

2008

**THE NINTH ANNUAL
MASTER OF HEALTH
PROFESSIONS EDUCATION
SUMMER CONFERENCE**

July 31-August 1, 2008

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**LEADERS AS SCHOLARS,
SCHOLARS AS LEADERS**

ALAN SCHWARTZ, PhD - CONFERENCE ORGANIZER
UNIVERSITY OF ILLINOIS AT CHICAGO

.....

DAVID M. IRBY, PhD - KEYNOTE SPEAKER
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

.....

DARRELL G. KIRCH, MD- KEYNOTE SPEAKER
ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The Ninth Annual MHPE Summer Conference

July 31 – August 1, 2008

**Room 106 & Faculty & Alumni Lounge
(College of Medicine West)**

Sponsored by:

Department of Medical Education

Alan Schwartz, PhD

Conference Organizer



MHPE Vision Statement

**Better Healthcare through Effective and Innovative Health Professions
Education Leaders and Scholars**

Purpose: The purpose of this activity is to provide a venue for Master of Health Professions Education students, alumni, and faculty to present and discuss innovations in health professions education, and for physicians in the audience to learn about ongoing educational research and program development topics.

Intended Audience: Physicians in any discipline and other health professions educators.

Program Objectives:

At the conclusion of this program, participants should be able to:

1. Describe the role of scholarship in health professions education leadership.
2. Describe the role of leadership in health professions education scholarship.
3. Identify and evaluate different types of scholarship presented during the conference.

The University of Illinois at Chicago (UIC) College of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The University of Illinois at Chicago (UIC) College of Medicine designates this educational activity for a maximum of 10 *AMA PRA Category 1 Credit(s)*TM. Physicians should only claim credit commensurate with the extent of their participation in the activity.

THE NINTH ANNUAL MHPE SUMMER CONFERENCE

LEADERS AS SCHOLARS, SCHOLARS AS LEADERS

Poster Roundtables, Meals, Breaks, Reception, and Graduate Recognition Ceremony will be in the Faculty Alumni Lounge (College of Medicine West).

All Paper, Works in Progress, and Panel Sessions will be in Room 106 (College of Medicine West).

THURSDAY, JULY 31, 2008

8:30 – 9:00 **CONTINENTAL BREAKFAST**

9:00 – 9:05 **WELCOME**

Alan Schwartz, PhD
Conference Chairperson
Associate Professor, Department of Medical Education

9:05 – 9:10 **MESSAGE FROM DEPARTMENT HEAD**

Leslie J. Sandlow, MD
Head, Department of Medical Education
Senior Associate Dean, Educational Affairs/College of Medicine,
University of Illinois at Chicago/Chicago, Illinois

9:10 – 10:10 **KEYNOTE ADDRESS**
INTRODUCTION: GEORGES BORDAGE, MD, PHD

“FIVE LEADERSHIP PRINCIPLES FOR MEDICAL EDUCATION”

David Irby, PhD
Vice Dean for Education and Professor of Medicine/University of
California, San Francisco/San Francisco, California

10:10 – 10:30 **BREAK**

10:30 – 11:50

SESSION 1: NEEDS ASSESSMENT AND PROGRAM EVALUATION

CHAIR: MICHAEL SEEFELDT, PhD

Multi-Institutional Longitudinal Study of the Relationship Between Burnout and Suicidal Ideation Among U.S. Medical Students

Liselotte Dyrbye, MD

*Department of Internal Medicine/Mayo Clinic/Rochester,
Minnesota*

The Resident as Teacher Educational Challenge: A Needs Assessment Survey at the National Autonomous University of Mexico Faculty of Medicine

Melchor Sánchez-Mendiola, MD, MHPE

*Universidad Nacional Autónoma de México/Mexico City, Mexico
(Co-authors: Enrique Graue-Wiechers, Leobardo C. Ruiz-Pérez, Rocío García-Durán)*

Evaluation of an Orientation Curriculum for the First Month of Anesthesiology Training

Albert Varon, MD

*Department of Anesthesiology/University of Miami Miller School
of Medicine/Miami, Florida*

Long-Term Impact of a Robot-Assisted Laparoscopic Prostatectomy Mini-Residency Training Program on Post-Graduate Urologic Practice Patterns

Elsbeth McDougall, MD

*Department of Urology/University of California, Irvine/Irvine,
California*

11:50 – 1:05

LUNCH AND ROUNDTABLES (11:50, 12:35 – ROOMS 119 A, B, & C IN THE FACULTY ALUMNI LOUNGE)

Three presentation/discussions will be held over lunch in a round table format. Seating is limited in each roundtable room, and is available on a first come, first served basis. The half-hour discussions will be repeated in each room at 11:50 and 12:35, and you are welcome to attend one, two, or none.

Preparing Faculty for Problem-Based Learning: A Part of Faculty Development Program at B.P. Koirala Institute of Health Sciences
DISCUSSANT: BOB MRTEK, PHD

Nirmal Baral, MD
Department of Health Professions Education, Department of Biochemistry and Molecular Biology/B.P. Koirala Institute of Health Sciences/Ghopa, Dharan, Nepal

The “Competent Intern” Program: Use of Peer Feedback

DISCUSSANT: MARK GELULA, PHD

Thomas Chacko, MD
Department of Community Medicine & Medical Education/PSG Institute of Medical Sciences & Research/Coimbatore, India

A Qualitative Analysis of Perceptions of Leadership: Qualities and Skills

DISCUSSANT: ALAN SCHWARTZ, PHD

Mohsen Shabahang, MD
Department of Surgery/College of Medicine/Texas A&M University, Temple/Temple, Texas
(Co-authors: Chris Shale, MD, and Ilene Harris, PhD)

1:05 – 2:05

SESSION 2: STUDENT/ALUMNI PANEL: IMPACT OF THE MHPE PROGRAM: INTEGRATING LEADERSHIP AND SCHOLARSHIP “BACK HOME”

CHAIR: ILENE HARRIS, PHD

PANELISTS:

Dimitri Azar, MD
Department of Ophthalmology and Visual Sciences, Illinois Eye and Ear Infirmary/University of Illinois at Chicago/Chicago, Illinois

Terry Wolpaw, MD, MHPE
Case Western Reserve University School of Medicine/Cleveland, Ohio

Rukhsana Zuberi, MD, MHPE
Department for Educational Development/Aga Khan University/Karachi, Pakistan

2:05 – 3:05

SESSION 3: PROVIDER SYSTEMS AND PATIENT SAFETY

CHAIR: MARCIA EDISON, PHD

Situation Awareness: A Construct in Search of an Identity

Gilles Chiniara, MD

*Department of Anesthesiology/Laval University/Quebec City,
Quebec, Canada*

Measuring Situation Awareness: Validity and Reliability of SAGAT and SPAM

Gilles Chiniara, MD

*Department of Anesthesiology/Laval University/Quebec City,
Quebec, Canada*

The Effect of the Implementation of an On-Line Order Entry System on Resident Compliance with Duty Hour Regulations: Trading Legislative Compliance for Patient Safety?

Hilary Haftel, MD, MHPE

*Pediatrics and Communicable Diseases/University of
Michigan/Ann Arbor, Michigan*

3:05 – 3:45

SESSION 4: SURGICAL EDUCATION

CHAIR: JANET RIDDLE, MD

A Qualitative Analysis of the Themes in Comments about Surgical Residents on Performance Evaluations Using Multi-source (360 degree) Feedback from Attending Physicians, Resident Peers, and Nurses

Pam Lipsett, MD

*Department of Surgery, School of Medicine /Johns Hopkins
University/Baltimore, Maryland*

Preliminary Study of Virtual Reality and Materials Model Simulation for Learning Laparoscopic Suturing Skills

Elsbeth McDougall, MD

*Department of Urology/University of California, Irvine/Irvine,
California*

3:45 – 4:00

BREAK

4:00 – 4:50

SESSION 5: WORKS IN PROGRESS

CHAIR: RACHEL YUDKOWSKY, MD, MHPE

**Every Educator's Dream: Building a Novel Curriculum
Unencumbered by the Past**

Eileen Moser, MD

*Academy of Medical Educators/Touro University College of
Medicine/ Hackensack, New Jersey*

*(Co-authors: Paul M. Wallach, Patrick Gannon, Keith Metzger, Alex Stagnaro-
Green)*

**The Senior Resident as a Role Model for CanMEDS: A Transition to
Senior Resident Workshop**

Ming-Ka Chan, MD

*Department of Pediatrics and Child Health/ University of
Manitoba/ Winnipeg, Manitoba, Canada*

(Co-author: Jeff Hyman, MD)

4:50

RECEPTION

5:30 – 6:30

**MHPE GRADUATE RECOGNITION CEREMONY AND 2008 BEST MHPE
THESIS AWARD**

6:30

CONFERENCE ADJOURNS FOR THE EVENING

FRIDAY, AUGUST 1, 2008

8:00 – 8:30

CONTINENTAL BREAKFAST

8:30 – 9:30

KEYNOTE ADDRESS

INTRODUCTION: JOSEPH FLAHERTY, MD

"SCHOLARS IN ACTION - A NEW MODEL FOR THE HEALTH PROFESSIONS"

Darrell Kirch, MD

President and Chief Executive Officer of the Association of American Medical Colleges (AAMC)/Washington, District of Columbia

9:30 – 10:10

SESSION 6: MEDICINE AND MEDIA

CHAIR: SUZANNE POIRIER, PHD

How Is Medical Training Portrayed to the General Public? A Qualitative Analysis Viewed Through the Perspective of Entertainment Television

Deirdre Jenkins, MD

*Department of Hematology and Hematologic Malignancies/University of Calgary/Calgary, Alberta, Canada
(Co-authors: Jeanne Farnan, Hillel Frankenthal, Ilene Harris, M. Teo, Vivek Saoji)*

Usage of Digital Media Amongst Medical Trainees: Perceptions on Policy and Professionalism

Jeanne Farnan, MD

Department of General Internal Medicine/University of Chicago/Chicago, Illinois

10:10 – 10:50

SESSION 7: CLINICAL REASONING AND DECISION MAKING

CHAIR: JULIE GOLDBERG, PHD

Resident Uncertainty in Clinical Decision-Making and Impact on Patient Care: A Qualitative Study

Jeanne Farnan, MD

*Department of General Internal Medicine/University of Chicago/Chicago, Illinois
(Co-authors: Julie K. Johnson, David O. Meltzer, Holly J. Humphrey, Vineet M. Arora)*

**Using SNAPPS to Facilitate the Expression of Clinical Reasoning and
Uncertainties: A Randomized Comparison Group Trial**

Terry Wolpaw, MD, MHPE
*Case Western Reserve University School of Medicine/Cleveland,
Ohio*

10:50 – 11:05 **BREAK**

11:05 – 11:55 **SESSION 8: YEAR IN REVIEW**

Five DME faculty share a personal and selective look at important papers, issues, or themes from the past year.

Program Evaluation - Phil Bashook, EdD

Assessment - Steve Downing, PhD

Curriculum - Ilene Harris, PhD

Simulations - Ara Tekian, PhD, MHPE

Ethics - Timothy Murphy, PhD

11:55 – 12:05 **CLOSING REMARKS**

David Irby, PhD

12:05 – 12:10 **BEST PRESENTATION AWARD**

12:10 **CONFERENCE ENDS**

1:30 **IRB TRAINING SESSION** (*optional*)

∞ MHPE Graduate Recognition Ceremony ∞

Thursday, July 31, 2008

Welcome **Ilene B. Harris, PhD**; Professor and Director of Graduate Studies, Department of Medical Education, University of Illinois at Chicago

Remarks **Leslie J. Sandlow, MD**; Head, Department of Medical Education; Senior Associate Dean, Educational Affairs, College of Medicine, University of Illinois at Chicago

Joseph A. Flaherty, MD; Dean, College of Medicine, University of Illinois at Chicago

Clark Hulse, PhD; Dean, Graduate College, University of Illinois at Chicago

Presentation of the Graduates and their Advisors **Ilene B. Harris, PhD**

Presentation of the 2008 Best MHPE Thesis Award **Alan Schwartz, PhD**

Closing Remarks **Ilene B. Harris, PhD**

Graduates and Advisors

Julia Corcoran (Spring 2008): Exploring Composite Score Validity in Grading a Third-Year Surgery Clerkship
✧ Committee: S. Downing (chair), A. Tekian, D. DeRosa

Michael Giuliano (Summer 2008): Teaching Residents How to Teach in the Clinical Setting: Transforming Daily Work into Teaching
✧ Committee: I. Harris (chair), A. Tekian, M. Lucchesi

Priyasuda Hetrakul (Summer 2008): Quality of Clinical Questions by Medical Students in Pediatric Evidence-based Medicine Clerkship

✧Committee: A. Schwartz (chair), R. Mrtek, J. Hupert



Melchor Sánchez-Mendiola (Spring 2008): Assessment of an Evidence-Based Medicine Course at the Mexican Army Medical School

✧Committee: A. Schwartz (chair), S. Downing, O. Martinez-Natera

Susan Santacaterina (Fall 2007): Recruitment and Retention of Cultural Minorities in the Chicago Paramedic Program

✧Committee: I. Harris (chair), A. Tekian, R. Li

Amy Turner (Fall 2007): Exploring the Feasibility of Using Standardized Patients to Assess Occupational Therapy Students

✧Committee: R. Yudkowsky (chair), S. Downing, I. Harris



Prathibha Varkey (Fall 2007): An Objective Structured Clinical Examination to Assess Competency in Quality Improvement

✧Committee: R. Yudkowsky (chair), S. Downing, N. Natt

Terry Wolpaw (Spring 2008): Using SNAPPS to Facilitate the Expression of Clinical Reasoning and Uncertainties: A Randomized Trial

✧Committee: G. Bordage (chair), I. Harris, J. Goldberg, K. Papp

A Note on Academic Regalia and the Presentation of Stoles

Academic regalia originated in the twelfth century medieval European universities of Bologna, Oxford, Cambridge, and Paris. The academic costume that we have today developed from the long robe and hood garments worn by scholars who were primarily monks and friars. Their dress met practical needs and incorporated church and state ceremonial traditions. Later, the beautiful robes of Roman Popes and the garments of church prelates set the tradition followed by bishops and vice chancellors as they became heads of universities. Universities developed regulations dictating costume styles to distinguish their officials from doctors, from lesser clerics, and from townspeople.

The use of academic costumes in this country was limited and sporadic before the Civil War. Subsequently, a renewed interest was spurred by the growth of American universities and their graduate programs and by increased contact with European universities. Also, students wanted to wear garments that would distinguish them as graduates at their graduation ceremonies.

Academic regalia include a gown, a cap, a hood, and a stole worn over the hood. Each of these components of the regalia contributes to the identification of the degree, the institution, and the field studied. At this ceremony, we are presenting each graduate with a stole. The sky blue identifies the specialty training area of the graduate as Health Professions Education.

ABSTRACTS

Multi-Institutional Longitudinal Study of the Relationship Between Burnout and Suicidal Ideation Among U.S. Medical Students

Liselotte Dyrbye, MD
Department of Internal Medicine/Mayo Clinic/Rochester, Minnesota

Background: Symptoms of burnout (depersonalization, emotional exhaustion, and low sense of personal accomplishment) are prevalent among medical students. Little is known about how suicidal ideation (SI) relates to burnout.

Objectives: To explore the relationship between medical student burnout and subsequent suicidal ideation.

Methods: All students at 5 U.S. medical schools were surveyed in 2006 and 2007 with the Maslach Burnout Inventory, Medical Outcomes Study Short Form, and PRIME-MD to assess burnout, overall and sub-domains of quality of life (QOL), and depressive symptoms, respectively. In 2007, standardized questions assessed suicidal ideation (SI) during the preceding 12 months. Analyses included descriptive summary statistics for estimating prevalence and logistic regression for assessing multivariate associations with SI.

Results: Burnout was reported in 51.4% of the 858 students responding (65% response rate) and associated with a two-fold increased risk of SI over the following year (OR 2.33, 95% CI 1.47-3.70, $p=.0003$). Each 1-point decrease in mental QOL on a 10-point scale was associated with a 7% increased odds of SI over the subsequent year (OR 1.07, 95% CI 1.05-1.09, $p<.0001$). A positive depression screen at baseline was associated with a three-fold increase in SI in the following year (OR 3.08, 95% CI 1.91–4.97, $p<0.0001$). No demographic characteristics (gender, age, relationship status, parental status, year in school, debt) were associated with future SI. In stepwise multivariable logistic regression, only domains of burnout and mental QOL remained independently associated with SI.

Discussion: A strong-dose response relationship between burnout and mental QOL at baseline and SI in the following year was observed. Burnout amongst medical students appears to be an important predictor of subsequent suicidal ideation even without the presence of symptoms of depression.

The Resident as Teacher Educational Challenge: A Needs Assessment Survey at the National Autonomous University of Mexico Faculty of Medicine

Melchor Sánchez-Mendiola, MD, MHPE
Universidad Nacional Autónoma de México/Mexico City, Mexico
(Co-authors: Enrique Graue-Wiechers, Leobardo C. Ruiz-Pérez, Rocío García-Durán)

Background: The importance of the role as educators of medical residents in the healthcare system is increasingly recognized worldwide. The educational actions of residents impact other residents, interns, medical students, and other healthcare professionals. There has been a widespread implementation of resident-as-teacher courses in developed countries' medical schools, with diverse results. There is a dearth of information about this subject in developing countries. The National Autonomous University of Mexico (UNAM) Faculty of Medicine has more than 50% of the physician resident population in Mexico. This report describes a needs assessment survey for a resident-as-teacher program at UNAM Faculty of Medicine.

Objectives: To obtain information about the educational role of residents in the clinical setting in Mexico and their perceived needs regarding medical education training.

Methods: The Postgraduate Studies Division of UNAM Faculty of Medicine convened a Committee on Postgraduate Medical Education with faculty experts in clinical medicine and education. The Committee identified by an iterative process the areas where it should focus to improve the training in education of medical residents. A needs assessment survey was developed based on the available published literature and the findings of the committee's discussion groups. The purpose of the survey was to identify the residents' attitudes, academic needs, and preferred educational strategies to implement medical education training activities throughout the residency.

Results: 7,685 paper anonymous surveys were sent to the population of medical residents in UNAM programs, with a 65.7% return rate (5,053 residents). A representative sample was obtained: average age 30.4 years, 44.5% female gender, residents from 74 specialty courses in 93 training sites. There was a reported increase in the time they used in educational activities as they progressed through the residency programs, from 25% of their time in first year to almost 40% in the third year. Even though they felt they were competent in medical education, 90% of them felt a need to improve their knowledge and skills in this discipline. The majority (92.5%) felt that their role as educators of medical students, interns, and other residents was important/very important. They reported that 45% of their learning was due to residents' teaching. The main themes to be included in a resident-as-teacher educational intervention were identified, as well as their preferred teaching strategies. As a result of this survey and the committee's deliberations, an educational intervention and its learning material are currently being implemented.

Discussion: There is an important need to implement and assess an educational intervention to improve the "resident-as-teacher" attitudes, knowledge, and skills in our postgraduate educational programs. Most of the perceived needs of residents are practical and clinically oriented. They prefer more traditional educational strategies, even at this stage of their training. Resident-as-teachers educational interventions need to be designed taking into account local needs and resources. The lack of implementation of resident-as-teacher programs in developing countries' health care systems represents a neglected educational opportunity, which could improve healthcare quality and medical education in clinical settings.

Evaluation of an Orientation Curriculum for the First Month of Anesthesiology Training

Albert Varon, MD

Department of Anesthesiology/University of Miami Miller School of Medicine/Miami, Florida

Background: Although anesthesiology programs are incorporating teaching and assessment of the ACGME mandated competencies into residency training, these competencies have not yet been addressed during the first month of clinical anesthesia training (orientation). A curriculum that does not address core competencies at the outset of training can affect the trainee (e.g., insufficient knowledge of what is expected), the faculty (e.g., deficient communication skills of trainees), the hospital staff (e.g., inadequate interpersonal skills of trainees), the health care facility (e.g., failure to practice cost-effective care), and most importantly, the patient (e.g., patient safety).

Objectives: Incorporating instruction and assessment of the ACGME core competencies into the curriculum at the onset of training may enhance residents' learning, smooth their transition to the perioperative setting, and prime them for all other phases of training.

Methods: Table 1 lists the methods used in the needs assessment of targeted learners. A systems approach was used to revise the orientation curriculum for incoming anesthesiology residents at UM/JMH. A deliberative curriculum inquiry was used to complement the systems approach by engaging all key stakeholders in deliberative processes (nominal group technique) that served as the basis for making decisions about goals, objectives, instructional strategies, trainee assessment, and program evaluation. The educational strategies to achieve the curriculum's objectives included use of artificial models, high-fidelity simulations, operating room experiences, debriefing sessions, lectures, demonstrations, and small group discussions. Learner assessment methods included the Anesthesia Knowledge Tests (AKT-1 Pre and Post, Metrics Associates, Inc., Chelmsford, MA), direct observations of the resident in the operating room and simulation environments (checklists and rating forms), and input from multiple observers, including nurses and hospital staff (multisource assessments.) Program evaluation also included an anonymous survey (Litzelman's abbreviated Stanford Faculty Development Program instrument) completed by all residents after the first month of training.

Results: Although the mean score on the AKT-1 exam prior to training was lower than the national mean (72.9 vs. 74.4), it was higher after the first month of training (118.5 vs. 103.3). In addition, 91% of the residents scored above the national mean on the post-test (as compared to only 64-69% in the prior two years). The percentile rank of our trainees with respect to all participating programs in the AKT-1 was 82% (as compared to 68-69% in prior two years). The evaluation survey indicated that most of our trainees believe that the curriculum for the first month of anesthesiology training satisfied their learner needs.

Discussion: Our preliminary results indicate that redesigning the CA-1 orientation curriculum using a systematic deliberative approach to provide an introduction to the ACGME competencies can improve performance of incoming anesthesiology residents in standardized knowledge exams, facilitate development of the ACGME core competencies, and satisfy learner needs. These findings will be used to guide modifications and improvements in the never-ending cycle of continuous curricular development.

Long-Term Impact of a Robot Assisted Laparoscopic Prostatectomy Mini-Residency Training Program on Post-Graduate Urologic Practice Patterns

Elsbeth McDougall, MD

Department of Urology/University of California, Irvine/Irvine, California

(Co authors : Aldrin Joseph Gamboa, MD, Rosanne Santos, Geoffrey N. Box, MD, Michael K. Louie, MD, Eric Sargent, MD, Ricardo Santos, MD, Kevin H. Sohn, Hung Truong, Rachelle Lin, Amanda Khosravi, David Ornstein, MD, Thomas Ahlering, MD, Ralph Clayman, MD)

Introduction: Robot-assisted laparoscopic prostatectomy (RALP) has stimulated a great deal of interest. We evaluated whether a 5-day, focused, mini-residency (M-R) curriculum for RALP would enable postgraduate urologists to incorporate the procedure into their clinical practice.

Method: From July 2003 to June 2006, 47 urologists participated in the M-R RALP. The five-day course had a 1:2 faculty:M-R attendees ratio; curriculum included lectures/tutorials, inanimate, animate, and cadaveric robotic skills training, and surgical case observation. Questionnaires assessing practice patterns after one, two, and three years following the M-R program were analyzed.

Results: One, 2, and 3 years following the M-R, response rates to the questionnaires were 89%(42/47), 91%(32/35) and 88%(21/24), and percentages of participants performing RALP were 70%(33/47), 71%(25/35) and 75%(18/24), respectively. Among the 6 attendees not performing RALP three years post M-R, the reasons included: lack of a robot (1), other partners performing RALP (1), feeling of insufficient training (1), and unstated (3). The number of RALP being performed per year 1, 2, and 3 years after the M-R were 1-10 [61%(20/33), 36%(9/25), 22%(4/18)], 11-20 [12%(4/33), 20%(5/25), 17%(3/18)], 21-30 [9%(3/33), 16%(4/25), 0%] and >30 [12%(4/33), 24%(6/25) 56%(10/18)], respectively.

Conclusion: A 5-day focused RALP M-R enables the majority of urologists to successfully incorporate this procedure into their clinical practice both in the short and long term.

Preparing Faculty for Problem-Based Learning: A Part of a Faculty Development Program at B.P. Koirala Institute of Health Sciences

Nirmal Baral, MD

Department of Health Professions Education, Department of Biochemistry and Molecular Biology/B.P. Koirala Institute of Health Sciences/Ghopa, Dharan, Nepal

Background: Problem-based learning (PBL) has made a major impact on curricular designing and practice in medical education for more than forty years. Incorporation of PBL approach in medical education has been a

challenge and an opportunity for both educationists on planning how to impart change and medical teachers learning how to internalize the change.

Objectives: This paper aimed to investigate experiences, achievement, and responses of medical teachers in a three-day training at B. P. Koirala Institute of Health Sciences (BPKIHS), Nepal that has been practicing a PBL approach in a considerable portion of the first two years of MBBS curriculum.

Methods: There were 25 heterogeneous groups of teachers, the majority of them were entry level. Pre- and Post-test questions were taken from various topics relevant to PBL, such as learning strategy and principles of adult learning, PBL practice at BPKIHS, the tutorial session and the role of a tutor, making resource sessions interactive, designing PBL problems, planning educational objectives in PBL, formulation of problems for PBL. In addition, participants' perceptions of development and dissemination of the PBL manual and effectiveness of the workshop were also included in the questionnaire.

Results: The majority (96%) of respondents reported that they had a better understanding of opportunities and limitation of PBL. The participants found that training in PBL was informative (92%). There was a significant gain in knowledge following the workshop ($p < 0.001$). The perception of the teacher was found to be quite relevant and useful for adopting to the new role as tutor. The respondent teachers noted that skills they learned during the training will be applicable to their job situation. They stressed additional training for reinforcement and updates with new trends and tools in PBL.

Discussion: The Department of Health Professions Education, BPKIHS, firmly believes that faculty development in PBL has a great potential to help individual teachers significantly change their role as small group facilitator (tutor), a pivotal position in a PBL system. Therefore, such training for faculty development would be highly beneficial to inculcate new competencies in PBL.

The “Competent Intern” Program: Use of Peer Feedback

Thomas Chacko, MD

*Department of Community Medicine & Medical Education/PSG Institute of
Medical Sciences & Research/Coimbatore, India*

Background: The five and a half-year M.B.B.S program in India prepares a “basic” Doctor. The Internship period occurs during the final year of this program, and is intended to develop the skills required. The three-month internship rotation in community medicine is the time when the intern works in primary care setting to acquire skills required for primary care.

Objective: To pilot a program to improve two key competencies through continuous feedback and practice sessions during internship rotation in community medicine.

Methods: Diarrhea Case Management (DCM) & Family Planning Counseling (FPC) were prioritized based on health center and faculty data. The faculty & primary health centre staff were orientated about the need, the role of feedback and correct usage of the checklists. Each patient encounter was observed by peers or faculty using a standardized checklist, DCM using the WHO/UNICEF integrated management of sick child guidelines and FPC using the GATHER (Greet, Ask, Tell, Help, Explain, Return) technique. The interns were given feedback at the end of the encounter. Twenty-two interns posted for three months in seven health centers underwent 145 patient encounters (74 for DCM and 71 for FPC). Most of the interns underwent at least 3 and 4 feedback encounters respectively for diarrhea and family planning. A retrospective pre-post survey was done to assess the impact the program had had on the intern's knowledge, attitude, and skill, as well as to get inputs on the process for its improvement.

Results: Analysis of the scoring pattern on the feedback checklist showed improvement in the interns' competency as revealed by an increasing proportion scoring “completely done” with every subsequent session. Similarly, sub-module analysis using repeated measures ANOVA with Greenhouse-Geisser correction revealed that interns improved significantly in skill from their first case to their third or fourth case in mean marks for most sub-modules

for diarrhea case management (F value 22.56, $P < 0.005$). Although there was also an increase for competency in the family planning counseling sub-modules, it was inconclusive (F value 3.42, $P = 0.054$). Analysis of the impact of the program on the interns using a retrospective pre-post survey tool revealed a statistically significant change in their knowledge, skill, and attitude, with most interns reporting that the structured checklist and feedback program helped them improve their competencies and acquire the art of self-directed life-long learning. The proportion of peer: faculty feedback was 60:40 and 65:35 respectively for the DCM and FPC cases, thus any improvement in clinical competency is likely to be due to peer feedback.

Discussion: Peer feedback using structured checklists appears to be a useful, feasible, and effective method of enhancing competencies of interns at primary care settings in resource-poor countries.

A Qualitative Analysis of Perceptions of Leadership: Qualities and Skills

Mohsen Shabahang, MD

Department of Surgery/College of Medicine/Texas A&M University, Temple/Temple, Texas

(Co-authors: Chris Shale, MD and Ilene Harris, PhD)

Purpose: The purpose of this study was to elicit and compare the perspectives of individuals with different levels of administrative responsibility in an academic medical center – residents, faculty members, administrators, and institutional leaders – regarding effective and ineffective leadership.

Method: The sample was selected using both cluster and stratified sampling. Perceptions of the qualities and skills of effective leaders were elicited using a focus group of residents, interviews of institutional leaders, and a survey of faculty members and administrators. Using a grounded theory approach, qualitative content analysis was done to identify the themes in perceptions of effective and ineffective leadership qualities and skills. Member checking supported the trustworthiness of the content analysis.

Results: The qualities and skills of leadership were identified by a focus group consisting of 21 residents, interviews of 2 institutional leaders, and a survey of 51 faculty and administrators. The four most frequently identified attributes of good leaders were the ability to inspire (17%), communication (15%), decisive action (13%), and integrity (11%). Lack of kindness (14%), arbitrary decision making (12%), issues of competence (11%), and a self-serving attitude (11%) were the most common themes associated with ineffective leadership. A content analysis conducted in relation to administrative role showed common themes among residents, faculty, administrators, and top leadership of the academic center. Also, more than 70% of respondents believed that the attributes of an effective leader are no different in academic medicine than in other industries. About 50% of participants in the study perceived leadership to be a combination of innate ability and nurturing through education and mentoring.

Conclusion: A review of the literature, and a qualitative analysis of responses in a focus group, interviews, and surveys converge on the following conclusions. Effective leadership incorporates a combination of vision, communication, decisiveness, and integrity. The attributes of bad leadership are not necessarily the antithesis of these qualities, but rather relate to lack of kindness, arbitrary decision making, issues of competence, and a self-serving attitude. The perceptions of individuals at this academic medical center mirrored discussions in the literature and did not vary in relation to position in the administrative hierarchy. The attributes and skills necessary for effective leadership are not an enigma; they appear to be well known among administrators, faculty, and residents at academic medical centers. Those who are identified as having innate leadership attributes should be nurtured in order to develop their potential to its fullest. This is as true for academic medicine as for any other field.

Situation Awareness: A Construct in Search of an Identity

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Background: Situation Awareness (SA) has evolved from what was called the “Ace Factor” during World War I. In its simplest terms, it is defined as “knowing what’s going on so [one] can figure out what to do”. More accurately, it is “the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future. ” However, there is no single consensual definition for SA. In fact, some authors argue that the nature of SA precludes any real definition.

Objectives: The purpose of this work is to review some of the current definitions for SA, to study the importance of SA as a concept in medicine, to discuss the nature of SA as an individual skill, and to present a new conceptual framework for SA in medicine.

Methods: This work is the product of an extensive literature review and of the author’s reflections on the concept of SA.

Results: SA has been considered, in turn, a phenomenological construct, a psychological construct, a cognitive process, and the product of a situational model. Earlier models (such as Endsley’s 3 levels model of SA) looked at SA through the lens of information processing theories, linking SA to memory. Others have analyzed SA through ecological approaches (such as Dekker and Lützhöft’s ecological theory of radical empiricism), and task-oriented approaches (such as Patrick and James’s Hierarchical Task Analysis approach). These later models cast doubt on the nature of SA as a skill. They argue that SA is too context-specific and lacks any level of generalizability. Yet, several studies have demonstrated that SA can be taught in some fields.

From the field of aviation, SA has been adopted by other dynamic, highly complex fields, such as air traffic control, driving, and medicine, where it has seen some increased interest in the last years. Elements related to SA were described as contributing factors in early research on human factors in medical errors. More recently, SA, as a construct, has been integrated in one model of the anesthesiologist’s problem-solving behavior, and has been included in a behavioral marker system used in anesthesiology and intensive care.

The importance of SA stems from its consideration as a precursor to decision making, and, hence, to performance. If this is true, the ability to generate good SA might be paramount to clinical-decision making skills and, ultimately, patient outcome. Furthermore, the ability to measure SA becomes a crucial endeavor. SA has also been linked to workload, although the nature of this relationship is still uncertain.

A new conceptual framework, based on existing models and published research on SA, will be presented.

Discussion: Even today, SA might be a concept in search of an identity.

Measuring Situation Awareness: Validity and Reliability of SAGAT and SPAM

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Background: Situation awareness (SA) is defined as “the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future.” It includes three levels: perception, understanding, and projection. Several methods for measuring SA have been developed in non-medical fields. Two such methods are SAGAT and SPAM, which involve querying participants regarding the three levels of SA in simulated or real-life situations. Evidence for the validity of these measurements in medicine is lacking.

Objectives: The purpose of this research is to gather evidence for the validity of SAGAT and SPAM as measures of situation awareness (SA) during crisis situations in anesthesiology residents. It aims at testing the following

hypotheses: (1) SAGAT and SPAM are reliable measures of SA; (2) SA is inversely correlated to workload (WL); and (3) SA increases with increasing level of expertise.

Methods: Thirty-one (31) PGY-2 to PGY-5 anesthesiology residents at Laval University were randomized into 2 groups: SAGAT and SPAM. They were required to manage 3 crisis situations, in a simulated operating room with a high-fidelity patient simulator. Queries aimed at assessing SA were asked either during pauses in the simulation (SAGAT group), or after an auditory cue while the situation was ongoing (SPAM group). Accuracy of the answers was recorded in the SAGAT group; accuracy and response times were recorded in the SPAM group. SPAM also provided WL time scores. Participants were later required to fill out a questionnaire related to their experience, their perceived levels of SA and workload, and the impact of the measures on their perceived performance. They also completed a Workload Profile to provide data on the specific dimensions of workload involved in managing the cases.

Results: Twenty-six participants completed the study (13 in each group). The participants' scores in both groups were analyzed using Generalizability Theory. Preliminary G study results suggest that generalizability of the SA accuracy score in the SAGAT group ($\Phi = .016$) was poorer than the SA accuracy score ($\Phi = .31$), the SA time score ($\Phi = .58$) and the WL time score ($\Phi = .68$) in the SPAM group. Simplifying the SAGAT design did not improve reliability to a great extent; however, excluding case 2 from the analysis improved the generalizability of the results ($\Phi = .28$). Similarly, excluding queries related to level 2 of SA improved generalizability ($\Phi = .31$). In both groups, the p (person) facet contributed little to total variance.

D studies will be conducted to determine the optimal number of queries, freezes, and cases required to reach a generalizability coefficient above .80. Correlation between SA and workload will be measured. Impact of anesthesia training, age, and prior experience with simulation on SA and workload will be estimated through an analysis of covariance (ANCOVA) and regression analyses.

Discussion: These results do not favor SAGAT or SPAM as reliable measures of SA, despite the small sample size. SPAM seems promising but it is unlikely to be used without other measures of SA, in order to comprehensively and reliably measure this construct.

The Effect of the Implementation of an On-Line Order Entry System on Resident Compliance with Duty Hour Regulations: Trading Legislative Compliance for Patient Safety?

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Background: Computerized Physician Order Entry (CPOE) has been shown to have several beneficial outcomes, including reduction in medication errors, reduced test ordering, improved medication turn-around time, and reduction in length of stay. It has also been shown, however, to increase physician front-end work time. Residents are the physicians primarily responsible for order entry and the subsequent increased physician work time falls to them. Residents are also expected to conform to Duty Hour Regulations that limit the amount of time any resident may spend on patient care activities. It is possible that adding the task of computerized order entry to a resident's workload may result in an increase in duty hour violations.

Objective: This study analyzed the effect of CPOE on Duty Hour compliance in multiple inpatient and intensive care settings.

Design/Methods: Duty hour logs for Pediatric Residents on inpatient and intensive care services prior to and following the initiation of CPOE were analyzed for duty hour violations. Descriptive statistics and t-tests were employed for data analysis.

Results: There was no significant increase in the number of duty hour violations subsequent to the initiation of CPOE, including total work hours and violations of the 24+6 hours rule in the Pediatric ICU and general inpatient services. Duty hour compliance was significantly increased, however, in the Neonatal ICU (the first unit to implement CPOE) which persist, but may be attributable to other factors.

Discussion: CPOE can be successfully implemented in multiple settings without additionally contributing to duty hour violations. In busy intensive care units with other factors contributing to increased physician workload, however, CPOE can contribute to physician worktime sufficient to cause noncompliance with duty hour regulations, thus putting institutions at risk for ACGME penalty.

A Qualitative Analysis of the Themes in Comments about Surgical Residents on Performance Evaluations Using Multi-source (360 degree) Feedback from Attending Physicians, Resident Peers, and Nurses

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Background: Previous quantitative analyses have suggested that combining performance evaluations (PE) by different assessors in various roles would add value as suggested by the ACGME, but may add variance. However, no previous study has systematically analyzed the comments made in PE by professional role, or by gender.

Objectives: The goal of this study was to identify the themes made in comments about surgical residents on PE by members of a group of interdisciplinary professionals (physicians, resident peers, nurses) and to determine whether these themes systematically relate to the professional role or level of training of the assessor. In addition, we will determine whether there are thematic differences that relate to the gender of the trainee. Finally, we will determine whether the variance previously identified in the quantitative analysis of surgical resident performance by multi-source assessment can be explained by professional role.

Methods: This study is a qualitative analysis of a purposive sample of categorical surgical residents' (PGY 1-5) performance-related narratives over the period from July 2006 to December 2006. This is a study done using grounded theory approaches to data analysis, with themes developed from and during data acquisition, using the method of constant comparative analysis. The previously conducted generalizability analysis is used for triangulation. In addition, external review was conducted, to enhance the trustworthiness of the analysis, by at least one faculty member, peer, and nurse colleague (peer audit).

Results: From 406 individual comments made by peers (P), attendings (A), and nurses (N), 749 phrases were placed into 20 themes, with most comments and themes being positive. The most common theme identified by all (18.7%) was of general competence, followed by personal qualities (16.1%). Differences in personal quality sub-themes were seen between junior and senior residents, and between assessors, with nurses commenting about friendliness and being respectful. Comments about enjoying the work experience with the resident were seen in 9%; but comments about teamwork were most commonly seen from nurses (17% N, 8%P, 3%A, p<0.001). Peers most commonly commented on attitude, especially of helpfulness (8%P, 7N, 3%A, p<0.01). Teaching, learning, and leadership themes were identified in senior but not junior residents. Attendings focused on medical knowledge and technical skills, while nurses focused on medical knowledge alone. Nurses also focused on patient interactions, communication and interpersonal skills when compared with the other assessors.

Gender of the resident had some role in the themes identified. Nurses identified negative comments about helpfulness in men more commonly than women (7:1) and comments about patient interaction more positively about women (7:1). Attendings more commonly identified leadership as a theme in male residents (7:1), expressions of enjoyment in working with the resident when male (11:3), and future ability of a resident (M:F, 10:1).

Discussion: Twenty themes were identified in comments made about surgical residents with differences seen between the role of the assessor, the level of the trainee, and the gender of the trainee. Most of the comments and themes were positive; few comments suggested concrete improvements. Qualitative analysis of comments from different assessors in different professional roles suggests that fundamental differences in perspectives will add richness to the assessment, but may add variance when quantitative scores are combined. The role of the gender of the resident in the comments of nurses and attendings requires further study and explanation.

Preliminary Study of Virtual Reality and Materials Model Simulation for Learning Laparoscopic Suturing Skills

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Introduction: Laparoscopic suturing and knot tying (LSK) are among the most challenging skills for minimally invasive surgeons to acquire. We sought to determine whether virtual-reality simulation training is any different than simple material model-based training for helping laparoscopically naïve medical students learn how to effectively perform LSK in an animal model.

Methods: Twenty medical students, with no previous laparoscopic surgery experience, were enrolled and given a 30-minute didactic session, with videotape examples, explaining the clinical application, technique, and principles of LSK, by an expert laparoscopic surgeon (EMcD). The students were then randomized to two separate skills training groups. Group 1 received training to proficiency by an experienced mentor, using the LapED™ 4-in-1® silicone model in a laparoscopic box trainer to place a needle and suture through the material, perform a knot tie, and then perform a continuous running suture. Group 2 received LSK training to proficiency, with an experienced mentor, on the suturing and the knot tying teaching module of the Simbionix LapMentor (Simbionix USA Corp, Cleveland, OH) virtual-reality simulator. Within one week of their skills training session, the students performed a laparoscopic suturing and knot tying of a 2-cm cystotomy in a porcine model. Experienced evaluators, blinded to the training format of the medical students, observed the procedure and scored the performance using an OSATS (objective structured assessment of technical skills) form to assess quantity (time to perform the task) and quality of the technique. The two groups were compared using multivariate ANOVA test (SPSS 13.0 for Windows, SPS, Chicago, IL). The comparison of the two groups' performance scores, before and following the training, will be performed using the Mann-Whitney U test.

Results: Results and statistical analysis are pending at this time.

Conclusion: An inexpensive but reliable training model for LSK could be of importance to many surgical disciplines in their residency training programs.

Every Educator's Dream: Building a Novel Curriculum Unencumbered by the Past

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Background: Numerous national organizations (AAMC, AMA, IOM) have been critical of the slow pace of curricular reform. TouroMed, created in 2007 and unhindered by the usual constraints of established medical schools (departmental structure, faculty resistance, fossilized curriculum), has created an innovative curriculum based on best medical education practices and expert opinion.

Objectives: TouroMed seeks to deliver an innovative undergraduate curriculum that produces graduates prepared for their roles as future patient-centered physicians, possessing competencies described in TouroMed's educational objectives.

Methods: TouroMed's educational objectives are synthesized from the AAMC-MSOP series, ACGME core competencies, ABMS competencies, and CanMEDS 2000 in concert with TouroMed core principles. They emphasize demonstration of a skilled, respectful, patient-centered approach with attention to social contexts, appropriate application of medical knowledge, demonstration of continued self-improvement and lifelong learning, use of evidence-based medicine, ability to perform medical decision-making in the face of uncertainty, and ongoing enthusiasm for the practice of medicine.

In June 2007, TouroMed hosted a two-day retreat with national curricular experts and asked them to construct the "ideal" 4-year curriculum. Ideas generated, combined with literature review, led to overarching principles: full

integration of basic, clinical and behavioral sciences including basic science instruction through year 4; clinical experiences in years 1-2 that reflect course components; doctoring curriculum that correlates with concurrently delivered courses; increased responsibility and advanced clinical skills as the student progresses; and broadening students' perspectives and interests.

Results: The 4-year curriculum aligns with TouroMed's educational objectives and curricular principles:

	FOUNDATIONS		CORE SCIENCE AND AMBULATORY MEDICINE				
Weeks	3	15	8	6	10		
YEAR ONE	Profession of Medicine	Foundations of Medical Science	Family & Community Health	Skin, Bones, and Groans	Cardio-Respiratory Medicine		
			Independent Inquiry				
	Doctoring I			Doctoring II			

	CORE SCIENCE AND AMBULATORY MEDICINE					
Weeks	8	8	6	8	4	6
YEAR TWO	Neurology/ Psychiatry 1	GI/Endocrine/ Nutrition	Urology/Renal ENT/Allergy	Hematology/ Oncology Infectious Diseases	Gynecology and Women's Health	Life Stages
	Area of Concentration					
	Doctoring III					

	INPATIENT MEDICINE AND CORE SCIENCES								
Weeks	8	8	8	4	4	4	4	4	4
YEAR THREE	Internal Medicine	Surgery and Gynecological Surgery	Neurology/ Psychiatry 2	Maternal Newborn	Pediatrics/ PICU	Oncology	Emergency Medicine	Area of Concentration	Elective
	Doctoring IV								

	BRIDGE TO GME								
Weeks	4	4	4	4	4	4	16		
YEAR FOUR	Critical Care	Public and International Health	Acting Internship	Area of Concentration	Board Review	Interview Month	Electives	Capstone	Graduation

Following the introductory *Profession of Medicine* course, *Foundations of Medicine* teaches core concepts across all basic science disciplines. Concurrently, students learn basic physical examination and communication skills in *Doctoring-I*. The ensuing 18-month series of systems-based *Core Science-Ambulatory Medicine* courses integrate basic, clinical and behavioral science instruction. Students rotate two half-days weekly in related ambulatory offices and refine corresponding physical examination and communication skills. Basic science instruction extends into the *Inpatient Medicine and Core Sciences* rotations and *Critical Care*. *Public and International Health* broadens students' awareness of physicians' role in society. Students complete a scholarly product on a topic of interest in *Area of Concentration*. *Independent Inquiry* bolsters lifelong learning skills. Enthusiasm for medicine is supported through scheduled "learning community" small group meetings, a community project, and reflection exercises.

Curricular evaluation tools are being developed. Questions include:

- Does the integration of basic and clinical science in years 1-4 improve: Medical decision-making? Retention of basic science knowledge?
- Does emphasis of the patient-centered approach including integration of behavioral sciences produce patient-centered graduates?
- Will this curriculum promote: Lifelong learning? Enthusiasm for medicine? Continued self-improvement?

Discussion: We hypothesize that TouroMed's curriculum will foster graduates' patient-centered medical care, medical decision-making skills, life-long learning, and enthusiasm for medicine. The longitudinal basic science delivery integrated with clinical sciences should demonstrate the importance of basic science concepts and enhance retention of basic science knowledge. An innovative curricular model demands strong evaluation tools. The creation of a new medical school offers the golden opportunity to implement novel curricular approaches and advance the science of medical education.

The Senior Resident as a Role Model for CanMEDS: A Transition to Senior Resident Workshop

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Background: The senior resident has many roles to fill and requires a wide range of skill sets. There is little or no prior training for these skills. A one-day workshop was designed to fill this perceived need in Pediatrics at the University of Manitoba and assist junior residents with this challenging transition. Additional educational modules are provided throughout the year to further enhance skill sets.

The roles of the senior resident fall within the Royal College of Physicians and Surgeons of Canada's CanMEDS roles of the physician. There are many overlapping skills necessary to meet the expectations within these competencies. The senior residents are role models for these roles for other residents and medical students.

Objectives: The aim of this poster is to describe the curriculum development of this skills workshop and demonstrate how:

- senior residents can be another role model for CanMEDS
- through the reframing of workshop objectives into CanMEDS, another tool was created to help promote the conceptual framework to our learners and teachers.

How Is Medical Training Portrayed to the General Public? A Qualitative Analysis Viewed Through the Perspective of Entertainment Television

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Background: The training of medical students and residents is the topic of numerous prime-time television programs. With such a large audience, the potential influence that these programs may have on the public's perception of medical training is vast. There is very little literature on how medical education is portrayed in popular entertainment, or how popular entertainment can influence the medical knowledge of physicians or trainees.

Objectives: To understand and describe how medical training and the behavior of trainees is represented through current medical-themed television programming dramas in order to ascertain physician representation to the general (non-medical) public.

Methods: The study design was based in a grounded theory approach. A purposeful sampling of prime time television programming was used to capture a cross section of the various ways that medical education is presented

to the lay public. Two researchers viewed 10 hours each of non-reality based medical-themed television programming [House M.D., ER, and Grey's Anatomy] and performed a pseudo-naturalistic observation on educational themes that included but was not restricted to: physician behavior, appearance, teaching methods, curriculum, teaching environment, language, etc., and created "field notes" on these behaviors/events. Six episodes (2 episodes of each program) were recoded by the other researcher to check for the inter-rater reliability. The reliability testing was done using the following formula: Number of agreements between raters x 2 divided by total events coded by first rater plus total events by second rater. This was expressed as a percentage. Any major discrepancies were discussed and a consensus was reached for the final analysis.

The data from each show and episode was collated and analyzed separately to look for differences in themes among the selected programs. The data was then viewed as an aggregate in order to give a broad cross section of themes in TV programming and their representation of medical education. A Chi-Square analysis was initially planned to test for any significant difference in themes between different shows. The data contained numerous small numbers (<5), and thus this type of analysis would not be appropriate. For this reason a purely descriptive analysis was done.

Results: The numerical data for this is still being processed in terms of number of events per category and may change in the final analysis (to be completed the end of March). There were 29.8 events per episode that were coded. In terms of educational methods there is a realistic portrayal of ambulatory teaching mainly in the form of group discussions/teaching, rounds and a small number of incidences of one to one teaching. Given that most teaching occurred in the acute hospital setting, this is appropriate. In contrast, the case mixture and presentation were often unrealistic. In general, teaching is not the focus portrayed by any of the dramas viewed. The role modeling in all shows tended to be coded as negative much more often than positive. Constructive feedback was an unusual event and unconstructive negative feedback is prominent. In the category of professionalism, the results are also mixed. There are clearly more negative events portrayed than positive occurrences. If a negative or inappropriate event occurs, it is unlikely to be openly dealt with by any of the attending physicians. Legal dilemmas and ethically challenging cases are common to most episodes, depicting the medical training environment as quite controversial and chaotic, which may lead the viewer to wonder about the moral underpinning of physicians and their accountability. There are examples of positive/appropriate behaviors which were more commonly seen in ER. Very few ancillary staff are seen in all of the shows depicting a highly physician-dominated culture.

Discussion: Overall the positive/realistic aspects of medical training are grossly outnumbered by the negative and unrealistic events. How this impacts the lay public is unknown, but the dramatization of medical education is clearly misleading. The study is limited in terms of the small sample size, inter-rater reliability, and the coding is purely done from the perspective of physicians. Future work to uncover the non-medical public's perspectives on medical education and entertainment would be a logical extension of this study.

Usage of Digital Media Amongst Medical Trainees: Perceptions on Policy and Professionalism

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Background: Although use of digital media, such as social networking sites, media sharing, or blogging, has increased in popularity among the millennial generation, medical educators have little guidance on preventing misuse and ensure standards for professional conduct. This study aims to assess frequency of use of digital media and perceptions regarding misuse and professional standards among varying levels of medical trainees.

Methods: A 17-item anonymous survey was developed and distributed to first-and third year medical students, housestaff and sub specialty fellows to assess familiarity, usage patterns, and standards of conduct. The paper-based survey was developed by three faculty members and one student leader. Familiarity with various forms of digital media (social networking and media share sites, blogs) was assessed using yes/no items. Frequency of usage for routinely used types of digital media was measured on a Likert-type scale: never; 1-2 times/yr; 1-2 times/mo; 1-2 times/week and 1-2 times/day. Perceptions regarding regulation and misuse were also measured on a Likert-type scale ranging from "strongly disagree" to "strongly agree." Descriptive statistics and chi-squared tests were used to describe the association between level of training and familiarity, usage pattern, and perception of regulation/misuse

regarding digital media. Multivariate logistic regressions, adjusting for training level, was used to test the effect of frequent use (“superuser”) on perceptions of regulation and misuse.

Results: 85/102 (83) first-year medical students (M1), 63 (60.6) third-year medical students (M3), 108 (85.7) interns (R1), and 58 (77.3) resident/fellows (R/F) completed surveys. Students, regardless of level of training, are more familiar with both social networking sites (M1 100%, M3 87.3%, R1 88.0%, R/F 77% $p < 0.001$) and blogs (100% M1, 88% M3, 88% R1, 71% R/F; $p < 0.001$). In addition, medical students are more likely to post personal information on social networking sites (91% M1, 63% M3, 39% R1, 20% R/F; $p < 0.001$). Resident/fellows are less likely to visit media sharing sites (18% R/F vs. 33% R1, 31% M3, 18% M1; $p < 0.001$) than students and interns. Greater than 60% of all trainees, regardless of level of training, agree that physicians have an obligation to represent themselves professionally in material that is intended for public consumption. Significant differences existed between students (61% M1, 73% M3 vs. 54% R/F; $p < 0.009$) and housestaff regarding implementation of institutional-based regulation of their personal digital media usage and concerns about representation in the public domain (52% M1, 46% M3 vs. 73% R/F; $p < 0.001$). Greater than 50% of trainees, regardless of level of training, were also in agreement regarding the perceptions of potential employers, colleagues, superiors, and patients. More frequent usage of digital media was associated with the perception that institution-based regulation of personal use patterns is a privacy infringement (super-user 74% vs. non-super-user 49%; $p < 0.001$). However, more frequent users were also more likely to state that physicians are obligated to represent themselves professionally (super-user 66% vs. non-super-user 44%; $p < 0.003$).

Conclusions: Medical students have increased familiarity and usage of digital media, particularly social networking sites and blogs. Frequency of use is associated with increased likelihood of opposition to institution-based regulation. All users, regardless of level of training, believe in maintaining professional demeanor on these sites.

Resident Uncertainty in Clinical Decision-Making and Impact on Patient Care: A Qualitative Study

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Background: Little is known regarding how internal medicine residents manage decision making during times of uncertainty and how it affects patient care. The aims of this study are to describe types of uncertainty faced by on-call residents during clinical decision making, strategies employed to manage clinical uncertainty, and how these decisions impact patient care.

Methods: All residents between January and November of 2006 at a single academic institution were privately interviewed within one week of their last call night of the inpatient general medicine rotation. Using the critical incident technique, which aimed to elicit patient care decisions made during clinical uncertainty during the call night, residents were asked to recall 2-3 important clinical decisions during their most recent call night, with a subsequent probe to identify decisions made during uncertainty. Residents were also asked to report if they sought advice from anyone, and whom. Discussions were audio-taped for clarity and transcribed for analysis. Three members of the research team independently coded transcripts using the constant comparative method, with no a priori hypothesis to generate initial categories. Categories were subsequently mapped to the Beresford model of uncertainty during medical decision making which categorizes uncertainty into three domains: technical, conceptual, and personal. Atlas ti, a qualitative analysis software, facilitated retrieving, coding, and sorting the data. Kappa statistics were performed to assess inter-rater agreement.

Results: The 42/50 (84%) interviewed residents reported 18 discrete critical incidents. Six major categories emerged from the analysis and mapped to each of the domains of the Beresford Model of Clinical Uncertainty as follows: technical uncertainty (procedural skills, knowledge of indications); conceptual uncertainty (transitions of care, diagnostic decision making and management conflict) and communicative or personal uncertainty (goals of care). For example, a narrative comment representing procedural skill uncertainty in an HIV patient with mental status

changes and fever: “and it was just that the standard work-up included an LP and I felt like I couldn’t get it, I am not trained on how to do them and I just felt like let’s do it tomorrow.” For 18 identified incidents, resident uncertainty led to a delay in procedure or other diagnostic decisions (6). In some cases, patients suffered harm, such as procedural complications (2) and cardiac arrest (2). To manage clinical uncertainty residents report using a definitive “hierarchy of assistance” in seeking advice; using resident colleagues and educational resources for initial management, followed by senior residents, sub-specialty fellows and, as a last resort, their attending physician. Barriers to seeking attending input included fear of losing resident autonomy, revealing gaps in fund of knowledge, repercussions (e.g., calling at a late hour) and the existence of a defined hierarchy for assistance. Residents identified the following reasons to seek attending input: (1) lack of personal clinical experience with a patient complaint; (2) deciding amongst therapeutic or diagnostic options; and (3) the need for escalation of care.

Conclusion: Resident uncertainty during times of clinical decision making can result in delays of indicated care, which in some cases results in patient harm. Despite the presence of a supervisory figure – the attending physician – residents adhere to a strict hierarchy of assistance when seeking advice in clinical matters, opting to contact the attending as a last resort.

Using SNAPPS to Facilitate the Expression of Clinical Reasoning and Uncertainties: A Randomized Comparison Group Trial

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Background: Goals of clinical teaching include assessing students’ clinical reasoning skills, facilitating and strengthening their development, and providing opportunities for practice and feedback. When medical students present cases to preceptors, they focus mainly on factual information and reveal little about their diagnostic reasoning or uncertainties. Do third-year students who use the 6-step, learner-centered SNAPPS technique for case presentations express clinical reasoning and learning issues more often than students not trained in the technique? SNAPPS stands for: Summarize history and findings, Narrow the differential; Analyze the differential; Probe preceptor about uncertainties; Plan management; and Select a case-related issue for self-directed learning.

Objectives: 1) to increase the expression of clinical reasoning of novices; 2) to pair learner and faculty development when implementing a learning strategy; 3) to study the outcome of a case presentation technique in vivo – in the office setting.

Method: A randomized, post-test only comparison group trial was conducted with 64 students to study the effects of the SNAPPS technique for case presentations compared to students receiving a generic method for obtaining feedback from preceptors (controlling for attention) and students following usual and customary procedures during clerkship rotations. Implementation combined brief faculty development with more extensive learner development, followed by practice during 4-week family medicine rotations. During the last week, students audiotaped their case presentations that were coded for 10 dependent variables organized in 6 outcome categories, corresponding to the 6 steps in SNAPPS. Results were analyzed for between group differences.

Results: Taped case presentations from 64 students were analyzed. The number of case presentations per student (3.31, SD 2.10) did not differ among study groups ($p=0.13$): 66 SNAPPS, 67 comparison, and 82 usual and customary presentations were coded. Students in the SNAPPS group outperformed both comparison and usual-and-customary groups for each outcome category. SNAPPS students took 14% less presentation time to summarize the patient findings (effect size = 0.69), yet had as many key clinical findings as those in the other two groups. They expressed more than twice as many diagnoses (2.08 vs. 0.81 and 0.77, $p<.000$; effect size = 1.07) and justified diagnostic possibilities over five times more often (1.26 vs. 0.22 and 0.23, $p<.000$; effect size = 1.08). SNAPPS students formulated eight times more questions and uncertainties than comparison students and more than twice as many as usual-and-customary students (84.38 vs. 10.77 and 33.33, $\chi^2(2)=75.75$, $p<.000$). They initiated management discussions nearly 30% more often than other groups, (84.84% vs. 56.72% and 53.66%, $\chi^2(2)=17.84$, $p<.003$). Student-initiated selection of readings only occurred for the students using SNAPPS. SNAPPS presentations were no longer than usual presentations but differed by one additional minute from the comparison group.

Conclusions: The expression of clinical diagnostic reasoning and uncertainties during case presentations to ambulatory preceptors was greatly facilitated by using the SNAPPS technique. Implementation combined brief faculty development with more extensive learner development. Students can conduct case presentations using a technique that makes each step explicit and gives learners rather than teachers responsibility for ensuring that each step is completed.