

# FOCUS

On Surgical Education



**Program  
Highlights:  
2006 Surgical  
Education Week**

**The Cyber  
Classroom as an  
Adjunct to Small  
Group Teaching  
Sessions**

**Surgeons  
Behaving Badly?:  
Professionalism  
and Role Models in  
Surgical Education**

**Winter  
2006**



## Focus on Surgical Education

### Editor

Susan Kepner, M.Ed.

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# Strategic Progress

DON JACOBS, MD, *Hennepin Faculty Associates, Minneapolis, MN*

**I am writing** this as I look out the window on a beautiful fall day here in Minnesota. It's Halloween, the golf courses remain open, the trees are gorgeous and I am supposed to be writing this for the winter edition of FOCUS. Now, that is a sobering thought! I no longer have a great affection for the deep chill that will be on its way to Lake Wobegone all too soon, so I already find myself day dreaming about our annual meeting next March in Tucson...the warmth, the golf, the friends, the golf...

Okay, I've snapped out of it, at least long enough to give you an update on some progress with our ASE strategic plan.

This past month we held a members meeting in San Francisco, at the American College of Surgeons Annual Clinical Congress, and passed the ASE Bylaws changes that were proposed at last spring's annual meeting and distributed to the membership for comment. The changes passed without opposition and set the stage for more effective organizational performance. It is up to all of us to take advantage of this more "mature" and explicit organizational charter as we pursue our vision: to impact surgical education globally.

The former Executive Committee, now known as the ASE Board of Directors, met and took action on many issues important to our strategic goals: we reviewed and approved a formal

listing of "duties and responsibilities" for members of the ASE Board, and similar "duties and responsibilities" for committee members will be developed and brought to the Board for approval next March; we approved financial support for our AAMC CAS representatives to both attend the spring session of that partner organization; we approved the consideration, with APDS, of Salt Lake City, San Diego and Seattle for our 2009 annual meeting (we are heading to Washington DC in 2007 and are committed to Toronto for 2008); we approved a request by Wiley to offer discounted rates to ASE members for a subscription to *Clinical Anatomy* in exchange for a gratis ad for the ASE in the journal; and we approved a number of ongoing important projects from our committees.

The finances of our organization remain stable and healthy but our future success will not be assured by the status quo and will require growth in membership and revenues to fund our objectives. The Board heard the report of the Membership Committee from Dimitri Anastakis and approved a number of recommendations: marketing ASE participation and membership to other surgical subspecialty organizations; develop strategies for improved recruitment of students and residents to ASE; offer online membership renewal and support this with a dynamic member database

to enhance organizational programs; and implementation of a single category for members based on the individual rather than the institution. In addition we approved in concept the establishment of a surgical education grand rounds bursary or traveling fellowship to allow ASE to support members specifically to represent the organization by offering and promoting a "visiting educator" program to academic departments. This will be further discussed at our annual meeting in Tucson. We committed to develop a web-based "exit" questionnaire for non-returning members in an effort to improve retention of members, and we committed to take a careful look at our current member benefits so as to create a clear incentive to join the organization to have access to key aspects of our work product. David Rogers, ASE Treasurer, reported the recommendations of his Ad Hoc Task Force on Revenues and Expenses, established by the strategic plan. The recommendations are too numerous to itemize here but will be addressed over the next year as we target ways to better balance our corporate finances. Among the many important issues will be our future strategies relative to membership dues and benefits.

We had a healthy discussion regarding our ASE journal affiliation and the Board has directed Tom Lynch, the ASE Recorder, to

*Continued on page 2*

# ASE Foundation Formalizes Relationship with ACS Foundation

SUSAN KEPNER, MEd, *Executive Director*

**The ASE** Foundation Officers have been in consultation with the American College of Surgeons Department of Development, now formally established as the American College of Surgeons Foundation, to discuss the possibility of utilizing their services and, more importantly, expertise regarding advancement initiatives for the ASE Foundation.

Fred Holzrichter, Chief Development Officer of the ACS Foundation, recently presented us with an Advancement Activity Proposal which was presented to the entire ASE Foundation Board

at our meeting in October in San Francisco and was unanimously approved.

One of the first recommendations in this proposal was to name a physician as "Medical Director of Development." ASE Foundation President Richard Reznick has asked Hollis Merrick, Vice-President, to serve in this capacity. He has graciously agreed to do so.

The second recommendation that was made was to establish two separate subcommittees to concentrate efforts to obtain funding from two specific sources:

Individual and Corporate. Dr. Merrick has agreed to serve on both of these committees as "Medical Director of Development." Members of the Individual subcommittee are: Don Jacobs, MD, Nick Lang, MD, and Michael Stone, MD. Members of the Corporate subcommittee are Bruce Gewertz, MD, James Hebert, MD, and Thomas Riles, MD. Dr. Merrick will be working with these individuals in the coming months to strategize on funding initiatives. ■

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## Jacobs

*Continued from page 1*

pursue this issue. Our current contract with *AJS* extends through 2006. The Board articulated the principles and priorities needed to explore our future options, and the recommendations from Tom's assessment will be made to the Board at the annual meeting next March.

Mike Stone presented a short synopsis of the ASE in his report to the Alliance for Clinical Education. This report was, I thought, particularly well done

and I've asked that it be printed in *FOCUS* and placed on our website. I hope that all of our membership will avail themselves of the opportunity to learn a bit more about our organization, its accomplishments and goals.

And finally, the Board reviewed a number of exciting new partnership opportunities on the near horizon. We will be looking carefully at these proposals and sharing more information with you on them soon.

Your ASE Vice Presidents Don Risucci and Phil Wolfson have done an outstanding job of facilitating the communication of

our committees with the Board and I can't thank them enough for their great effort.

One thing remains obvious as I reflect on the ACS meeting and our organization's efforts: we are a dynamic organization of extraordinarily talented individuals with almost unlimited potential. Our Board's goal will be to facilitate the effective expression and communication of the creative talents of this organization and, to the extent possible, remove the barriers to our future success. I am privileged to work with all of you in our common mission. ■

# Curriculum Committee Report

LINDA M. BARNEY, MD, *Wright State University*

**The Curriculum** Committee met during the annual ASE meeting in NY and in October during the ACS. Barry Mann completed his term as chair and those responsibilities were turned over to Linda Barney. Nominations for vice-chair have been provided and voting will occur via e-mail. The following items were addressed.

**Think Outside the Building Lunch:** There appears to be interest and commitment to continuing the project in 2006 for the Tucson meeting. Some concerns were raised regarding diminishing volume of abstract submissions for the event. An attempt will be made this year to send requests out early. Conversations have been initiated regarding publishing the abstracts on the web site in a member's only area so individuals unable to attend might benefit.

**The Resident, the Students and the Competencies:** Project details were introduced by Barry Mann who co-chaired this endeavor with APDS representative Paula Termuhlen. Each participating institution (28/30) had a student-resident pair who completed a pre-meeting assignment involving delineating positive and negative resident-student interactions and dilemmas that challenged a competency. These were collated and best interactions and interactions to avoid were developed. The program involved three sessions with a number of facilitators and ran in tandem with both ASE/APDS meetings.

The program seemed to be well received. Discussions have been initiated for consideration of a similar project involving residents as teachers paired with students at the 2007 meeting in Washington, D.C.

**PowerPoint® Teaching Module (PPTM) Project:** Project plan and proposed timelines have been updated. The goal is for sponsorship through the ASE as a web-housed downloadable teaching tool geared for faculty, especially junior faculty. Initial plan is for 15-30 problem-oriented case-based modules (structured after the ASE problem-oriented *Manual of Surgical Objectives*). This was not intended to be a comprehensive PowerPoint lecture or text document but more of a template structured group discussion module based on topics that might permit an increasing number of renditions to develop over time. For example: Abdominal Pain could morph into Appendicitis, Diverticulitis, Perforated Viscus, and Bowel Obstruction, etc.) The hope is that all clerkship students and their faculty would have access to a library of basic symptom-oriented problems that represent a diverse surgical experience and are widely available for instructional purposes.

Process issues have included reliable E-mail addresses and a functional workspace for the exchange of large files with graphics. The committee membership list has been cleaned up and hope-

fully any interested new members will join in. An ASE TEAM Intranet site has been acquired for project work exchange until a decision can be made as to where the final PPTMs will be located for access by the general ASE membership.

Twelve to 15 modules are currently being revised, beta tested and standardized for format. A trial session was held at the ACS Clinical Congress with volunteer student and faculty facilitators. Initial feedback will enable fine tuning of the modules that are also being trialed at Curriculum Committee member institutions. The Committee hopes to roll out Phase 1 of the project in Tucson with a workshop that will demonstrate how to utilize the modules for team teaching and how to create new modules for individuals interested in new case development. A preliminary evaluation piece has been created to accompany the modules and enhance feedback from participating institutions.

**New Business:** Other discussion items for exploration included ABSITE remediation and learning contracts, formation of a Clerkship Directors Committee, and a multimedia surgical curriculum.

The next formal committee meeting will be in March in Tucson during Surgical Education Week. The committee welcomes new members and encourages anyone interested to contact me at linda.barney@wright.edu. ■

# American College of Surgeons Board of Governors Report

RICHARD REZNICK, MD, MED, *University of Toronto*

**It is my pleasure** to continue to serve as the ASE representative to the American College of Surgeons. The following are the highlights from the Division of Education at the ACS.

The American College of Surgeons (ACS), Division of Education has established a model for ACS Accredited Education Institutes, which was formally approved by the Board of Regents in June 2005. Two levels of accreditation will be offered: Level I or Comprehensive, and Level II or Basic, as based on three standards: Learners, Curriculum, and Technical Support and Resources. Level I Institutes will offer the complete range of educational programs to address complex knowledge and skills using state-of-the-art simulations, simulators, and cutting-edge technologies. These Institutes will also support activities involving preceptoring, mentoring, faculty development, and research and development. Level II Institutes will offer education to address fundamental areas in knowledge and skills. Simple simulations, including standardized patients, bench models, and basic simulators may be used by these centers. The program was launched in October 2005.

A Personal Digital Assistant (PDA) and Internet-based Case Log System has been specially designed by the College to sup-

port practice-based learning and improvement (PBLI), and is in the final stages of pilot testing. Surgeons can use their PDAs or the Internet to record key data points of their cases. The next steps will involve benchmarking individual surgeons' data with data from other surgeons enrolled in the program, in order to identify learning needs in Step I of the PBLI cycle. The program is scheduled for formal launch at the 2005 Clinical Congress.

Also scheduled for release at the 2005 Clinical Congress is the new CD-ROM Professionalism in Surgery: Challenges and Choices. This CD-ROM outlines the key principles underlying professionalism as presented in two important documents, the ACS "Code of Professional Conduct" and "Medical Professionalism in the New Millennium: A Physician Charter." The core of the program is a set of 12 realistic case vignettes that present challenging scenarios involving professionalism issues. Each case vignette is followed by a list of possible courses of action, and the implications of each choice are then discussed by an expert within the context of professionalism. This CD-ROM should serve as a valuable resource for program directors and for practicing surgeons interested in pursuing further education in professionalism. Also soon to be released is the DVD

entitled Disclosing Surgical Error: Vignettes for Discussion, a teaching tool to stimulate dialogue regarding strategies for communicating effectively about surgical errors and adverse outcomes with patients and their families.

The College and the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) have established a partnership for an interactive, hands-on educational program called the Fundamentals of Laparoscopic Surgery (FLS). Originally developed by SAGES, the FLS Program is an educational module designed to provide surgical residents and practicing surgeons an opportunity to learn the fundamentals of laparoscopic surgery in a consistent, scientifically accepted format, and to provide a tool that can measure cognitive, clinical and technical skills. Two multimedia CD-ROMs present materials on preoperative and intraoperative considerations, basic laparoscopic procedures, postoperative care and complications, and manual skills instruction. The FLS trainer box can be used to practice technical skills, and improve dexterity and psychomotor skills. The assessment component is a proctored, timed examination that includes a cognitive component using multiple-choice questions administered by computer, and a manual skills component administered using the FLS trainer box. ■

# AAMC Council of Academic Societies Activities Report

The Council of Academic Societies (CAS) is one of three governing councils of the Association of American Medical Colleges (AAMC), along with the Council of Deans and the Council of Teaching Hospitals and Health Systems. The CAS is presently comprised of 94 academic societies devoted to biomedical and behavioral research, medical education, and patient care. The collective membership of these societies includes essentially all faculty members and scientists in American medical schools engaged in life sciences research, research training, and medical education. The CAS, though diverse in membership, is a powerful forum for discussing and exchanging information of common interest to medical school faculty and for evaluating and recommending policy initiatives to the Association.

**Representation:** Each CAS member society may designate two representatives to the CAS, which meets semiannually, once during the AAMC annual meeting in the fall and again in the spring. CAS meetings engage national leaders from academe, industry, and government in the deliberations of the Council. CAS members nominate 12 fellow representatives to serve on the CAS Administrative Board, which meets three times a year to formulate the programs of the full Council and to act on its behalf

on Association business and policy initiatives. The CAS elects its own chairperson. The chair and five other CAS Administrative Board members represent faculty interests as members of the AAMC Executive Council (which functions as the Board of Directors of the AAMC). Dr. Robert Desnick, Professor and Chair, Department of Human Genetics at Mount Sinai School of Medicine of New York University, is the current chair of the CAS. He currently serves as CAS representative from the Association of Professors of Human and Medical Genetics. The CAS Administrative Board is the key leadership mechanism by which the CAS is engaged in AAMC policy and governance issues. However, all representatives are encouraged to serve by participating in AAMC panels, such as advisory and award committees. In addition, CAS representatives assist the CAS and the AAMC by serving on various CAS panels. Some of the current panels and their activities include:

#### **Basic Science Chairs**

**Leadership Forum:** This entity was designed to give a voice to the basic science chair societies. The Forum organized the 2002 national meeting of basic science chairs. A second national conference has been scheduled for October 2005 in Salt Lake City.

**Scholarship Dissemination Project:** The goal of this project

is "to provide faculty, staff and students in AAMC member schools, as well as members of CAS societies, with a clearer picture of the significant changes that are taking place in the medical and biological sciences as scholarly communication moves from predominantly print to online electronic journals." In addition, the results of this effort will also inform the Association's policy deliberations on publishing issues. Gary Byrd, Ph.D., and Shelley Bader, Ed.D., are leading the project. A Project Advisory Committee was formed and includes representative editors and publishers of CAS society journals, academic health sciences library directors, and faculty. Utilizing the services of academic health center librarians and a graduate student, a database was completed with basic bibliographic, pricing and subscription data for the 101 print and/or electronic journal titles currently published or sponsored by CAS member societies. Additional documents have been collected describing copyright and other editorial policies associated with each journal. This data has been verified by the CAS societies. The Project Advisory Committee developed a number of additional categories of information they wanted to investigate about the journal publishing activities of CAS member societies, including factors influencing academic library subscribers to

these journals. A web-based survey instrument was composed and tested. Subsequently, a very similar survey instrument composed by the American Association for the Advancement of Science, the Association of Learned and Professional Scholarly Publishers, and HighWire Press, came to the panel's attention. Those groups agreed to expand their sample to include all of the CAS societies that publish journals. Dr. Byrd shared the preliminary results of the survey with the CAS Administrative Board in February and with the membership in March. The final report has just been submitted and will be reviewed by the CAS Administrative Board in September.

**Task Force on Dual Degree Students, Programs and Faculty:** The Task Force, chaired by Dr. Lynn Eckhert, was charged with exploring the impact of dual degree programs on the medical school enterprise. The Task Force was provided with extensive data from the Faculty Roster System (FRS)/ Faculty Administrative Management On-line User System (FAMOUS), the Medical Student Records System, the Curriculum Management & Information Tool (CurrMIT), the LCME, and the Matriculating Student (MSQ) and Graduate (GQ) Questionnaires. The Committee also received various published and reviewed scholarly works related to dual degree programs. The Committee also discussed and provided substantive comments on the Division of Medical Education's study of MD/MPH programs. The Task

Force's final report provides a scan of the existing data, discusses the Task Force's observations about the data, and makes some recommendations to AAMC staff and governance. The CAS Administrative Board accepted the Task Force's report in February. It was transmitted to Dr. Jordan Cohen and the AAMC Executive Staff for their consideration and was shared with the membership at the CAS Spring Meeting.

**Task Force on Faculty Leadership:** Last year, the CAS Chairs Task Force was re-named the Task Force on Faculty Leadership. Dr. Lloyd Michener chairs the Task Force. The Task Force developed the very useful Chairs Objectives Project report, which outlines the knowledge, values, skills, and attributes of the ideal department chair. Chair search committees at many medical schools have found this a very useful resource.

**CAS Membership Committee:** CAS membership has been steady at 94 member societies for several years. The Committee reviews new applications for membership and recommends initiatives to meet the needs of member societies. In addition to committee and task force activities, the CAS has been active on several other initiatives:

**Responsible Conduct of Research:** In 2002, the AAMC was awarded a \$250,000 cooperative agreement from the ORI to fund responsible conduct of research (RCR) activities proposed and sponsored by academic societies. Although not limited to CAS member societies, they clearly are the focus of the program.

Subsequently, ORI extended the program for four years. To date, more than \$682,458 has been awarded to 32 academic and scientific societies. Efforts are underway to attract better and more robust proposals to the program. In an effort to kindle the imagination of the CAS member societies in developing RCR initiatives a small invitation-only conference was held on July 14th. ORI has provided a conference grant to assist us with this project.

**CAS Communication Activities:** The CAS listserv is an important tool for CAS representatives. This news service, exclusively for CAS representatives, provides timely and important information that helps make CAS representatives among the most informed faculty on campus. Additional listserves are operated for clinical and basic science department chairs, under the CAS umbrella. Through the CAS, a variety of valuable AAMC resources have been made available to faculty leaders. The CAS private web page was recently redesigned and features a general opening page featuring CAS related materials and three specialty pages, providing resources to chairs, program directors and clerkship directors. These private, password-protected internet web sites offer a number of useful tools, databases, and information resources of great value to faculty leaders CAS society representatives. ■



# Report to the Alliance for Clinical Education, September, 2005

MICHAEL STONE, MD, *Boston Medical Center*

**The Association** for Surgical Education was formed in 1980 and its 850 members represent over 190 medical schools and institutions throughout the United States and Canada. Its primary goal is to promote the art and science of education in surgery.

Specific objectives include:

- developing innovative teaching aids and programs and effective educational interventions;
- designing effective faculty development programs for surgical educators;
- promoting and supporting research in the surgical education field;
- and maintaining an educational clearinghouse which offers a variety of materials to be used by faculty and students in surgical education.

Since 1980, the goals and the activities of the ASE have been predicated on seeking and promulgating educationally and scientifically sound answers to the many complex questions, issues and concerns that are integral to the advancement of surgical education.

In 1993 the ASE established the ASE Foundation to secure and distribute grant funds to researchers, educators and clinicians interested in investigating such questions and issues. The Foundation's mission is to advance the quality of surgical education in North America by raising and disseminating funds to underwrite

high impact, innovative research projects and educational programs that will address the critical issues related to surgical education.

One of the Foundation's most popular and recognized initiatives for this purpose is the Surgical Education Research Fellowship program (SERF), a one year, home-site fellowship designed to equip investigators with the skills and knowledge needed to plan, implement and report research studies in the field of surgical education. Following acceptance into the SERF program, each fellow is carefully matched by the program's faculty with a SERF Advisor, a respected and knowledgeable researcher who will serve as the fellow's mentor and consultant on their particular project. A maximum of 12 fellows is accepted every year. Funding is provided jointly by a grant from Ortho Biotech, the ASE, and the fellow's tuition.

This unique fellowship affords the opportunity for motivated individuals to become proficient in a skill set highly valued by their home institutions as well as the field in general. As new knowledge relevant to surgical education is the key to the growth and development of the discipline, those educators with the requisite, specialized skills and credentials become important members of departments and institutions that are committed to securing leader-

ship and prominence in the field.

In addition, through working with their SERF Advisor and meeting with other SERF participants, fellows establish an invaluable, life-long network of colleagues who share their career aspirations and interests.

The Foundation's Board of Directors has established high standards of research excellence that grant applicants must achieve before receiving ASE funding. Because this high standard provides such confidence to corporate partners, the ASE Foundation has received several generous investments from national corporations in recent years. Their support, combined with the financial resources of the Association and the Foundation, help to underwrite innovative research proposals and important facets of the Association's work such as the Annual Meeting's "Best Paper Award" and the Keynote Address.

The Foundation's Board of Directors developed four grant-making priorities that it felt would most effectively advance the mission of the ASE and its Foundation.

Top Priority: Innovations in Teaching in a Changing Educational Environment

- Will develop and test new, more effective ways of teaching learners at all levels.

Performance Evaluation and Assessment

- Will develop and test new ways to determine how well learners at all levels have learned the required information and skills and can perform the required tasks.

Undergraduate, Graduate and Faculty Development

- Will develop and test ways to more effectively disseminate educational research findings so as to keep both faculty and curricula current.

Curriculum and Educational Administration Management

- Will develop and test new ways to provide administrators the resources and skills necessary to maintain accountability in a managed care environment.

An especially generous three-year grant from U.S. Surgical in 1999, allowed for the development of the Center for Excellence in Surgical Education, Research and Training (CESERT). One of twenty "centers for excellence" funded at major universities throughout North America by U.S. Surgical, CESERT was located by the Foundation's Board of Directors at the offices of the ASE at the Department of Surgery of Southern Illinois University in Springfield, Illinois.

While grant application requests in any amount will be considered, the Foundation Board expects that the average CESERT grant will be in the range of \$25,000 to \$50,000 annually. While multi-year proposals will be considered (three year maximum), regardless of the length of the funded project, total grant size may not exceed \$100,000.

The 2005 annual meeting of the ASE was held at the Grand

Hyatt in New York City in conjunction with the Annual meeting of the Association of Program Directors in Surgery. The two meetings dovetail with a joint day, constituting Surgical Education Week. Over 750 attendees heard 35 manuscript presentations, had their choice of attending 22 different workshops, and heard the ASE Presidential address, a keynote address and other special presentations on such subjects as "What's New in Surgical Education?" Selected papers from the meeting are submitted to the *American Journal of Surgery*, the official journal of the Association for Surgical Education.

The 2006 Surgical Education Week will be held in Tucson, AZ, March 21-25, 2006 at the Westin La Paloma Resort.

The ASE presents Outstanding Teacher Awards for excellence in surgical teaching on an annual basis to surgical educators identified from an international nomination and selection process. In addition, the ASE presents a Distinguished Educator Award for career long excellence and productivity in surgical education. The 2005 Distinguished Educator Award was presented to Hollis Merrick, MD, Medical University of Ohio. There were four individuals who were recipients of the ASE Outstanding Teacher Award at the 2005 ASE Annual Meeting:

- Mary Klingensmith, MD, Washington University
- Andrew MacNeily, MD, University of British Columbia
- John Mellinger, MD, Medical College of Georgia
- Sherry Wren, MD, Stanford University

*Focus on Surgical Education* is the official publication of the Association of Surgical Education. It is published four times a year at Southern Illinois University School of Medicine, and is mailed to all current members of the ASE. *Focus* is a compilation of various articles of interest to our membership, including, but not limited to Messages from the President, news from our Foundation, Review of the Literature, Educator's Corner, information on the latest technology used in education, workshop summaries from the most recent annual meeting, invited articles on a variety of relevant and timely topics in surgical education as well as Open Forum, which gives our membership a chance to express their ideas and share their thoughts on current issues.

In addition to the above, the ASE has engaged in a yearlong strategic planning process to further enhance the productivity of the organization. As a result of this process, the ASE has initiated significant bylaws changes to enhance the organization's ability to adapt rapidly to changes in its environment and that of surgical education in particular. In addition, the Executive Committee has been reorganized into a Board of Directors with specific mechanisms for reporting and evaluation of the work of the ASE's various committees. Finally, the Association has adopted a method to evaluate the work plans of its committees to ensure progress toward the specific goals of the ASE. ■

# Board of Directors Report

BARRY D. MANN, M.D., *The Lankenau Hospital*

**The ASE Board** of Directors met during the meeting of the American College of Surgeons at the San Francisco Hilton on October 15, 2005. ASE President Don Jacobs opened the meeting and the minutes from the April, 2005 meeting were read and approved. In a matter arising from the minutes, Don Jacobs noted that a discussion had been conducted at the April meeting to consider an increase in the budget devoted to the J. Roland Folse Lectureship at the Annual Spring meeting. This discussion was continued and **a motion was passed to increase the budget for the lectureship; a cap of \$5000 was set for the honorarium.**

## Treasurer's Report

David Rogers presented the Treasurer's Report. The balance sheet of the ASE's finances was presented along with the Fiscal Year 2006 budget. David pointed out that a significant percentage of the association's assets are in cash and suggested that a strategy might be developed for more successful asset management. He pointed out that financial management must fall in line with ASE's recently implemented Strategic Plan. In this regard, **a motion was passed (later in the meeting of the Board) to create a differential in the cost structure of meeting registration for members vs. non-members to be the equivalent of an individual membership and to allow the**

**differential to be applied to the cost of membership for the following year.**

## Executive Director's Report

Susan Kepner presented the Executive Director's Report.

Despite the high cost of the New York meeting, a profit of \$49,919 was realized.

The meeting welcomed a total of 777 attendees:

APDS only – 179

ARCS only - 181

ASE only – 229

Joint – 188

The ASE Meeting in the spring of 2006 will be held March 21-25, 2006 at the Westin Paloma in Tucson, AZ. Room rate is \$169/night.

A contract has been secured with the Hyatt Regency on Capitol Hill in Washington, DC for April 10-14, 2007 at \$229/night.

Negotiations regarding Toronto as the possible meeting site for 2008 were discussed.

Two new offerings in the Educational Clearing House were brought to the attention of the Board:

(1) The Virtual Patient: A Self-directed Study Guide in Surgery and (2) the Manual on Efficiently Writing Competitive Research Abstracts for Surgical Journals.

As part of the Executive Director's report, the issue of funding travel for ASE representatives to the Spring AAMC

Council of Academic Societies (CAS) meeting was discussed. **A motion was approved to fund travel for both ASE representatives to the CAS meeting.**

## AJS Recorder's Report

Tom Lynch presented the Recorder's Report and discussed the organization's current relationship with the *American Journal of Surgery*. He noted that in January 2005 the *American Journal of Surgery* began using Editorial Manager®, a web-based process for the submission and tracking of manuscripts.

Resulting from the 25th Annual ASE Meeting in New York, invitations to submit manuscripts were sent to 37 authors. 17 authors submitted manuscripts. As of 9/30/05: Accepted: 11/17= 65%; Rejected: 3/17= 7%; Pending: 4.

Tom presented updates on the Alliance for Clinical Education (ACE) Proceedings Project and on the *American Journal of Surgery* Editorial Project.

As a matter of educating the Board on the options for changes in the journal relationship of the ASE, Tom created and explained a valuable matrix comparing *AJS*, *Current Surgery*, *JACS* and *Surgery*, with regard to cost, exposure (journal reputation), turn-around time to publication, ASE participation in the editorial process, ability to group manuscripts, and ability to maintain an independent relationship with *Current Surgery*.

Our current contract with the

*American Journal of Surgery* expires December 31, 2006.

### ASE Foundation Report

ASE Foundation Report was delivered by Richard Reznick and included the following:

Members of the ASE Foundation Board have been in consultation with the American College of Surgeons Department of Development (now called the American College of Surgeons Foundation) to discuss utilizing their services and expertise in advancement initiatives for the ASE. In this regard, the Foundation Board announced its plans to meet officially with Fred Holzrichter, Chief Development Officer of the ACS Foundation.

Review of CESERT Grant funding status:

Discussion ensued regarding Ethicon Endo-Surgery support for the continuation of CESERT; plans for a follow-up meeting with Ethicon Endo-Surgery's Professional Education Division were announced with the purpose of discussing future support of CESERT. This meeting was to take place October 16th in San Francisco and the outcome to be presented to the Foundation Board at its meeting October 17.

Barry Mann, Chair of the CESERT Grants Review Committee reported that six proposals for CESERT were submitted in the June cycle. Of those, two would be recommended for funding to the Board at its October meeting:

- Applying Automaticity Theory to Simulator Training to Enhance Operative Performance. PI: Dimitrios Stefanidis, MD, PhD,

Tulane University (\$43,460)

- Determining the Utility of the Mini-Clinical Evaluation Exercise as a Competency Assessment Tool of Surgical Residents PI: Ravi Sidhu, MD, MEd, University of British Columbia (\$41,191)

Worth Noting: Distributed among the handouts for the Board of Directors was a booklet prepared by Susan Kepner entitled: "Association for Surgical Education Foundation - CESERT: Summary of Completed Research Grants as of September 2005." This summary is an inspiring compendium which documents the accomplishments of the CESERT program since its inception.

### SERF Report

Donald Risucci updated the committee on SERF program activities and discussed ongoing considerations for possible educational innovations within the current SERF structure. The SERF forum will continue as an integral part of the spring meeting in Tucson.

### Program Committee

Patrice Bergen presented the Program Committee Report. This year the APDS meeting precedes the ASE meeting. The Tucson meeting will have a theme of education of medical students and residents in a culture of patient safety and reduction of surgical risk.

In this regard, a panel discussion will be presented regarding "Best Practices for Patient Handoffs." The combined meeting day will include invited speakers from the ACS, the RRC and the ABS. "What's New in Surgical Education" will be delivered by

Dimitri Anastakis MD, MEd.

The J. Roland Folse Lectureship in Surgical Education will be delivered by Professor Sir Ara Darzi, Chair of Surgery at Imperial College in London and previously a tutor in minimal access surgery at the Royal College of Surgeons in England. Among his achievements, Dr. Darzi was responsible for setting national guidelines for education and training in minimal access surgery in England.

This year's Program Committee Members include: Patrice Bergen, Chair, Don Jacobs, Don Risucci, Linda Barney, Myriam Curet, and Dimitri Anastakis.

Subsequent to the Program Committee Report, a lively discussion took place regarding the value of the entertainment program which traditionally follows the annual awards dinner. Members of the board expressed their always animated, if divergent, views on this issue.

### Membership Committee

The report of the Membership committee, submitted by Dimitri Anastakis, documented the plateau in membership growth in 2003-2004. The goal and objectives for the new Membership Committee presented at the previous board meeting were reiterated with emphasis on the fact that marketing for ASE membership is now an essential part of the strategic plan:

Goal: to strengthen the ASE in both numbers and influence by recruiting new members and minimizing the attrition of current members: Objectives: (1) Develop

and implement a plan for an aggressive, targeted, twelve month member marketing pilot program;(2) provide or fund the financial and human resources required to implement the pilot program; and (3) deliberate the practicality, challenges and benefits of international expansion.

Further specifics discussed by Dr. Anastakis included (1) targeting members of the surgical subspecialties; (2) inclusion of an international membership equivalent; (3) new considerations for the concept of institutional memberships. The changes in the Membership Section of the By-Laws, Article IV, will be sent to all ASE members under separate cover for their consideration. A vote on these proposed changes will then be taken at the ASE Annual Business Luncheon on Friday, March 24, 2006 in Tucson, Arizona.

**The following motions, labeled in the committee report as "objective 1b" and "objective 1d" were specifically reviewed and passed as motions:**

Objective 1b: Identify those constituencies most likely to respond to a member marketing initiative and those constituencies deemed essential to advancing ASE's mission and activities (e.g., more PhDs)

Objective 1d: Develop a process that identifies the primary reasons ASE members do not renew. Depending on the conclusions, develop responses and strategies that may minimize that attrition.

### **Information Technology Committee**

Walter Pofahl presented the Information Technology Report and described the committee's work on the development, distribution, and analysis of a Technology Needs Assessment. The survey assessed for skill levels and interest levels in all aspects of education-related technology, including: digital cameras, PDAs, internet, software and web-pages. Survey results were reviewed. The IT Committee has begun work on developing a workshop for the Tucson meeting based on this needs assessment.

### **Curriculum Committee**

Linda Barney, Chair of the Curriculum Committee, discussed the committee's plans to continue the Thinking-Out-of-the-Box-Lunch forum at the spring meeting.

Plans were set forth for the Committee's PowerPoint® Project, an endeavor to create a bank of PowerPoints, which would be used to stimulate interaction between faculty and students. Process challenges were reviewed and a detailed project plan was presented. The feasibility of hiring of a part-time administrator for the project was discussed. Linda announced specific plans to pilot-test preliminary PowerPoint modules with students attending the Medical Student Sessions during ACS. Ideas for future development projects were discussed.

### **Faculty Development Committee**

Barbara Pettitt presented the report of the Faculty Development Committee and discussed a survey conducted of

over 2000 volunteer faculty regarding: demographics, knowledge and impact of current surgical education issues, duty hour restrictions for residents and the ASE competencies. Nearly 500 responses have been collected and are being entered into a database. Spring workshop participation will be discussed and developed at the committee's October 17 meeting at ACS.

### **Education Research Committee**

Linnea Hauge, Chair of the Educational Research Committee, announced the committee's consideration of a project for which the committee intends to apply for funding to the Office of Research Integrity of the AAMC.

### **Assessment & Evaluation Committee**

Lorin Whittaker presented the report of the Assessment & Evaluation Committee and discussed the committee's considerations for workshops to be held at the Tucson meeting. Considerations are: (1) a question-writing workshop to assist educators in preparing students for shelf examinations and NBME exams; and (2) a workshop in the construction of the OSCE. The Assessment & Evaluation Committee hopes to develop these ideas and formulate definitive plans for its 2006 workshop at its committee meeting to take place during the ACS.

*Continued on page 15*

# Program Highlights - Surgical Education Week, ASE Annual Meeting

PATRICIA C. BERGEN, MD, UT *Southwestern Medical School*

**The site** of the next Surgical Education Week is Tucson, Arizona, a city rich in history with a diversity of cultures, architecture and peoples. The Association of Program Directors in Surgery (APDS) will meet Tuesday, March 21, 2006 and Wednesday, March 22, 2006. The Joint Meeting of the APDS/ASE will be on Thursday, March 23, 2006. The Association for Surgical Education will begin our meeting on Friday, March 24, 2006.

Our host city has been continuously settled for over 12,000 years taking its name from a Native American village called Stook-zone meaning water at the foot of black mountain. The birthday of the city is considered 1775, when Hugo O'Connor established the Tucson Presidio. Tucson became a part of the United States in 1854 with the Gadsden Purchase. Tucson's rich cultural heritage includes a unique blend of ancient Native American peoples, Spanish explorers, and Anglo frontiersmen. The city's geography is a postcard image of cactus forests, rolling hills, and craggy mountains. National and State Parks and Forests ring the city. The city of 900,000 people is served by 11 airlines with direct flights from 16 cities. Our meeting venue is The Westin La



Photo: Steve Renzi

Paloma Resort and Spa which is nestled on an expansive property in the high Sonoran Desert foothills of the Santa Catalina Mountains. Preserved on the property is a population of more than 8,000 mature century-old Saguaro cacti. On the backdrop of the Santa Catalina Mountains the Spanish Colonial Design of the property complements the natural beauty of the High Desert. For more information about Tucson please visit: <http://www.visittucson.org/>

On Wednesday evening prior to the Joint APDS/ASE meeting a reception for both groups will be held. Beginning Thursday, the APDS and ASE will host two paper sessions reflecting the interests of both groups. The APDS has invited Dr. Jim McGreevy as the keynote speaker, his topic "Using Aviation Training Tools to Write a Surgery Curriculum" will

be of interest to both audiences. The APDS has invited a panel of leaders from the RRC, the American Board of Surgery and the American College of Surgeons to discuss important topics in resident education. The ASE will host a panel whose topic will include patient safety curriculum, team building and information transfer. Both panels are certain to have wide interest in both the APDS and the ASE. Dr. Dimitri Anastakis will present the ASE's "What's New in Surgical Education" talk. The very popular "Thinking Out of the Box" Luncheon will be offered again this year for members to gain an audience about their innovations in surgical education. This unique format offered by the Curriculum Committee is currently soliciting your submissions for presentation. Capping off the joint day will be *Continued on page 21*

# A.D.D. and the Physician: Are You an Attention Deficit "Doctor"?

CLAIRE D. SPENCE, MA AND RICHARD K. SPENCE, MD

*"I do not have ADD!!...  
ooh look!! a Chicken!!"*

**ADD**, or Attention Deficit Disorder and its variant, ADHD, or Attention Deficit Hyperactivity Disorder have been the subjects of a huge amount of public press in recent years. Oprah and Dr. Phil have covered the subject several times with frustrated parents; talk radio hosts opine knowledgeably about both disorders; school counselors send home worrisome notes about our kids that suggest they may be afflicted. Psychotherapists and psychopharmacologists propose treatments that run the gamut from formal cognitive therapy to simple dietary restrictions.

But, what does all of this have to do with surgical education? Perhaps more than you might realize. Many of us have ADD, many of our colleagues do, and many of our students do. How we compensate for or utilize the "gifts" of ADD have a major impact on our lives as surgeons and as educators. How we gear our teaching styles to students with ADD/ADHD can dictate success or failure and has bearing on career choices. So, we thought that some "attention" was needed for all of us to understand both ADD and ADHD.

In early education the term ADHD is generally used as a description of a set of traits chil-

dren may be exhibiting. These traits are spread across a broad spectrum of behaviors. While ADHD includes more of the physical kinds of restlessness and impulsivity, ADD people in general share a common set of symptoms to varying degrees. These include distractibility, impulsiveness, frequent "tuning out" when others are talking, a search for high stimulation and hypersensitivity. Additionally there may be issues of irritability and difficulty with anger management. The dreamy, unfocused inattentive child is very different from the hyperactive one who is "bouncing off the walls," unable to stay seated in a classroom.

Since the 1980s, research and work with ADD has disclosed the positive qualities often exhibited by those with the disorder, including creativity, high intelligence, a gift for entrepreneurship, the ability to multi-task when engaged in a rewarding venture or activity, and a powerful intuitive sense.<sup>1</sup> Many teachers and parents will agree that perhaps a better term for ADD might be "the Scanning Brain."

Often when struggling to find the right help for an ADHD child, the parent sees light bulbs going off regarding his/her own early days as a student. Psychologist Lynn Weiss discovered while seeking help for one of her children that she herself was

probably ADD, as was his father.<sup>2</sup> There does seem to be a genetic thread running through some families in which non-linear thinkers are strongly represented. Several authors, among them John Ratey, MD of Harvard, have written movingly of their own experiences of ADD. The authors of "Think Fast. The ADD Experience," suggest that once a diagnosis has been made in adults, coaching may be preferable to psychotherapy, and that medication should be appropriately discussed as a tool to keep down the "noise" of over-stimulation. Many ADD adults have spent years trying to self-medicate with alcohol or other substances. Such efforts may work short-term but end up adversely affecting one's overall experience of life.

DSM-IV definitions break down the condition into four categories:

- Primarily inattentive type
- Hyperactive/impulsive type
- Combined type
- Not otherwise specified.<sup>1</sup>

Can we identify these types of ADD in surgeons? Most of us would fall into either the hyperactive/hyperfocused or the combined category. Cultural anthropologists posit that ADD is a way of learning and being that suited ancient man, "the Hunter," perfectly. Attention was kaleidoscopic, an ever changing state in which one was hypersensitive to

his/her surroundings — the surgeon in the operating room, anyone? These non-linear thinkers who process information in a different cognitive style are also capable of great hyper-focus and imaginative solutions, a valuable asset in surgery. If not controlled, however, it can lead to continued frustration and repeated failure. Think of your colleagues with severe "hospital-itis" who are always in the hospital trying to catch up on unfinished work and don't even know if they still have a home to go to at night. Consider the resident who can't seem to get all the information needed for morning rounds because he/she couldn't tear themselves away from that one critical (read: fascinating) patient in the ICU. Feedback from many of our students tells us that the hard charging surgical lifestyle is not for them, or that they don't recognize themselves as having a surgical personality. These students may be more in the mold of the "Farmer," or more linear and organized thinker, who is more easily adapted to the classroom learning process and a slower mental pace. Think of our colleagues in the so-called "cognitive" specialties, or the surgeon-as-scientist in the laboratory.

What we might see as a learning difficulty can actually be a gift of startling proportions when keyed into properly. Because ADD students find it difficult to switch from one activity to another abruptly, the idea of learning as a process appeals to them. For example, the first year medical student's work in the anatomy cadaver lab can often be

a boost to confidence. He/she is engaged in something that is challenging, changing daily, is totally aimed at a major goal and is a process of discovery, not simply a lecture in a hall before 500 sleepy students. Similarly, the mnemonics used by medical students are extremely helpful to the ADD student. Remember the cranial nerves and the German who vaulted and hopped on Mt. Olympus? Even those in the primary years of school benefit from such aids as flash cards and rhythmic music as a background when studying. Such white noise acts as a buffer, allowing the ADD person to zero in on the job at hand.

So, perhaps Dr. A in OR 1 can't operate without his favorite music or the radio on, or Dr. B in OR 2 always tells the same lame joke while closing, and Dr. C in OR 3 insists on having an 8AM start time, but routinely arrives late because somehow he really believes that between 5AM when he awoke and 7AM when he left home, he can drop a child at school, go back home to retrieve his forgotten briefcase, pick up a phone message that requires six follow-up calls from his car, which is idling in the drive-through lane at McDonalds as he gets a quick cup of coffee, only to discover that it is 7:58 and he is still 12 red lights away from his space in the hospital lot. Then there's Dr. D, who is going through his fourth divorce, and whose reaction to frustration or difficulty results in instruments being thrown or his inability to work with any surgical team.

What can we do about our own ADD and that of our stu-

dents? In our family, we joke that hyper-focus is a wonderful thing—it just should always be accompanied by a coach. This person is the most powerful part of the equation for an ADD adult. This may be the assistant, secretary, spouse or partner who revels in the linear world or is a well-compensated ADD who understands the benefit of a coach. The coach can be part of the team, thereby assisting the ADD person to plan and set goals, develop organizational strategies, and get help with time management and prioritizing, because these are among the strategies that help maintain focus and attention to process. Consider the value of small group learning when students unwittingly take on these specific roles. Now consider the potential, further benefit if you, as an educator, recognized the need for an ADD coach and diversified your group assignments accordingly.

ADD adults often need a safe place to practice social skills such as negotiation, so that frustration doesn't lead to outbursts of anger. The coach is a trustworthy ally who can remind without putting down or blaming and can help control the environment. The coach may also take on a watchdog role if and when a medical workup suggests use of medication. The ADD adult should keep a meds titration log that can be reviewed in a confidential manner if needed. Often meds can be adjusted over time so that they may only be needed for specific tasks, such as preparing for tests or writing/research work.

Computers have been a boon for many ADD adults because of



their need to "graze" intellectually. However, the computer and the internet can be two-edged swords for the ADD. What starts out as a 10-minute search for a medical reference just may go on for hours as new ideas pop up and the original task gets lost in the chase! How many times have you followed those fascinating links to related articles and sites on PubMed and completely forgotten what you were searching for in the first place? While we now can claim such geniuses as Churchill, Edison, Ben Franklin, Steven Spielberg and Robin Williams in the pantheon of ADD successes, the computer age will no doubt produce many more.

An especially helpful way to deal with an ADD adult is the classic exercise of rounds - ask them questions as recommended

by Weiss.<sup>2</sup> This helps them process information. Questioning needs to be pointed, consistent, but not accusatory. (RKS: Good advice in general when we are making patient rounds or just "pimping" the students!) Be careful with this approach if you are like Dr. D described above. You can find more detailed information in Dr. Weiss' book.

Many therapists believe that all adults presenting for treatment of depression or chemical abuse should be screened for ADD, since many adults with undiagnosed or untreated ADD have spent much of their student lives chronically angry, frustrated or out of control. Clutter of every kind seems to shadow them. The tremendous effort to learn or perform the way "everyone else" does is exhausting and produces a pro-

found fear of failure. Whether it results in anger and depression or passivity that is paralyzing, this barrier to personal growth can be helped.

If you suspect that ADD may play a part in your own life, there are several checklists included in the cited books that can be utilized by you with a therapist's help. So, why did the chicken cross the road? From an ADD point of view: "Who knows? But it sure saw a lot on the way." ■

### References

1. Hartmann T, Bowman J and Burgess S. Think Fast! The ADD Experience. Underwood Books, Grass Valley, California, 1996.
2. Weiss, L. Attention Deficit Disorder in Adults. Practical Help and Understanding, Taylor, Dallas, TX, 3rd edition, 1997.

### Mann

*Continued from page 11*

### Nurses in Surgical Education Committee

Barb Lewis, MSN presented the report of the Nurses in Surgical Education Committee. She detailed the mission and goals of the committee and outlined potential projects derived from the mission and goals. Projects may include: (1) workshops on simulator education; (2) consideration of LCME accreditation requirements for surgical clerkships; (3) website potential; (4) outreach for new committee members; and (5) continued work on improving the preparation of medical students for the surgery clerkship.

### Coordinators Committee

Doris Leddy, Chair of the Coordinators Committee, discussed the intent of the committee to design a Surgical Clerkship Newsletter, possibly to be uploaded and housed on the ASE's website. Suggested marketing items to help students "identify" with the surgical service were also presented.

### Other Business

The "Compact Between Resident Physicians and Their Teachers," a document submitted by the AAMC to organizations considered partners in medical education, was read and approved.

The SIMMS Project developed at NYU under the direction of Mary Ann Hopkins was brought to the attention of the

Board by Vice President Phil Wolfson. The project was demonstrated and praised for its educational value and technological achievement. Dr. Wolfson proposed that the ASE partner with Dr. Hopkins and NYU to facilitate bringing to fruition the creation of a larger number of quality virtual cases. Dr. Wolfson and Dr. Hopkins will explore this partnership further during the ACS meeting and report back to the ASE Board of Directors.

With no further business to discuss, President Don Jacobs adjourned the meeting. ■

# Concepts Evolving in Surgical Training by Simulation

LORIN D. WHITTAKER, JR, MD, *University of Illinois College of Medicine at Peoria*

**"At every level** of patient care, hands-on experience is the best teacher." So begins the information packet of the METI Corporation (Medical Education Technologies, Inc, Sarasota, FL) describing its human patient simulator. Marvin Gaye sang, "Ain't nothing like the real thing..." and Coca-Cola harmonized, "It's the real thing..." in promoting their messages. Surgeons for most of the prior century and beyond have believed experience is the best teacher and trained by doing as they were learning, on the patient. With obvious shortcomings of such a learning system, the acquisition of surgical skills was slow by the learner, and risky to the patient. Residents learned procedures by watching and then doing the procedure while given graded responsibility. Modern surgical training incorporating simulation represents a welcome addition to the apprenticeship model.

WordNet defines simulation as "assuming an appearance which is feigned, or not true," and a simulator as, "a machine that simulates an environment for the purpose of training or research." In the surgical simulation environment the patient is no longer present as the trainees learn components of their surgical skills. This training by simulation produces knowledge gained by doing something, and with repetition in simulation, this experience can

then be taken to real patient care environments by the trainee now bringing surgical skills and knowledge not present before the simulation training. Presumably this additional experience, knowledge and skill combined with the experience, knowledge and skill of the teacher produce better interventions and outcomes for the patient, and better trained surgical residents.

With the abrupt and widespread adoption of laparoscopic cholecystectomy, techniques for minimally invasive surgery significantly changed the technical skills required of a surgeon. The simple box trainers and subsequently the virtual reality trainers have been developed to assist in skill acquisition in a harmless practice environment. Practice of techniques by simulation can be repeated and refined as necessary in the absence of instructors once the skill and techniques are learned.<sup>1</sup>

Today, medical education by simulation is also a real thing and a powerful tool in the overall teaching and learning schemes. Certainly all medical schools and all surgical residency programs utilize simulation in varying proportions in their institutions. Simulation facilities vary in complexity from multimillion-dollar centers to skills labs with laparoscopic box trainers and pig labs. The emergence of simulation in medicine follows simulation uti-

lized in other professions, i.e., pilots and astronauts, military personnel and by nuclear power plants. The science of virtual reality provides entirely new opportunities in the area of simulation of surgical skills using computers for training, evaluation and eventually certification.<sup>2</sup> The actual simulation developed needs to be evaluated for simulation fidelity before being acceptable.

Review of current literature on learning from simulation is warranted in view of the advanced electronic programmable models currently on the market. To some degree, the advances are occurring faster than they can be published. For surgical skills training, animal models are still utilized for the procedural technical skills acquisition, but their utilization is lessening with activity from animal rights activists. For surgical critical care skills, the computer based teaching scenarios provide the background for learning from human patient simulators. The driving force behind training by any type of simulation is the importance of patient safety and avoiding life-threatening errors. Other factors favoring learning skills away from the operating room, the hospital wards and the office, include costs in the real settings, the 80-hour work limitation, availability of specific patient(s) and faculty for specific skill being taught, repetition to

correct errors and the desire to provide high quality in the care eventually delivered to the patient. Learning on a model with no chance to harm a patient is very appealing. Eventually the challenge comes in creating training by simulation of a diverse variety of interactions.<sup>3</sup>

Surgical simulation training is widely reported in the literature. Laparoscopic procedure skills acquisition involves using the box trainer exercises, as well as virtual reality programs that contain exercises to familiarize the trainer with the new type of hand-eye coordination required in the laparoscopic procedures, with visual feedback coming from a computer screen, and loss of the tactile feedback. Also, specific operations are designed into the virtual reality unit, to provide the learner with experience doing the techniques and the steps of the surgical procedure. Modern simulation trainers produce three-dimensional views and have the built-in capability to objectively assess the skill of the learner doing the training program. The trainee can practice independently, repeatedly, in off hours, and without supervision.

The rapid advance of computer technology is resulting in simulations entering the curriculum of the broad field of health care education. The emphasis is now shifting from technology of simulation towards partnership with education and clinical practice, and this emphasizes the need for an integrated learning framework where knowledge can be acquired alongside technical skills and not in isolation from them.<sup>4</sup>

Simulation may be utilized to assess residents all during and at the end of training to measure their skills. As simulation devices improve, surgeons may rehearse procedures known to them to improve effectiveness and safety before operating on a patient.

The ultimate purpose of simulation training is to increase the skill level that the trainee subsequently brings to the clinical encounter. Formal assessment is needed to determine the degree to which simulators train medical skills and the degree to which skills learned in a simulator transfer to the practice of care.<sup>5</sup>

A Yale study<sup>6</sup> showed residents who first trained in a virtual reality simulator were more proficient and made fewer errors in the operating room than their counterparts who had no such simulator training. This study implies patient safety is enhanced by the residents' simulation training.

In a landmark article in 1993, Satava proposed in detail, surgical training utilizing virtual reality (Ref 26.) Experience has shown novices did well with new skills (carotid artery catheter insertion) while as expected, the experienced physicians did the skill satisfactorily from the beginning.<sup>7</sup>

METI describes their virtual reality surgical simulation with advanced life-like surgical anatomy, advanced intra-corporeal suturing and knot typing exercises, and the learner performance metrics are collected during each session. The exercise is recorded for immediate replay and feedback for developing surgical skills. It also provides a video of the real procedure for ready reference to

reality learning as part of the training exercise. The three different learning modes allow the instructor to vary the learning experience.

Dr. Abcarian's colorectal surgical colleagues reported their experience with teaching the intricate special relationships among structures of the pelvic floor, rectum and anal canal. A complex interactive, virtual reality model, the Digital Pelvic Floor Model was created. A standard examination of ten basic anorectal and pelvic floor anatomy questions were administered to surgical residents. Resident evaluation after taking this instructional course confirmed effectiveness of their understanding of pelvic anatomy. Their collaboratively shared virtual reality environment allows students and teachers to interact from world wide locations to achieve the learning goals including virtual surgery.<sup>8</sup>

Neurosurgeons developed an interactive VR dissection model, designed to teach visuo-spatial skills required in a transpetrosal approach. This involves a learner, a robotically controlled microscope, and data from cadaveric head dissection (superimposed anatomic pictures in stereoscopic digital format). This simulation allows the learner to drill the petrous bone and identify crucial anatomy, simulating an experienced surgeon in the real patient. Teachers can manipulate the virtual surgical field for further learning experiences. They feel this simulation does not replace the need for practicing surgery on cadavers, but it facilitates learning drill techniques in complex and

unfamiliar surgical approaches to the trainee.<sup>9</sup>

The Department of Surgery at the University of Florida incorporated surgical skills lab into a broad based Laparoscopy 101 course for junior residents, and documented good acceptance of the training by the residents. PGY1 competencies after simulation training became equal to PGY2 residents who received traditional operating room training up to that point. There was then significant improvement in the PGY2 minimally invasive competencies.<sup>10</sup>

The University of Michigan has an extensive Clinical Simulation Center that supports education by simulation to over 16 branches of medicine, using dynamic teaching tools. This training is described as "risk-free"—no live patients present.<sup>11</sup> Contrasting the high priced simulation lab is the simulated endoscopic staple-assisted Zenker's esophagodiverticulostomy surgery using literally a rubber band, a latex glove and endotracheal tube, among other items.<sup>12</sup> A very fundamental skill acquisition of intravenous cannulation by simulation revealed training improvement was greater for those trained with the simulated limbs.<sup>13</sup>

The human patient simulation is a manikin bringing no threat to patient safety. This complex engineering computerized simulator brings realistic patient appearances, environment and response to interventions. Programmable clinical scenarios allow for learners' responses. Responses which are management errors can continue as directed by the teacher to

show any undesirable conclusions. Common and uncommon clinical problems can be simulated. Critical thinking and problem solving is required of the learners who apply their knowledge, and the students can see effects of incorrect decisions, and can practice correct responses as well as learn team dynamics and practice communication skills.

The manikin simulation learning can be directed and focused by the faculty in presenting the desired patient scenarios, and requires correct patient care intervention by the students. Students can fail and repeat the segment immediately. Scenarios can be rerun as needed until everyone "gets it right." This arrangement, as contrasted with the virtual reality with its imagery, allows for the teaching of essentially any and all critical care scenarios requiring intervention of intravenous fluids and medications, chest tube insertions, pericardiocentesis, tracheostomy, endotracheal tube placement, tube and needle thoracostomy, urinary bladder catheterization, defibrillation, as well as teaching physical examinations of the "patient." The manikin simulates breathing, reactive pupils, peripheral pulses, heart and lung sounds, urinary output, and is monitored with standard ICU vital signs monitor screen (which shows values created by the computer-based teaching scenario.)

These manikin type simulators are very widespread in distribution with over 1400 of a single brand (METI) in use throughout the world. These simulators are distributed in the USA across

medical schools, emergency medicine units, military installations, hospital health systems, nursing and allied health science centers, and internationally in a similar distribution.

The educational value of the simulation will require assessment and comparison to currently available methods of training in any given scenario or lesson. It is also necessary to determine by repeated trials whether a given simulation actually measures the performance parameters it purports to measure.<sup>14</sup> This is an important concept.

One department of surgery's experience with use of the simulation manikin in their ATLS course revealed overall favorable response to this learning experience reported by the students. They found the manikin to be superior to the animal model in teaching surgical airways and for management of pneumothorax. They felt their preliminary experience with an interactive human patient simulator to teach the ATLS surgical skill station was well received by students when compared with standard methods, supporting the inclusion of simulators in teaching ATLS skills.<sup>15</sup>

Another trauma management skills report came from Penn State and Stanford. These physicians also reported that incorporation of human patient simulators (HPS) with the ATLS course improved the teaching/learning and appeared to enhance the development of trauma management skills. They felt "in particular, trauma team behavior improved significantly after the ATLS/HSP course." They empha-

sized, as have others, that their surgical interns improved in their confidence with completion of the course. Their discussion includes documentation of other centers showing improved performance in trauma management skills after ATLS. Also, their senior residents' previous clinical experiences, as expected, were the favorable influences apparent in their excellent performance in critical decision making in the course. Stanford University surgeons also see the opportunity for simulation and surgical training utilizing their telerobotic system.<sup>16</sup>

In the last decade Reznick et al. approached the scoring of the performance of residents in a skills examination consisting of OSCE-like stations. They developed the objective structured assessment of technical skill (OSATS) assessment system for surgical residents, and it appears to be a valid and reliable instrument for assessing skills and could be utilized in surgical simulation training to provide a common basis for surgery skills assessment. However, virtually every commercially available surgical simulator has its own evaluation scoring system built in to the product.<sup>17</sup>

An excellent reference in the field of critical care simulation is the publication entitled, "Simulators in Critical Care and Beyond," by William F. Dunn, MD, editor, a publication of the Society of Critical Care Medicine in 2004. This compendium includes James Gordon's article, High Fidelity in Patient Simulation: A Revolution in Medical Education. His thought-

ful opinions support simulation in education "because the approach effectively targets commonly elusive educational objectives: practice without risk, curricular standardization, and pedagogic efficiency." Dr. Dunn's article evaluates training by simulation, and concludes, "Creating artificial environments that can facilitate experiential learning may truly be a method to 'raise the bar' for coming generations of physicians and allied personnel learners in the name of clinical excellence and patient safety."

The simulation center at the University of Pittsburgh Medical Center reported its experience in critical care teaching, noting the wide applications of its 16 SimMan simulators. (Laerdal Medical, Norway). In one academic year, 2003-2004, there were 8,000 trainees encountering more than 8,500 simulations. Their trainees represented a broad spectrum of health care providers. The courses that were taught included involved clinical procedures, perioperative medical care, acute medicine problems, pharmacology, basic and specialty anesthesiology, difficult airway management, fiberoptic bronchoscopy, pediatric versus adult patient crisis management, critical events in obstetrics, and crisis team training. Interestingly, their report lists fewer malpractice insurance claims as an advantage of simulation over traditional medical training methods.<sup>18</sup>

An observational study of PGY2 residents in a human patient simulation experience of three unknown scenarios in critical care training revealed that

none of the eight residents successfully completed the first scenario. Of particular interest is their reluctance to call for help until the scenario reached a critical stage. Subsequently, with repetition and education there was performance improvement. In the end, resident acceptance of simulation scenarios training was excellent.<sup>19</sup>

Limitations of use of the human patient simulation were reported in one anesthesiology simulation training exercise. The simulation was used in instruction in the department of anesthesiology to teach basic skills – respiratory physiology, cardiovascular hemodynamics, difficult airways, tension pneumothorax, pulmonary embolism and shock. The skill acquisition advantages were recognized but two limitations of this methodology were presented: clinical realism of the patient manikin, and faculty development. The manikins are not real and it takes time to write and program the scenarios.<sup>20</sup>

A web and simulation-based curriculum for incoming surgical house staff is feasible. Such a curriculum was devised to help ease the transition from fourth year medical student to first year surgical resident. The confidence score of the participants significantly improved after they participated in a combined website educational curriculum and performed human patient simulator scenarios.<sup>21</sup>

Contemplating surgical simulation in assessing surgical competency, Dr. Satava wrote, "In looking at the component competencies, it is apparent that training

and evaluation on simulators applies to knowledge, patient care, practice-based learning and improvement, and system-based practice. The role of simulation applies principally to identifying correct anatomic structures, performing the procedure in the correct sequence with steps, understanding what is an error, etc. It has been estimated that a surgical procedure is approximately 75% cognitive skill and 25% technical skill." Training by simulation has a role, and Dr. Satava concludes, "...the complex issue of assessing surgical competency is in its infancy."<sup>22</sup>

A lengthy review of 109 journal articles on medical simulation learning reported that 47% of the journal articles reported that educational feedback to the learner is the most important feature of simulation-based medical education. Surprisingly, 3% of journal articles provided evidence for the direct correlation of simulation validity with effective learning. The conclusion was that high fidelity medical simulators are educationally effective and simulation based education compliments medical education in patient care settings.<sup>23</sup>

Reznick found a comprehensive curriculum based on a high fidelity simulator was effective at improving skills demonstrated on the simulator and raised the question if these skills (amniocentesis) were transferable to the clinical setting.<sup>24</sup>

A study recently reported suggested that there is an inverse relationship between the number of years that a physician has been in practice, and the quality of care

that the physician provides. An interesting editorial appears in the same issue, entitled "Practice makes Perfect...or Does It?" This is a somewhat irritating conclusion for us to accept, but the thrust of the message we cannot contest, and that is to continue life long learning, maintenance of skills, maintenance of competence and quality of care. For surgeons, training by simulation may be a future source of continued medical education and skill maintenance and improvement.<sup>25</sup>

Over the past decade significant simulation advances have been accomplished, but the words of R.M. Satava at Yale in 2001 remain valid today. "Enormous challenges remain, which include improvement of technical fidelity, standardization of accurate metrics for performance evaluation, integration of simulators into a robust educational curriculum, stringent evaluation of simulators for effectiveness and value added to surgical skills and a business model to implement and disseminate simulation successfully throughout the medical education community."<sup>26</sup> ■

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## Bergin

*Continued from page 12*

our moderated poster session which has become increasingly interesting and lively. Last year's poster session was standing room only with high quality presentations and spirited discussion. A Newcomers/Residents/Students reception will follow.

On Friday, the ASE program begins in full. Eight moderated research presentations will be selected with time for discussion. Dr. Don Jacobs will present his presidential address. Our annual business meeting and luncheon will follow. The afternoon will commence with two workshop sessions and ample opportunity to select among numerous offerings.

In the evening, the ASE banquet will be accompanied by classical music to encourage one of our most valuable resources, networking. Subsequently, Dr. Jacobs will host the Presidential Reception.

Saturday morning will begin with the J. Roland Folse Lectureship. This year Professor Sir Ara Darzi of the Imperial College of Medicine, London, is our speaker. Dr. Darzi is internationally recognized for his expertise in new technologies, acquisition of psychomotor skills, and human factors analysis of technical and team skills among surgical trainees. He is a member of ASE and a contributor to our scientific program. Last year, his group won the ASE best paper award. Two

moderated paper presentations will follow. The best paper presentation award will conclude the meeting to recognize the best submission to our scientific program.

As always, opportunities abound for participation in a number of committees and projects. Members are encouraged to become involved in the many opportunities our organization offers.

A more comprehensive program listing will be found in the Spring Issue of *Focus*. Please plan to join your friends for this stimulating meeting in a lovely venue. ■

# Report on the ASE Technology Needs Assessment

ELIZABETH RYAN, MED, SCOTT ENGUM, MD, MARY ANN HOPKINS, MD, WALTER POFAHL, MD; ASE Information Technology Committee

**The Information** Technology Committee recently developed and administered a survey of the membership to determine their technology education needs. The survey was administered on line through a link emailed to subscribers of the ASE list serve. A total of 97 respondents completed the survey. The content areas assessed were digital photography, personal digital assistants (PDAs), Internet, software programs, web pages, and tools. A total of 27 items were covered over the six topic areas. Respondents were asked to rank their expertise for each item as beginner, novice, intermediate, or advanced. They were asked about their interest in a workshop for each item (no, moderate, or strong interest).

The top ten items with the highest percent of workshop interest (combine moderate and strong interest level) and associated skill level (combine beginner and novice) are listed below:

Looking only at the strong interest category, using Photoshop® software (41.9%) and electronic portfolios (40%) were the two highest ranked items on the needs assessment survey.

To begin addressing the items in the needs assessment, the Information Technology Committee will hold a hands-on workshop at the 2006 meeting in Tucson. The workshop will focus on developing HTML documents to use in undergraduate and graduate education programs. Applications of building HTML

documents to use in educational settings include but are not limited to: publishing case-based problems, disseminating goals and objectives, electronic portfolios and web portals. Participants will learn the basics of building an HTML document. Specifically, by the end of the workshop, participants will be able to insert images, photos and tables, link to text/documents/objects, format text style and format background color.

The Information Technology Committee plans to use these survey results to guide future workshops, *FOCUS* articles, and collaborations with other ASE committees. Any member who is interested in participating is welcome to join. ■

| Rank | Item:  | Interest Level<br>(Moderate & Strong) | Skill Level<br>(Beginner & Novice): |
|------|--|---------------------------------------|-------------------------------------|
| 10   | Editing digital photos.  | 80.6%                                 | 65.7%                               |
| 9    | Creating PDA forms to use for procedure documentation or other data gathering purposes.                  | 81.1%                                 | 82.3%                               |
| 8    | Using animation software to develop educational programs.  | 81.5%                                 | 95.7%                               |
| 7    | Using Photoshop software to develop educational programs.  | 81.7%                                 | 93.7%                               |
| 6    | Using Adobe Illustrator to develop educational programs.   | 81.7%                                 | 94.6%                               |
| 5    | Understanding the pros and cons of using CDs, the web, and DVD formats for your instructional materials. | 81.9%                                 | 76.6%                               |
| 4    | Uploading digital photos to a computer.  | 82.1%                                 | 74.2%                               |
| 3    | Linking PDA forms/programs to the web to allow students to download data into a database.                | 84.2%                                 | 85.1%                               |
| 2    | Editing digital videos.  | 85.3%                                 | 86.5%                               |
| 1    | Using digital photos and videos in teaching.   | 89.6%                                 | 65.9%                               |



# Cultivating A Thinking Surgeon: New Perspectives On Clinical Teaching, Learning And Assessment

*Linda de Cossart and Della Fish. tfm Publishing Ltd, Shrewsbury UK. 2005, 250 pages.*

**This book** offers a carefully argued approach, based on sound educational theory, to the post-graduate preparation of surgical trainees. The authors emphasize what is involved in learning to become a surgeon who can engage in professional conduct and exercise professional judgment as opposed to being trained in surgical activities in order to demonstrate the behavior expected by assessors. It focuses on the clinical thinking, the professionalism and the knowledge base that underpins good surgical practice. This unique description of clinical thinking provides a framework to support assessment in clinical practice and offers examples and ideas, which have been developed and refined over several years in partnership with a group of working surgeons in practical settings and reflective seminars.

The book explores six main themes: being / becoming a growing professional, the practice of education (learning, teaching, and assessment), clinical thinking, knowing, doing and developing, in two separate sections. Part 1 lays the educational foundation for cultivating a thinking surgeon by reviewing traditional practices, and the importance of educational values, principles and aims. Subsequent chapters address nur-

turing the learner, and the importance of reflection and assessment. Part 2 addresses actual teaching, learning, and assessment in surgical settings by discussing clinical thinking, the surgical knowledge base, and by assessing technical and operative procedures in the context of teaching and learning surgery and developing surgical practice as well as learning through practitioner research.

The authors have brought together a combination of a practicing surgeon and a teacher educator who are dedicated to the development of excellence in surgical and educational practice in clinical settings. Linda de Cossart is a consultant vascular surgeon in Chester (UK), associate postgraduate dean and a member of the Council of the Royal College of Surgeons of England. Della Fish is an educator with the Kent, Surrey and Sussex Deanery and has published several books on teaching and learning in clinical settings. Each chapter is set out in an easy to read format with the appropriate use of tables and summary sections. The book is equally useful whether the reader chooses to study an entire chapter or look up points relevant to their practice. While the book was written primarily for trainees and trainers in the UK system, almost all the

thoughts, practices and aspirations are applicable to the US training environment. The authors have provided a number of practical tools: for example one table (p.63) provides an excellent checklist for exploring learner starting points, educational needs and educational goals for a clinical rotation. Another summary table (p.182) outlines the thought processes involved in clinical judgment with suggestions for assessment. Throughout the book the authors cite educational theory to support their proposals, exploring Dewey's original work and Kolb's reflective cycle in addition to the social – behavioral theories of Bandura, Vygotsky, Wenger and others. This book is essential reading and an invaluable resource for the surgeon educator. ■

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*Reviewed by Hilary Sanfey, MD,  
University of Virginia.*

# Specialty Specific Skills Acquisition of Incoming Post-Graduate Year 1 Residents

T. ELIZABETH ROBERTSON, MD, EMILY J. WINSLOW, MD, LISA BERGER, RN, MARY E. KLINGENSMITH, MD, DOROTHY A. ANDRIOLE, MD, *Washington University School of Medicine*

*This work was presented in poster form at the AAMC conference, November 2004, in Boston, MA.*

**New interns present** to their programs excited, intimidated, and well-rested after a fourth year of interviews, clerkships, and vacation. Surgical educators start off their academic years orienting these new doctors to their surroundings and their chosen fields. A "pre-requisite" set of knowledge and skills that new interns should possess when they start their clinical responsibilities has been defined by the American College of Surgeons, which has published this list of expectations for incoming surgical interns;<sup>1</sup> other groups have also published reviews and evaluations of what is expected of an incoming intern.<sup>2,3</sup>

Medical schools provide similar core clerkship experiences, but students are given significant freedom to choose sub-internships and clerkships in their fourth year in preparation for their chosen specialty. The impact of this freedom of selection on the fundamental skill set with which interns begin training has not been studied. When medical school graduates appear on their first day of internship, they join their col-

leagues from other regions of the country, medical schools, and teaching environments.

Interestingly, it has been shown that incoming interns self-report differences in competencies associated with differing teaching environments. Prince et al. reports that junior doctors who trained at problem-based learning (PBL) schools felt more prepared by their education for their current job than their counterparts at non-PBL schools.<sup>4</sup> Sachdeva et al. used the objective structured clinical examination (OSCE) to show that a small group of incoming surgical interns had significant variability in their clinical skills as they entered residency.<sup>5</sup> These results were then used to target individual deficiencies and plan curricula to ameliorate group-wide deficiencies. In a separate study, Wilson described the use of an OSCE to evaluate baseline skills of incoming internal medicine interns and noted significant variability in performances between interns, despite the fact that each felt sufficiently prepared for the exercise.<sup>6</sup> It was noted that not all subjects had previously done an OSCE prior to this experience.

Variability between residents is sometimes addressed in residen-

cy programs, but often new doctors are welcomed to their new programs then enter a uniform educational curriculum. The assumption is made that, because the new residents have all graduated from accredited medical schools and passed their boards (USMLE Step 1 and Step 2), their learning needs will be similar. Previous research has proven this not to be true and intuitively we know it is unlikely. Ideally, we should adapt and "tailor" our curricula to the individual needs of the learners by early evaluation - prior to the start of residency training itself - and planning for instruction (which could include self-instruction, as well as more traditional group-learning and lecture-format instruction) to meet the needs of the learner.

Clearly, there is variability between individual residents in any given residency program. We sought to examine this variability with regard to the intended specialty of the resident. With the freedom to choose fourth year medical school electives, do those planning on different careers choose to learn different skill sets? Do interns in departments of medicine, surgery, gynecology, and emergency medicine have dif-

ferent skill sets on their first day?

**Methods:** We examined whether incoming surgical interns have differences in their skill sets compared to interns in other specialties and to more senior surgical house staff. An open-ended questionnaire was administered on an anonymous basis as a pilot study to incoming interns in multiple fields in June, 2003 at a single institution. IRB approval was obtained. Twenty-four surgery interns (SI), forty-seven internal medicine (IM) interns, seven obstetrics and gynecology (OB) interns, eleven emergency medicine (EM) interns and thirty second through fifth year surgery residents (SR) were evaluated. Chest radiograph interpretation (4 questions), blood gas interpretation (5 questions), fluid and electrolyte interpretation (4 questions) and patient management skills (10 questions) were evaluated. Answers were evaluated to be correct by an answer key developed by two surgical faculty members, who evaluated each answer sheet independently. Correct answers had to include critical elements of the response and be free of defined "critical

errors" – actions which would be inappropriate and also harmful to the patient. Proportions of completely correct answers by the entire group were compared between groups using T-tests with 2 sided p values. Correct answers were only counted if they were completely correct.

Surgical interns were significantly better at interpreting chest x-rays than were internal medicine interns. Surgical interns were significantly better at interpreting fluid and electrolyte than were internal medicine and obstetric and gynecology interns. Obstetrics and gynecology interns were significantly better at interpreting blood gasses than were internal medicine and emergency medicine interns. Emergency medicine interns were significantly better at interpreting fluid and electrolytes than obstetric interns. All interns were significantly worse at patient management questions than surgical residents.

**Summary:** Our results suggest that incoming interns have different, specialty-specific skill sets. The differences found in this study may be due to differences in fourth year preparation for career

choice or group differences in academic achievement, among other factors. Our study was conducted anonymously, so we could not examine possible differences in performance associated with academic achievement or compare differences in fourth year electives among the participants in this study. We surmise that both likely would have some impact.

Differences in skill sets of incoming interns have been studied by others. Dugoff et al. evaluated pelvic and breast examination skills in entering internal medicine and obstetrics and gynecology interns and found no differences between the two groups, although significant intragroup variability was seen.<sup>7</sup> The authors were surprised by the lack of difference between the two sets of incoming interns, although both groups will likely use these skills in their future careers, which may have an impact on their findings.

The University of Michigan has reported on their comprehensive evaluation of interns of all specialties before beginning clinical duties.<sup>8</sup> Their evaluation used OSCE stations and paper stations to evaluate baseline skills. Stations

**Results:** (% correct = proportion correct/total questions x 100)

|    | # of residents | CXR (4 questions)                | Blood gas interpretation (5 questions) | Fluid/ electrolyte (4 questions)      | Management (10 questions)       | Overall                         |
|----|----------------|----------------------------------|--|---------------------------------------|---------------------------------|---------------------------------|
| SI | 24             | 67% (64/96)<br>p<0.05 vs. IM     | 71% (85/120)                           | 58% (58/96)<br>p<0.05 vs. IM, OB      | 41% (99/240)                    | 55% (306/552)<br>p<0.05 vs. IM  |
| IM | 47             | 51% (95/188)                     | 62% (146/235)                          | 40% (76/188)                          | 39% (181/470)                   | 46% (498/1081)                  |
| OB | 7              | 61% (17/28)                      | 83% (29/35)<br>p<0.05 vs. IM, EM       | 29% (8/28)                            | 31% (22/70)                     | 47% (76/161)                    |
| EM | 11             | 48% (21/44)                      | 55% (30/55)                            | 50% (22/44)<br>p<0.05 vs. OB          | 36% (40/110)                    | 45% (113/253)                   |
| SR | 30             | 78% (93/120)<br>p<0.05 vs IM, EM | 79% (119/150)<br>p<0.05 vs. IM, EM     | 73% (88/120)<br>p<0.05 vs. IM, OB, EM | 66% (199/300)<br>p<0.05 vs. all | 72% (499/690)<br>p<0.05 vs. all |

were adapted to the types of patients each group would see in their residencies (i.e., neonatal problems for incoming pediatrics residents). In their study, variance between groups was accounted for completely by USMLE (Step 1 and 2) scores. In contrast, Sachdeva et al. found no correlation between USMLE scores and clinical skills on entry into internship.<sup>9</sup> The Michigan group also noted that graduates from their own medical school performed better than graduates from other schools on the evaluation. This was attributed to the use of similar stations in training their own medical students. When USMLE scores were controlled for, there were no differences between public or private medical education, region of the country or by specialty.

Much has been reported on intragroup variability and the value of determination of baseline knowledge of new doctors. Incoming intern assessment seems to be useful for program directors to plan educational curriculum for residents as some have done. This can also be useful for the interns to focus their personal education with feedback from test results.

In our study, surgical interns performed significantly better on chest x-ray interpretation and fluid and electrolyte interpretation than their counterparts in internal medicine. This difference could be due to surgical intern selection of fourth year electives to focus on post-operative management, where both skills are emphasized as opposed to internal medicine intern selection of fourth year electives to focus on outpatient

management. This could also be due to baseline differences in testing in the two groups. The reasons for the differences were beyond the scope of the current study.

Interestingly, surgical interns were not significantly different from surgical residents on basic interpretation skills and fared worse only when managing patient scenarios. This suggests that incoming interns in surgery in the present study were prepared for basic skills at a level to approximate the skills of more advanced residents in surgery. Possibly, incoming interns in other specialties may have possessed skills that more closely matched those of senior residents in those respective specialties. Of note, all incoming intern groups performed significantly more poorly than the surgical resident group on patient management items. This supports the thesis that incoming interns may have well developed basic skills but additional clinical experience is required for development of more complex patient management skills.

Our study has major limitations. As an anonymously administered, pilot study we collected data pertaining only to residency specialty choice and year of training. Information pertaining to USMLE scores, class rank, AOA status, or rank on departmental match lists, or fourth year elective experiences of the interns and resident study population was not available. In addition, we only scored completely correct answers for subjects, although partially correct answers may be significant

and useful in the classification of new doctors.

Future study is warranted in this area as evaluation of incoming interns with basic skills and patient scenarios may provide useful learning needs assessment information to both individual learners and to their program directors that are responsible for design and implementation of the education curriculum. Is this evaluation necessary if USMLE scores reliably predict performance, as suggested by the Michigan group? Correlation of clinical assessment scores with USMLE data is an area for future investigation. Reproducibility of data is a key issue since studies disagree on correlation of USMLE scores with clinical skills. Each of the studies referred to here involve only one medical school. Ideally, we would evaluate large groups of incoming interns in different specialties in multiple centers to expand our sample size and add in a determination if where a physician matched also accounted for differences in baseline skills. The implementation of a multicenter trial may limit the use of OSCE from a cost, reproducibility, and training perspective. Paper or web-based evaluations could be the future of this endeavor. Such an investigation has been done in a single center: Meier et al used a web-based curriculum to prepare their new surgical interns for their new jobs with great success.<sup>10</sup> New interns were given access to the web site just after match and could complete the course at their leisure. 94% of entering interns utilized the web curriculum with all of them rating the experience

highly. One can envision a web-based assessment format as an ideal way to implement evaluation of new interns with the additional features of instant feedback and recommendations for reading and improvement in areas where deficiencies are noted. This assessment data would also allow educators to identify new interns with specific strengths and needs and provide assistance and support to ensure a productive and successful career. Group characteristics are then easily analyzed for identifying focus for early teaching opportunities to the new intern class. Our group is currently considering a web-based multi-institutional analysis. ■

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## Holiday Closure

Due to the administrative closure of Southern Illinois University School of Medicine, the ASE offices will be closed December 23, 2005 – January 2, 2006.

# The Role of Virtual Patients in Medical Education: Teaching Tool Versus Technological Trend

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**Over the last century**, several new technologies have been applauded as the holy grails of education, including radio, television, videotape, computers, and most recently the Internet. While the lofty educational expectations of these technologies have not been fully realized, each instrument has enhanced established learning methods. Virtual reality (VR) represents perhaps the most futuristic emerging technology with potentially powerful educational applications. VR consists of a collection of technologies that allow people to interact with and become immersed in a computer-generated environment in a natural fashion. VR actively engages the learner and therefore it has been shown to be a positive teaching tool in a number of non-medical fields. For example, VR been successfully used to train military personnel<sup>1</sup> and to create a virtual audience to lessen the fear of public speaking.<sup>2</sup>

The use of VR in medical education is in its infancy and it has seen its greatest application in screen-based task trainers, such as laparoscopic<sup>3</sup> and endoscopic simulators.<sup>4</sup> VR also has the potential to be a useful educational tool in learning complex human interactions such as the physician-patient relationship. Virtual interactions can produce emotional effects

that are comparable to real interactions.<sup>5</sup> Virtual patients (VP) are computer-based simulations of real patients. While VR will not replace real or standardized patient (SP) learning experiences, it can enhance the quality of medical education. VR can be used to teach a number of clinical scenarios that are not easily learned by traditional methods.

Virtual patients may offer several advantages over real patients or SPs including: 1) limiting variability and expense associated with SP training, 2) creating an almost limitless repository of diverse and challenging virtual clinical scenarios that are difficult to duplicate with SPs (i.e. infants, children, gender, ethnicity, cultural characteristics), 3) maintaining a computerized log or electronic portfolio of student progress with objective performance data, 4) tailoring educational methods to fit individual student learning styles and rates of progress, 5) providing a controllable, secure, safe learning environment with the opportunity for repetitive practice with feedback. In addition, the controlled VR interface permits behavioral and performance tracking and therefore, it is an excellent environment to study human computer interactions. Unfortunately, there is little data regarding the use of VPs in med-

ical education.

Through multi-institutional, interdisciplinary collaboration medical educators, students and computer scientists at the Medical College of Georgia (MCG) and the University of Florida (UF) have created a highly interactive, life-sized virtual abdominal pain scenario.<sup>6</sup> The virtual system consists of two networked personal computers (PCs), one data projector, two web cameras, infrared LEDs to track body movements, a tablet PC, and a wireless microphone. In the scenario, a life-sized VP (DIgital ANimated Avatar, DIANA) is projected on the wall of an exam room in SP teaching and testing centers at MCG and UF. Students converse with the VP naturally using a commercially available speech recognition engine. Life-sized projection of the VP mimics an authentic doctor: patient interaction as opposed to other computer-based simulations that use traditional interfaces such as monitors, mice and keyboards (video at <http://www.cise.ufl.edu/research/vgroup/VOSCE/vr2006Submitted.wmv>).

Preliminary studies reveal that most health professions students would use the virtual teaching tool in preparation for interaction with standardized and real patients.<sup>6-8</sup> Additional work vali-

dates the use of a virtual scenario to assess content items related to history taking.<sup>9</sup> Ongoing efforts include developing electronic means of assessing verbal and nonverbal communication skills and subsequently providing learner feedback regarding essential data gathering and communication skills using a virtual instructor. Finally, we are formally implementing and evaluating this innovative virtual educational tool into the health professions curriculum at two institutions. Ultimately, virtual clinical scenarios could enhance existing standardized patient programs at many institutions.

This is an exciting time in medical education and VR is emerging as a teaching tool with a variety of clinical applications. It is easy, however, to get caught up in hi-tech hype and we caution against unrealistic expectations for VR-based educational tools. It is essential that we demonstrate that VR can positively influence learning or better yet improve patient outcomes. Surgical educators must lead the effort to build, evaluate and embrace these new technologies. Our efforts will foster novel collaborations with computer scientists, engineers and other disciplines. Finally, if we involve health professions students in the evaluative process, we will ensure these educational tools are learner-centered and it will help us identify with these technologically savvy students. ■

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# Curriculum Building from A to C: In Our Future Is D to Z

SHERRALYN S. COX, PHD, *East Carolina University*

**Here in Greenville** NC we are nearly always in some stage of curriculum building, as are most departments of surgery having a surgical residency program. Our founding chairperson believed in 1978, and believes just as strongly in 2005, that a curriculum created by many minds can provide utility as a roadmap-type guide for a broad assortment of surgical educators and residents. A large number of educators closely associated with the Association for Surgical Education (ASE) and the Association of Program Directors in Surgery (APDS) have worked with our Greenville team over the years to produce a curriculum product to share, critique, edit, and make better.<sup>1-4</sup> We have determined that at least one of our four printed editions somehow, in some shape or form, has served hundreds of people around the country, over years of curriculum committee work and Residency Review Committee (RRC) visits, beginning in 1990 with the 11 surgical residency programs who participated in the pilot test of the curriculum.

We, as one education and training program for residents, have been faced with organizing and implementing new efforts to build, teach, measure, and document our own resident curriculum during each of the years since the Accreditation Council for

Graduate Medical Education (ACGME) required "...evidence of resident attainment of [general] competencies as indicators of a residency program's educational effectiveness and quality."<sup>5</sup> We have tried to incorporate the competencies into our learning schedule, using many formats. Our most recent combination of curricular materials has built a more user-friendly collection of resources from many minds, compiled and written to provide residents and faculty with that roadmap curriculum for which we doggedly strive. These materials provide the basis for our educational structure and set the hierarchy of achievements for our residents' progression through training. They document our curriculum, from start to finish, for the RRC. We share access to those materials with you, all in one place, in this resource article.

About the same time that we were notified of the scheduling of our 2005 RRC site visit, we learned of the upcoming renovation for our Office of Surgical Education. We heard that our education suite, of three rooms stuffed to the rafters with "education stuff," would receive an update. Dull walls and flattened carpeting would be replaced if we just packed up everything. A fresh office is wonderful in nearly all instances, but not necessarily

so delightful when slated disruption is for close proximity to the time of the site visit. Sensibly, we accepted the RRC schedule, and delayed the office renovation by a few weeks.

At the time of this writing, our education program recently has become a division in our department of surgery. To go along with that importance, our division has just gone through a physical renovation. The paint is fresh and in brighter colors. The carpeting is new and untrodden. We've axed old art work, and plan soon to display photos from our archives along with an emphasis on more pleasant images that will help our residents relax as they spend a few minutes with us "in Education."

An updated suite is so much more efficient and workable with nearly everything streamlined and categorized for ease of use and greater accuracy. In fact, I find that what we have gone through for our office move-out, renovation, and move-back-in to be the perfect metaphor for the curriculum renovation we have accomplished over the past three years. Our clerkship director, who knows the war fronts of Iraq and Afghanistan only too well, compared our contortions to moving camp on the front. Yet, we haven't a battlefield, and finally our new, clean surfaces of frosted



green, textured lavender, and warm adobe are emerging. The two renovations, office and curriculum as comparable transformations, encourage us to invite you to stop by for a visit, whether that visit be to our office or our Website.

If you choose the Website visit, here are the resources which you may wish to consider for your own curriculum update. Our curriculum development philosophy is still the same as it has been through four editions of the Surgical Resident Curriculum (SRC): determine the needs of your own residents within the requirements of your faculty so that you can simultaneously prepare a tailor-made curriculum for your program and for your RRC site visit.

For considering curricular resources, including educational goals and objectives of the residency curriculum, go to [www.surgery.ecu.edu](http://www.surgery.ecu.edu) where you will find our low-tech yet user-friendly Website. You may click on "Residency Program" and then "Residency Curriculum." At this point, you can go directly to a particular Post Graduate Year (PGY) level, or you can consult one of several resources that we found significant for preparing our program's update. Each title in quotation marks below indicates a separate curriculum building resource. The "Trauma and Surgical Critical Care Rotation" is formatted to incorporate the ACGME competencies in six organizational headings.<sup>6</sup> "Curriculum Goals for Surgical Residents" provides the broad educational areas of the curricu-

lum along with ACGME competency definitions and program goals utilized in our faculty and resident program effectiveness assessment instruments. "ACGME General Competencies" provides the learning activities and expected outcomes we have defined and performance targets we observe. "Junior-Senior Objectives for Each Rotation" outlines unit objectives from the SRC for each PGY-level. "Surgical Geriatric Curriculum Goals and Objectives" provides the content basis for increasing resident expertise in caring for special needs of elderly patients, as defined by our work with the American Geriatrics Society and the John A. Hartford Foundation.

Individual links to PGY-level reflect outcome expectations for each rotation over six years of general surgery residency. Our PGY-I link includes learning objectives selected from the "American College of Surgeons (ACS) Prerequisites for Graduate Surgical Education: A Guide for Medical Students and PGY1 Surgical Residents," "Junior Objectives for All PGY-I Residents," and "General Surgery Objectives for All PGY-I Service Rotations." Each level begins with a reminder of the six ACGME competencies, coded from 1-6, with code numbers linked to appropriate learning objectives. Our PGY-III usually is a research year, so our expectations reflect requirements of the ACGME and our faculty for that year in the laboratory.

Curriculum building so far, from A to C (from needs "A" assessment to "C" competency identification) has mapped the educational

structure we expect as educators. Now we need to complete the exercise (preparing the "D" to "Z" of the curriculum) in order to move further along the continuum for resident learning to meet the needs of the future. ■

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# The Cyber Classroom as an Adjunct to Small Group Teaching Sessions

MARY ANN HOPKINS, MD, *NYU School of Medicine*

**Small group teaching** sessions are an invaluable asset to surgical education. They provide intimate exposure to faculty and are a forum where core surgical cases can be discussed in a format dedicated to medical students alone.

However, small group teaching sessions also have inherent constraints that limit their potential. At NYU, the clerkship is eight weeks long and tutorial groups of six to eight students meet for one hour a week, resulting in a maximum of eight hours of meeting time per rotation, and sometimes less. This kind of time constraint provides fragmented exposure between faculty and students, and makes an ongoing dialogue and assessment of students difficult. A student's ability to repeatedly demonstrate his or her clinical reasoning skills is very limited, and this in turn makes it harder for surgical educators to evaluate students' surgical decision making accurately.

Moreover, the current health care delivery environment is an increasingly difficult forum for students to observe a full breadth of cases along the continuum of a patient's illness. Yet at the same time, the LCME requires consistent exposure to core surgical cases. This requirement is espe-

cially important in academic medical centers where different sites are used during core clerkships and students will have differing clinical experience.

Finally, students in the current clinical environment usually have limited opportunity to participate in case discussions or to collaborate as a team to formulate a differential diagnosis or treatment plan. Although competition is well embedded in medical education at all levels, cooperation is much more difficult to foster and to incorporate into the surgical curriculum. As future practice requires collaboration between different physicians and specialists to diagnose and treat patients, the skill to work collaboratively is paramount.

To help address these problems, the NYU Department of Surgery developed a cyber classroom as an adjunct to small group teaching sessions. This "classroom" is essentially an asynchronous bulletin board which is linked to the weekly tutorial sessions. Preset cases, targeted to areas not covered in depth in other areas of the curriculum, are the focus of weekly discussions among students.

Each student is assigned the role of discussion leader once during the clerkship. The discussion

leader posts the case and guides the conversation, whereas the other students are required to post a minimum of two times per week. Guidelines encourage creative thinking and use of evidence based medicine while discouraging "cutting and pasting."

Students are evaluated on the quality of their postings (see Table 1), and the instructions define clearly the criteria for their evaluation. Higher levels of reflection are demonstrated in the elaboration of perspectives where a student will synthesize information, refer to the literature as well as to related aspects of the case, and ask questions that may relate to or change treatment perspective. Low levels of reflection include restating information alone or stating anything without describing its importance.

One of the major goals of the cyber classroom is to foster collaborative learning among students. Students are encouraged to respond to each other's posts to jointly develop a differential diagnosis for the presented case. Moreover, in the role of discussion leader, students learn valuable leadership and teaching skills.

The role of the tutorial leaders in the cyber classroom follows the educational plan of the clerkship. They coach the discussion

leader and other students at the start of the eight week block, guiding the students as they lose focus or steer off track. As the clerkship progresses and the students grow more confident in their abilities to work together on the cases, the tutorial leaders limit their presence.

An additional advantage of the cyber classroom is that the clerkship director can set the curriculum to areas where the students have traditionally scored poorly on standardized exams. Moreover, complex material such as ICU care can be carefully reviewed at a pace and in a forum where the students feel safe, unhurried and comfortable.

We have learned many lessons over the last year of running the cyber classroom. Both students and faculty need a great deal of guidance in the beginning. Students need to realize that they are being evaluated on how they

are thinking and the quality of their postings. Some students will perceive the online forum as a place to show off or dominate the classroom, and they must be encouraged to let others participate.

Faculty on the other hand may not all be as comfortable with the virtual world as an educational milieu. This ease with computer based technology is not entirely determined by faculty's age. Moreover, their role as back seat facilitator needs to be reiterated both in their orientation as well as periodically during the clerkship depending on our review of the classroom. This will help prevent the classroom from being a faculty-run unidirectional educational experience and help it become a truly student-centered and student-led dialogue.

Moreover, faculty have found that monitoring the students' participation from afar has improved their ability to evaluate the students at

minimal increase in the demands on their time.

In summary, an online cyber classroom is an invaluable tool in the educational armamentarium. It provides an additional educational activity without detracting from the clinical experience. It allows students to learn how to be educators and helps them learn the value of cooperative and collaborative patient care. For faculty, the cyber classroom provides a way to expand the scope of the educational material for the students and at the same time gives them valuable information with which to form a more robust evaluation of the student's performance. As advances in information technology continue to permeate all aspects of life, surgical education can find elegant solutions to the many problems it faces by applying these advances toward our educational objectives. ■

**Table 1: NYU Cyber Classroom – Quality Levels of Student Posts**

|                             |  |
|-----------------------------|--|
| <b>Level 1: Reporter</b>    | Reliably gets and reports the facts and identifies problems. This includes the case presentation and the discussion questions.   |
| <b>Level 2: Interpreter</b> | Prioritizes problems and interprets data, asks for additional information, and presents a reasonable differential diagnosis without elaborations. Relates this case to others.   |
| <b>Level 3: Manager</b>     | Offers diagnostic and therapeutic plan, incorporates patient preferences, accepts responsibility. Presents an elaborated differential diagnosis which is specific to the patient. Has plans for next steps.                  |
| <b>Level 4: Educator</b>    | Takes initiative, leads by example, develops a plan incorporating uncertainties, applies current scholarship critically to the specific patient. Adds a new idea and broadens the conversation to more generalized learning. |

# Surgeons Behaving Badly?: Professionalism and Role Models in Surgical Education

AMALIA COCHRAN, MD, *University of Utah*

**A key component** of cultural initiation into medicine, and a cornerstone of the ACGME General Competencies, is professionalism. Professionalism is defined as “the conduct, aims, or qualities that characterize or mark a profession.”<sup>1</sup> The process of learning medical professionalism requires initiation of students into the values and attitudes that undergird the practice of medicine. This process is strongly akin to that of learning about a new culture by immersion. What remains unclear, however, is if professionalism is something that medical educators teach, or if it is simply something that medical educators do as a component of a “hidden curriculum.”<sup>2</sup>

If professionalism is to be taught, a curriculum may take many forms. Didactic sessions, either with large-group lectures or small-group seminars, provide one type of instruction. Lectures are not optimal because they fail to consider the diversity of experiences that are present among adult learners. Small-group didactic sessions may provide a more targeted learning opportunity than lectures for adult learners. Small-group learning environments should be designed to move beyond understanding and into application and analysis through activities like role-playing

exercises. Practical experiences like role-playing or one-on-one observation and counseling allow the adult learner to obtain a direct, concrete experience in which they may integrate their new knowledge as it is applied, then evaluate the application of that knowledge. Role modeling by instructors, however, provides the clearest demonstration of professionalism for the adult learner who is a clinical novice. Role modeling accesses the greatest number of levels of Bloom’s taxonomy for the cognitive learning domain in a single activity. In addition, the activity encompassed by role modeling is integral to medical education, and is fundamental in shaping subsequent behavior patterns of trainees.<sup>3-7</sup>

Medical education literature consistently cites the centrality of role models in the development of values, attitudes, and professional character of medical students.<sup>2,4,8,9</sup> Hafferty and Franks provide the most impassioned and cogent argument for the concept of a “hidden curriculum” within which key determinants of physician identity are taught.<sup>2</sup> Their emphasis on informal curriculum and moral training is consistent with the idea of medical education serving as a process of acculturation. Medical students have

been identified with three patterns of identification with role models: active identification, active rejection, and inactive orientation (passive reinforcement of existing values).<sup>5</sup> Role modeling, although pervasive in medical training, must be a conscious behavior on the part of faculty for it to be an effective teaching method.<sup>4</sup> Most of the research on role modeling in medical education to date has favored descriptive, rather than practical, applications. In addition, little of this descriptive work has included surgeons as role models.

Role models also play a pivotal role in medical student specialty selection.<sup>7, 10-13</sup> A particularly pertinent aspect of the influence of medical role models on student specialty choice is demonstrated by the impact of negative role models.<sup>10, 11</sup> One Australian survey indicated that most students believed that surgeons were not approachable.<sup>14</sup> This finding was consistent with a U.S. study showing a trend toward students feeling more negative about surgeon involvement in medical student education following a clinical clerkship.<sup>15</sup> Students have indicated concern about negative interactions with other specialties by surgeons, and it has been suggested that this perception contributes to student disinterest in

surgical careers.<sup>15</sup> Although attending surgeons have the potential to be a great source of positive influence on student interest in surgical careers, they are also the leading source of negative influence on student interest.<sup>14</sup> A positive role modeling experience with a faculty member will leave an impression upon a medical student, but a negative role modeling experience may prove even more influential.

Defined characteristics of surgeons who medical students perceive as good and bad role models remain elusive. Establishing practices to encourage faculty who are positive role models and to correct faculty who are negative role models cannot occur until these qualities are clearly delineated. Our interest as surgeons in the development of professional behavior in our protégés should motivate us forward in these efforts. The future of surgery and surgical subspecialties may depend upon our ability to do so. ■

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