational resources.

## **CORRELATION BETWEEN CONFIDENCE AND PERFORMANCE OF NON-TECHNICAL SKILLS BY PEDIATRIC RESIDENTS DURING SIMULATED RESUSCITATIONS**

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**PURPOSE:** There is no correlation between pediatric residents' confidence in and observed performance of non-technical skills during simulated resuscitations.

**BACKGROUND:** Simulation is used to teach and assess non-technical skills (NTS) such as situation awareness, communication and team management. Studies have used measures of confidence to evaluate NTS. However, confidence does not predict performance of technical resuscitation skills, such as intubation. The relationship between confidence and performance of NTS has not been evaluated.

**METHODS:** Residents completed a previously validated survey of confidence in NTS prior to leading a simulated resuscitation. The survey provides 4 scores: situation awareness, team management, environment management, and decision-making. Three independent raters evaluated the residents' videotaped performances using two validated observer-rating instruments for non-technical skills (ANTS and Ottawa GRS). The ANTS provides 4 scores and the Ottawa 6 scores. The inter-rater reliability was 0.8 for the ANTS scores and 0.7 for all but one Ottawa score. We averaged the three raters' scores and examined the correlation between confidence and performance. Two-tailed significance was set at 0.05.

**RESULTS:** Thirty pediatric residents participated. Confidence in situation awareness correlated significantly with all ANTS and Ottawa scores ( $r=0.447-0.581$ ). Confidence in environment management also correlated significantly with ANTS and Ottawa GRS scores ( $r=0.366-0.479$ ), except for the Ottawa score for communication ( $r=0.247$ ). Confidence in team management and decision-making were not significantly correlated with these scores, except for the Ottawa score for resource utilization ( $r=0.373,0.415$ ).

**DISCUSSION:** Resident self-reported confidence in situation awareness and environment management may reasonably predict performance in all categories of NTS. However, confidence in team management and decision-making may not be appropriate surrogate measurements for their performance.

**REFLECTIVE CRITIQUE:** The study received favorable review in our application for Faculty Educational Research funding from the UCSF OME. We hope to present it at RIME and are writing a manuscript for peer-reviewed publication.

## **PREDICTING FAILING PERFORMANCE ON THE CLINICAL PERFORMANCE EXAMINATION**

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**PURPOSE:** To determine assessment measures which prospectively identify medical students at risk of failing the Clinical Performance Examination (CPX).

**BACKGROUND:** Students who fail CPX demonstrate interrelated deficits in communication skills, professional attributes, clinical skills, and knowledge. Identifying these students during 4<sup>th</sup> year limits remediation opportunities.

**METHODS:** Using a retrospective case-control design, UCSF students who failed CPX ( $z$  scores  $< -1.75$ ) in 2005-2007 in the domains of patient-physician interaction (PPI;  $n=30$ ) or clinical skills (H&P;  $n=33$ ) comprised the cases. Controls ( $n=119$ ) were randomly selected passing students from 2005-2007 CPXs. We collected pre-clerkship, clerkship, and student progress review data and created six predictor variable scores, 3 in communication/professionalism skills and 3 in clinical skills. We dichotomized each variable into 1 ( $\geq 1$  predictor) and 0 (no predictors). Analyses used contingency tables and chi-square tests.

**RESULTS:** Failing and control students were similar for gender, MCAT and USMLE Step 1 scores. We identified two predictors of PPI CPX failure: communication or professionalism concerns indicated by low clerkship ratings (OR 1.79,  $p=0.008$ ) and student progress review (OR 2.64,  $p=0.002$ ). No assessments predicted H&P CPX failure.

**DISCUSSION:** Students identified once during clerkships or at student progress review meetings with communication and professionalism deficiencies had increased risk of failing CPX, suggesting that faculty and standardized patients detect non-cognitive traits predictive of failing performance. Inadequate faculty observation or feedback in pre-clerkship and clerkship years might explain the lack of predictors for H&P CPX failure. Early identification of deficits may permit structured, supplemental curriculum to increase practice and feedback. We submitted a paper to AAMC RIME.

**REFLECTIVE CRITIQUE:** We invited and incorporated expert feedback on study design and data analysis. Further studies should characterize types of PPI problems and effectiveness of interventions.

## **TEACHING FEEDBACK TO FIRST-YEAR MEDICAL STUDENTS: LONG-TERM SKILL RETENTION AND ACCURACY OF STUDENT SELF-ASSESSMENT**

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**PURPOSE:** To study the effect of a multidisciplinary feedback curriculum on short-term and long-term skills and attitudes of first-year medical students.

**BACKGROUND:** Giving and receiving feedback are critical skills and should be taught early in the process of medical education, yet few studies discuss the effect of feedback curricula for first-year medical students.

**METHODS:** We used prospective pre- vs. post-course evaluations using mixed-methods data analysis. Participants were first-year students at UCSF in 2006-7. We collected anonymous student feedback to faculty before, immediately after, and eight months after the curriculum and classified comments by recommendation (reinforcing/corrective) and specificity (global/specific). Students also self-rated their comfort with and quality of feedback. We assessed changes in comments (skills) and self-rated abilities (attitudes) across the three time points.

**RESULTS:** Across the three time points, students' evaluations contained more corrective specific comments per evaluation (pre-curriculum mean [SD] 0.48 [0.99], post-curriculum 1.20 [1.7], year-end 0.95 [1.5];  $p=0.006$ ). Students reported increased skill and comfort in giving and receiving feedback and at providing constructive feedback ( $p<0.001$ ). However, the number of specific comments on year-end evaluations declined (pre 3.35 [2.0], post 3.49 [2.3], year-end 2.8 [2.1];  $p=0.008$ ), as did students' self-rated ability to give specific comments.

**DISCUSSION:** Teaching feedback to early medical students resulted in improved skills of delivering corrective specific feedback, and enhanced comfort with feedback. However, students' overall ability to deliver specific feedback decreased over time, wholly because they wrote fewer reinforcing specific comments. Further studies could address how to expand the acquisition and retention of feedback skills to include reinforcing specific feedback.

**REFLECTIVE CRITIQUE:** We submitted this work to JGIM; in response to critique, we validated our classification method by having a third person confirm our findings. We focused our description of the IRB-approval process and addressed potential biases in our study design.

## **TEAM-BASED CONTINUITY PRACTICE- IMPROVING CARE FOR PATIENTS AND EDUCATION FOR RESIDENTS**

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**PURPOSE:** To evaluate a Team-based Continuity Practice (TBCP) model for a group of internal medicine residents.

**BACKGROUND:** Residents on inpatient rotations, who have concurrent afternoon ambulatory care clinic, feel pressured to return to ward duties and are unable to adequately care for their clinic patients.

**METHODS:** Our successful TBCP 2007 pilot project expanded to 12 residents and added a new TBCP competency-based curriculum in 2008. These residents had their schedules adjusted to eliminate continuity clinics during their inpatient months. Residents were paired such that one partner was performing inpatient duties while the other was performing outpatient duties. Clinic coverage duties included checking mailboxes, returning calls and seeing urgent patients for the partner. Systems-based practice (SBP) and practice-based learning and improvement (PBL&I) concepts are taught in our Ambulatory Lecture Series and in small group seminars.

**RESULTS:** Patient care was evaluated and clinical outcomes were not significantly different when looking at common clinical reminders. There were no significant differences in patient satisfaction in focus groups and surveys. Trainee outcomes show no clinically significant differences between groups in panel size, patient visits, or patients seen per session. Pilot resident focus groups reveal residents in general feel more satisfied with their inpatient and outpatient experiences. Clinic outcomes reveal fewer requests to change providers in the pilot group.

**DISCUSSION:** TBCP improves resident satisfaction with outpatient clinic without adversely affecting patient care. The data were presented during the 2009 national AAIM meeting and to the Veterans Affairs (VA) Educational Innovations Awardees.

**REFLECTIVE CRITIQUE:** Feedback has been solicited at national meetings and national VA Educational meetings. Feedback has been incorporated resulting in addition of SBP and PBL&I concepts.

### **REFERENCE:**

Salerno SM, et al. Disruptions and satisfaction in internal medicine resident continuity clinic differ between inpatient and outpatient rotations. *Teach and Learn Medicine*, 2007 Winter;19(1):30-4.

# POSTER PRESENTATIONS

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# Curriculum Development



## **ACADEMIC AND PUBLIC WRITING COURSES TO ADVANCE MEDICAL STUDENT SCHOLARSHIP**

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**PURPOSE:** To develop and implement writing courses that promote professional development and scholarship for trainees in the UCSF Pathways to Discovery Program.

**BACKGROUND:** The Pathways to Discovery Program seeks to increase the number of physician-scholars and physician-leaders produced by UCSF by encouraging focused study and experience in one of several areas of inquiry. Although there are five Pathways, the Program recognizes that certain core skills transcend disciplines. Published studies provide evidence for both improved and increased scholarship as a result of writing courses. After consultation with Pathways to Discovery leaders and School of Medicine Deans, we proposed to develop curricula in scientific and public writing.

**METHODS:** Our team included educators, editors, physician-writers, clinicians and School of Medicine trainees. As a result of a needs assessment of Pathway leaders, we designed a curriculum combining instructor-led evening workshops and online independent learning modules to be accessed through the new Collaborative Learning Environment. Teaching materials incorporate sample abstracts, posters and papers from each Pathway area of inquiry. The scientific writing curriculum has been modified and renamed ‘academic writing’ to more accurately capture the project’s broader scope and learners’ needs. Public writing was expanded to include business writing.

**EVALUATION:** The plan for evaluation includes: 1. Attendance at workshops. 2. Numbers of trainees completing independent learning modules. 3. Numbers of abstracts, posters and publications. 4. Writing skills pre- and post-tests.

**DISSEMINATION:** The workshops and learning modules will be offered annually. We will write curriculum development articles about the writing courses for publication in medical education journals. The independent learning modules will be submitted to MedEd Portal.

**REFLECTIVE CRITIQUE:** Pathways leaders were consulted throughout the curriculum development process, resulting in changes in focus and sequence. Feedback will continue to be solicited from writing course participants. The curriculum will be presented at ESCAPE.

## **AN INPATIENT-OUTPATIENT BLENDED CLERKSHIP IN MODEL SFGH: IS THE JUICE WORTH THE SQUEEZE?**

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**PURPOSE:** The Blended Clerkship creates a third-year clerkship which offers an alternative to the traditional block model and increases students' experience in: 1) continuity care 2) chronic illness care 3) transitions of care and 4) preventive care.

**BACKGROUND:** With greater continuity, students can play a more significant role in patient care, better understand chronic illness, and develop more meaningful relationships with preceptors. Block rotations limit continuity and make it challenging for students to appreciate the continuum between inpatient and outpatient care. We sought to pilot an alternative.

**METHODS:** We developed a 14-week Blended Clerkship combining FCM 110 (outpatient) and Medicine 110 (inpatient) into a longitudinal clerkship integrating inpatient and outpatient care. In 2008, nineteen students participated.

**EVALUATION PLAN:** Students in the Blended Clerkship and those in the Traditional Model had no significant difference in scores on the clinical practice exam (mini-CPX) or written final exams in FCM or Medicine 110. There was no significant numerical difference in students' clerkship evaluations of FCM 110 between the Blended Clerkship and Traditional Model. Focus group feedback on the Blended Clerkship was strongly positive. Students identified strengths as continuity with patients, peers, and faculty, as well as gaining insight into the public healthcare system. Challenges included scheduling logistics and getting faculty "buy in" for a new model.

**DISSEMINATION:** To promote discussion about new third-year models, we presented our work at the Society of Teachers of Family Medicine Annual Conference and in UCSF curriculum planning groups. Based on their feedback, we are expanding the Blended Clerkship.

**REFLECTIVE CRITIQUE:** In order to offer meaningful continuity, a blended clerkship needs to extend beyond 14 weeks and include more than two clerkships. In 2009-10, we will integrate additional specialties (Pediatrics and Obstetrics) and include more students over a longer time (24 weeks) for a more ambitious integrated clerkship.

## ANNEALING A LONGITUDINAL THIRD-YEAR STUDENT PROGRAM WITH OUTPATIENT MEDICINE RESIDENCY CLINICS

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**PURPOSE:** To develop linkages between third-year students and residents in clinics at the Veterans Affairs (VA) Medical Center.

**BACKGROUND:** VA-based Longitudinal Rotations (VALOR) is a structured program in which a subset of third-year medical students spend three consecutive clerkships (internal medicine, surgery, and neurology/psychiatry) based at the San Francisco VA. Presently, ambulatory faculty mentors primarily direct each VALOR student's longitudinal patient panel. One programmatic challenge is the paucity of ambulatory resident involvement, precluding student learning from valuable near-peer interactions. A recent fundamental change in medicine resident schedules allows for protected outpatient time against the encroachment of inpatient wards: one outpatient resident serves as a practice partner for another resident who is on an inpatient rotation. These shared clinics have already presented with some difficulties. Residents can feel overwhelmed covering for patients whom they have never met, and communication between residents on opposing blocks is underdeveloped.

**METHODS:** We implemented a pilot in which a medical student who has completed VALOR is helping to define specific tasks that highlight relevance to student learning, enhance patient continuity, and help residents' efficiency in clinic. As one resident transitions from outpatient block to inpatient, and the practice partner returns to clinic, the student acts as the agent of continuity with patients and a venue for communication between resident practice partners.

**EVALUATION PLAN:** Quantitative surveys of resident and student attitudes, narratives about what students and residents learned about individual patients and about team-based care, and patient satisfaction with team-based model of care.

**DISSEMINATION:** Upon expansion from this pilot program, possibly into neurology and psychiatry, we hope to disseminate findings at future conferences.

**REFLECTIVE CRITIQUE:** We incorporated feedback from Academy Innovations funding reviewers. Also, since this program is based on emergent design, we continue to incorporate new insights about optimizing the efficacy of this team-based approach.

## **BENEFITS OF A WEB-BASED LEARNING MODULE FOR CLINICAL SKILLS REMEDIATION PRIOR TO A HIGH-STAKES STANDARDIZED PATIENT EXAMINATION**

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**PURPOSE:** To assess the impact of an online standardized patient (SP) tutorial on clinical skills performance in medical students at risk of failing a high stakes clinical skills exam.

**BACKGROUND:** At many medical schools, students who perform poorly on comprehensive clinical skills assessments undergo remediation activities. However, there is little evidence for optimal remediation strategies. We previously showed that third-year medical students (MS3s) randomized to formative web-based or in-person SP modules performed equally on subsequent high-stakes examinations. The efficacy of web-based SP modules for remediation is unknown.

**METHODS:** In 2008, MS3s at UCSF participated in a formative Clinical Performance Examination (mini-CPX) midway through the core clerkship year. Students who performed in the lowest 25<sup>th</sup> percentile on the formative CPX were advised to complete an online SP tutorial prior to a summative CPX at the conclusion of third year. Students were to watch at least 2 of 3 videotaped encounters between SPs and medical students; each video contained running commentary by an experienced clinician and SP instructor who discussed the key clinical skills, diagnostic reasoning, and communication skills expected of a medical student in a similar clinical encounter. This information parallels assessments of students in the actual CPX.

**EVALUATION PLAN:** Forty students were advised to complete the online tutorial. Students who participate will complete a survey to assess satisfaction with the learning format and attitudes towards clinical skills. CPX scores of participating students will be compared to CPX scores of students who elect not to watch the tutorial and students who scored in the lowest 25<sup>th</sup> percentile on the 2007 mini-CPX.

**DISSEMINATION:** Results will be submitted to a national internal medicine meeting.

**REFLECTIVE CRITIQUE:** We received feedback regarding study and survey design from members of the Academy of Medical Educators, Medical Education Area of Distinction, and Primary Care Research Scholars.

## **CREATING A COORDINATED FOUR YEAR CURRICULUM ON FAMILY VIOLENCE**

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**PURPOSE:** To improve student's ability to screen, diagnose and treat victims of abuse through an innovative, integrated curriculum throughout medical school training.

**BACKGROUND:** Clinical education of family violence has been taught sporadically and without coordination, nor re-emphasis in the clerkship years. Over the past decade, studies show that family violence is costly, common, and associated with co-morbidities. However, many practicing physicians do not routinely screen. We hope to establish guidelines for effective strategies medical schools can use to improve training in this area, using adult learning theory.

**METHODS:** In 2006, we performed a needs assessment through the use of a standardized patient exam and a curricular map. Based on our findings, several curricular changes were added to existing lectures throughout the core years. An elective was created that involved discussions led by community partners advocates in legal, social service and health care fields. A formal case discussion was added to the ob/gyn clerkship, and an on-line case for core pediatrics has been designed.

**EVALUATION PLAN:** Surveys and small focus groups were utilized for quality control. A standardized patient presenting with intimate partner violence graded student's performance. On a 1-5 Likert scale, students reported their perception of preparedness in 12 areas. 18 knowledge based questions were included. Blinded data will be evaluated to determine if the addition of the ob/gyn clerkship case made a difference in students' clinical performance, accurate perception and knowledge.

**DISSEMINATION:** An oral presentation will be made at the annual Academy on Violence and Abuse conference. Findings of our intervention will be published in a peer-reviewed journal.

**REFLECTIVE CRITIQUE:** Feed-back was obtained from the participants at an Escape conference. We will continue to work with Bonnie Hellwig, Dana Hughes and the office of CHR as we analyze the data.

### **REFERENCES:**

Felitti, VJ et al. American Journal of Preventative Medicine. 14(4) 245-258

# CREATION AND APPLICATION OF INTERACTIVE COMPUTER-BASED 3D MODULES FOR THE TEACHING OF ANATOMY

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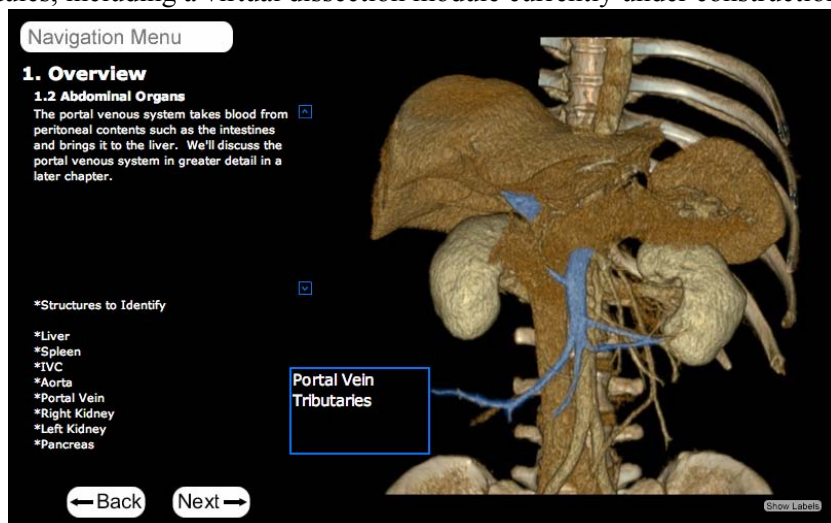
**BACKGROUND INFORMATION:** 3D image processing techniques, initially developed for use in the production of animated films and special effects, provide tools for high resolution and interactive manipulation of medical images. 3D medical imaging may be used to create interactive virtual anatomy teaching modules to augment understanding of complex anatomical relationships.

**METHOD:** With the support of an Academy of Medical Educators Curricular Innovations grant, three 3D interactive anatomy-teaching modules were created. These modules are focused on: basic abdominal anatomy, cardiac anatomy and the anatomy of the liver and biliary system. They combine life-like 3D volume rendered images and movies, created from patient CT scans, with text and self-guided interactivity in a Flash-based template. The modules can be viewed on lab workstations, personal computers and used by instructors in a classroom setting.

**EVALUATION:** An educational research project assessed the value of interactive 3D vs. a conventional 2D atlas-type approach to the teaching of liver and biliary anatomy. 1<sup>st</sup> and 4<sup>th</sup> year medical student subjects felt more engaged and satisfied with the 3D module than those viewing the 2D module. This was true for those with good as well as those with poor cognitive 3D skills on an initial test. The 3D group scored higher on exam questions that required an understanding of 3D anatomy, although the differences were not statistically significant. This work is being submitted for publication in the medical education literature.

**DISSEMINATION:** These modules have been used in lectures to 1<sup>st</sup> and 2<sup>nd</sup> year medical students as an aid to teaching radiology anatomy correlations. They have been available to 4<sup>th</sup> year radiology elective students. Plans to deploy the modules online are proceeding.

**REFLECTIVE CRITIQUE:** The educational research projects described above included questionnaires assessing student satisfaction and encouraging feedback and suggestions, which have been incorporated in subsequent modules, including a virtual dissection module currently under construction.



## **DEVELOPING COMPETENCIES IN COMMUNITY ENGAGEMENT: A WORK IN PROGRESS**

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**PURPOSE:** The goal of our project is to develop community engagement competencies and competency-based assessment tools. Our objectives are to:

- 1) Develop a standardized set of competencies for community engagement, including knowledge, skills and attitudes related to service-learning curricula, community-based participatory research, and social advocacy activities.
- 2) Link these competencies to the ACGME competencies.
- 3) Develop assessment tools for community engagement competencies and pilot them in at least four of the existing community engagement curricula at UCSF.
- 4) Disseminate competencies and assessment tools.
- 5) Create a lasting interdisciplinary and inter-professional collaboration that will help UCSF to achieve its goal of building effective community partnerships.

**BACKGROUND:** We reviewed the literature and available curricula to identify competencies related to community engagement.

**METHODS:** An interdisciplinary team compiled existing competencies, developed new ones, and drafted a complete set of community engagement competencies. This draft was distributed to UCSF colleagues, community stakeholders, and colleagues nationally for input and feedback. Next steps will include finalizing competencies, linking them to the ACGME competencies, developing assessment tools, and conducting pilots. We will work in collaboration with identified community partners to develop assessment tools and to pilot them.

**EVALUATION PLAN:** Outputs and achievement of objectives.

**DISSEMINATION:** Competencies and assessment tools will be disseminated to university and community colleagues locally and nationally. We aim to present them at national conferences, prepare an academic manuscript, provide online access, and make them available to professional organizations.

**REFLECTIVE CRITIQUE:** We will incorporate feedback we received from academic and community collaborators into the final draft of the community engagement competencies. We will also seek their input for production and piloting of the assessment tools. We chose to engage community collaborators after the initial draft, and we have received feedback that some would like to have been engaged at the very beginning of the process.

## **EFFECT OF EVIDENCE BASED PHYSICAL EXAMINATION CURRICULA FOR THIRD AND FOURTH YEAR MEDICAL STUDENTS ON CLINICAL REASONING AND MEDICAL MANAGEMENT**

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**PURPOSE:** To determine if medical students who are taught evidence based physical exam are better able to interpret and apply examination findings.

**BACKGROUND:** Evidence based physical examination is an important clinical tool, but medical student examination skills are suboptimal (1). There are no studies of whether training medical students in rational physical examination improves clinical reasoning and medical management skills.

**METHODS:** Curricula using JAMA's Rational Examination series can improve the knowledge, competence, and confidence of medical students (2, 3). We are adding an emphasis on clinical reasoning to this framework. For senior students, we will modify an existing advanced physical examination course by emphasizing the clinical utility of physical exam findings. For internal medicine clerkship students, we will modify physical diagnosis rounds to teach an evidence based approach. Both groups will practice rationally applying this knowledge on bedside rounds.

**EVALUATION PLAN:** A pre and post intervention questionnaire will measure knowledge, attitude, and behavior regarding the application of evidence based physical examination findings to medical decision making. We hypothesize that students who are taught evidence based physical exam will more frequently make correct management decisions in clinical vignettes than students who receive standard education.

**DISCUSSION:** We will disseminate results directly to the leaders of internal medicine clerkships. A report will be submitted for publication.

**REFLECTIVE CRITIQUE:** This project has been modified after discussion with clerkship leaders; further modification will be based on questionnaire responses.

1. Wilkerson L, Lee M. Assessing physical examination skills of senior medical students: knowing how versus knowing when. *Acad Med.* 2003;78(10 Suppl):S30-2.
2. Fagan MJ, Griffith RA, Obbard L, O'Connor CJ. Improving the physical diagnosis skills of third-year medical students: a controlled trial of a literature-based curriculum. *J Gen Intern Med.* 2003;18(8):652-5.
3. Chou CL. Physical examination teaching curriculum for senior medical students. *Med Educ.* 2005;39(11):1151.

## EXTENDING THE MEDICAL EDUCATOR'S REACH VIA ONLINE TOOLS

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**PURPOSE:** This project aims to optimize an educator's instructional efforts by creating online materials to teach at the learner's point of need. Using freely available web publishing tools will streamline the development of online teaching materials and publishing these to the web.

**BACKGROUND:** Literature searching and information management skills are critical components of producing quality research. At our institution, a librarian assists in literature research and instructs medical educators and students on how to best search databases such as PubMed, as well as other resources related to medical education. With increasing requests to lead research consultations and literature searching workshops, there is an evident need to find ways to extend a medical educator's reach beyond just in-person assistance.

**METHODS:** The librarian developed online teaching resources using blogs, wikis, and websites. The usage of these tools was tracked to calculate the return on investment of the time taken to develop the content and to publish it to the web.

**EVALUATION PLAN:** Tracking usage statistics will show that the educator is spending less time creating and publishing material to the web while being able to reach a greater number of learners compared to their in-person teaching. Analyzing user surveys and direct communications from learners will evaluate the usefulness of our approach.

**DISSEMINATION:** This project is under review as a poster abstract for the 2009 Western Group on Educational Affairs Regional Conference in April.

**REFLECTIVE CRITIQUE:** We solicited email feedback from students and faculty describing the usefulness of the blog, wikis, and websites created. Based upon this feedback, similar online learning tools will continue to be created and usage statistics will continue to be analyzed to look for ways to improve content and delivery.

## **INTEGRATING PATIENT SAFETY CURRICULUM INTO I.M. RESIDENCY TRAINING**

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**PURPOSE:** To promote patient safety among residents by engaging them in identifying and solving patient safety issues.

**BACKGROUND:** The VA National Center for Patient Safety (NCPS) was developed after the landmark report "TO ERR is HUMAN: Building a Safer Health System" <sup>1</sup>. The NCPS provides training to faculty in developing patient safety curriculum. After the authors attended this course, a curriculum was developed by using suggested lecture topics and designed this project to engage residents in identifying and solving patient safety issues.

**METHODS:** This curriculum was implemented in 2008 after approval by the UCSF-Fresno Education Committee. We included all fourteen PGY-2 Internal Medicine residents. We started with a series of lectures; topics included Introduction, Human Factor Engineering, Evidence-Based Patient Safety, Root Cause Analysis and HealthCare Failure Mode Effect Analysis.

Residents were given 4 months to report one patient safety issue encountered at work. The report is to be submitted in the following format:

**I. PATIENT SAFETY ISSUE:** *(Describe the patient safety issues, why it happened and the nature of the problem (i.e. information system, equipment, environment/architecture, policies/processes etc.)<sup>2</sup>*

**II. RECOMMENDATION:** *(Solutions and ways to prevent it)<sup>2</sup>*

**III. EVALUATING EFFECTIVENESS:** *(What outcome will be measured?)<sup>2</sup>*

**IV. INTERESTED IN PURSUING THIS AS A RESEARCH OR CASE/POSTER PRESENTATION PROJECT?** *(Yes/No)*

One project will be chosen and encouraged to be pursued as research study. The intent is to further enhance his/her skills in identifying and solving patient safety issues.

**EVALUATION PLAN:** Submitted projects will be graded pass/fail based on the quality and content of their reports.

**DISSEMINATION:** Abstract submission to a national meeting

**REFLECTIVE CRITIQUE:** Written feedback of participants will be used for curriculum improvement.

### **REFERENCES**

1. Kohn L; et.al. "To Err is Human. Building a Safer Health System." IOM, 2000.
2. Faculty Development Workshop "A Patient Safety Curriculum for Residents"
3. [www.patientsafety.gov](http://www.patientsafety.gov)

## **LEARNING FROM EXPERIENCE: DEVELOPMENT OF GUIDELINES TO IMPROVE STUDENT REFLECTIONS**

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**PURPOSE:** To develop and pilot test evidence-based guidelines for reflective learning.

**BACKGROUND:** In response to local and national mandates, educators are increasingly incorporating reflection into their teaching. At UCSF, there is no consistent approach to this task, little training of learners in reflective skills, and rare feedback on or evaluation of reflective exercises. Review of written reflections revealed compelling anecdotes displaying few of the components of reflection described in the literature. We hypothesized that the main reason learners do not reflect well is lack of training.

**METHODS:** Key educators from multiple specialties met monthly as the Clinical Core Reflective Writing Task Force. We developed the LEAP – Learning from your Experiences as A Professional – curriculum: 1) instructions taking learners through a reflection process modeled on the clinical SOAP note; 2) literature-derived guidelines including a definition of reflection in professions education and strategies for improving reflective skill; 3) a reflective learning website through the new Collaborative Learning Environment providing the LEAP, information for educators, and annotated sample reflective exercises.

**EVALUATION:** A pilot study in three clerkships supports the curriculum's effectiveness, with students (n=21) who used the guide scoring significantly higher ( $p<.003$ ) on a previously validated 0-6 scale than those who did not (n=36) (3.3 (sd=1.0) vs. 2.5 (sd=0.8)). In 2009-10, a controlled trial involving the entire third year class will assess maturation effects, transfer, and number of exposures needed for mastery.

**DISSEMINATION:** An abstract was submitted to RIME. Faculty development workshops have been offered through the Office of Medical Education and WGEA. We will write a curriculum development article for publication and submit the LEAP to MedEd Portal.

**REFLECTIVE CRITIQUE:** Feedback has been solicited from key educators via the Reflective Writing Task Force and email. The LEAP has been modified based on input from learners and course directors participating in the pilot.

## MODEL FOR EFFECTIVE CROSS-CULTURAL EDUCATION

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**PURPOSE:** This model was developed to understand why cross-cultural education has been ineffective in teaching students how to work with diverse populations.

**BACKGROUND:** Initially focused on learning exemplar characteristics of cultures, cross-cultural education has broadened to include other aspects of health disparities and has worked to supply students with practical skills. After the IOM report outlined disparities in health, several accreditation boards created requirements for cross-cultural education. Despite innovations in curriculum, students continue to feel unprepared to care for culturally diverse patients and few evaluations of existing curriculum have been done to demonstrate success.

**METHODS:** A literature review of relevant articles was done and medical students were invited at random to participate in focus groups with classmates. The model relates common curriculum categories into a pyramid based on complexity of curricula (type of evaluation, students reached, faculty involved and resources required). While cross-cultural education is best when it includes multiple categories, educators have to balance innovation with concrete data and practical goals. In this model an inverse pyramid explains how, when this is not done, categories can deteriorate into curricula that send the wrong message and lead to student burn out. Additionally in order for the curriculum to be successful, value must be placed on learning these issues by evaluating the students and ultimately the curriculum itself.

**EVALUATION PLAN:** Feedback from leaders in the field is the first step. Surveys of various curriculum and graduates satisfaction and comfort as related to the model will refine the model and allow it to be applied in both development and reformation.

**DISSEMINATION:** Planned presentation at the Pathways Symposium with the goal of a manuscript for publication.

**REFLECTIVE CRITIQUE:** During development, this model has received feedback during work in process sessions. Categories have been refined and variables such as timing have been introduced.

## **MS1 SAN FRANCISCO NEIGHBORHOOD GUIDE: INTRODUCTION TO POPULATION HEALTH AND COMMUNITY PARTNERSHIPS**

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**PURPOSE:** The project seeks to connect the classroom and the community through a practical guide to San Francisco's population health needs and neighborhood-based services.

**BACKGROUND:** To more effectively serve diverse patient populations, UCSF medical students need integrated training for individual patient care and population health promotion. At this time, the formal medical school curriculum does not include community-based service learning.

**METHODS:** Two UCSF Student Curriculum Ambassadors researched and compiled data to create a 19-page guide including: 1) a listing of internet resources on SF's population health and community partnerships; 2) an overview of the city's demographics, socioeconomic data and leading causes of premature mortality; and 3) neighborhood profiles for Chinatown and Mission that feature local history, demographics and health indicators, health outcomes and disparities, and community-based services and UCSF partnerships.

**EVALUATION PLAN:** Future work to translate the guide into experiential learning opportunities will be crucial. Although not yet conducted, evaluation would consist of students' ratings on the guide's usefulness, and their participation in community-based electives and research projects inspired by the guide. Currently, two first year students are planning site visits to community organizations in Mission and Chinatown neighborhoods. Feedback from the tours will be collected.

**DISSEMINATION:** Completed in September 2008, printed copies of the guide were disseminated to first year students during fall orientation, health disparities electives. Faculty and student leaders in health disparities and diversity work received electronic copies of the guide, which is now available on the internet. A poster exhibit of the guide has been on display by the School of Medicine's Office for Curricular Affairs.

**REFLECTIVE CRITIQUE:** Feedback from fellow Curriculum Ambassadors and faculty advisors helped shape the guide to its current form. Future collaborations with faculty and students will seek to expand the guide's coverage of neighborhoods and translation into community-based learning opportunities.

## **“POCKET PRECEPTOR”: RESIDENT-LED DEVELOPMENT OF AN OUTPATIENT MEDICINE HANDBOOK FOR INTERNAL MEDICINE RESIDENTS**

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**PURPOSE:** The primary goal was to develop a comprehensive, evidence-based handbook on outpatient internal medicine for residents. An additional goal was to provide an opportunity for residents to author a textbook chapter with faculty mentorship.

**BACKGROUND:** The fast pace of general medicine clinics can be overwhelming for residents who are learning how to efficiently access information and apply it to patient care in real-time. Residents voiced a need for an outpatient medicine handbook for diagnosis and management of commonly encountered conditions.

**METHODS:** A group of residents formed a committee to create the handbook. Based on a needs assessment, we created a list of topics. We developed a novel template for chapter structure to ensure ease of use and meet the needs of the target audience. We recruited medicine resident authors, as well as faculty mentors. The committee then edited the chapters into a book of approximately 250 pages.

**EVALUTION PLAN:** Despite this being a voluntary activity, a relatively high proportion of residents (36%; 38 of 105 residents) chose to author a chapter. Based on initial feedback, residents valued the experience of authoring a textbook chapter with close faculty mentorship, and this may represent an important educational opportunity.

**DISSEMINATION:** The book was completed in February 2009. We wrote an internal grant to fund the publication of the handbook and its distribution to residents for several years. The project has been accepted for poster presentation in Innovations in Medical Education at the national Society of General Internal Medicine meeting in May 2009.

**REFLECTIVE CRITIQUE:** We are surveying all resident authors to assess the educational benefit of writing medical textbook chapters. In addition, we will survey residents after they have used the book for several months to assess its ease of use, its comprehensiveness, and how residents feel it impacted their training experience.

## **PSYCHIATRY "COPING WITH PATIENT SUICIDE" CURRICULUM**

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UCSF Department of Psychiatry

**PURPOSE:** To develop and implement a didactic and as-needed ("PRN") curriculum for all UCSF psychiatry residents to educate them regarding patient suicide.

**BACKGROUND:** Historically, there has been no formal teaching during residency training on how to cope with a patient's suicide despite the statistical reality that this outcome is not uncommon over the course of a career in psychiatry. As a result, residents were not systematically exposed to core aspects related to this topic, including pertinent medico-legal issues, expected emotional reactions to the event itself as either the primary physician or as a colleague, or available resources for support.

**METHODS:** The curriculum was developed with input from multiple sources: 1. existing literature in the psychiatric education literature; 2. faculty. Though there is much literature to support training psychiatry residents on this topic, there are no formal training guidelines. Core topics were identified and learning sessions in lecture and small group settings were developed to complement each other over the course of a half-day of didactics that would expose every psychiatry resident to key content and process issues around this weighty, but very relevant, topic.

**EVALUATION PLAN:** Trainee knowledge acquisition is assessed through pre- and post-tests using cases. Trainee feedback on the curriculum is obtained via anonymous evaluative questionnaires that are completed at the conclusion of the didactic half-day.

**DISSEMINATION:** Dissemination is planned in 3 ways: 1. annual or biannual didactical half-days; 2. activation of the PRN curriculum in the event of a completed patient suicide; and 3. publishing the curriculum in a journal for the education of and implementation within other institutions.

**REFLECTIVE CRITIQUE:** Evaluations of the half-day curriculum, which was executed for the first time in January 2009, were obtained from all attendees. This feedback will be used to edit content and sequence of the didactics in future iterations.

## **RESIDENT TEACHING OBSERVATION PROGRAM: FEEDBACK AND MENTORING TO IMPROVE MEDICAL EDUCATION SKILLS**

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**PURPOSE:** To improve pediatric residents' teaching skills.

**BACKGROUND:** Residents are actively engaged in medical education in teaching hospitals. Little emphasis is placed promoting excellence in resident teaching.

**METHODS:** We modified the faculty Teaching Observation Program (TOP) of the UCSF Academy of Medical Educators to be relevant to pediatric senior residents. Academy of Medical Educators faculty and pediatric chief residents observed each of the 2-3 formal educational conferences third-year residents give for students and junior residents; afterwards, they provided face-to-face feedback on teaching and evaluated strengths and weaknesses of the talk. Faculty mentored chief residents in giving residents feedback on teaching skills.

**EVALUATION PLAN:** Each resident evaluated TOP using a confidential e-mail survey asking an evaluation of the overall experience and what they had learned. After 85 observations for 64 residents, 29 completed evaluations (45%). On 1-5 Likert scales (1= strongly disagree, 5 = strongly agree), residents thought TOP provided valuable feedback (4.94), would improve trainees' educational environment (4.72), and could change their teaching practice (4.61). Overall satisfaction was rated 4.42. Two-thirds of residents would like peer evaluations in addition to TOP feedback.

**DISSEMINATION:** We are still obtaining data. We modified our pilot project methods in response to preliminary results. If effective in improving the teaching environment, resident TOP could be extended to other departments at UCSF.

**REFLECTIVE CRITIQUE:** Resident TOP was favorably reviewed; most residents would like to see it continue. Open-ended comments included: the rarity of formal feedback on teaching skills, preference for help in preparing lectures, and better pre-observation delineation of goals. The limited sample size limits sub-group analyses. However in the future, we plan to characterize which aspects of feedback were more effective. Our survey data cannot directly measure whether observation results in sustained improvements in teaching skills, nor whether resident TOP actually improves trainees' educational experience.

## **SAFE TRANSITIONS FROM HOSPITAL TO HOME: THIRD-YEAR MEDICAL STUDENT REFLECTIONS ON A POST-DISCHARGE VISIT CURRICULUM**

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**PURPOSE:** To increase medical student understanding of the patient safety risks associated with the transition from hospital to home through a post-discharge home visit curriculum and a written reflection exercise.

**BACKGROUND:** The period of transition from hospital to home is a time when patient safety is at particular risk. It is critical that medical students be trained to recognize and reflect on how to minimize that risk. In addition, the ability to reflect on clinical experiences is increasingly being recognized as an important part of student professional development.

**METHODS:** We expanded a post-discharge home visit curriculum from one site to all three core sites for the third-year internal medicine clerkship. All students on their medicine clerkship were required to complete the curriculum, which consisted of a workshop on transitional care, a post-discharge home visit to a patient known to the student from the rotation, and a group debriefing session. Students completed a written reflection exercise during the debriefing, which allowed them to integrate and consolidate the diverse aspects of the curriculum. In this exercise, students described their visit experiences (including surprising aspects), medication reconciliation findings, and impact of the program on their future discharge planning process.

**EVALUATION PLAN:** Previously, a Likert-scaled survey was conducted to quantitatively assess students' attitudes toward the curriculum. In this three-site project, we conducted a qualitative analysis of students' reflections on their post-discharge visit experience. Using an iterative consensus building process, we generated themes of surprising elements and "lessons learned" by clerkship students who completed the curriculum.

**DISSEMINATION:** The qualitative analysis will be presented at the Society of General Internal Medicine Regional and National meetings.

**REFLECTIVE CRITIQUE:** We have incorporated feedback on the qualitative analysis project, and we also plan to use the generated themes as a way to further refine the curriculum.

**SAN FRANCISCO VETERANS AFFAIRS (SFVA) READMISSION REVIEW PROJECT  
TO EDUCATE UNIVERSITY OF CALIFORNIA-SAN FRANCISCO (UCSF)  
INTERNAL MEDICINE RESIDENTS ON TRANSITIONS IN CARE**

Elizabeth Kaplan MD; Rachael Lucatorto MD; Sumant Ranji MD; Harry Hollander MD; Jeff Kohlwes MD, MPH; Pat Cornett MD

**PURPOSE:** To evaluate the novel SFVA Hospital internal medicine service readmission program.

**BACKGROUND:** Studies have shown that care transitions represent potential sources for adverse events, particularly for our geriatrics patients as well as patients with complex care needs. To address this issue, the SFVA internal medicine service will be reviewing patients who are readmitted to the hospital within 30 days post discharge to examine if any transitions issues may have led to patient readmission.

**METHODS:** To help housestaff understand transitions in care, UCSF medicine residents on VA ward months will complete a case review of every patient readmitted to the hospital while they are on service using a root cause analysis paradigm.

**EVALUATION PLAN:** Utilizing a standardized questionnaire, the medicine team will review each readmission, evaluates system issues that contributed to the readmission and discuss the findings during regularly scheduled attending rounds time. We will track how many exercises are done, how many residents participate, and the types of transitions and systems issues the residents self-identify. Every two months, the transitions in care curriculum team will review the forms to look for common themes to generate ideas for system improvements and curriculum changes to improve the transitions in care process. The findings will be discussed in a quarterly multidisciplinary conferences with residents, attending, nurses, social workers, PT/OT, and discharge planners so we can all work together to improve transitions in care. We will track systems changes made based on the recommendations from the exercises as well as any changes in medical service readmission rates.

**DISSEMINATION:** The data will be presented as a poster during the 2009 national AAIM meeting and the 2009 VA Educational Leaders Conference.

**REFLECTIVE CRITIQUE:** Feedback will be solicited at national IM program meetings, national VA Educational meetings as well as the UCSF medical education day.

## TEACHING PRINCIPLES OF MANAGING CHRONIC ILLNESS USING A LONGITUDINAL STANDARDIZED PATIENT CASE

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**PURPOSE:** We aimed to expose pre-clerkship medical students to patients with chronic illness, advancing student skills in, and improve student attitudes towards, caring for patients with chronic illnesses.

**BACKGROUND:** There is an increasing prevalence of chronic illness in the United States and all medical students must have the knowledge, skills and attitudes to effectively manage chronic illness. Innovative educational initiatives are needed to teach chronic illness management skills. Recurrent visits with a standardized patient (SP) provide a unique opportunity for experience with longitudinal care and chronic illness management in a structured setting.

**METHODS:** We designed a longitudinal standardized patient (SP) case, “Jane Henderson,” who presents with chronic illness and complex psychosocial issues that affect her adherence to treatment. Students conducted interviews in small groups with a consistent SP four times over the first two years of medical school during the Foundations of Patient Care (FPC) course.

**EVALUATION PLAN:** After part three of the longitudinal case, we assessed students’ satisfaction with the entire case, and their perceptions about how it affected their attitudes towards caring for patients with chronic illness in the future, via an anonymous paper survey. Future evaluations are planned of the case’s effect on students’ clinical skills in standardized assessments, on their long-term attitudes towards patients with chronic illness, and future career goals.

**DISSEMINATION:** We have incorporated the case into the FPC curriculum for first- and second-year students. We plan to submit the case to MedEdPORTAL and have submitted this project to WGEA.

**REFLECTIVE CRITIQUE:** Although preliminary evaluation data suggest a high degree of student satisfaction with the case, less than half of students responded; further modifications to the case will depend on fuller incorporation of feedback from a broader sample of students.

## **TELEMEDICINE: PROVIDING CARE FOR THE HIV-INFECTED INCARCERATED PATIENT**

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**PURPOSE:** The goal of this project is to train residents in hands-on care of the HIV-infected incarcerated patient and to expose residents to telemedicine as an application of clinical medicine.

**BACKGROUND:** The Correctional Medicine Consultation Network (CMCN) has developed a program which combines telemedicine clinics with on-site clinics. Telemedicine has an increasing role in the provision of expert consultative care to rural underserved communities. However, to optimize capacity building for this population of patients it is critical to experience the actual conditions under which providers deliver medical services.

**METHODS:** This elective incorporates an interdisciplinary model of care for HIV-infected people in prison. Residents will have the opportunity to work directly with a variety of health care professionals at our clinic at San Quentin State Prison and at our telemedicine clinics. The elective will include an orientation to providing health care in the correctional setting as well as an orientation to telemedicine. A debriefing session after clinic will allow the resident to process concerns or experiences utilizing bidirectional feedback.

**EVALUATION PLAN:** Assessment tools will focus on pre-assessment of level of interest and level of knowledge and skill in the care of the HIV-infected incarcerated patient and in the use of telemedicine. Post-assessment will examine these same areas after a month-long rotation.

**DISSEMINATION:** We will submit proposals to present posters and oral presentations at conferences focused on the care of the incarcerated and the HIV-infected patient.

**REFLECTIVE CRITIQUE:** Bidirectional feedback sessions will be utilized to better understand the experiences of the resident during the rotation and to optimize the learning experience.

## THE DEVELOPMENT OF A PEDIATRIC PROCEDURAL SKILLS TRAINING PROGRAM

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**PURPOSE:** To develop a pediatric procedural skills training program consisting of a self-study component with web-based modules and a hands-on component of instruction and practice in a skills laboratory.

**BACKGROUND:** As per Resident Review Committee requirements, pediatric residents need to acquire competency in procedural skills. Based on reports of residents confidence levels and performance as well as program directors' perceptions, current procedural skills training is inadequate. An effective curriculum for acquisition of psychomotor skills starts with demonstration, followed by deliberate practice. Simulation-based training replaces practice on patients, a patient safety concern, with practice on partial skills trainers.

**METHODS:** The program teaches 8 skills: phlebotomy, IV placement, bag-mask-valve ventilation, endotracheal intubation, IO placement, arterial puncture, umbilical vein and artery catheterization. We developed specific learning objectives for web-based modules and skills lab training, instructor guidelines and performance assessment tools. The web-based modules have content knowledge and videos demonstrating each procedural skill. Thus far, we have created content for 4 modules and are in the final editing phase for the 2. We organized our first 4-hour skills lab session for the intern class of 2008 during orientation, with follow-up sessions scheduled for April 2009. "Open skills lab" started in January of 2009 with monthly sessions open to all pediatric residents and medical students.

**EVALUATION PLAN:** We collect learner satisfaction data after each lab session. We obtained baseline performance data for 15 residents without exposure to the curriculum; these are historical controls to the current intern class, for whom we will collect performance data in the fall of 2009 and 2010.

**DISSEMINATION AND REFLECTIVE CRITIQUE:** The web-based curriculum will be open to others after internal trial with assessment of impact on performance. As impact on performance data become available, we intend to present this curriculum development project at a national pediatric meeting.

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## **TRANSFORMING CLERKSHIPS INTO AN INTEGRATED LONGITUDINAL LEARNING MODULE: MODEL MADRES: MATERNAL, CHILD AND FAMILY HEALTH**

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**PURPOSE:** Evaluate the effectiveness of meeting clerkship goals and longitudinal integrated patient care goals in Model Madres. Evaluate the impact on programmatic resources.

**BACKGROUND:** Traditional medical school clerkships have been noted to have gaps in curriculum, inefficient administrative systems and academic isolation for clerkship directors.[1] Informal student feedback, when trained in traditional clerkships, highlights the need for longitudinal and integrated care of the patient in order to meet optimal learning goals. Two models of clinical integration exist at UCSF, the longitudinal integrated clerkship model (LIC) versus hybrid models (integration and longitudinal patient care within traditional clerkships). Model Madres is a hybrid model taking advantage of an innovative perspective of caring for women, children and families across traditional clerkships.

**METHODS:** 7 students participated in this 6 month model. Longitudinal training, integrated learning, community /practice based education and structured mentoring were key components of this hybrid design.

**EVALUATION PLAN:** Student participants experienced continuity patient care goals and met core learning goals. Analysis of the effectiveness of interdisciplinary learning opportunities, of community based education in assisting with patient care and of mentoring, is in process. Impact on programmatic resources will be summarized.

**DISSEMINATION PLAN:** Preliminary findings indicate that Model Madres participants met core learning goals and met continuity patient care expectations. Hybrid models, like Model Madres, face multiple challenges. This abstract was presented as a PEER research paper at the 2009 Society of Teachers in Family Medicine Predoctoral conference. Abstracts have been submitted to the WGEA and to the UCSF Family Medicine Colloquium.

**REFLECTIVE CRITIQUE:** This PEER presentation was submitted to the Family Medicine Digital Resource Library and will undergo peer review. Current evaluation results will be reviewed with the office of educational research at UCSF for refining our study results and implications.

[1] Pipas CF, Peltier DA, Fall LH, et al. Collaborating to integrate curriculum in primary care medical education: successes and challenges from three US medical schools. *Fam Med* 2004;36 Suppl:S126-32.

## USING ONLINE DERMATOLOGY LEARNING MODULES TO INCREASE DERMATOLOGY TEACHING TO MEDICAL STUDENTS

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**PURPOSE:** To increase medical student comfort and ability in describing lesions and diagnosing and treating dermatologic diseases, while emphasizing the importance of these skills for later practice in primary care.

**BACKGROUND:** A previous needs assessment revealed that the majority of primary care faculty (>90%) and residents (>60%) feel residents are unprepared to manage skin conditions during residency. Yet, 70% of medical schools require less than 20 hours of dermatology education and 7% require none. The UCSF curriculum does not include a significant amount of dermatology education as well.

**METHODS:** We developed ten online dermatology modules for use during third-year clerkships and a fourth-year dermatology elective. Content was chosen for relevance to future primary care providers and dermatologists. These case based modules were created using PowerPoint and included associated self-assessment questions and links to additional dermatology resources.

**EVALUATION PLAN:** Usefulness and effectiveness of the online modules will be assessed using pre- and post-intervention surveys of fourth-year students on the dermatology elective. Students will be asked at the beginning and the end of the elective to rate their comfort in their ability to diagnose and treat 20 common dermatologic conditions and 8 key diseases using a 10-point Likert scale. We will also explore factors that affect student comfort such as previous use of the modules during third-year clerkships, clinical exposure to the common dermatologic conditions and key diseases, frequency of module use during the elective, and perceived effectiveness of the modules.

**DISSEMINATION:** Study results will be presented at the Pathways to Discovery symposium and shared with the dermatology and education communities.

**REFLECTIVE CRITIQUE:** The content for each module was reviewed by the corresponding faculty content expert. We solicited advice and feedback from project advisors and students in developing the evaluation plan and designing the survey.

## **WEB 2.0 TOOLS TO ENABLE PEER SUPPORT AND COLLABORATION ACROSS ALL 4 YEARS OF MEDICAL SCHOOL**

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**PURPOSE:** We developed a wiki for UCSF medical students for peer support and collaboration.

**BACKGROUND:** Web 2.0 tools (e.g. blogs and wikis) can be useful for educators, facilitating information sharing and collaboration. UCSF educators primarily use wikis for administrative purposes, with some initial efforts to support teaching and learning.

**METHODS:** We developed separate wikis for each medical school class to explore how wikis might support medical student learning. Each class maintains and uses its wiki to meet its individual needs, but also has access to other class wikis. Classes have used wikis to share learning materials, study guides, and other learning resources. Other potential uses include a virtual space for a medical education literature search specialist, student generated survival guides, electronic flash cards, and personal pages. Students can receive daily digest emails summarizing key updates and changes to the wikis. A governing group of student representatives from each class support sustainability and consistency.

**EVALUATIONS PLAN:** Periodic surveys will be sent to students, and individual meetings will be held to solicit student feedback. They will be used to improve each class wiki. The outcomes measured will be students' 1) use of the wiki, 2) perception of peer support during their medical school experience, and 3) perception of the utility of the wiki.

**DISSEMINATION:** The results of this wiki project will be made available to colleagues through talks, posters, publications, and the school website.

**REFLECTIVE CRITIQUE:** When developing a Web 2.0 product, it is important to seek advice from the end users. Engaging our end users focused our development in areas that were important to the students, resulting in what appears to be successful adoption of the wiki in each medical school class. Functions include collaboration and teaching between students, as well as easy transfer of information from one class to another.

## **WELL-BEING WORKSHOP SERIES LINKED TO THE CURRICULUM: LUNCHTIME WORKSHOPS FOR FIRST YEAR MEDICAL STUDENTS**

Rebecca Watters, MD Director UCSF Medical Student Well-Being Program

**PURPOSE:** We linked elective well-being lunches to the academic curriculum to increase student attendance to non-clinical well-being events and to subsequent clinical counseling services.

**BACKGROUND:** Medical students are at high-risk of developing mental health problems. In 2006, University of California (UC) Student Mental Health Report found a need for more campus mental health services.

**METHODS:** We transformed the standard free lunch talk (e.g. talk by an eating disorders specialist) to skills-based workshops curriculum-linked with classroom lectures, e.g. mindfulness meditation linked with that morning's cardiovascular lecture "Response of the Heart to Injury". Prior lunchtime events occurred 2-4 times a year and reported an average attendance of 7 students (range 4-14); curriculum-linked lunches occur 6-8 times a year and attract an average of 24 (range 22-35). During the workshops, first-year medical students meet the psychiatrist and psychologist who are available to them for free, confidential, on-campus services. Students are taught stress management skills such as cognitive behavioral therapy to use with their patients but also for themselves. These workshops target vulnerable subgroups (e.g. first generation students) and reinforce the vital social support network within their class.

**EVALUATION PLAN:** We record attendance at lunchtime events and collect feedback evaluations from students. Data is being collected to determine the impact of these workshops on utilization of counseling services.

**DISSEMINATION:** We are applying to present posters at WGSA and Education Day, we promote our approach on our website and are in active discussion with other UC campuses. We plan to submit a paper for publication when we have sufficient data that demonstrates the increase in clinical services subsequent to these workshops.

**REFLECTIVE CRITIQUE:** We collect feedback evaluations from students and modify our events to meet their needs. We discuss our approach with other medical schools to improve our programming.

## **WITHIN THE WALLS: MEDICAL EDUCATION AT SAN QUENTIN STATE PRISON**

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**PURPOSE:** The UCSF Correctional Medicine Consultation Network (CMCN) aims to improve medical students' skills in culturally competent and health literacy appropriate patient education. The program both improves students' written communication skills and reduces health communication barriers in order to improve health outcomes.

**BACKGROUND:** California state prisons are under federal receivership after providing grossly substandard medical services to inmates. Within the prison, low literacy and cultural incompetence are significant barriers to patient healthcare and wellness. The average incarcerated patient reads at a 7th grade level and is a racial or ethnic minority.<sup>1</sup> Medical students at San Quentin struggle to provide patients with culturally sensitive health education due to minimal formal training in health literacy and lack of experience in the prison setting.

**METHODS:** Medical students read health literacy articles and are trained in NIH-recommended techniques to assess and create patient education materials. Integrating experiences from prison primary care clinics, students revise existing inadequate patient education handouts and create new literacy and culturally appropriate ones. Students present their work to San Quentin inmate peer health educators who assess its literacy level and cultural appropriateness. This feedback is incorporated into final materials which are utilized in the primary care clinics, health fairs and health education classes.

**EVALUATION PLAN:** Instructors assess the literacy level of materials pre and post revisions using the S.M.O.G. index<sup>2</sup> to evaluate students' grasp of health literacy. Peer health educators critique students' level of cultural competence.

**DISSEMINATION:** The results will be presented at various national correctional medicine conferences and appropriate family medicine forums.

**REFLECTIVE CRITIQUE:** Students complete evaluations of their rotation providing feedback used to modify existing curricula to best meet their needs.

<sup>1</sup> California Department of Corrections and Rehabilitation. Third Quarter 2008 Facts and Figures, [www.cdcr.ca.gov/Divisions\\_Boards/Adult\\_Operations/Facts\\_and\\_Figures.html](http://www.cdcr.ca.gov/Divisions_Boards/Adult_Operations/Facts_and_Figures.html)

<sup>2</sup> McLaughlin, GH. SMOG Grading – A New Readability Formula. Journal of Reading. May, 1969.

# Research



## **BENEFITS OF INTEGRATING OPT-OUT RESIDENTS INTO COMPREHENSIVE FAMILY PLANNING TRAINING**

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**PURPOSE:** Describe the benefits of incorporating ob-gyn residents who do not want to do abortions into a family planning rotation.

**BACKGROUND:** While much has been written about the positive effects of integrated abortion training on residents in general, little attention has been paid to the experiences of residents who want to opt out of doing abortions. Many assume that these “opt-out” residents do not participate in any aspect of the rotation; our study investigates their experience and perceptions of benefits.

**METHODS:** Opt-out residents were identified by faculty responsible for abortion training at their residency programs and were asked to complete a web-based survey.

**RESULTS:** 18 of 26(69%) Ryan program directors identified 47 opt-out residents; 31(66%) completed the survey, and two were excluded. Respondents indicated only positive impacts on their skills in counseling, contraception, and uterine aspiration. Eight (28%) residents chose to participate in at least one elective abortion procedure while 27(93%) chose to participate in uterine aspirations for non-elective indications including abortion for fetal anomalies and miscarriage. While no resident indicated interest in additional elective abortion training, 6(21%) desired additional training in uterine evacuation skills for non-elective indications.

**DISCUSSION:** Most ob-gyn residents who opted out of part of abortion training experienced positive benefits from the rotation. These data support the need for residency programs to make family planning and abortion training available to these residents. Results from this study will be presented at the APGO/CREOG and National Abortion Federation annual meetings, and a manuscript is being prepared.

**REFLECTIVE CRITIQUE:** The study was designed as a part of Dr. Steinauer’s participation in the national APGO Academic Scholars and Leaders Program, which included extensive peer and faculty review of the instrument and data analysis. In addition, it has been reviewed twice in the SFGH family planning works-in-progress sessions.

## COMMUNITY HEALTH AND ADVOCACY CURRICULA: POISED TO CAPTURE ACGME COMPETENCIES

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**BACKGROUND:** The Accreditation Council for Graduate Medical Education (ACGME) has identified 6 core competencies for all Graduate Medical Education specialties. Of those, systems-based practice (SBP), practice-based learning and improvement (PBLI), interpersonal and communication skills (ICS), and professionalism (PR) may not be traditionally captured by standard clinical rotations. Community health and child advocacy (CHCA) experiences may provide an opportunity to address these competencies as they broaden resident education beyond the bedside.

The University of California San Francisco pediatric residency requires a one-month, PGY-2 rotation titled "Physician in Society" (PIS) that includes didactic and experiential components in CHCA.

**PURPOSE:** To demonstrate that CHCA curricula such as PIS can capture ACGME competencies.

**METHODS:** A retrospective pre- and post-rotation self-assessment of residents' perceived effectiveness in sub-competencies of SBP, PBLI, ICS, and PR was conducted, using a scale of 1-4 (1 = not effective, 4 = very effective). Paired t-tests were used to detect significant differences. Effect sizes were calculated to quantify change. Open-ended questions were utilized for qualitative analysis.

**RESULTS:** Significant differences ( $p < 0.05$ ) in pre- and post-rotation perceived effectiveness were found across all sub-competencies of SBP, PBLI, and ICS and in 3 of 8 sub-competencies of PR (N = 23). Effect sizes ranged from 0.53-2.12 for SBP, 0.24-1.77 for PBLI, 0.27-1.04 for ICS, and 0.00-0.57 for PR.

**DISCUSSION:** Community health and child advocacy experiences such as PIS can improve residents' perceived effectiveness in SBP, PBLI, ICS, and PR competencies. Results will be presented at scientific meetings and submitted for publication.

**REFLECTIVE CRITIQUE:** A draft was presented at an ESCape session, an oral presentation given at the Academic Pediatric Association Western Regional meeting; and multiple meetings with faculty of the Office of Medical Education have taken place. Major data analysis modifications including using a control group and conducting a formal qualitative analysis are taking place.

## DEVELOPING A COMPETENCY-FOCUSED HEALTH SYSTEMS AND POLICY DEGREE PROGRAM FOR UCSF LEARNERS

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**PURPOSE:** To support the development of an innovative health systems and policy (HSP) master's degree curriculum tailored to UCSF needs and strengths by researching and evaluating current HSP teaching activities.

**BACKGROUND:** HSP teaching is widespread at UCSF (e.g. SOM health policy theme, SOP health policy Pathway, SON degree programs, and Center for Health Professions courses). In 2005, the Agency for Healthcare Research and Quality (AHRQ) and AcademyHealth developed and disseminated proposed competencies for health services research to guide the development of educational programs in the field.

**METHODS:** We used qualitative methods to (1) review which AHRQ/AcademyHealth competencies were delivered by HSP teaching at UCSF; (2) assess which competencies to include in a new HSP degree program. We then developed a proposed approach to developing the new degree program and convened meetings with campus HSP educators to secure feedback and buy-in.

**RESULTS:** We contacted more than 30 faculty in all 4 UCSF schools requesting HSP teaching materials. All faculty responded, and we collected materials representing 61 courses and seminars (28 in SOM, 21 in SON, 2 in SOP, and 10 cross-school). The majority of materials collected (47 of 61) were determined to be relevant for the new program. We identified 10 key competencies on which the program could focus to leverage the needs and strengths of UCSF learners and educators.

**DISSEMINATION:** We convened multiple meetings with UCSF HSP educators to review our results. Based on feedback, we developed a plan to proceed with the development of an HSP master's degree program.

**REFLECTIVE CRITIQUE:** We have sought feedback on how to design this program so that it addresses HSP teaching needs across campus and avoid duplication of effort. We will solicit regular feedback from faculty, staff, and students in all 4 schools and the Graduate Division as we continue our work.

## **ESTABLISHING LEADERSHIP COMPETENCIES FOR HEALTHCARE PROFESSIONALS**

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**PURPOSE:** We aim to determine relevant leadership competencies for healthcare professionals. With these competencies defined, educational programs can be developed targeting necessary skills to better equip our learners to lead effectively.

**BACKGROUND:** With the changing landscape of medicine, physician leadership has never been so critical or necessary. The UCSF vision includes developing the world's future leaders in healthcare. Although numerous organizations call for leadership development during professional training, the discrete competencies required for effective leadership within these professions are unknown.

**METHODS:** We conducted a MEDLINE literature search and manual review of relevant article bibliographies. We also interviewed 2 executive leadership experts to determine the most relevant sources outside of the medical literature. We listed each of the skills or attributes advocated by searched sources, took the most frequently cited skills, and categorized them into competencies. Two authors independently reviewed the less-frequently cited skills and added additional competencies that both deemed relevant to healthcare professionals. Discrepancies between the authors for categorization or addition of skills were reconciled through discussion and consensus.

**RESULTS:** We included 7 sources from the medical literature and 9 from other sources, which resulted in 59 discrete leadership attributes or skills. We collapsed these into 8 relevant leadership competencies: change creation, working with others, communication, process thinking, self-awareness, environmental knowledge, management skills, and leadership presence.

**DISCUSSION:** Training in leadership development is necessary for our learners to best prepare them for their future careers. Although many types of leadership training exist, few curricula are competency based or are targeted to emerging healthcare leaders. We will survey current healthcare leaders in diverse settings regarding their perceptions of the relevance of our identified competencies. Via this process, we will establish a core set of relevant leadership competencies that may serve as a basis for leadership curriculum development across healthcare specialties.

## **EVALUATION OF CURRICULUM TO SUPPORT FUTURE PHYSICIANS OF UNDERSERVED POPULATIONS**

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**PURPOSE:** Evaluate “A Neighborhood-Based Introduction to Underserved Communities in San Francisco,” to determine its strengths and how it can be more effective.

**BACKGROUND:** The IOM recommended medical education as a route to train future physicians to work with diverse communities. Likewise the LCME advocated for population health education to be required for medical students. In response PRIME-US was created to increase the number of medical students at UCSF who pursue careers in this field. One component is this community assessment that takes students into the community to aid in recognizing resources, understanding the social and cultural determinants of health and self-reflection.

**METHODS:** Medical students participated in focus groups about their views on this curriculum and completed demographic surveys. The focus groups were recorded and transcriptions were coded to look for common themes. The results from participants were compared to those of their peers.

**RESULTS:** Surveys demonstrated that students with interest in this issue more often responded making the two groups more similar than was expected. Despite lack of a direct link between this session and subsequent involvement, early results demonstrate its value as an introduction to community assessment. For many it was the first time they directly interacted with a community leader as a partner and content expert.

**DISCUSSION:** This session while not recommended for the core curriculum, is seen as highly valued and worthy of increased institutional support. One way to expand its availability is during orientation. It can be adapted for use during clerkships, when students are often required to perform similar tasks without training. The materials are being refined and a template will be created for future use and publication on Med Ed portal.

**REFLECTIVE CRITIQUE:** During development, this research has received feedback during work in process sessions. Scheduling and composition of focus groups has been adjusted.

## **IMPACT OF A TELEPHONE FOLLOW-UP CURRICULUM ON MEDICAL STUDENTS' PHYSICIAN-PATIENT INTERACTION SKILLS**

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**PURPOSE:** To evaluate the impact of a Telephone Follow-up Curriculum (TFC) on physician-patient interaction (PPI) skills of third-year medical students.

**BACKGROUND:** Students learn patient education techniques but infrequently have sufficient continuity with patients to determine how effectively their communications influence patients' behaviors. We developed a TFC to reinforce the PPI skills of "ask-teach-ask", "closing-the-loop", and "looking ahead" taught in the preclerkship curriculum. This format enables students to check patient comprehension, retention of information, and medical adherence since the last visit or discharge.

**METHODS:** We piloted TFC with third-year medical students enrolled in VALOR, a 6-month longitudinal clerkship encompassing medicine, surgery, neurology, and psychiatry. After basic PPI didactics, participating students selected four patients from their clinical encounters to telephone, completed a written exercise for each interaction, and debriefed with faculty. Participants evaluated the curriculum using a 5-point Likert scale. The entire third-year class participated in a three-station clinical performance exercise (mini-CPX) after seven months of clerkships.

**RESULTS:** Eighteen students participated in TFC, completing four calls each, yielding 71 (98.6%) written exercises and 17 (94.4%) evaluations. In 87.3% of the telephone calls, participants reported using at least one PPI skill, most commonly "ask-teach-ask" (76.1%). Most participants found TFC useful for practicing (76.5%) and improving (70.6%) PPI skills; 94.1% believed these skills would be relevant for future patient encounters. All 149 third-year students completed the mini-CPX. There was no difference in PPI scores between TFC participants and non-participants.

**DISCUSSION:** Telephone follow-up exercises are feasible for clerkship students and allow students to practice clinically relevant PPI skills.

**REFLECTIVE CRITIQUE:** We included input and feedback from people with expertise in PPI content, VALOR curriculum, and student assessment, in designing TFC and our study. Evaluation data from TFC participants and VALOR faculty will also allow ongoing curricular improvement.

## **IN OR OUT? THIRD-YEAR MEDICAL STUDENTS' SELF-ASSESSMENT OF PREPAREDNESS FOR MEDICINE SUBINTERNSHIP AFTER AN INPATIENT OR OUTPATIENT THIRD YEAR**

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**PURPOSE:** To evaluate ambulatory-based longitudinal integrated clerkship (LIC) students' self-assessed preparedness for the internal medicine (IM) subinternship compared to students in a traditional, inpatient-based 3rd year.

**BACKGROUND:** Longitudinal integrated clerkships and traditional clerkships provide substantially different educational experiences which may influence students' preparation for 4th-year IM subinternships. No data exist on LIC and traditional students' self-assessment of preparedness for subinternships.

**METHODS:** UCSF's PISCES program is a year-long LIC during which students follow a patient cohort through multispecialty clinics. In the IM discipline, PISCES students complete 30 precepted clinics and 2 weeks of inpatient medicine, while traditional students complete 8 inpatient weeks. To compare LIC and traditional students' self-assessed preparedness for subinternship, we developed a 22-item, 5-point Likert scaled survey (1=least prepared, 5=most prepared) based on published subinternship objectives, and distributed the survey after completion of the 3rd year.

**RESULTS:** All 8 PISCES students and a convenience sample of 21 traditional students completed the survey. The two groups were similar in reporting that they felt well prepared for most items related to subintern tasks, communication/relationships, and work practices (mean score >4.0). There was no statistically significant difference between PISCES and traditional students' self-assessed preparedness for tracking inpatient data, coordinating care, or integrating into the team. PISCES students felt less prepared for overnight call compared to traditional students (3.5 vs. 4.4,  $p=0.04$ ). Relative to other survey items, both student groups felt less prepared to initiate goals of care discussions and to arrange hospital discharge plans (grouped mean 3.8 and 3.9 respectively).

**DISCUSSION:** Regardless of 3rd-year program, students felt well prepared for the IM subinternship. PISCES and traditional students were similar in their assessment of preparedness for all aspects of the subinternship except overnight call. We submitted these results to an education meeting.

**REFLECTIVE CRITIQUE:** We incorporated feedback from monthly resident project meetings.

## **ONE YEAR LATER: PRELIMINARY RESULTS FROM PISCES - A LONGITUDINAL, INTEGRATED THIRD-YEAR CLERKSHIP AT UCSF**

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**PURPOSE:** To determine perceptions and learning outcomes from longitudinal integrated clerkship students and compare to traditional students.

**BACKGROUND:** PISCES is an integrated clerkship pilot, launched in April 2007. The clerkship includes longitudinal preceptorships, patient panel, acute care sessions, inpatient immersions and an integrated curriculum.

**METHODS:** The first eight PISCES students were surveyed at mid-year and end-of-year on PISCES clerkship activity satisfaction and at end-of-year for discipline-specific clerkship evaluations. Clerkship evaluations, final exam scores and CPX performance were compared to traditional clerkship students.

**RESULTS:** Key elements of the program such as the patient panel, preceptorships, acute care sessions, advising and the curriculum were very highly rated. Mean composite evaluations (scale from 1-5) showed higher rating for PISCES faculty and resident teaching (4.84 and 4.60, respectively) than in traditional rotations (4.29 and 4.15, respectively). Adequacy of direct observation of clinical skills and feedback scores were significantly higher from PISCES students (4.51 vs 3.81 and 4.49 vs 3.98, respectively). Overall effectiveness of individual clerkships was higher ranked by PISCES students for Family & Community Medicine, Neurology, Pediatrics and Psychiatry. There were no significant differences between final exam scores for any clerkship except for Psychiatry where traditional students received higher exam scores. PISCES students passed all exams. Clinical performance exam (CPX) score did not differ significantly.

**DISCUSSION:** Student evaluation of the PISCES program was outstanding. Many clerkships were significantly higher rated from PISCES students. The students performed equivalently to their non-PISCES peers in clinical and written evaluations with the exception of psychiatry. The results are limited by the small sample set and will need to be validated in the future.

**REFLECTIVE CRITIQUE:** These results have been presented at CCOC and CSSC meetings and discussed at the PISCES Development Group meetings. Results of the surveys have been used to change program structure and activities for the upcoming year.

## **PATIENTS TEACHING STUDENTS-IMPORTANCE OF PATIENT-DERIVED FEEDBACK IN TEACHING THE FEMALE PELVIC EXAM**

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**PURPOSE:** To develop a method of patient- and preceptor-derived feedback for MS3s learning to conduct the female pelvic exam. Also, to evaluate how this experience compares to the current system of preceptor and standardized-patient feedback.

**BACKGROUND:** No preliminary data are available which specifically address patient evaluation of medical students performing pelvic examinations. However, studies exist looking at the lack of direct feedback for pelvic exam skills.

**METHODS:** This is a prospective cohort study involving UCSF MS3s entering their Ob-Gyn core clerkship. Consented patients, observing preceptors, and students all completed different evaluations on the student's pelvic exam performance based upon professionalism, communication, and physical exam skills. Although evaluations overlapped in content, the preceptor-evaluation focused on technical assessment of skills; the patient-evaluation consisted of a subjective assessment. Completed evaluation forms were available for students to help improve his/her skills throughout the rotation. At the end of the clerkship, students completed a reflection assessment to evaluate the overall value of this activity and method of feedback.

**RESULTS:** Of 36 student participants, 92% completed the final reflection assessment. 98% of participants believed that written preceptor feedback was valuable to their learning experience. Using a 5-point Likert scale, 79% of students at the end of the assignment "agreed" or "strongly agreed" with being comfortable performing the female pelvic exam compared with 70% of non-participants. 86% of students agreed that direct feedback from their patients was valuable to their learning experience vs. 75% who agreed that traditional standardized-patient feedback was valuable.

**DISCUSSION:** Standardized feedback from patients and preceptors are valuable to students learning to perform a pelvic exam. Furthermore, this feedback has shown to be more valuable to students than traditional feedback received from clinical instructors or standardized-patient educators. This project will be presented at the 2009 annual Ob-Gyn Education Meeting.

**REFLECTIVE CRITIQUE:** From comments obtained from the reflection assessment, further work can look into providing patient/preceptor feedback in other areas of the clerkships curriculum.

## **PRELIMINARY RESULTS: FACULTY ATTITUDES TOWARDS CLERKSHIP CLINICAL EVALUATION**

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**PURPOSE:** To compare faculty attitudes about quality and content of the medical student evaluation process in traditional departmental block clerkships versus a longitudinal, integrated clerkship (PISCES).

**BACKGROUND:** Traditional clerkship evaluations are based on recollections of student performance and contain generalities. In PISCES, faculty directly observe and evaluate students over one year using written evaluations, RIME vocabulary and formal interdisciplinary evaluation sessions. RIME vocabulary and evaluation sessions offer advantages including better understanding of students' development, earlier problem identification and a framework for providing more meaningful, timely feedback. Comparison of faculty perceptions about the quality and content of their evaluations in traditional clerkships versus the mixed methods used in our longitudinal clerkship has not been previously performed.

**METHODS:** Using a modified Attitudes toward Clinical Evaluation (ACE) scale<sup>1</sup>, we surveyed faculty educators in 2006, prior to precepting in PISCES, about traditional clerkship evaluation methods, questions had a scale of 1 to 5, 1=strongly disagree, 5=strongly agree. Faculty were re-surveyed in 2007 about perceptions of PISCES evaluation methods including RIME.

**RESULTS:** 43 of 50 faculty completed the traditional clerkship survey (86%); 27 of 50 completed the PISCES survey (54%). 45% were women; average time on faculty was 9.6 and 11.8 years, respectively. Quality of evaluation procedures questions such as, "Clinical ratings that students receive in (my department's clerkship/PISCES) are accurate" received mean scores of 3.58 vs 4.0. Content of evaluations questions such as "Students' history taking skills are evaluated carefully in (my department's clerkship/PISCES)" received mean scores of 3.26 vs. 4.40. Questions regarding RIME received a mean score of 3.81, demonstrating that the RIME was overall useful and felt to be an improvement.

**DISCUSSION:** Preliminary results indicate that faculty attitudes towards quality of evaluation procedures and content of evaluations are better in our longitudinal clerkship than in traditional departmental clerkships. This improvement may be because in-person faculty evaluation sessions guide faculty in generating meaningful evaluations, or because faculty have more direct exposure to student performance and skills over time. Data is currently being collected from faculty participating in the second year of the clerkship.

**REFLECTIVE CRITIQUE:** OME has provided us with a research consultant. We will be re-surveying clinical faculty to perform a factor analysis on the reworded ACE survey.

<sup>1</sup> McGaghie WC, et al. Development of a measure of medical faculty attitudes toward clinical evaluation of students. Acad Med. 1995; 70(1):47-51.

## REMEDICATION OF PHYSICIANS ACROSS THE CONTINUUM FROM MEDICAL SCHOOL TO PRACTICE: A THEMATIC REVIEW OF THE LITERATURE

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**PURPOSE:** To describe the published studies of remediation at undergraduate, graduate and continuing medical education levels, identify interventions that have been used for remediation and their outcomes, and develop an ideal model of remediation based on the literature and on the learning sciences.

**BACKGROUND:** Despite widespread endorsement of competency-based assessment of medical trainees and practicing physicians, methods for identifying those who are not competent and strategies for remediation are not standardized.

**METHODS:** We searched the MEDLINE database for studies of remediation in undergraduate (UME), graduate (GME) and continuing medical education (CME). Using a standardized data extraction form based on the Best Evidence Medical Education (BEME) Collaboration protocol, we abstracted relevant articles and assessed study quality.

**RESULTS:** Thirteen studies primarily describe small, single institution efforts to remediate knowledge or clinical skills for trainees, or practice performance for practicing physicians. Based on these studies and research from the learning sciences, we propose a model that includes multiple assessment tools to identify deficiencies, individualized instruction, deliberate practice with feedback and reflection, and reassessment.

**DISCUSSION:** Our findings reveal a paucity of evidence to guide best practices of remediation in medical education at all levels. There is an urgent need for multi-institutional, outcomes-based research on strategies for remediation of dyscompetent trainees and physicians with long-term follow up to determine the impact on future performance.

**REFLECTIVE CRITIQUE:** Our writing team includes experts from UME, GME, and CME. We reviewed one another's abstractions to give feedback and held monthly conference calls to develop the remediation model and critique manuscript and model drafts. The study is submitted for publication and we await peer reviews.

## SEEING EYE-TO-EYE: NEAR-PEER TEACHING AND LEARNING OF THE PHYSICAL EXAMINATION

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**PURPOSE:** Second-year medical students (MS2s) initiated and led a program to test the hypothesis that pre-clerkship students can effectively improve first-year medical students' (MS1s') physical examination (PE) skills through near-peer instruction.

**BACKGROUND:** By improving affective and cognitive skills, near-peer teaching is an effective method of instruction in medical education but has not been used in the setting of pre-clerkship PE skills teaching.

**METHODS:** In 2006, upon conclusion of the PE motor skills course in Foundations of Patient Care (FPC), and prior to an observed PE skills assessment for the course, MS1s practiced their skills in workshops using MS2s as standardized patients, who provided didactic guidance and tailored feedback. After the workshop, MS1s and MS2s completed attitude surveys on a 5-point Likert scale (1=strongly disagree, 5=strongly agree).

**RESULTS:** Seventy-seven percent of MS1s (n=108) participated in the workshop; 63% of participants completed the post-survey. On average, MS1s strongly agreed that the workshops had improved their comfort and confidence performing the PE (mean [SD] 4.6 [0.55]), that feedback from MS2s was helpful (4.6 [0.58]) and tailored to their learning needs (4.5 [0.71]), and that the workshops were helpful overall (4.7 [0.47]) and should be offered to future classes (4.7 [0.53]). Forty-two (30%) MS2s taught during the workshops; 72% of MS2 instructors completed a survey. Near-peer instructors strongly agreed that the workshops improved their own PE skills (4.7) and wished the workshops had been offered previously (4.7).

**DISCUSSION:** This study is the first to show that near-peer, MS2 instructors can effectively supplement PE skills teaching to MS1s and in the process sense improvement in their own PE skills.

**REFLECTIVE CRITIQUE:** We have brought this study for review at ESCape and with the FPC co-director group and consequently focused its scope and conclusions.

## STUDENT AND FACULTY PERCEPTIONS OF THE MEDICAL EDUCATION EXPERIENCE IN TAIWAN

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**PURPOSE:** The purpose of this study was to assess Taiwanese medical student and faculty perceptions of medical education in Taiwan.

**BACKGROUND:** The Taiwan Medical Accreditation Council (TMAC) and Ministry of Education (ME) wish to initiate major national reforms to improve medical education in Taiwan. It is unknown whether other stakeholders share their perceived need for reform. Two key stakeholders are the Taiwanese medical students and faculty.

**METHODS:** In Fall 2008, we conducted focus groups and semi-structured interviews with medical student and faculty groups from four of the eleven medical schools in Taiwan. Participants were asked open-ended questions about their perceptions of the strengths and weaknesses of the medical education experience and encouraged to share their ideas for improvement. We arrived at saturation after ten sessions. Transcripts from the focus groups and interviews are being reviewed by the study investigators and will be open coded to identify major themes.

**RESULTS:** Twenty-three students and thirteen faculty members participated in the study. Preliminary data have revealed challenges in teaching critical thinking and the humanities in a rigid educational system. Additional themes will be summarized, similarities and differences between the student and faculty groups highlighted, and representative comments compiled and presented.

**DISCUSSION:** The findings will inform next steps in the medical education reform efforts in Taiwan and may provide insights for improvements here in the United States. Results will be presented to TMAC and ME, and at local and regional medical education conferences.

**REFLECTIVE CRITIQUE:** We designed the study with input from the Office of Medical Education (OME), Health Professions Education Pathway (HPEP), TMAC, and ME, and relied on feedback from Taiwanese contacts to adapt our focus groups to their culture. We continue to solicit and incorporate feedback for this project from OME and HPEP members.

## SURVEY REVEALS CAREER PREFERENCES FOR UCSF GRADUATE STUDENTS

Cynthia N. Fuhrmann-Kelch, Ph.D.

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**PURPOSE:** We hypothesized that a significant number of Ph.D. students realize that they prefer to follow a non-academic career path at some point during their training. Our goal through this survey was to better define the range of career paths being considered by Life Sciences Ph.D. students at UCSF.

**BACKGROUND:** While various surveys, including the NSF Survey of the Doctorates, track whether PhD's have jobs in the academic, industrial, or government sectors, there is little data available as to what types of careers these actually are, or when the decision was made to follow these career paths.

**METHODS:** In winter 2008, we sent a brief, anonymous on-line survey to graduate students in all basic science graduate programs at UCSF. Questions on the survey included (1) what career paths they are strongly considering, (2) which one path they would choose now, and (3) how confident they are in this choice. The survey also included open questions for comments.

**RESULTS:** 63% (n=470) of UCSF graduate students responded to the survey. Of these respondents, 96% (n=432) are strongly considering a career path involving scientific research, but 74% (n=330) are also strongly considering a career path that does not involve scientific research (eg., business of science, policy, writing-related, teaching-intensive, healthcare-related, etc.). If given the choice of one path, 28% (n=126) of respondents would choose a non-research career path. Interestingly, the percentage of students choosing a non-research intensive career path jumped between the second and third year class, from 20% (n=16) for second-year students to 34% (n=30) for third-year students. 55% (n=253) of all respondents are still considering a range of career options.

**DISCUSSION:** Students would greatly benefit from additional education about and experience in career paths beyond those they are already familiar with in academia, particularly at or later than their third year in graduate school. A paper is being written for the Education Forum section of Science, and the data will be presented at national conferences starting in Fall 2009.

**REFLECTIVE CRITIQUE:** I have initiated a partnership with Dina Halme, Bill Lindsteadt, and Bruce Alberts to receive feedback on this data and its analysis.

## TEACHING RESUSCITATION SKILLS TO PEDIATRIC RESIDENTS: THE IMPACT OF A STRUCTURED MOCK CODE CURRICULUM

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**PURPOSE:** To assess the impact of a formal curriculum in mock resuscitations on pediatric residents' confidence levels in resuscitation skills.

**BACKGROUND:** The Residency Review Committee for Pediatrics requires residents to achieve competency in resuscitation skills. Pediatric residents report limited exposure to real and mock resuscitations and have low levels of confidence in resuscitation skills. We developed a curriculum of simulated resuscitations ("mock codes") to overcome the gap in training.

**METHODS:** We implemented a program of weekly mock codes with assigned roles, structured debriefing and feedback. PGY-1 and PGY-3 residents completed an electronic survey early in the academic year prior to (2006) and 2 years after (2008) implementation of the program. Residents rated their confidence in 20 technical and leadership resuscitation skills on a 5-point Likert scale. We created confidence scores (mean±standard deviation) for technical, leadership and combined resuscitation skills. We compared pre and post survey results using t-test for unpaired samples.

**RESULTS:** Residents who participated in two years of the new program (PGY3s in 2008) had increased confidence in their resuscitation skills as compared to 2006 controls. Incoming residents in 2008 (PGY1s) were comparable to historic controls.

	PGY-1			PGY-3		
	2006 (pre)	2008 (post)	P	2006 (pre)	2008 (post)	P
N # (% of total)	22(79%)	26(90%)		19(79%)	20(74%)	
Confidence scores						
Combined	2.32±.54	2.58±.54	.117	2.83±.51	3.26±.45	.009
Technical	2.48±.53	2.67±.55	.236	2.76±.42	3.16±.47	.009
Leadership	1.88±.79	2.32±.88	.075	3.06±.91	3.57±.62	.049

**DISCUSSION:** Implementation of a structured mock code program had a positive impact on pediatric residents' confidence in resuscitation skills. Whether this translates to an increase in residents' competence in resuscitation skills is a topic of ongoing study.

Reflective Critique: A draft manuscript outline was critiqued during a workshop on writing in medical education. Guided by this feedback we are preparing the manuscript for submission to a peer-reviewed journal.

## **THIRD-YEAR CONTINUITY CLINICS WITH GENERALISTS VERSUS SPECIALISTS: IS THERE DIFFERENCE IN SKILLS DEVELOPMENT OR RESIDENCY SELECTION?**

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**PURPOSE:** UCSF medical students complete third-year Longitudinal Clinical Experiences (LCE) in primary care or non-primary care placements. We hypothesized students in primary care would have better skills development and that LCE placement would relate to residency selection.

**BACKGROUND:** Most third-year continuity rotations in the literature are in primary care. Studies suggest that working with generalist preceptors associates with primary care career choice. Does longitudinal exposure to non-primary care relate to career choice?

**METHODS:** We analyzed data for 590 students who participated in LCE and matched into residency in 2004-2008. We assessed students' clinical performance examination (CPX) data. We also evaluated what specialty students requested for LCE, completed LCE in, and matched into for residency.

**RESULTS:** Of 590 LCE students, 27% were in primary care and 73% non-primary care. CPX scores did not differ between these groups. For 324 students we had data on first-choice LCE specialty preference: 72 (22%) completed LCE in their first-choice specialty and 72 (22%) in a non-first choice specialty. For 67 students whose residency matched their LCE specialty, 42 (69%) had LCE placements matching their first preference and 25 (31%) did not ( $p=.024$ ). For Medicine, Neurology, Obstetrics, Pediatrics and Psychiatry, students receiving their preferred LCE were more likely to match into that specialty than students who did not ( $p=.024$ ). For Pediatrics, Medicine, and Primary Care, there was also a significant relationship between matching into a specialty and having completed LCE in it ( $p<0.001$ ).

**DISCUSSION:** Our data suggest LCE placement did not impact clinical skills as measured by CPX but did relate to specialty choice. We will present this data at curriculum meetings to generate dialogue about skills development and specialty exposure in continuity settings.

**REFLECTIVE CRITIQUE:** Many innovative third-year models contain substantial longitudinal components. Thus, additional studies are needed on student development in continuity settings.

## **TRACKING THE ITERATIVE PATHS OF INQUIRY IN A PROBLEM BASED LEARNING CURRICULUM**

Darcy Wooten, M.S., Amin Azzam, M.D., M.A., and Kevin Mack, M.D., M.S.  
UC Berkeley-UCSF Joint Medical Program

**PURPOSE:** We created a tool by which students' learning during PBL sessions can be tracked. We are using this tool to both examine the learning process and develop our curriculum.

**BACKGROUND:** Problem based learning (PBL) remains an integral part of medical education because it fosters self-directed learning, clinical problem solving, and collaboration. For programs using PBL, especially those in which it is a significant portion of the curriculum, tracking students' learning is important for ongoing curriculum development.

**METHODS:** We used the USMLE Step 1 Core Concepts List to code over 400 learning objects produced by three cohorts of UC Berkeley – UCSF Joint Medical Program students. We analyzed which concepts were elicited by each case, how often concepts were revisited during the three-year curriculum, and how much variation there was between cohorts in the concepts covered in each case.

**RESULTS:** Using this tool to track content learned by students in PBL, we found students return to topics several times over the three-year course and that there is a range in variance of the topics covered in different cases by the cohorts.

**DISCUSSION:** The ability to track “student-learned” content (as opposed to “teacher taught” content) allays one of the major pitfalls of PBL and provides data for systematic and “evidence-based” curricular change. Here we have shown that student learning in an entirely PBL-based curriculum is an iterative process that is reproducible across student cohorts yet with sufficient variability to allow for students to follow their own paths of inquiry.

**REFLECTIVE CRITIQUE:** This project has received feedback from mentors and classmates at several Work In Progress sessions through the Pathway to Discovery elective in Medical Education.

## VALUES CLARIFICATION AS A TOOL TO INCREASE MEDICAL STUDENT SELF-AWARENESS OF DISCOMFORT WITH PATIENT BEHAVIORS

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**PURPOSE:** This study evaluated the impact of a values clarification workshop, facilitated by faculty trained in supportive, non-judgmental facilitation skills, which centers on abortion during an obstetrics/gynecology clerkship. The main objective of the workshop is to improve medical students' professional development through this self-reflective discussion.

**BACKGROUND:** Medical students are rarely provided with an opportunity to discuss their personal values and judgmental reactions to patients whose behaviors challenge those values during the clerkships. However, the clerkships are a time of significant personal and professional growth.

**METHODS:** Nineteen third-year medical students, divided into three small groups, participated in the workshop. Voluntary interviews conducted 1-5 weeks after the workshop included questions about the workshop itself and its impact on recent patient interactions and the perceived benefits for future interactions. The interviews were audio-recorded, transcribed and the responses were reviewed and organized into domains.

**RESULTS:** A total of eight interviews of medical students were conducted, with at least two from each group. All interviewees found the workshop beneficial and well-timed in the third year. All described the workshop's main impact to be an increased awareness of their own judgmental reactions. Most articulated that it reminded them that these reactions may negatively affect patient interactions. Five students described specific patient interactions since the workshop that were positively affected because of this increased self-awareness.

**DISCUSSION:** This preliminary study suggests that values clarification exercises can improve medical students' professional development via a discussion of discomfort around patient behaviors. The clerkships should set aside structured time for medical students to discuss and reflect on their own values and judgmental feelings. The authors plan to publish and present this research study as well as disseminate the workshop instrument.

**REFLECTIVE CRITIQUE:** Modifications to this study have been made from the regular feedback received from two multidisciplinary working groups.

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This list is provided to facilitate communication among our community of medical educators.

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