



### Technology-Based Delivery of PBL Curricular Elements at JABSOM

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The Internet browser and related technologies are uniquely suited to Problem Based Learning (PBL) curricula. The anytime, anywhere attributes of web-related resources make an especially strong match with the needs of the undergraduate medical student at JABSOM. This article outlines the current philosophy and implementation of web technology-based tools available to students during the first two years of the medical education program<sup>1</sup>. One of several visions of future implementations will be outlined.

The MD Program educational website is faculty-authored and administered. Utilizing UH network ISP services, an in-house NT server is the web presence provider. Faculty and students generate the content. Platform- and browser-independent web pages are designed for a user with modest computing resources, common industry-standard software, and minimal telephone modem Internet service. This enables access by students at home, internet-accessible clinical settings, and on campus. Expensive dedicated telemedicine equipment and high bandwidth access are not required.

Three major roles are played by the current implementation of the website: content delivery, communication, and professional development. The latter role is meant to prepare the student for their future work environment. The students not only need to develop their general computer skills for task tracking, data management, and communication, but they must also be aware of online resources and develop research skills. Importantly, the student must also address ethical issues relating to workplace behavior and computer-accessible patient data.

Communication via the website is currently bi-directional and asynchronous. A public forum is maintained as a venue for open discussion among faculty and students regarding curricular content and process, and any organizational business to be transacted in a class-wide fashion. Administration and faculty post handbooks, schedules, and announcements for use by the students. These functions may also be carried out via e-mail messaging.

A critical communication task is performed by representatives of tutorial groups that process faculty-written health care problems (HCPs). HCPs are the primary driver of the first two years of the JABSOM PBL experience and provide cues or opportunities for the students to generate learning issues (LIs). Routine posting of the group-defined LIs enables the faculty and administration to maintain quality, generate appropriate student assessment tools, and examine the effectiveness of the HCPs. By inspecting the posted LIs from tutorial groups in the current and previous years students simultaneously self-achieve the seemingly disparate goals of reduc-

ing student anxiety and maintaining a standard of LI generation that ensures a sufficiently broad scope of content. This is consistent with the philosophy and practice of the learner-centered PBL philosophy as it exists at JABSOM.

The obvious utilization of a website in a PBL curriculum is to deliver content to the student. Images and sounds directly related to the HCP are provided. Multimedia items add richness to the case, provide a closer approximation to a clinical simulation, and serve in direct support of the paper-based exposition of the HCP. These resources are not extensively annotated, and therefore serve the student as additional cues for LI generation.

The JABSOM MD Program curriculum includes learning opportunities other than the HCP and tutorial process. Slides and notes from colloquia and seminars are solicited from presenting faculty for inclusion on the website. Image-intensive pathology lab notebooks of figures and images are available, as are images of the specimens encountered by the students in the laboratory. Public-spirited members of the student body often contribute these latter images. An extensive text and image-laden website is nearing completion that contains the entire syllabus of the introductory anatomy lab. This large resource consists of nearly 1000 linked images and is likely to be translated to CD-ROM, which will obviate the image download wait time.

An upcoming enhancement is a website designed to provide the medical or undergraduate student an interactive and searchable database of research opportunities in the biomedical sciences and public health community. This site will be self-maintained by participating Principle Investigators via browser-based submission forms to a back-end database. A broad invitation and instructions will be forthcoming. Community participation as a student or host site is welcomed.

The JABSOM faculty continues to explore additional appropriate and effective computer and web-based technologies for use in its curriculum. There is great potential, provided technology is balanced by a human component. Students, faculty, and administration must remain engaged at a physical and personal level to ensure quality of process, skills development, and content acquisition. Significant opportunities exist to increase the quality and consistency of the teaching and learning at JABSOM.

The interactive delivery of an integrated HCP over the web has many exciting potentials. Tutorial groups can be exposed to a presentation of a case, complete with supporting multimedia, static images, and lab report forms. Students would be prompted to input prioritized hypotheses and learning issues at appropriate junctures in the case. Optionally, students could subsequently request pre-prepared virtual "online consults" that provide immediate expert feedback on interpretation of images, lab results, and the diagnostic process. This mechanism would allow a consistent presentation of the case for all students without obviating the role of the tutorial group or tutor. Learning issues would still be generated, presented, and integrated into the case by the students with the aid and advice of the tutor. By allowing the technology to assist in the facilitation of process, the tutor is freed to focus on the integration of biological mechanism, clinical skills, and psychosocial issues into the HCP. As the student abilities increase, the linear presentation and group process are reduced; allowing individual sophisticated non-linear processing of HCPs in the more clinical years. These virtual cases

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## Life in These Parts...

Recently Gov Cayetano proposed fluoridation of our water supply...and Council person Rene Mansho voiced opposition...The issue brought back memories of 30 years ago when HMA joined Manuel Kau (chief, State Dental Officer) in proposing state wide flouridation...Our chief opponent was "Doctor" Kondo of the HOJU KAI...(A popular Japanese lay health movement) Dr. Kondo was a retired English professor (No one made the distinction between professor and physician). We were involved with the HMA Japanese Speakers Bureau and agreed to help promote fluoridation on Japanese radio and press.

One memorable evening, we had Dr. Kau and Shigeo Natori on the KOHO Radio spreading the gospel of fluoridation...the telephone questions came in hot and furious. One elderly lady asked, "If we don't want fluoridated water, what can we do?" Shigeo rose to the occasion: "You can dig your own well," he joked...The radio listeners were stunned...Poor Shigeo, for weeks thereafter, he received hate calls at office and home...The anti-fluoridationists were victorious...They had no sense of humor...

## Potpourri I

A San Diego patrolman pulled over a driver and told him that because he was wearing his seat belt, he had won \$5000 in a safety competition... "What are you going to do with the money?" the officer asked.

"I guess I'll go to driving school and get my license," the man answered.

"Don't listen to him," said the woman in the passenger seat. "He's a smart aleck when he is drunk."

This wakes up the guy in the back seat, who saw the cop, "I knew we wouldn't get far in a stolen car."

Then there was a knock from the trunk and a voice in Spanish, "Are we over the border, yet?"

"*Funny Times*"

(*Medical School Hotline continued from p. 240*)

would decrease the impact of a limited or variable patient base during clinical rotations.

The recordation of the group- or student-input learning issues, hypotheses and diagnoses allows for ongoing quantitative assessment of the student and the HCP. Because of the student-centered nature of the PBL philosophy, each student has a personal curriculum that could be described by the interactive submissions made during the online processing of the HCPs. This learning issue tracking would be a means for the student and advisor to assess the individual's coverage of material over the four years of school. Furthermore, administration can look at individual, inter- and intra-class learning issue distributions for quality assurance purposes.

In recognition of the ever-increasing potentials of the Internet, JABSOM will expand its present use of digital technologies in an effective, efficient, user-friendly fashion to improve the quality of its graduates.

## Reference

1. This article does not address the significant graduate medical or telemedicine projects at JABSOM, nor will it detail the current or future versions of the JABSOM informational website at <http://hawaiiimed.hawaii.edu>.

"Too many of us worry about the future." Dr. Smith explained, "Why open the umbrella before it starts raining?"

Psychiatrists don't need to worry so long as other folks do.

## Potpourri II

Many years ago, I was doing my OB rotation with a colleague who shared my surname, Porter. One night I was busy repairing an episiotomy with the lady in stirrups and in lithotomy position.

A nurse looked into the room and said to me, "Mrs. S in Room 4 is bleeding. Will you have a look at her?"

"She's not one of mine," I replied, "You'll have to ask the other Porter."

My patient shrieked and almost levitated out of the stirrups.

"Stop!" She commanded, "I want a doctor to do this not a porter."

(*Dr. Alan Porter, Victoria*)

## Medical Tidbits...

**Estrogen & the Woman's Heart:** Most women don't have heart attacks till after menopause, but supplemental estrogen doesn't always protect the heart after menopause. At the American College of Cardiology Meeting in Anaheim, David Harrington of Wake Forest University School of Medicine reported on a study of 309 women with heart disease. Estrogen by itself or in combination with progestin had no effect on the plaques in women's coronary arteries. (ie for 3 or 4 years...A larger study on the effects of estrogen will become available in 5 more years) The latest studies show that estrogen actually increases heart problems in women during the first year and the heart benefits become apparent only after three years...

**Good Reason to Quit:** A new study of 34 men who had radiation for prostate cancer found that none of the patients who smoked were potent 6 years

after treatment while 2/3 of those who didn't smoke remained potent.

(*This month's News and Notes column has been condensed due to space restraints.*)

## Classified Notices

To place a classified notice:

HMA members.—Please send a signed and type-written ad to the HMA office. As a benefit of membership, HMA members may place a complimentary one-time classified ad in HMJ as space is available.

Nonmembers.—Please call 536-7702 for a non-member form. Rates are \$1.50 a word with a minimum of 20 words or \$30. Not commissionable. Payment must accompany written order.

## Office Space

**ALA MOANA BLDG.**—PHYSICIANS WANTED to share space and support services. Interest in physical rehab. preferred. We have flexible rental arrangements starting at one half-day per week. Run your practice with no fixed overhead. Contact Dr. Speers, REHABILITATION ASSOCIATES, 955-7244.

**KAPIOLANI MEDICAL CENTER.**—OFFICE SPACE available to share in the Kapiolani Medical Center. Call D. Venu Reddy, MD at 944-2002 or 942-7702.

## Wanted

**PSYCHIATRIST.**— Kaneohe residential Program for adolescents seeks consultant two half-days per month. Schedule, duties, compensation negotiable. Contact Administrator: RAINBOW HOUSE 239-2399.

**HAWAII PERMANENTE MEDICAL GROUP.**— Kaiser Permanente. Hawaii's most established multi-specialty group of 300 physicians recruiting for:

- BC/BE internal medicine hospitalists, staff and Locum Tenen positions available, servicing all hospitalized patients in 200-bed Kaiser hospital on Oahu, position(5) immediately available.

- BC/BE general internist for busy outpatient clinic, inpatient duties (CCU/ICU/ventilator management) and call, practice based in Kona on the Big Island (affiliated with Kona Community Hospital.) Position available mid-August 2000.

Applicants must have a commitment to quality care, patient advocacy, and involvement in patient and professional education. We offer competitive salary, comprehensive benefits, relocation assistance and more.

Send CV to: Physician Recruitment, HPMG, 3288 Moanalua Road, Honolulu, HI 96819 or Fax (808) 834-3994. EOE