Clinical IT environment as resources in a medical curriculum

Keywords: EHR, Telemedicine, cognitive sciences
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Summary: Clinical IT environment as resources in a medical curriculum. The incorporation of E-learning in the medical curriculum has received lots of attention in recent years. This attention has been mostly focused on electronic material creation and delivery of declarative knowledge in the first two years of the curriculum. In our institution, we have focused our reflection for the past few years mostly on the potential of IT to support the more clinical intensive aspects of our curriculum. Taking into account that the determinants that favour clinical learning are different and that competency acquisition is paramount during the clinically intensive period of our curriculum, a great amount of diversified clinically oriented tasks must be available to students to reach our professional development goals (procedural and conditional knowledge acquisition). With the expansion of our cohorts and the reduced availability to clinically relevant material imposed by the ambulatory care setting, new pedagogical approaches have to be considered to reach our goals. Since more and more Health Sciences organisation like ours have clinical IT infrastructure (HER, telemedicine network, clinical analytical database, information coding,...), we proposed an integrated architecture to incorporate those resources/opportunities and transform them into academic e-learning opportunities by creating virtual clinical environment. Our architecture offers numerous new clinical possibilities for simulation design, new option for clinical encounters and consultation skills acquisition, clinical competencies evaluation and clinical outcome, pedagogically sensitive rules in the HER, curriculum retro-engineering,....

Learning human anatomy

Keywords: Human anatomy, learning, teaching, image
Authors: Sempere T, Palao J, José M, Torrente M, Arredondo Z, Cobos P, Piera, V.
Institution: Facultat Medicina. Universitat Rovira i Virgili

Summary: Anatomy is a basic science in medical education. We can state, then, that the cadaver and dissection have been, respectively, the most commonly used source and method since antiquity for the advance of anatomical science. For centuries, dissection and academic lectures have been the only system by which students have been able to acquire. The shortcoming of this system, however, is that it portrays the organism as a static entity. In recent decades, since the emergence of X-rays and various alternatives that may or may not use radiopauses substances, we have been able to observe most of the structures in the living human being. The subsequent incorporation of computerised analysis for determining the extent to which X-rays penetrate different tissues (TC, helical TC), the field of nuclear magnetic resonance, the ultrasonography, etc, all provide data about the living that was unthinkable even in the very recent past. Nevertheless, they are methods that will be habitually used in the future to make a diagnoses. The task of the anatomy teacher today is to combine all the forms of studying the human body, both classical and modern, and integrate them in a good teaching method. This involves visualizing our organism with the technique that is most suitable for each case. In our contribution, we show how our unit combines, the most classical teaching methods with the most advanced methods of diagnosis.

Virtual dermatology resident ship

Keywords: distant learning, patient simulations
Authors: P.M. Bloemendaal, S. Eggermont, W. Bergman
Institution: Leiden University Medical Center

Summary: In 2003 a new educational program was initiated for dermatology residents at the Leiden University Medical Center (LUMC). This program addresses the problem of the increased number of residents and the scarcity in availability of experts to teach them. The Dermatology department has introduced Computer Based Training (CBT) material as supplement to their practical training program on the ward. The department has developed eight Dynamic Patient Simulations (DPSs) during the past year, where residents are solely responsible for the diagnosis and treatment of a dermatological patient. The simulations are supplemented with background information on various dermatological disorders and basic information about the field of dermatology. This way medical knowledge is combined with clinical experience using CBT. The DPS are grouped together with other relevant CBT to complete the virtual dermatology resident ship. To ensure easy accessibility, the resident ship was put online with the newly developed Lesson Registration System (LRS.NET). LRS.NET is integrated with the Virtual Learning Environment (Blackboard®) and provides access to all the CBT programs from the LUMC and free software from all over the world. The virtual resident ship can now be followed time and place independent. Teachers can review all lesson- and student-data that is stored in the LRS.NET database. They can easily make reports of the resident’s performance online and evaluate shortcomings in the learning process during.
Developing IT in Primary Care

**Keywords:** IT; Clinical Systems; Coding Systems

**Authors:** Rennison, T.

**Institution:** LPMDE-London Postgraduate Medical and Dental Education

**Summary:** The use of Read Coded data entry in Primary Care in the UK is now more important than ever in the light of initiatives like EHR and ICBS. However within the UK approx half of all GPs do not use Read Code effectively. This workshop will discuss issues related to practice based teaching around Read Codes to GPs and Primary Care Teams. Various approaches will be discussed in terms of their effectiveness, as well some of the common problems of practice based learning – when IT is involved. The facilitator will carry out a brief presentation after which participants will be invited to discuss issues related to the use of clinical coding systems and educating clinicians in their use. Topics will include:

- Creating awareness of the individual need for change i.e. implications of diagnostic codes and the problems which arise from poor usage
- Pros and cons of practice based approach to teaching
- Issues of mixed ability in IT related training
- Tackling indifference & defensive behaviour
- The Anorak Effect. What is too much coding?
- How to sustain positive change

It is hoped that there will be a useful discussion regarding some of the major issues around IT education such as the use of clinical coding systems, developing the use of electronic records and the unique problems of attempting to develop the use of IT in primary care teams. The facilitator has extensive experience of practice based learning in IT over the last 14 years and is the author of a book and a number of articles on the subject.

Curriculum Information System Knowledge Modeler: The University Of Calgary Approach To Interpretation And Diagnosis (UC-AID) Project

**Keywords:** Personal Digital Assistants, Clinical Presentations, Digital Schemes

**Authors:** Donnon, T; DesCoteaux, J-G; Leukonia, P; Ayyobi, A; Khalil, H; Jones, A

**Institution:** University of Calgary

**Summary:** The introduction of the Faculty of Medicine’s Curriculum Information System (CIS) into the Undergraduate Medical Education (UME) Program has lead to an increasing interest in using e-learning technologies to enhance the teaching and learning opportunities for undergraduate medical students. In particular, most of the Class of 2005 medical students have initiated and participated voluntarily in the replication and enhancement of static clinical presentation schematics into an interactive digital resource using the CIS Knowledge Modeler feature. With the objective of incorporating all 120 of the UME’s Clinical Presentations for use on personal digital assistants (PDAs), the medical students will use their handheld PDAs as a reference tool during their clerkship to assist them in making appropriate clinical diagnoses. On average, each scheme editor (i.e., active involvement in the design and construct of a digital schema) worked on 4.1 schemas and provided an estimated total of between 21 to 40 hours of their personal time. Survey results from 41 (57%) of the medical students involved in the UC-AID project show that the majority (76%) agreed that their work as either an associate or scheme editor had enhanced their learning and knowledge of clinical presentation schemes. In response to how they benefited from their participation in the project, the majority agreed that it had increased their knowledge of a specific presentation (81%), understanding of a collection of unit presentations (71%), and that the PDAs schematics would be useful as a resource tool in both clerkship (98%) and residency (70%).

A unique computer based model to determine educational needs

**Keywords:** cme, computer education

**Authors:** Tomalty, L., Payne, P

**Institution:** Queen’s University

**Summary:** A computer based tool was developed to assist in the determination of continuing medical education needs. This model proved highly attractive to participants and ended up being a self-learning tool in addition to providing CME with data on educational needs. Focus groups of 8-10 family physicians with broad clinical practices participated in the study. During the focus group session, they were asked a number of open-ended questions related to their educational needs. Discussion by the facilitator was encouraged but all information was submitted by computer to maintain anonymity. After inputting suggested needs, all submissions were presented in a random list by the facilitator. The group then condensed the list and ranked the topics in order of importance. Ranking was again done in an anonymous fashion. The process proved to be highly attractive to the participants. The ability to input in an anonymous fashion was consistently commented upon as being one of the strengths of the approach because it provided a safe environment in which to interact. The ranking process enabled participants to determine their own educational weaknesses and strengths. To determine if there were unperceived educational needs, the ranking process was done a second time after inputting educational topic suggestions previously obtained from specialists. Participants were then asked to re-prioritize the list. In a number of instances, suggestions by the specialists had not been previously identified by the participants. A number of these suggestions were prioritized by the group. This tool has wide applicability in medical education.

The development of an educational web-based resource for the undergraduate radiation therapy curriculum.

**Phase I: the development of the textbook**

**Keywords:** Lymphatics textbook and web-based resource

**Authors:** Di Prospero, L.*, Spence-Ariennma, M.*, Chai, M.*, Moyo, E.*, Barker, R.*, Kane, G.+, Bayley, A.+, Potvin, M.*

**Institution:** The University of Toronto +Department of Radiation Oncology, Faculty of Medicine, The University of Toronto

**Summary:** The development of this educational resource stemmed from the realization that our undergraduate radiation therapy students, although required to learn the lymphatics system in detail for use in professional practice, did not have the resources to understand the significance in radiation medicine. There was no comprehensive lymphatics guide for radiation oncology professionals. This guide is meant to fill this void by providing the lymphatic location and drainage routes for anatomic areas and organs for key treatment sites in radiation oncology. The guide is comprised of text accompanied by diagrams defining bone, organs and lymphatics, as well as flowcharts that detail the major drainage routes. The medical illustrations were customized to detail the lymphatic system in relation to bony and soft tissue landmarks utilized in radiation oncology. A medical illustration was created for each anatomic region: the head and neck, the thorax, the abdomen and the pelvis (male and female). The medical illustrations were created electronically using a layered format. Each medical
illustration can be dissected into three layers: the lymphatics, the soft tissues and the bones. The initial publication of the resource is in hardcopy with the aim to develop and make available a web-based version to all radiation oncology professionals by 2005. The initial publication has received grand reviews with overwhelming demand by both students (radiation therapy and radiation oncology residents) and practicing radiation oncology professionals.

**FOTOMEDICA.COM: The WWW that combines medical teaching with the new technologies**

**Keywords:** www, medical teaching, family physician  
**Authors:** Soler-González J, Ruiz M.C, Soler-Balagueró J.M., Riba D, Santafé P, Rodríguez-Rosich A.  
**Institution:** ABS Balafia-Secà-Pardinyes

Summary: Introduction: At present, the use of internet as a medical information providing tool is being progressively established. Objectives: To offer:  
- A digital image photographic library of teaching interest.  
- A selection of high-quality scientific material.  
- A forum to comment and discuss cases and experiences as a new way of doing interactive clinical sessions.  
- A monthly clinical case.  
- Accessibility to digital photography knowledge.  
- Characteristics to comply with:  
  - To update the contents and records weekly.  
  - To provide links.  
  - To optimize navigation.  
Methods: The contents and shape were designed. It was established with the following structure:  
- Introduction to the web.  
- Photographic library.  
- Monthly clinical case.  
- Digital photography in the consulting room.  
- Clinical guides and medical records.  
- Medical resources in internet.  
- Forum and contacts.  
- Medical events and conferences.  
- The latest news.  
Results:  
- 800 high-quality images have been incorporated.  
- A medical forum restricted to case discussion has been established.  
- Concerning the information and links, they are weekly being updated by the informatics team and the consultant doctors in order to show a dynamic and interactive web.  
Conclusions: Fotomedica.com has consolidated as a teaching, dynamic and interactive web addressed to the family physician based on digital photography as a teaching discipline.

**Digital photography as a docent tool for family residents**

**Keywords:** Digital photography, clinical practice, resident formation  
**Authors:** Riba D, Soler-González J, Rodríguez-Rosich A, Ruiz M.C.  
**Institution:** ABS Balafia-Secà-Pardinyes

Summary: Introduction: Digital photography offer big advantages versus conventional method. We describe our docent experience in clinical practice.  
Material and methods: Two primary care centers used a digital camera characterized by 3 megapixels, macro function and manual function of use in obturation velocity and diafragme aperture. We recollected images interesting in resident formation, especially from dermatological lesions, radiographies and reumatological processes. We did an internal circuit for images realization, classification and registration of them.  
Results: We obtained a total of 790 images from 305 different pathological processes, distributed in 44% radiographies, 28% dermatological lesions, 7% reumatological processes and 21% others. These images bring us the possibility of various communications in several congress, much more clinical sessions in our primary care centers and elaboration of a web site (www.fotomedica.com). This portal serves for clinical discussions and offers high quality images to the residents from a big database.  
Conclusions: Use of digital camera in clinical practice is useful for creation a big database that offers docent possibilities to the residents of our speciality, and the web site created open great interest to the other professionals and students motivated in formation. Therefore, our experience in this technical area represents a good tool in resident formation.

**Bibliography:**  
1.- Riba D, Soler-González J, Rodríguez-Rosich A. ¿Puede ser una buena herramienta docente el uso de la camara digital en un centro de atención primaria?. Atención primaria. En prensa.  

**Webs-Guide: a virtual tool support for teaching-learning biological, ethic and social aspect of human embryology undergraduate campus course**

**Keywords:** Webs-Guide; virtual tool support; teaching; learning; biological, ethic and social aspect; human embryology  
**Authors:** Avila Rodolfo; Samar Maria Elena; Andrómaco Marta.  
**Institution:** National University of Cordoba, School of Medicine. II Histology, III Diagnostic for Imaging and Radiant Therapy I and II

Summary: The Internet has evolved into the largest computer network in the world, allowing access to vast amounts of information and services. The Internet has always provided useful resources to embryology, implemented at various academic departments and national organizations or by specialists or specific medical web sites offering technical, scientific, biomedical, social and ethic information. Based in this reality we analyzed different places in Internet in order to elaborate a webs-guide to virtual tool for teaching-learning biological, ethic and social aspect of human embryology undergraduate campus course. We used searches like euroseek, excite, fast search, hotbot, lycos, MSN and google. The database used were Lilacs and Medline. We found a wide spectre of didactics resources for teaching Embryology on line that can be employed as study material and be included in our guide about biological, ethic and social aspect of human embryology. A variety of materials (text, images, videos, ultrasound images of normal and foetal anomalies) are available through the World Wide Web (WWW). We selections different types of educational material: human embryology sites, outcomes research, discussion lists, research laboratories, publications, virtual medical libraries, news and medical conferences, organizations, academic departments and medical resources for the ethical debate on in vitro fertilisation (IVF), cloning and use of the Stem Cells. In conclusion this webs-guide is a positive virtual tool support for teaching-learning biological, ethic and social aspect of human embryology undergraduate campus course.
On-line QC System for blood film morphology evaluation

**Keywords:** EQAS, Quality Control, Haematology, Blood Cell Morphology

**Authors:** Castella, M. and Vives-Corrons, J.L.

**Institution:** QC System PROFICIENCY TESTING. Casanovas 18. 08901. L’Hospitalet de Llobregat. Barcelona

Summary: QC System is an EQAS for clinical laboratories in the areas of Biochemistry Haematology and Microbiology. QC System is running by Internet and accordingly, the participant can send their results and receive their evaluations very quickly and in a safer mode than the traditional postcard method. Conversely, it gives a new style of relation between the organizer and the participant laboratories. In the Haematology Scheme, May-Grunwald-Giemsa stained films for blood morphology are monthly or bi-monthly send to the participants for evaluation. In each survey a short clinical history of the patient and a summary of the haematological data are given. Participants are encouraged to indicate the most relevant abnormality for each blood cell line (RBCs, leukocytes and platelets). A diagnostic approach is given by QC System Web site as “the case of the month”.

Strategy of learning of procedural knowledge in medicine

**Keywords:** Simulation lab, Procedural knowledge, Decomposition of movement

**Authors:** Martin, M.

**Institution:** Centre hospitalier universitaire de Sherbrooke

Summary: Introduction: The acquisition and maintenance or procedural knowledge are the responsibility of a medical school. In emergency medicine, the daily practice cannot maintain competency. It is important to use simulation lab, as used in aviation, to develop automatisms. Specialists in ergonomics and task analysis will demonstrate the importance or tasks/sequences which allow the acquisition of competences and their maintenance. Simulation laboratory will help to decompose our movements, giving us the opportunity to be more accurate. The mental representation will be explained, to make sure of the best retention. Simulation lab session will be shown with active participation of the audience. Finally, to complete the cycle concerning the quality, we will attend a live resuscitation at an emergency room with mobile cameras and audio-visual contact to realize a live control of quality of our teaching sessions. The ultimate goal will be to study the influence of medical education an outcome. To conclude, the strategy of learning in the simulation laboratory should require the services or ergonomics, kinesiologists, cognitive psychologists and image engineer.

Associate Professor

**Keywords:** medical interview, PBL, WBI

**Authors:** Kwon, Hyungkyu; Lee, Eunjung

**Institution:** Kyungung University(Kwon), KAIST (Lee)

Summary: Online Medical Problem-Based Interview(PBI) Skill Model By PBL Kwon, Hyungkyu (Kyungung University) Lee, Eunjung (KAIST) This study proposes a set of systematic procedures for the medical interview applying online Problem-Based Interview(PBI). This medical PBI involves the immersion of the doctor in the situation where the doctor applies acquired skills and knowledge towards the satisfactory resolution of the patient interview. This model combines Web-Based Instruction(WBI) with Problem-Based Learning(PBL) for the effective medical interview. In this model, the interpersonal skills between the doctor and the patient, the patient’s problem examination, and the education and the administration for the patient adaptation to the treatment are mainly considered. This model consists of eight phases: the problem establishment, the close examination of symptoms, the close examination of patients, the integrated close examination, the clarification of the problem, the treatment method establishment, the close examination of the mutual role, the problem evaluation. The strategies for inspiring the motivation are applied to each phase. Especially, the process for elaboration is applied to the close examination of symptoms, the close examination of patients, and the integrated close examination. This model helps doctors and patients enhance the ability to solve the problem in the self-directed ways, and to collect and utilize information for the web-based medical PBI.

Web-Based Learning in Resident Ambulatory Clinics: A Randomized, Controlled, Crossover Trial

**Keywords:** e-learning, web-based learning, postgraduate training, ambulatory education, residency education

**Authors:** D.A. Cook, D.M. Dupras, V.S. Pankratz, W.G. Thompson

**Institution:** Mayo Clinic College of Medicine

Summary: Web-based (WB) learning is increasingly used in medical education, but few well-controlled trials support its use, particularly in postgraduate training. We sought to determine whether internal medicine residents prefer learning from WB modules or printed material, and to compare the effect of the two teaching formats on knowledge.

Method. Residents studied two topics of ambulatory medicine using WB modules and two topics using paper practice guidelines, with sequence randomly assigned. Outcomes included format preference, test score change from pre- to post-test, and time to complete modules. WebCT administered and scored tests. Test scores were adjusted and compared using repeated measures ANOVA. Surveys were analyzed with the t-test and Wilcoxon signed-rank test.

Results. 109 residents gave consent. 78% of residents preferred the WB format (p<0.001). Test scores improved for both formats (67.7% to 75.0% for WB, 66.0% to 73.3% for Paper) (p=0.001), but score change was not different between formats (p=0.080). Residents spent less time on WB modules (47 minutes) than paper (59, p=0.024). 71% of residents reported that passwords limited their use of the WB modules.

Conclusions: No difference was found between WB and paper-based formats in test score change, but internal medicine residents preferred learning with WB modules and spent less time doing so. Passwords appear to impede use of WB modules. WB learning is effective, well accepted, and efficient. Research should focus on aspects of WB instruction that will enhance its power as a learning tool and better define its role in specific settings.
Documenting Competence Using an Anesthesia Simulator

**Keywords:** simulation, G theory, cut scores, performance assessment, procedural sedation

**Authors:** Willemens-Dunlap, A.; Kreiter, C.; Thompson, E.

**Institution:** University of Iowa

**Summary:** Background/Methods: In response to the 2001 JCAHO call for competency-based training of non-anesthesia personnel providing sedation care, a pilot study was completed with thirty-two RNs receiving training and a PBA in a patient simulator. The three-case PBA was scored using both checklists and two expert global ratings. Generalizability theory was used to analyze both scoring methods. A case checklist cut score was set using an innovative method that minimized classification inconsistencies of the checklists and global ratings.

**Results:** The generalizability coefficient for the checklist scores for the mean of the three cases was .76 and for the global rating .83. The correlation between mean global ratings and checklists across the three cases was $r = .74$. Interrater agreement was .88. Observed checklist scores for examinees with low ratings by both experts provided a cut score with few classification inconsistencies. Of 96 performances there were eight failing performances with six examinees failing two or more cases and just five pass-fail classification disagreements using both scoring criteria. The disattenuated correlation was low between the competency-based knowledge test and the PBA.

**Conclusion:** A PBA in a high-fidelity simulator adds unique information regarding examinee competence beyond that provided by a knowledge test, and appears to be valid for assessing the skills defined. Expert global ratings can be used to establish cut scores for the checklist, and the high correlation between the two provides validity evidence. These results additionally suggest that global ratings might be necessary only during the piloting of a new case.

**CyberBODIES: Building Online: Developing Interactive Educational Structures**

**Keywords:** e-learning, anatomy, interactive, image, visual

**Authors:** P. O’Byrne* and J.A. Carnegie**, School of Nursing* and Department of Cellular & Molecular Medicine**

**Institution:** University of Ottawa, 451 Smyth Rd, Ottawa, ON, K1H 8M5. CANADA

**Summary:** The study of three-dimensional structures using two-dimensional images is challenging, and even more so when the structure moves or has movable parts. The movements of the eye and object are difficult for learners to explain and for students to understand. Using web-based animations, however, lecturers can enhance two-dimensional images, while learners can interact with the eye to highlight structures, learn names, cause muscle contractions to illustrate action, and view the effect of such contractions from numerous angles. The eye animation is designed with one forward-looking, central eye and four smaller, surrounding eyes that demonstrate the medial, lateral, posterior, and anterior views. The four smaller eyes mimic the actions of the larger eye, showing its movements from multiple angles. This synchronized, multi-angle view proves to be extremely helpful in demonstrating the actions of the oblique eye muscles. While certain pedagogical tools have limited availability, web-based learning activities are available simultaneously to multiple lecturers and learners, and can be accessed from anywhere at any time. In addition to being reusable, multi-lingual, and universally available, these animations provide learning activities for non-auditory (or non-lecture-based) learners: the interactive image enhances the visual learner’s experience and provides a pedagogical tool for the tactile learner. The efficacy of such learning tools has been demonstrated at the University of Ottawa where web-based interactive images have been used to improve comprehension of course content and, in some instances, subsequent examination performance for Faculty of Health Science students studying anatomy and physiology.

**Standardized Patients at the Improv: When You Don't Have The Real Thing**

**Keywords:** standardized patients, OSCE, simulation, medical education

**Authors:** Gammon, W.; Fox, Holly; Hinrichs, Margaret

**Institution:** University of Massachusetts Medical School

**Summary:** Realistic physical findings consistent with a specific diagnosis cannot always be simulated by SPs. Often, even a "real" finding cannot be replicated in an identical manner multiple times over the course of an OSCE. Compensation is frequently made by giving students written PE results. In this session, techniques bringing a more realistic physical dimension to a simulation will be demonstrated. By training SPs to smoothly integrate available technology into a simulation, encounters become more effective and realistic, validating standardized patients as the preferred professional tool for measuring clinical competency. Techniques include: Training SPs to accurately "respond" to pelvic pain while internally "examined" by the student via an anatomical pelvic model fitted with findings consistent with an acute pelvic condition. Training SPs to use basic technology and simple materials to give realistic physical findings in an OSCE setting, including clinical heart sounds, pelvic, laboratory and rectal exam results. Training pediatric 'parent' SPs to smoothly integrate the 'mother-child' simulation using anatomical dolls and a video backdrop. Training SPs in non-verbal and verbal techniques to be "surgeons" receiving oral presentations when faculty is unavailable for an OSCE. Training SPs to utilize readily available consumer products and makeup techniques to simulate hot and cold limbs, cuts and bruises, and other dermatology.

**A Website to validate the Script Concordance test on a large scale: A pilot study in Urology**

**Keywords:** Internet, Clinical reasoning, assessment.

**Authors:** Louis Sibert, Badisse Dahamna, Stefan J. Darmoni, Jacques Weber, Joël Lechevallier

**Institution:** Tours, France.

**Summary:** Context: Preliminary results of clinical reasoning assessment with the Script Concordance test are extremely encouraging.
Outcomes of Medical Education: an interactive computer database

Keywords: core curriculum, learning outcomes, e-learning, networked learning environment

Authors: Chris Roberts; Ashley Self; David Neubie

Institution: University of Sheffield

Summary: The University of Sheffield has developed an outcome focussed core curriculum which is supported by an integrated networked learning environment, Minerva. Detailed outcome objectives for 95 core clinical problems have been developed collaboratively at facilitated workshops with clinicians and scientists. These cover the clinical competencies (including professional behaviours) and underpinning basic sciences, required of our graduates to be effective pre-registration house officers. This ‘core curriculum’ for Sheffield has been transferred to a web-based database within Minerva, thus directly connecting learning outcomes to all aspects of curriculum. The information within the database is searchable using either codes to the defined Outcome Objectives (Clinical Competencies) or by key words to the underpinning medical sciences and clinical conditions associated with the problem. Thus for example, students can find out what they need to know or be able to do during the course; teaching staff can find out what they ought to be covering in didactic, problem-based, or clinical teaching sessions; and curriculum planners can match course outcome objectives developed at the strategic level to learning objectives (and their assessments) that are to be achieved by students and supported by teachers at designated stages in the curriculum. The core curriculum database provides a comprehensive guide for students and teachers and its interactivity supports decisions about learning, teaching and assessment in a way not previously possible.

A survey of internet using status in academic members urmia university of medical sciences

Keywords: Internet-academic staff-university of urmia

Authors: Rahimi, B. A Rashidi

Institution: Oromiyeh University of medical science

Summary: Aim: Colleges are challenged to provide students with diverse teaching-learning experiences. Educators who introduce new teaching-learning experiences must evaluate the outcomes of these experiences. The Internet offers consumers unparalleled opportunities to acquire health information. Internet use by faculty members started in 1998 in Oromiyeh University of Medical Sciences. This study examines urmia University of Medical Sciences faculty members’ use of the internet in the teaching process.

Summary of work: This is a cross-sectional survey in three colleges (medicine, nursing and health) in 2003. The population sample of the study was all of the faculty members.

Summary of results: Our findings showed that 58% were satisfied with the information they found and 70% used the information.

Conclusions: Results of this study show that University managers must develop both software and hardware devices for internet accessibility, curriculum planning, change and a distance learning network for faculties and students.

The clinical interview to the adolescent

Keywords: Interview, adolescent, "role play"

Authors: Cornella, J.; Llusent, A.

Institution: Institut Català de la Salut

Summary: Presentation of a learning method for doctors of primary attention based on the technique of the "role-play". The interview constitutes the first and more important part of all
medical act that has as objective to approach to the adolescent’s integral health. Due to the evolutionary characteristics of this age group, very often the interview represents the only and last opportunity that has the doctor to guide, to correct, to diagnose, to advise, to interpret or to help the person at this time of growth and development, before it is structured as being mature.

Objectives: To teach to the doctors of primary attention of health to interview adolescents, to manage the confidentiality, to win the trust of the adolescents, and to value the implicit reasons of consultation appropriately. Structure of the workshop: six real cases of adolescents that have come to the consultation are presented. A trained doctor, carries out the adolescent role and the moderator of the workshop invites the participants to carry out the interview. Previously a basic model of interview is presented. The cases that are presented approach the most frequent situations in an adolescents consultation.

Results: We have presented this workshop in many centers of primary health care, with very good acceptance on the part of the participants and a high use grade. The valuation has been very positive.

Portable Digital Assistants (PDAs) and Medical Education: Strategies to Support Basic Science and Clinical Learning

Keywords: PDAs, technology in medical education

Authors: Greenberg, R.

Institution: University of Louisville School of Medicine

Summary: The portable digital assistant (PDA) is fast becoming the new tool of choice for physicians. From the perspectives of patient tracking, clinical reference tools and drug databases, and, more recently, physician order entry systems, the PDA provides a convenient, efficient, and powerful user-friendly clinical tool. Although the number of medical schools encouraging students to purchase PDAs is increasing, or, as in our case, purchasing PDAs for their students, most articles describing PDA initiatives focus on how PDAs support clinical education, for example, by migrating patient encounter reports from paper to a PDA. In an effort to prepare students for clinical practice supported by technology, our medical school distributes a PDA to every student on the first day of orientation for use during all four years of the educational program. We have encouraged faculty to identify learning objectives that would be supported by the PDA and have made special efforts to support course directors who have responded to this request. This oral presentation will focus on how students are using the PDA to support their learning, particularly during the basic science years. It will describe specific software applications, provide course-based illustrations of how each application is used, and explain how the PDA supports student learning.

Web-Based Course Evaluation: A Study of Its Impact on Student Feedback and Course Improvement

Keywords: web-based course evaluation; constructive feedback

Authors: Greenberg, R.

Institution: University of Louisville School of Medicine

Summary: The rapid growth of the World Wide Web, intranets, and software applications that facilitate the collection of data in a secure environment and confidential manner has prompted the development of web-based course evaluation systems. Many medical schools are piloting institutionalized web-based course evaluation systems because they are student-centered, efficient and cost effective, and programmatically helpful. Web-based course evaluations are available to students 24/7; require fewer staff support hours; save paper; and produce prompt, timely feedback to faculty and administrators. At our school, the migration from a paper-based to a web-based course evaluation system has created a more student-centered process; however, course faculty have expressed concerns about what they perceived as an increase in the number of “unprofessional” student comments on the course evaluations, citing the anonymity of the WWW as a primary cause. Given central administration’s commitment to continuing the web-based evaluation system, the Office of Curriculum Development and Evaluation designed an intervention to teach first year students how to give constructive feedback. This oral presentation will describe the impact of our web-based course evaluation system from two perspectives. First, it will detail how the web-based system changed the nature of the course evaluation process and its impact on course improvements. Second, it will present the preliminary results of the intervention we developed to improve the nature of the comments students make in course evaluations. We believe that teaching students how to give constructive feedback did have a positive impact on the content of their comments.

Clinical reasoning integrated in Computer Based Training

Keywords: Clinical reasoning, patient simulations

Authors: S. Eggermont, P.M. Bloemendaal, P.F. de Vries Robbé, J.D. Donnison, J.M. van Baalen, E.M. Schoonderwaldt

Institution: Leiden University Medical Center

Summary: In January 2003, four Dutch medical centers have started a cooperative project to integrate clinical reasoning in the Dynamic Patient Simulator (DPS®). The DPS is a Computer Based Training program that simulates patients with a wide range of medical conditions in various situations and time spans. The main educational goal of the program is the training of decision-making. By integrating clinical reasoning with the DPS, students not only learn to make decisions independently, but also to explicate the clinical reasoning process that leads to their choices. To accomplish this integration, a special module was developed within DPS. The module enables the students to unfold four steps in the clinical reasoning process; selecting activating findings from a patient record, grouping these into more general conclusive medical problems, generating hypotheses for each problem and discriminating between hypotheses by requesting additional tests. DPS automatically assists students on their request, based on the logic of aggregated subsets of findings the teacher has stored in a so-called problem tree. The participating medical centers have developed 25 new patient simulations that are specially designed for clinical reasoning. Student-tests were performed with the first simulations to evaluate the current (incomplete) version of the clinical reasoning module at Nijmegen University. All students are confident that the finalized module will have the potential to teach clinical reasoning in the intended teaching setting (stand alone simulations in addition to small group sessions with an expert). The presentation will elaborate in more detail the student’s perception of the clinical reasoning module.
The impact of information technology on pedagogy

Keywords: blended learning
Authors: Adams, J.; Young, G.
Institution: Thames Valley University
Faculty of Health and Human Sciences

Summary: The validation of programmes as part of a five year quality cycle provides the opportunity to update content to reflect subject specific changes and developments. However, it also offers an opportunity to embrace learning technologies through an e-learning or blended learning approach. With the revalidation of its MA in Learning & Teaching, with a multi-disciplinary focus, staff at Thames Valley University as well as updating the content to reflect developments in information technology also needed to ensure that the delivery, structure and pedagogy of the programme would reflect the learning and teaching characteristics of the technology. This double-edged requirement – for subject to inform curriculum design and for curriculum design to reflect the subject – has resulted in a blended learning model that has allowed staff to rethink the relationships between subject, pedagogy, student and tutor that have been previously shaped by the traditional campus-based model. Moving from the concrete to the virtual, or employing a blend of both, while exploiting the learning and teaching characteristics of the technology has prompted staff to rethink the dominant mode of linear, content and tutor driven pedagogic frameworks. There would appear to be a tendency with online or virtual programmes to recreate this dominant mode albeit with the flexibility for students of time, place or pace of study. With the experience of developing the MA in Learning & Teaching programme, the authors of this paper will illustrate how a blended learning model can offer a wider range of pedagogic choices for students and tutors.

Preparing junior doctors for emergencies in rural practice using high fidelity clinical simulation

Keywords: junior doctors, rural practice, clinical simulation, emergency medicine
Authors: Mugford, B.
Institution: Flanders University

Summary: Junior doctors undertaking primary care training in Australia are required to complete at least six months of supervised clinical service in rural and remote areas where medical emergencies are a routine part of clinical practice. These doctors face significant stress in making the transition from hospital based practice to primary care and in managing these emergencies in circumstances vastly different to those of large teaching hospitals, the dominant training site in the initial postgraduate years. We have provided an Advanced Life Support (ALS) course for registrars over the last two years, specifically designed by rural doctors to prepare junior doctors for rural practice and delivered using high and low fidelity clinical simulators in a recognised clinical simulation unit. Specifically, the clinical setting, human resources and technical support services available to the junior doctor mimic those of the rural setting. Registrars were able to evaluate each session across a variety of variables and also completed a pre and post course self assessment questionnaire, ranking themselves using a seven point confidence scale of knowledge and skills. Registrars consistently agreed that the sessions were valuable across the evaluation parameters and a Wilcoxon Matched Pairs Signed Ranks Test analysis of their skill self assessments showed statistically significant improvement in registrar confidence on completion of the course. The increasing sophistication of clinical simulators may provide a mechanism to begin to address deficiencies in primary care training in Australian hospitals and increase the confidence of our junior doctors in facing the challenge of rural and remote practice.

Watching students learn on a clinical skills web site: The approach to the problem, not the web site, is the key

Keywords: web, clinical skills, evaluation
Authors: Brisbourne M, Aaron S, Varnhagen S
Institution: University of Alberta

Summary: We used an observer protocol to examine novice students learning to use a video based physical exam website. We wanted to know if students could learn to use the site on their own, and could identify relevant material when they needed it. Specific tasks were set to provoke students to learn the navigational and index tools, and then clinical problems were given to see if students could identify and find parts of the program that would be required for a practical examination (e.g., in congestive heart failure). Trained observers took notes while watching second year medical students proceed through this exercise. These notes were reviewed by one of the authors, who searched for common themes and strategies. All students were able to learn to navigate the web site, although at widely differing rates and using differing strategies. All were able to find specific segments listed in the exercise. However, there was wide variation in their ability to find segments of the website relating to clinical problems. The ability to find these segments was not related to ease of use of the web site. It related much more to the approach that students took to the diagnostic problem: students who identified the diagnosis out loud and then created a list of physical exam maneuvers fared much better. We conclude that the limiting factor for students in the use of such resources is their level of sophistication clinically, rather than their comfort in the use of the technology.

Centerometer: an electronic device to calculate verbal occupation

Keywords: physician-patient relationship; patient centered model; verbal occupation
Authors: Borrell-Carrió, R. (*), Manuel Lazaro, A. (**), del Río Fernández, J. (**), Santiago Bautista JM. (*), Colas Tuagi MI (*), Trullols Farrey, E. (***)


Summary: Patient Centered Model proposes that physicians should allow patients to speak during medical interviews. Verbal occupation has been proposed as an interesting indicator of quality (1). The aim of the study is to validate an electronic engine to calculate automatically the patient and physician percentage of verbal time occupied in the clinical encounter. Methods: Centerometer is a hardware (voice input) with a Windows software (Labin), easy interfaces (fig 1 and 2), able to calculate the physician’s verbal occupation at the time the interview is taking place. Physicians can see their own verbal occupation on the computer screen during the interview; a face reports if they are on a normal time average (smiley face), or a higher standard related to other colleagues (sad face) (fig 1). We have validated the engine using an audiometer (MAICO mod. MA40)
The ‘then-post’ evaluation strategy for a web-based situated learning environment in pediatric intensive care

**Keywords:** technology enhanced instruction (TEI); evaluation; on-line information and communication technology (ICT); pediatric; intensive care

**Authors:** Ronald Gottesman M.D., Farhan Bhanji M.D., Adam Finekstein M.A., Laura Winer Ph.D.

**Institution:** Montreal Children’s Hospital Research Institute, Center for Medical Education, Center for University Teaching and Learning, Instructional Communication Centre; Office of the Deputy Provost and CIO; McGill University, Montreal, Quebec, Canada

Summary: We developed a problem-based situated learning environment (a Shockwave© application in WEB-CT) to circumvent the problems of residents’ frequent inability to participate in structured learning opportunities. The collaborative efforts of experts in instructional design, medical content and media authoring allowed for the creation of an objectives-based prototype module of post-operative cardiac care - (JUNCTIONAL ECTOPIC TACHYCARDIA - JET). Traditional evaluative methods of ‘Pre-Post’ knowledge assessments may bias the learner to simply recall possible correct answers while navigating through the simulation. We intended learning to occur through guided discovery without the influence of ‘sensitization’. Serious issues of self-report pre-test bias as well as response-shift bias caused us to seek alternative strategies to evaluate the learning. We therefore chose the retrospective ‘Then-Post’ strategy of knowledge self-assessment (Mezoff 1981). Learners (n=18) were asked to report their self-rating on a 5 point scale comparing their knowledge yesterday vs. now (after completing the module). Our results revealed significant subjective improvement (p<0.01) in the understanding of JET; the interpretation of atrial EKGs; the initial investigation of JET and the stepwise therapeutic management of JET. The learners’ overall comfort level with post-operative cardiac patients trended towards increased comfort. They rated the instructional method as easy to use, realistic and much better than text-based learning. We also evaluated learning using a knowledge-based objective short answer questionnaire (mean score of 8.6/10 (S.D. 0.7)). The combined evaluation results strongly support the gain in knowledge regarding the causes, diagnosis and treatment of JET. We demonstrated that the ‘Then-Post’ assessment strategy is a useful evaluative tool that can be employed when the traditional ‘Pre-Post’ test may confound the learning and adversely affect the overall evaluation process.

**Development and Evaluation of a Web-based Virtual Experience in Radiation Oncology**

**Keywords:** e-learning, undergraduate education, radiation oncology

**Authors:** Hayter, C.; Nyhof-Young, J.

**Institution:** University of Toronto

Summary: On-line resources are playing increasingly important roles in medical education programs. Radiation Oncology (RO) is the medical specialty that involves the care of cancer patients with an emphasis on radiotherapy (RT). Given the significance of cancer as a health problem, it is essential that all graduating physicians have some knowledge of this field. Our investigations have revealed that North American medical students receive little or no exposure to RO. In response, we are developing a web-based virtual experience in RO. In this presentation, we share our experiences with the development and early formative evaluation of the web site in order to assist others contemplating or developing similar projects in their own educational settings. Preliminary investigations, including five focus groups with students and stakeholders, revealed enthusiasm for this project and generated ideas for content, format and learning objectives. Contrary to our expectations, we found students wanted a virtual experience that complemented rather than replaced a clinical experience. The prototype web site (http://www.bluelemonmedia.com/vero) covers 17 different domains of RO including RO as a possible career choice and basic principles of RO practice. We are currently formatively evaluating the content and design of our prototype through new user ‘think aloud’ sessions with students (n=5) and residents (n=4) and feedback from colleagues. The final web site will in turn be evaluated through further new user sessions and an on-line student survey. This presentation will be of benefit to those in medical education planning to develop similar web-based resources in other disciplines.

**WebTeach: the design of a teaching tool for small group facilitators**

**Keywords:** online small-group facilitation

**Authors:** Hughes, C.

**Institution:** UNSW

Summary: Most eLearning systems emphasise the presentation and distribution of content, while offering only standard tools for educational communication. WebTeach has been developed to give primary emphasis to small group communication processes and teaching strategies. WebTeach’s design principles deviate from those of the major eLearning systems by emphasising key factors that enhance educational communication:

- differences between formal and informal communication
- role of non verbal cues
- importance of chronology
- role of dialogue, information gaps and linguistic challenges in learning and reflection
- the flexibility to respond to student learning needs with changes in small group teaching strategies

WebTeach supports many modes of communication, including: discussion, brainstorming, quizzes, debates, arguments, cases, questioning and task setting – all familiar small group teaching strategies. All contributions (comments in a discussion, contributions to a debate, ideas in a brainstorm, answers to a question etc.) are formatted to provide clear visual cues as to the mode and the roles of participants. WebTeach has been designed to make the transition from best classroom practice to online teaching as easy as possible. It places the teaching process at the centre of the online experience so the teacher can engage with the stu-
Assessing the Validity and Reliability of Scores from a Simulation-Based Assessment of Resident Performance

Keywords: simulation, acute care, resident performance
Authors: Murray, D, Boulet J, Kras J, Woodhouse J, Cox T.
Institution: Washington University School of Medicine

Summary: Background: The use of integrated, full-body, simulators for training and assessing medical students and trainees is growing rapidly[1]. Unlike other assessment modalities such as standardized patient, life-size manikins can be used to assess higher-level management skills, including those that are typically required to treat patients in acute care settings. Unfortunately, while the psychometric attributes of scores for other simulation methods have been studied extensively, relatively little research has been completed for integrated simulators.

Purpose: The purpose of this study was to investigate the psychometric properties of scores from a simulation-based assessment.

Method: Six simulation scenarios were developed for use with the electromechanical manikin. Twenty-seven junior and senior trainees (Residents) were recruited to complete the 6-station assessment. Six faculty raters scored the performances from videotape recordings using either analytic (checklist) or holistic...
Simulator-based learning in an authentic clinical setting

Keywords: simulation; scenario; simulated patient; context
Authors: Kneebone RL, Kidd J*, Nestel D**.
Institution: Imperial College London, UK
*University of Warwick, UK
**Monash University, Australia

Summary: Background The ability to perform clinical procedures safely is a key requirement for healthcare professionals. Performing such procedures on conscious patients requires integration of technical skills, communication skills and a high degree of professionalism. We have developed procedural scenarios, where inanimate models attached to Simulated Patients provide a convincing learning environment. Procedures are rated by expert observers and by the 'patient' and recorded for subsequent review. This paper explores the potential of locating such scenarios within a real clinical setting, allowing participants to experience the challenges of the workplace while ensuring patient safety. An innovative portable digital recording device (the 'Virtual Chaperone') is evaluated for use in clinical settings. Methods A qualitative study (observation and interviews) investigated volunteer medical students undertaking two procedure scenarios (insertion of urinary catheter and wound closure with sutures) within the Accident Department of a teaching hospital. All procedures were observed in real time and recorded digitally, using the Virtual Chaperone. A protocol was used for structured feedback. Observational and interview data was analysed using standard qualitative techniques.

Results Seven sessions with 22 undergraduate medical students took place over 9 months. Data confirmed the feasibility of using a moveable, self-contained training scenario within an authentic clinical setting. Overall, the response from participants was highly positive.

Conclusion Scenario-based teaching within an authentic clinical environment is feasible and perceived by participants as educationally useful. By blurring traditional boundaries between skills lab teaching and clinical practice, this approach may offer considerable advantages in training for clinical procedures.

A multu-tier web-based approach to enhance e-learning in histology

Keywords: Content management, histology
Authors: Hugo, AP; NEL, MM; BUYS, J; Geyer, HJ.
Institution: Faculty of Health Sciences, University of the Free State. South Africa

Summary: Credible subject content and correct presentation are essential for successful e-learning applications. Presentation possibilities of web pages are well-established ensuring correct presentation of content in most fields. Certain programming skills are required for developing a computer-based version of the existing board game, which would make a difference to the quality of students' learning experience. The following questions formed the focus of the research: (a) Does the computer game have a positive impact on students' attitude towards studying medical microbiology? (b) Do students use the computer game as a learning resource? and (c) Is there a noticeable improvement in the test performance of students who avail themselves of this facility? This paper describes the design, implementation and evaluation of the computerized version of the MMFWF board game.

Med Micro Fun With Facts (MMFWF):
A computer game developed to master medical microbiology and infectious diseases

Keywords: medical microbiology, computer game, technological skills
Authors: Struwig, MC; Hugo, AP; Beylefeld, AA
Institution: Faculty of Health Sciences, University of the Free State. South Africa

Summary: The development of creative, student-centered learning opportunities currently enjoys prominence in South African higher education environments. In pursuit of this aim, one of the authors of this paper (MCS), developed a board game (MMFWF) based on the factual content of medical microbiology and infectious diseases. Apart from imparting facts in an informal manner, the game was originally designed to enhance students' command of general skills such as teamwork, communication and personal interaction. Evaluation of the game by learners and academic staff members indicated that a computer-based multiple-choice-question (MCQ) version of the game might create a meaningful learning experience in a directed student learning setting. A computerized game also held the promise of “forcing” students to apply general, technological skills while mastering learning content. It was furthermore pointed out in the process, students' reported negative attitude towards studying medical microbiology might be tempered. A central concern was whether the financial and human resources input required for developing a computer-based version of the existing board game, would make a difference to the quality of students' learning experience. The following questions formed the focus of the research: (a) Does the computer game have a positive impact on students' attitude towards studying medical microbiology? (b) Do students use the computer game as a learning resource? and (c) Is there a noticeable improvement in the test performance of students who avail themselves of this facility? This paper describes the design, implementation and evaluation of the computerized version of the MMFWF board game.
Content management takes place in the primary interface that references the database directly. The JavaScript arrays that populate the slide show with content are generated from the database and saved as external JavaScript library files. This enables the lecturer to manage the content through the database. Ensuring credibility of content is much simpler and faster and learners benefit because it is in the hands of the lecturer, not the developer. The application will benefit any discipline that uses images with descriptive text as educational material.

**E learning - the way forward?**

**Keywords:** distance learning, multi institutional partnerships, CPD, supported on line learning

**Authors:** Brigden, D.

**Institution:** University of Liverpool / NHSE (Mersey Deanery)

**Summary:** The presentation will commence by describing the establishment of a range of on line programmes by a partnership of Higher Education Institutions. It will review the need, the processes and emerging pedagogical issues. Recognition of the need to develop a climate of trust, the common challenges encountered in professional education and the introduction of mentors to enhance the facilitation of learning

**Integration of an e-learning platform in medicine teaching - Fifth year medicine students’ opinions**

**Keywords:** Distance learning; WebCT platform; virtual university; medicine teaching

**Authors:** El Balaas, Z.; Anex, M.; Le Beux, P.; Nguyen, JM.; Ploteau, S.; Philippe, HJ.

**Institution:** Faculté de Médecine TICEM, Nantes. France

**Summary:** An e-learning platform is an essential technical tool in this e-field. In order to meet the students' expectations as closely as possible, a survey was conducted in October 2003 on their use and opinion on the webCT platform, which is supplied by the Virtual University of Pays de Loire for the 5th year medicine students at the Faculty of Medicine of Nantes, France. This platform develops several subjects such as notebook of training course, courses planning, tutorial system, self-assessment and remote follow-up. The results of this survey showed that students' research priorities are Referentials (22%), multimedia and interactive illustrations (21%) and clinical cases for self-assessments (18%). An e-learning platform is a very important tool for the follow-up of students, it allows them to LEARN (Referentials), UNDERSTAND (multimedia illustrations) and REVISE (clinical cases).

**Making the Case for Inter-professional E-learning**

**Keywords:** patient case studies e-learning inter-professional learning

**Authors:** Davidson, A.

**Institution:** Coventry University

**Summary:** Patient Case Studies are commonly used in health professional education. Web technologies extend the educational possibilities of this type of resource by permitting a multi-layered, multi-faceted presentation of a patient journey. This enhances their potential as an e-resource for inter-professional learning, as well as their re-usability in a variety of learning contexts. However the construction of such Case Studies presents a number of challenges. How do you optimise educational input from a whole healthcare team without making unrealistic demands on their time? What additional data protection and confidentiality issues arise in the use of extended case studies? How do you allow teachers to customise the resource to fulfil different learning outcomes? To address these challenges we have developed a methodology that optimises involvement from healthcare professionals and educationalists in case study construction. Stages include a modified ‘process mapping’ technique to identify the patient journey b) a PowerPoint ‘storyboarding’ stage to map the case study components with its learning potential, and c) embedding the Case Study components in an accessible, web template which allows individual teachers to take ownership of by integrating customised learning activities. The presentation will demonstrate all the stages of Case Study construction from initial idea through to piloting within inter-professional student workshops involving medical, nursing, AHP and social work students.

**Assessment of the quality of interactions in distance learning courses utilizing the Internet (WebCT) or interactive television (ITV): Part 2**

**Keywords:** Interaction, Internet, Interactive TV

**Authors:** Prof B Mash, Ms D Marais, Ms S Van Der Walt, Ms I Van Deventer, Ms M Steyn, Prof D Labadarios

**Institution:** Stellenbosch University

**Summary:** Introduction. WebCT and Interactive TV (ITV) are the main technological methods used to deliver distance education at Stellenbosch University. This abstract presents part of a larger study designed to assess the existing approaches to instructional design and interaction. In Part 2 of this study the aim was to assess the nature and frequency of interactions in WebCT bulletin boards (BB), WebCT chat rooms (CR) and ITV.

**Methods.** Fifteen (out of 68) BB, 14 (out of 32) CR and 13 (out of 25) ITV conversations were randomly selected for coding using a modified Exchange Structure Analysis. The data was analysed to determine who dominates the discussion, what are the tutors and students talking about and what roles do the students and tutors take? Each turn was coded according to who was speaking (student / tutor), the topic (coursework / social / administrative), one structural category and as many moves as might apply to that turn.

**Results:** The average number of turns per conversation was 40 in ITV, 68 in BB and 204 in CR. The main results are shown in Table 1 and further analysis and explanation will be given at the conference.

**Conclusion:** Interactions between students and tutors in these courses differed considerably depending on the mode of interaction. ITV favoured a lecturer centered more didactic conversation with questions and answers. BB favoured student-to-student interaction with a more equal balance between student and tutor while CR allowed a more equal balance between student and tutor with all participants involved in a dialogue characterized by exchange of information and reflection.


**Student Feedback Regarding the Relative Utility of Five Distinct Instructional Elements in a Computer-based Tool Designed to Support the Development of Diagnostic Competencies**

**Keywords:** instructional design, educational utility, learning

**Authors:** Papa, F.

**Institution:** UNT HSC

**Summary:** Problem: There is reason to believe that medical faculty rarely seek student feedback regarding the relative utility of various instructional approaches. However, as traditional approa-
Planned teaching of thorax radiology through the network

Keywords: E-Learning, Radiology, Thorax, Patterns

Authors: Diaz-Flores, L.

Institution: Universidad de La Laguna

Summary: Planned teaching of thorax radiology through the network Diaz-Flores L, Armas C and Oton C. Radiology Chair. University of La Laguna. Introduction: The teaching attended by computer (TEC) is a priority guideline of the European Union. The Radiology Chair of the Faculty of Medicine of La Laguna have been developing since the 80s, systems TEC as complement to the practical classes. We proposed ourselves the development and testing of a Tele-Teaching for plain thorax radiological patterns, accessible by the network.

Materials and Methods: Radiographic films: Collection of 10 digitalized cases of thorax radiology with several radiological patterns and 2 normal plain films for the study of radiological anatomy.

Model of education: The student navigates through the application by means of an answers/questions system, with the basis of the planned teaching. Each error is corrected by means of a different processing for each item, the successes are reinforced and if after diverse trials the student does not succeed then the correct answer is indicated in a graphic way (i.e. locating the pathology). The Tutor program: It have been developed in Dynamic HTML and can be rendered by any web-browser that supports HTML 4.01. Validation: Tutor have been validated with 92 students of the third course of medical radiology through a questionnaire of practical knowledge of radiology before and after its execution. Also they undertook an evaluation poll and error detection of the program.

Results: The program have satisfied the students. The results of the validation are presented as well as the personal appraisal that offered upper over the 70% between good and very good in different aspects analyzed. The suggestions added are listed and the final version has been included in the URL http://www-rayos.medicina.uma.es/Apurf/Apurf-web.html

The Use of Standardized Families for Training of Professionals and Volunteers in Communicating about Organ Donation

Keywords: standardized families, simulation, organ donation

Authors: Jacoby, L., Fox, H., Crosier, V., Pease, E., Delair, S., and Pohl, H.

Institution: Albany Medical College

Summary: The quality of end-of-life care in hospitals in the US has received increased attention both in the lay media and professional literature during the past decade. End-of-life care communication between intensive care staff and families may involve discussions about brain death and the option of organ donation. Families’ perceptions of the quality of this communication process have been correlated with their willingness to give consent to organ donation. The circumstances in intensive care units in which end-of-life decisions typically are made are complex, dynamic and highly emotionally charged, making it challenging to optimally manage the learning environment. Simulation of such situations as an educational method offers the opportunity for experiential learning of essential communication skills in a safe environment. We propose to describe a novel experiential training method for organ donation conversations using families (i.e. 2 or more standardized patients) from the community targeting professionals as well as volunteers as learners. More specifically, these volunteers are mothers of organ donors whose role is to provide peer support to families of potential organ donors working in tandem with nursing and organ donation staff. This presentation will provide an overview of the unique involvement and training of community members to serve as standardized families and describe the program’s foci on ways to meet families’ emotional, cultural and spiritual needs requiring sophisticated interaction skills on the part of the caring team.

Training International Medical Graduates for Australian General Practice

Keywords: distance learning, international medical graduates

Authors: Jones, B.

Institution: James Cook University

Summary: Australia has a shortage of general medical practitioners in rural areas. In response to this need, many international medical graduates have been recruited to work in these areas. Those who have suitable experience are sent to work in unsupervised practice, often with the proviso that they pass the examination of the Royal Australian College of General Practitioners within two years. Their pass rate is very poor however. They have often been trained in countries with different health needs and priorities, and hence lack the knowledge required for Australian conditions. They have language difficulties, and problems understanding Australian cultural expectations. In an effort to raise the standard of practice in these rural areas, and to assist the doctors to pass the RACGP examination,
a distance education course was set up by James Cook University School of Medicine in 2002. The course includes two face to face weekend, the rest being completed by internet and telephone conferencing. Participants all reported that they found the course extremely valuable and had changed many aspects of their practice as a result of it. More details of experience and outcomes from the courses will be presented.

**Bringing the Bush to the City: using e-mentors to link medical students with rural health professionals**

**Keywords:** mentoring, electronic mentors, distance education, rural health

**Authors:** Sen Gupta, T.; Grant M; Wooley T; Taylor L

**Institution:** School of Medicine, James Cook University

**Summary:** Introduction. The James Cook University medical course has a major focus on rural and remote health, with a minimum of 20 weeks of structured rural placements across years 2, 4 and 6. A semester-long subject in year 2 called Rural, Remote, Indigenous and Tropical Health (RRITH) provides the theoretical underpinnings of these strands of the course and prepares students for rural placements. In order to provide a rural context and focus for their learning at a non-rural campus during this subject, students are linked electronically to a mentor in a rural, remote, tropical or Indigenous health setting. Learning activities including development of a community profile and a community project plan.

**Methods.** A detailed qualitative evaluation was performed using questionnaires, direct observation, analysis of outputs, and semi-structured interviews with students, e-mentors and other stakeholders.

**Results and discussion.** Students and e-mentors supported the project and felt the objectives of the programme were met. Guidelines were developed for communication strategies, preparation of participants, curriculum design and resource utilisation. Students were able to develop an understanding of a particular rural community, its health needs and health system, and in some cases formed a long-term relationship that led to visits or placements in that community. Links formed through this programme were identified as having possible long-term benefits for the institution, the communities and the e-mentors.

**Conclusions.** e-mentors can be used to provide an efficient and effective low-cost model for ruralising an on-campus course in rural health and helping students ground their learning in a real life situation.

**The virtual ward: making the transition to problem-based learning**

**Keywords:** virtual learning, case studies, problem based learning

**Authors:** Kegaldie, D., Lawson, M and Jeavons, T.

**Institution:** Monash University

**Summary:** This paper describes the issues faced by science staff in the conversion of online cases from a traditional teaching environment to a problem-based learning (PBL) environment. In 2003, a cross-faculty collaboration between Science and Medicine at Monash University saw the development of a series of online case studies, called The Virtual Ward 1 & 2. The cases were used in a traditional curriculum for second year nursing students learning Anatomy & Physiology. This year a new series of cases, The Virtual Ward 3, were implemented along with PBL in the subject Pathophysiology for third year students. The science teaching staff faced a number of issues concerning both the educational design of the virtual cases in the PBL environment, and the challenge of PBL teaching for the first time. The PBL approach required a different educational design in software content - less sequential, more open-ended. The different pedagogy raised a number of concerns: the development of PBL skills in novice staff, the role of the tutor, the lack of content expertise of the tutors, anxiety over the reduction in expository teaching, and student assessment. The major barriers to implementation were cultural in terms of introducing an innovative model of PBL supported by a multimedia application. The major perceived benefit was the introduction of a clinically relevant science basis for undergraduate students. Strategies to prepare staff to address these issues are discussed.

**A successful approach for student retention**

**Keywords:** retention

**Authors:** Black, Iona

**Institution:** Yale University

**Summary:** Student retention is dependent upon many factors. Some of the factors are: study skills; group interactions; research experiences; and course preparation. This presentation will focus on two programs, which enhance these factors, at Yale University. The two programs are: the Science, Technology and Research Scholars Program (STARS), and the Summer Minority Education Program (SMEP). Also a modification in a beginning chemistry course will also be discussed. This course is required as a pre-medical requirement for the additional courses required if one wishes to pursue a medical career. The particulars of the programs and the course will be discussed regarding selection, size, tutorials, mentoring, research, and social activities. Additionally the retention rates and success of the students at the undergraduate and graduate levels for the last eight years will also be presented.

**Using streamed video to support teaching and learning in medical education**

**Keywords:** e-learning; distance learning; streamed video; video streaming

**Authors:** Smith, C. D. and Whiteley, H. E.

**Institution:** University of Central Lancashire

**Summary:** This paper outlines the potential impact for medical education of using streamed video to support online teaching and learning. The impact on teachers and students will be outlined both generally and in the context of a project which has studied the use of streamed video in an undergraduate course. The use of ‘streaming’ digital video as a teaching and learning resource is rapidly becoming an attractive option for many educators as an innovation which increases the range of learning resources available to students (see, for example, Shephard, 2002). The vision is clear: to move away from static text-and-graphic resources towards a video-rich online learning environment, offering images, interactivity and integration with other resources. This environment integrates, inter alia, still and moving images, live or recorded lectures, locally produced video, web resources and synchronous and asynchronous communication tools. The streamed video project at UCLan has introduced and evaluated streamed video into undergraduate modules, in order to assess and expand staff expertise in the preparation and use of such materials and to create a greater understanding of the pedagogical impact of the medium compared to other methods of delivery. Results will be presented in terms of student usage, feedback and examination performance compared to other methods of delivery, such as traditional lectures and other online formats.

Validation study on simulated patients

Keywords: simulation training validation actor

Authors: R. Aragonés, D. Aguilar, A. González, M. Santos, A. Martin

Institution: IAVANTE

Summary: Title: Validation study on simulated patients R. Aragonés, D. Aguilar, A. González, M. Santos, A. Martin. 1. Casualty and Critical Care Unit. Carlos Haya Regional University Hospital. 29011-Malaga. Spain.

Method: Study carried out on 8 volunteers from the healthcare sector acting as simulated patients in a medical interview which was repeated after a training session. Design of a skills evaluation checklist which includes: an objective evaluation of the clinical case, simulation ability, memory and information retention, communication abilities. Preparation of profile for selection and training of simulated patients. Results: Tables 1 and 2.

Conclusions: (1) The selection of simulated patients as a didactic resource must be defined in terms of the established psycho pedagogical objectives. (2) Training must be adapted to this previously defined profile and must also be validated by the scope of said profile. (3) Our study showed an improvement both in the participants' simulation ability and in the communication of the objective of the clinical case after the training period.

Thumbs Up For Electronic Osce Assessment

Keywords: PDA, OSCE, electronic assessment

Authors: Treadwell, I.

Schmidts, M.

Institution: University of Pretoria

Summary: Overview: Administrators of OSCEs using paper checklists experience problems such as illegible handwriting, missing student names and/or numbers and worst of all lost checklists. Calculating and entering results is not only time consuming but also subjected to human errors while feedback to students is rarely available. To rectify these problems PDAs (Personal Digital Assistants) and software (*HaPerT) were acquired to replace paper checklists and provide automated results and feedback.

Aim: To determine the impact of introducing an electronic OSCE assessment system.

Methods: The system was used for three OSCEs, which in total comprised 13 stations, 13 assessors and 329 students.

The electronic OSCE logistics were compared to the paper based methods. Questionnaires were used to obtain feedback on the assessors’ experiences.

Results: The setting up of an OSCE electronically and synchronising PDAs with checklists and lists of candidates took no longer and was cheaper since no photocopies had to be made. The results, feedback to students and examination statistics were available within minutes of completion of the OSCEs. Prior computer skills varied from none to very skilled and the training took 34 minutes on average. The checklists were user friendly and the navigation was easier after having assessed 3 candidates. The ease of selecting students and writing comments, as well as the swift completion were highly rated. The paperless method was less intrusive for students and it was easier to use when having to change venues.


Assessment of the quality of interactions in distance learning courses utilizing the Internet (WebCT) or interactive television (ITV) (Part 1)

Keywords: Internet, Interaction, Interactive TV, Distance learning

Authors: Prof B Mash, Ms I van Deventer, Ms M Steyn, Ms D Marais, Ms S Van Der Walt, Prof D Labadarios

Institution: Stellenbosch University

Summary: Title: Validation study on simulated patients R. Aragonés, D. Aguilar, A. González, M. Santos, A. Martín. 1. Casualty and Critical Care Unit. Carlos Haya Regional University Hospital. 29011-Malaga. Spain.

Method: Study carried out on 8 volunteers from the healthcare sector acting as simulated patients in a medical interview which was repeated after a training session. Design of a skills evaluation checklist which includes: an objective evaluation of the clinical case, simulation ability, memory and information retention, communication abilities. Preparation of profile for selection and training of simulated patients. Results: Tables 1 and 2.

Conclusions: (1) The selection of simulated patients as a didactic resource must be defined in terms of the established psycho pedagogical objectives. (2) Training must be adapted to this previously defined profile and must also be validated by the scope of said profile. (3) Our study showed an improvement both in the participants’ simulation ability and in the communication of the objective of the clinical case after the training period.

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Thumbs Up For Electronic Osce Assessment

Keywords: PDA, OSCE, electronic assessment

Authors: Treadwell, I.

Schmidts, M.

Institution: University of Pretoria

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was rated higher. The value of this research project and the results obtained lie in its potential to create recommendations for faculty who are involved with instructional design and distance education.

References

A problem-oriented teaching model with an IT-assisted learning environment in teaching Public Health

Keywords: e-learning, small-groups, problem-oriented, case-based, public_health

Authors: Jansen, H.
Institution: Vrije Universiteit Brussel

Summary: The teaching environment of public health teaching in the medical school of the Vrije Universiteit Brussel is modified to develop life long learning skills. The primary aim of this system is to get the medical student acquainted with public health topics. This learning environment also aims to improve the student’s skills to cope with future public health problems, reduce personal study time, reduce the threshold of public speaking and most important to develop skills of working in a team on a joint case. By introducing laptop assisted teaching combined with ex-cathedra courses and working in small groups, a competence based learning environment is created. The sessions are started with basic theoretic knowledge to guide the students during the second part where they are asked to work on a Case-Based and Population-Oriented question, in small groups on Wifi enabled laptops. After solving the Case-Based question and diverging it to the Population-Oriented problem the small groups present their case in plenum. During the whole session the e-learning platform Blackboard is used to assist the students in finding the appropriate scientific knowledge on the internet. After each presentation the tutor has time to correct and has the possibility to put accents on some parts. The Case-Based and Problem-Oriented question is also as an item during the global exams at the end of the year. Although the project is not evaluated yet by the students, the presence list of this course, with no obliged presence, raised from beneath 50% in recent years, to around 90%.

Reusable learning objects and ‘Just-for-you’ learning

Keywords: educational strategies; instructional design; e-learning

Authors: Harden, R.
Institution: International Virtual Medical School (IVIMEDS)

Summary: Reusable learning objects (RLOs) have been described as the instructional design for the future. In the context of the International Virtual Medical School (IVIMEDS), the use of RLOs has been explored to meet the challenges facing medical education. RLOs include content objects, virtual patients and assessment instruments. The same RLOs can be combined effectively in different sequences using learning objects, which are content free, to offer a range of educational strategies. Strategies include: (1) ‘Guided-learning’ in which the student is facilitated on his/her learning by an e-learning teacher; (2) ‘Problem-based’ learning in which a virtual patient is the focus for the student’s learning; (3) ‘Exploratory outcome-based’ learning in which, to meet the expected learning outcomes, the student explores the curriculum map and the RLOs related to each node of the map; (4) ‘Focused learning’ in which the student searches for information on a specific topic; (5) ‘Assessment-led’ learning in which, through an initial self-assessment exercise, students identify the areas where further study is necessary. The use of a learning object economy makes possible ‘Just-for-you’ learning in which the content of learning and the learning strategy is tailored to meet the needs of the individual learner.

Implementation and evaluation of an electronic portfolio to support undergraduate medicine

Keywords: portfolio, reflective learning, summative assessment, learning outcomes

Authors: Simon Cotterill, Tony McDonald, Geoff Hammond, Philip Bradley
Institution: School of Medical Education Development, University of Newcastle, UK

Summary: An electronic portfolio (ePortfolio) was introduced and trialled in the undergraduate medical programme at the University of Newcastle from September 2003 as part of a collaborative FDTL4 project (http://www.eportfolios.ac.uk). As well as supporting specific aspects of the curriculum, the overall aim of the ePortfolio is to help foster a reflective approach to evidencing the achievement of both module-specific and programme learning outcomes. The ePortfolio has been integrated into the managed learning environment and is being used across the curriculum. Year 1 & 2 students (n=450) were given the option of completing sections of a portfolio either in a paper log-book or in the ePortfolio. In year 3 the ePortfolio is being used to support a clinical rotation in reproductive and child health (commencing 08/2004). In year 4, students (n=282) are required to complete the ePortfolio for one of their three student-selected components (SSCs). By 14/03/2004 819 distinct students had logged on to visit the ePortfolio (including 108 for the ongoing SSC portfolios); 114 had made entries in the learning diary, 54 had recorded meetings with their personal tutor and 50 had recorded information using non-compulsory features such as the CV, SWOT and learning outcomes log. As part of the evaluation and research activities ethical approval has been sought and granted prospectively for the group and questionnaire based studies of both the year 1 ePortfolio and the year 4 SSC ePortfolio. Here we report on the experiences of designing and implementing the ePortfolio together the initial findings of the evaluation studies.

The Evolution of a Managed Learning Environment for Medicine: The Newcastle Experience

Keywords: Managed Learning Environments, Portals, VLE, e-communicating, e-learning

Authors: Shelly, G.; McDonald, A.M.; Cotterill, S. and Bradley, P.M.
Institution: Newcastle University

Summary: The Managed Learning Environment (MLE) [1] for undergraduate medicine at the University of Newcastle currently supports over 1,400 students, and over 1,600 contributing staff within the delivery of a regionally dispersed curriculum. In order to accommodate an expansion of medical student numbers, new medical curricula, changing policy and user requirements the Newcastle MLE has had to be both adaptive and res-
Problem based learning on the Web - an outreach to Norwegian medical students abroad

Keywords: Problem base learning (PBL), Internet, Undergraduate students

Authors: Geir Jacobsen*, Toralf Hasvold**, Roar Johnsen*, Karin Skarsaune**, Zoltat Tot***

Institution: *Norwegian University of Science and Technology (NTNU) ** University of Tromsø
*** National Centre for Telemedicine, Tromsø

Summary: Background and aims: Before internship registration, Norwegian graduates from foreign universities and foreign physicians who consider to work in the country must document skills in national health legislation, organization and economy. To meet this requirement we organized a problem based learning course, which was web-based, and with the use of Multiple Essay Questionnaires (MEQ) in groups.

Methods: Educational goals were defined for four separate modules with a direct focus on aspects of clinical practice. All subject information may be accessed from relevant web-sites and no standard textbooks are deemed necessary. Challenges are presented as regular cases with a combination of live and still captions and written text. Groups of 6-8 students throughout Europe and Australia and their tutor communicate via a closed web forum. Each clinical scenario requires group answers to objectives defined by the students under tutor supervision. Several individual assignments are also required. A final one week seminar includes a visit to a district health centre and an individual written exam, using the same format.

Results: Some 30 students have completed the course successfully. They found challenges relevant, tutor feedback adequate, workload greater than expected, and technical solutions not quite optimal. The seminar was regarded as a must for the positive outcome.

Conclusion: Medical undergraduates abroad may benefit from medical problem solving in groups via the web, even when prior subject knowledge is limited. During the next phase a similar offer is also presented to physicians from countries outside EUEEA

Challenges of e-learning education for Health professionals: The UOC experience

Keywords: Virtual environments, Knowledge society, e-learning, usability, prototypes, learning representations

Authors: Arbués, M., Via, J.M., Vazquez, M, Bosch, X., Munar, W.

Institution: UOC - Open University of Catalonia

Summary: Health Education in Virtual Environments. Learning in networks through networking. In the early XXI century society, a new way to learn called e-learning is strengthening. The influence of the knowledge society, the application of e-learning experiences and the usability of the system opens new and wide opportunities to share knowledge among professionals and health organizations. Our contribution during the session will be presenting and sharing the following subjects: Challenges for universities and health education institutions: To take advantage of ICT – Information and Communication Technologies – facilities and the Internet to promote e-learning health environments. To progressively develop the best e-learning health methodologies applying innovation, real experiences, prototypes and research. To create learning networks between health contexts and e-learning spaces. To generate e-learning health communities across the world. To contribute to and add value to the use of e-learning applications when sharing, bringing it to diverse professionals and countries. Talking about e-learning experiences at UOC in a health context.
Principal issues: The education programmes design working jointly among national and international professors and experts looking for e-learning systems to make representations of the real situations. Developing health networks for e-learning developments creating appropriate learning and supporting materials for e-learning educational programmes in health. Providing an appropriate context for each geographic and specific reality. The presentation of health e-learning examples carried out applying the UOC e-learning knowledge: E- Oncologia - ICO-Catalonian Institute of Oncology – and UOC Virtual Campus for Public Health – OPS - Pan-American Health Organization and UOC Master Degree in Health Sciences at UOC

Guidelines for Creating a Standard Format for Shareable Multimedia
Keywords: digital video, procedural skill, shareable
Authors: Holmes, B.; Robertson
Institution: Dalhousie University
Summary: Medical schools have been investigating methods of storing web-based cases and share digital media files for years. Despite good intentions and major technical progress, we are still unable to take full advantage of the rich technological resources we all have access to. For example, quite often the material being developed is being done with limited funding and within a single medical school, often using complex formats unique to that application, and usually with no time to think about coordinating or sharing the development with other medical schools. We developed general guidelines and examples for creating a standard format for shareable multimedia medical education materials. Our guidelines allow for inexpensive resources, but which produce consistently high quality results. We developed examples of procedural skills and ensured that all participants assigned their copyright interests to the University, which in turn has licensed the material for open sharing, and any non-commercial use. These educational materials can be used for learning a procedural skill for the first time in Undergraduate Medical Education, or as a refresher in Continuing Medical Education. Curriculum designers will have a standardized resource for all their learners and for their clinical teachers. The examples that we have developed are freely shareable, and easily accessible from a public website. Our presentation will highlight the guidelines, demonstrate one example of a procedural skill, and refer participants to a website where they can obtain free copies of all the examples.

On-line Patient Encounter Simulation
Keywords: case-based problems, patient simulation, computer-based learning, on-line interactive simulation
Authors: Pleiszer,D. ; Marrin,M. ; Wallace,G. ; Pusic,M. ; Posel,N. 
Institution: McGill University, McMaster University, University of Ottawa, University of British Columbia
Summary: Case-based clinical problems are an established and effective tool to teach medical students. Development of these cases is labor intensive. Their use is often limited to interactive small group discussions or non-interactive paper-based cases. Computerized cases provide students with the opportunity for individual interactive learning. A team of Canadian medical schools has developed an internet-based system that: a) provides on-line authoring of cases, b) includes multimedia (clinical pictures, animations, illustrations, video, sounds, etc.), c) links to a digital repository as a download source of clinical material and storage for the cases, d) requires students to interact by requesting information from the simulated patient, looking for specific physical signs, ordering imaging and lab tests and interpreting results, e) expects the student to develop and modify a differential diagnosis as information is collected, f) links to rationales and evidence-based information regarding each data point in the case and g) provides a comparison of the student’s management of a case to a panel of experts. Advantages of this approach are that a) the technology can be used to provide interactivity, rich multimedia and rapid links to other teaching material at the time of need and b) the construct can be available to clinical teachers wherever they are, so that collectively a large numbers of cases can be collected, stored in the repository and then shared. With this approach medical teachers can benefit from each other’s efforts and expertise, and provide students with a wide variety of excellent case-based clinical problems.

The new technologies in the medical education
Keywords: new technologies of medical education, distant education, creating pedagogical expert systems and systems of knowledge control
Authors: Voronenko Yu., Mintser O.
Institution: Kyiv Medical Academy of Post-Graduate Education named after P. L. Shupyk
Summary: The appearance of new and new medical specialties results in the fact that there is no University in the world which could ensure a highly qualified (at least, there is no opportunity to ensure a sufficient amount of patients on rare nosologies – it is possible to achieve it only in big regional medical centers). Only the cooperation of Medical Universities based on a wide using of information technologies will allow achieving “polishing” knowledge of professionals. Similar “globalization” of medical education induces a great number of problems. Medicine represents itself a field of knowledge characterized by increased responsibility in taking solutions, time deficiency for collecting necessary information frequently, this information is not precise concerning pathological is not process of a suffering patient. The second tendency of the development of modern higher medical education is enhancing its practical orientation. Hence, it is evident that Universities aspire to train specialists who are able to be adapted rapidly to changing conditions of professional activity in the shortest time. Thus, the basic priority of the development of medical education becomes its personality-oriented tendency and the major trend of the development is creating open and virtual Universities, including distant and small communities into educational system, spreading technology of distance education etc. So, the conception of creating a medical educational system assumes that each student should be ensured by free access to information resources. The main key factors, which must lead to information evolution, should be called: creating pedagogical expert systems and systems of knowledge control. The future of medical education without including the latter ones seems to be doubtful.

Experiences from supplementing of a PBL-setting with Live-transmission of paediatric patients
Keywords: e-learning, video, wlan, paediatrics, live transmission, pbl
Authors: Sostmann, K.; Schnabel, K.; Barthel, St.; Gaedicke, G.
Institution: Charité, University Medicine Berlin, Department of General Paediatrics, Reformed Medical Curriculum
Summary: We want to share our experiences we made with the introduction of a Wireless-Local-Area-Network(WLAN)-based transmission of real patients into the already established PBL-scenario in Berlin at the Reformed Medical Curriculum, based on Papercases. Our aim was the experimental evaluation of the use of a new technology during a PBL-session. How could technology help the students to get a more realistic impression of the patient and his problems? Methods: We offered two following sessions, each to three groups...
of seven students of the sixth semester. Each session consisted of a short introduction, the presentation of the patient by himself. During the next step we stopped the interactive part of the transmission, to let students define by themselves the patients problems and their problems in understanding. After defining further questions, pbl-groups were online again at the same time and enabled to ask their questions directly to the patient. Furthermore a MD at the patient’s site examined the patient as far as he/she allowed and the students asked. Finally students defined their learning goals and finished the session.

Results: From our experiences during the transmission as well as from the qualitative and quantitative student’s evaluation (5 point Likert-scale), an increasing degree of satisfaction could be demonstrated. We can conclude that this technology is useful to provide a better understanding of clinical problems.

Conclusion: The use of the Live- transmission could become a supplement of traditional clinical education: apart from ethical advantages, it offers fast and direct access to one patient for a large amount of students time- and location-independently.

'RAMP' to the future: A launch pad to the future
Keywords: eLearning: Healthcare education
Authors: Atkinson, A.
Institution: St. George’s Hospital Medical School
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"RAMP" to the future: A launch pad to learning in the electronic era. This presentation examines e-learning in health care education and explores the creation and development of a module that prepares learners' for learning in the electronic era. The "RAMP" will be discussed with analysis of its design and how it is intended to act as a launch pad to learning in the electronic age. The UK government seeks to provide access to Higher Education (HE) for 50% of all people aged between 18-30 by 2010. The "RAMP" which is part of a Foundation Degree (FD) addresses the issues raised by widening the access to HE. Building the "RAMP" The "RAMP" evolved because of the difficulties learners have in adapting to the relatively new and unfamiliar world of e-learning in HE. It has been designed to raise all learners to the same academic level ready to progress into the foundation degree. The "RAMP" will provide learners with opportunities to gain a practical understanding of the teaching, learning and reflective methods that will be employed within a programme. The sessions within the module include: computer skills, studying online resource, literacy and core human communication skills. These will be delivered via face to face traditional methods as well as online and other electronic means. The "RAMP" is innovative because it combines e-learning with traditional learning methods. Further it blends HE, Further Education and professional groups together to meet specific learning needs and can be adapted to meet the requirements of learners' on any HE programme.

Requiring Personal Digital Assistants (PDAs) for Clinical Education: Considerations in Development and Implementation
Keywords: Mobile computing, computer assisted learning, clinical education
Authors: Anja Relan, PhD; Neil H Parker, MD; LuAnn Wilkerson, EdD; Robert Telease, PhD; Evie Kumpart
Institution: David Geffen School of Medicine at UCLA

Summary: Background: PDAs have gained popularity in medical schools to help standardize the clinical curriculum, enhance diagnostic reasoning skills, access medical knowledge at point of care and encourage self directed learning. Since the Fall of 2000, David Geffen School of Medicine at UCLA has implemented a PDA requirement for all entering third year students. In this study we describe the successes and limitations of the program to date.

Method: A Palm OS with 8 MB of memory (updated to 16 MB presently), a free pharmacopoeia and medical calculator constituted the requirement. An extensive patient documenting system (PDA Patient Log) was developed for seven required clerkships. PDA formatted clerkship materials, a standalone Surgery self assessment module containing over 500 items, and two faculty evaluation instruments were also developed. Students were trained via demonstrations, modeling, interactive audience response system, and case based problems.

Results: The pharmacopoeia was rated as the most valuable, highly used PDA tool. 17,449 patients were entered to date this year (N = 150). The variability in the quality of problems seen and inter site differences has prompted restructuring of selected clerkships. At snapshot of student experiences in clerkships- elusive in the past, is steadily emerging. Major revisions are planned to improve the usability of this system, student compliance and faculty monitoring of student experiences.

Self-learning stimulation of medical students by computerized interactive exercises on solving of new born real clinical cases
Keywords: Self-learning: computer interactive: clinical cases
Authors: Bravo L., Carolina1; Hering S., Verónica2; Barrera B., Claudia2; Rebolledo S., Sandra1. (Medical Student 1. Staff Pediatrician 2. Department of Pediatrics, Faculty of Medicine, Universidad Austral de Chile, Hospital Clínico Regional de Valdivia).
Institution: Universidad Austral de Chile
Summary: The overwhelming load of medical information and the necessity of maintaining updated medical knowledge, as well as the increasing health performance demands, are leading training programs in search of new teaching alternatives, to enable future medical professionals dealing with this fast changing practice scenery. Self-learning by solving problems using real clinical cases and situations is an excellent method to be explored. It allows students questioning, investigating and having critical approaches to practice. Also, developing skills supported by critical review of evidence based medicine most current and validated information.

Method A Computer Interactive Self-Learning Module (CISLM) easy and friendly to use, was designed and built by a medical undergraduate student of our Pediatric Internship Program (PIP), containing ten selected real cases from our Neonatology Unit. Each module presents learners one clinical case at the
time, to be solved step by step in accordance to the outlined problems, until being able to establish diagnosis and taking appropriate decisions. Clinical histories, physical examinations and laboratory findings, plus required complimentary information, is progressively surrendered through interactive links on each screen. Pass or fail progressive feedback permits, are issued after completion of each step.

Evaluation Students opinion of the author’s fellow students about this CISLM, along with their progress in their PIP, was recorded into a pre-established Opinion Guideline, valuing interest and stimulation to work with it, plus credibility and overall quality of the material used, considering it being elaborated by one of their own classmates.

**Clinical IT environment as resources in a medical curriculum**

**Keywords:** EHR, Telemedicine, cognitive sciences  
**Authors:** Guy Bisson M.D., M.Sc., FRCP, ABNM  
René Hixon PhD.ED. Martine Chamberland M.D., M. Ed., FRCP  
**Institution:** Faculté de médecine, université de sherbrooke  
Summary: Clinical IT environment as resources in a medical curriculum. The incorporation of E-learning in the medical curriculum has received lots of attention in recent years. This attention has been mostly focussed on electronic material creation and delivery of declarative knowledge in the first two years of the curriculum. In our institution, we have focussed our reflection for the past few years mostly on the potential of IT to support the more clinical intensive aspects of our curriculum. Taking into account that the determinants that favour clinical learning are different and that competency acquisition is paramount during the clinically intensive period of our curriculum, a great amount of diversified clinically oriented tasks must be available to students to reach our professional development goals (procedural and conditional knowledge acquisition). With the expansion of our cohorts and the reduced availability to clinically relevant material imposed by the ambulatory care setting, new pedagogical approaches have to be considered to reach our goals. Since more and more Health Sciences organisation like ours have clinical IT infrastructure (HER, telemedicine network, clinical analytical database, information coding, ...), we proposed an integrated architecture to incorporate those resources/opportunities and transform them into clinical academic e-learning opportunities by creating virtual clinical environment. Our architecture offers numerous new clinical possibilities for simulation design, new option for clinical encounters and consultation skills acquisition, clinical competencies evaluation and clinical outcome, pedagogically sensitive rules in the HER, curriculum retro-engineering, ...

**A project of distance learning for nurses**  
**Keywords:** distance learning, nursing, competence.  
**Authors:** SOLA POLA, M. Molins A, Pulpón AM, Pedreyn R, Martinez-Carretero JM.  
**Institution:** Institute of health studies  
Summary: The Institute of Health Studies in order to improve the nursing competences, has designed a distance learning course. This course has been elaborated with the backup of the Virtual University of Barcelona and the Department of Health of the School of Nursing of the University of Barcelona. The accessibility and the flexibility of distance learning responds to the needs of a great number of nursing professionals, that want to update their knowledge but have difficulties in completing on site training. The course is structured in 12 monographic themes related to nursing activities: infancy and adolescence, terminal sickness, elderly people, home attention, diabetes, chronic sickness, mental health, evidence based nursing, preventive activities, and the use of medicines. The methodology utilized is the technique that uses a case to stimulate the reflection and the learning of the theoretical contents. The students have at their service a system of feedback with the authors of the themes. The course counts on three levels of evaluation: the self-assessment, the hetero-assessment and the final exam. The academic accreditation of the course is 200 hours. The course has had a great success and between the years 1998 and 2004 has been achieved by almost 2500 nurses. Due to the arisen interest one is valuing to extend the course with new topics and teaching activities to complement it.

**Learning human anatomy**  
**Keywords:** Human anatomy, learning, teaching, image  
**Authors:** Sempere T, Palau J, José M, Torrente M, Arredondo Z, Cobos P, Piera, V.  
**Institution:** Facultat Medicina. Universitat Rovira i Virgili  
Summary: Anatomy is a basic science in medical education. We can state, then, that the cadaver and dissection have been, respectively, the most commonly used source and method since antiquity for the advance of anatomical science. For centuries, dissection and academic lectures have been the only system by which students have been able to acquire. The shortcoming of this system, however, is that it portrays the organism as a static entity. In recent decades, since the appearance of X-rays and various alternatives that may or may not use radiopaque substances, we have been able to observe most of the structures in the living human being. The subsequent incorporation of computerised analysis for determining the extent to which X-rays penetrate different tissues (TC, helical TC), the field of nuclear magnetic resonance, the ultrasonography, etc, all provide data about the living that was unthinkable even in the very recent past. Nevertheless, they are methods that will be habitually used in the future to make a diagnoses. The task of the anatomy teacher today is to combine all the forms of studying the human body, both classical and modern, and integrate them in a good teaching method. This involves visualizing our organism with the technique that is most suitable for each case. In our contribution, we show how our unit combines, the most classical teaching methods with the most advanced methods of diagnosis.

**Advanced Scoring Technology in a Clinical Skills Center for Standardized Patients with Limited Computer Skills**  
**Keywords:** electronic scoring tablet PC testing  
**Authors:** Fulper, M. and Cantrell, M.  
**Institution:** University of Arkansas for Medical Sciences  
Summary: Electronic scoring can speed up the grading process, but it can also create a high level of stress for Standardized Patients (SPs) unfamiliar with the technology. Our SP’s range in age from 17 to 72 years old. Their computer experience varies from every day use to none at all. Earlier attempts to use laptops for scoring resulted in delays while some SP’s struggled with the laptops. We did not want to add another level of stress to what already exists when scoring high stakes exams. We chose the Tablet PC by Fujitsu. It has a large screen area for viewing checklist items and it does not intimidate our more technologically challenged SP’s. In a survey conducted with 40 SP’s, a majority rated the tablet PC as the same or easier to use than a desktop computer, a laptop, or a Personal Digital Assistant (PDA). The tablets even sco-
red higher than paper and pencil for ease of use. All the SPs were able to use the tablets with little training (<30 minutes). The tablets have reduced requests for technical help and eliminated requests for additional time to input data during exams.

Virtual dermatology resident ship

**Keywords:** distant learning, patient simulations

**Authors:** P.M. Bloemendaal, S. Eggermont, W. Bergman

**Institution:** Leiden University Medical Center

**Summary:** In 2003 a new educational program was initiated for dermatology residents at the Leiden University Medical Center (LUMC). This program addresses the problem of the increased number of residents and the scarcity in availability of experts to teach them. The Dermatology department has introduced Computer Based Training (CBT) material as supplement to their practical training program on the ward. The department has developed eight Dynamic Patient Simulations (DPSs) during the past year, where residents are solely responsible for the diagnosis and treatment of a dermatological patient. The simulations are supplemented with background information on various dermatological disorders and basic information about the field of dermatology. This way medical knowledge is combined with clinical experience using CBT. The DPS are grouped together with other relevant CBT to complete the virtual dermatology resident ship. To ensure easy accessibility, the resident ship was put online with the newly developed Lesson Registration System (LRS.NET). LRS.NET is integrated with the Virtual Learning Environment (Blackboard®) and provides access to all CBT programs, both online and off-line from all over the world. The virtual resident ship can now be followed time and place independent. Teachers can review all lesson- and student-data that is stored in the LRS.NET database. They can easily make reports of the resident’s performance online and evaluate shortcomings in the learning process during small group sessions with the residents. Student- and teacher-accounts for LRS.NET are given out on request to anyone with interest in medical education on http://cbt.lumc.nl.

**Developing IT in Primary Care**

**Keywords:** IT, Clinical Systems, Coding Systems

**Authors:** Rennison, T.

**Institution:** LPMDE-London Postgraduate Medical and Dental Education

**Summary:** The use of Read Coded data entry in Primary Care in the UK is now more important than ever in the light of initiatives like EHR and ICRS. However within the UK approx half of all GPs do not use Read Code effectively. This workshop will discuss issues related to practice based teaching around Read Codes to GPs and Primary Care Teams. Various approaches will be discussed in terms of their effectiveness, as all of the common problems of practice based learning -- when IT is involved. The facilitator will carry out a brief presentation after which participants will be invited to discuss a number of issues related to the use of clinical coding systems and educating clinicians in their use. Topics will include:

- Creating awareness of the individual need for change i.e. implications of diagnostic codes and the problems which arise from poor usage
- Pros and cons of practice based approach to teaching
- Issues of mixed ability in IT related training
- Tackling indiscipline & defensive behaviour
- The Anorak Effect. What is too much coding?
- How to sustain positive change

It is hoped that there will be a useful discussion regarding some of the major issues around IT education such as the use of clinical coding systems, developing the use of electronic records and the unique problems of attempting to develop the use of IT in primary care teams. The facilitator has extensive experience of practice based learning in IT over the last 14 years and is the author of a book and a number of articles on the subject.

**Implementation of e-learning in Institute for Postgraduate Medical Education in Prague (IPME)**

**Keywords:** implementation of e-learning

**Authors:** Motyková, V.

**Institution:** Institute for Postgraduate Medical Education

**Summary:** Implementation of e-learning in the Institute for Postgraduate Medical Education in Prague (IPME) The Institute for Postgraduate Medical Education is a state educational and scientific organization established in 1953 whose goal is to provide postgraduate and continuing medical education. We have extensive experience in the field of postgraduate medical education, but have reached a point where the education we provide needs to meet the challenges of a modern information-based society. Though the idea and necessity of implementing e-learning were considered here a few years ago, real progress was made at the end of last year. Pilot projects explored the following question: Are we able to prepare and organize this type of learning? We have decided to undertake the effort for several reasons. First, we want to be a modern competitive educational institution. Next, we know that our target group – physicians, dentists and pharmacists – experience constant time pressure and need to continually learn. Finally, there are certain areas that would be suitable for e-learning. This does not mean, of course, that we will replace all our existing educational activities with e-learning; we expect e-learning will cover about 10%. At present, we have reached a stage where our first eight e-courses, focused on DRG, are in a pilot testing process: details of our experience will be presented during this session.

**Bimodal Education Program in development of clinical practice guidelines in geriatric care**

**Keywords:** Clinical Practice Guidelines, geriatric care, training, e-learning

**Authors:** Blancofort, S and Jovell, A. J.

**Institution:** Fundación Biblioteca Josep Laporte

**Summary:** Clinical practice guidelines (CPG) are of interest in the medical community worldwide. Despite the increasing number of CPG developed by international groups and organizations, there is a lack of training in the development, assessment, and implementation of CPG, especially in geriatric care. There is a lack of specific education on the field at the school of medicine and the trend to an aging population in Spain. The program
starts with an offline intervention to explain them content course. The aim of the students, grouped in several teams, is to develop a CPG under the supervision of a tutor through a web-based intervention. The web of the program (Figure 1) is an extranet including access to a specific libraries & resources, course materials, e-mail, forum, course assignments, FAQs and several advisors. At the end of the program, each group will present the developed guideline alongside a strategy for an effective implementation, which will be evaluated by an independent researcher. The methodology of the program brings the students face to face with knowledge in a particular way, obliging them to resolve problems, to search for more information, to compare it empirically or by means of alternative sources, and to work co-operatively. This program ensure the possibility of accessing to the learning process in a personalised and flexible way, from anywhere and at any time, and it facilitates the means whereby each person may attain his or her objectives and satisfy in a flexible manner his or her educational necessities.

The Faculty Of Medicine's CIS Project: A Functional Design For An E-Learning Virtual Information System At The University Of Calgary's Undergraduate Medical Education Program

Keywords: E-Learning, Virtual Information System, Undergraduate Medical Education

Authors: Donnon, T; DesCôteaux, J-G; Khalil, H; Jones, A

Institution: University of Calgary

Summary: With a focus on enhancing the learning environment of the University of Calgary's Undergraduate Medical Education (UME) program, the Curriculum Information System (CIS) project has established a unique Internet-based platform that strives to achieve a comprehensive virtual university information system (VUIS). With the ease of use and appeal of Internet-based information/application systems, the Faculty of Medicine's CIS has developed a computer-based interactive delivery technologies that support the administrative, curriculum and professionalism goals of the UME program while enhancing the face-to-face interactions that occur between students and faculty through other instructional modalities. While many e-learning delivery systems are developed in a non-standardized fashion, providing poor levels of compatibility or functionality, the CIS platform adheres to the draft form of the Institute of Electrical and Electronics Engineers (IEEE) Learning Technology Systems Architecture (LTSA) standard. Using a suggested modified version of the LTSA Layer 3 structure that expands the system administration capabilities of the platform beyond that of a single course, the CIS incorporates a solid architectural and functional structure with advanced object manipulation and visual customization options. In an examination of this model with other commercial e-learning platforms, the Faculty of Medicine's CIS incorporates a solid architectural and functional structure with advanced object manipulation and visual customization options. In an examination of this model with other commercial e-learning platforms, the CIS project more accurately reflects the attributes and component requirements perceived to be important in any VUIS design and implementation. With the objective of expanding the CIS accessibility to other medical institutes/organizations, this future collaboration will support educators and practitioners to cooperate on both practical and academic healthcare applications.

Curriculum Information System Knowledge Modeler: The University Of Calgary Approach To Interpretation And Diagnosis (UC-AID) Project

Keywords: Personal Digital Assistants, Clinical Presentations, Digital Schemes

Authors: Donnon, T; DesCôteaux, J-G; Lewkonia, P; Ayyobi, A; Khalil, H; Jones, A

Institution: University of Calgary

Summary: The introduction of the Faculty of Medicine's Curriculum Information System (CIS) into the Undergraduate Medical Education (UME) Program has led to an increasing interest in using e-learning technologies to enhance the teaching and learning opportunities for undergraduate medical students. In particular, most of the Class of 2005 medical students have initiated and participated voluntarily in the replication and enhancement of static clinical presentation schematics into an interactive digital resource using the CIS Knowledge Modeler feature. With the objective of incorporating all 120 of the UME's Clinical Presentations for use on personal digital assistants (PDAs), the medical students will use their handheld PDAs as a reference tool during their clerkship to assist them in making appropriate clinical diagnoses. On average, each scheme editor (i.e., active involvement in the design and construct of a digital schema) worked on 4.1 schemas and provided an estimated total of between 21 to 40 hours of their personal time. Survey results from 41 (57%) of the medical students involved in the UC-AID project show that the majority (76%) agreed that their work as either an associate or scheme editor had enhanced their learning and knowledge of clinical presentation schemes. In response to how they benefited from their participation in the project, the majority agreed that it had increased their knowledge of a specific presentation (81%), understanding of a collection of unit presentations (71%), and that the PDA schematics would be useful as a resource tool in both clerkship (98%) and residency (70%).


Keywords: case-based course, distance learning, primary health

Authors: Julià, X.; Arranz, J.; Martínez-Carretero, J.M.

Institution: Institute of health studies

Summary: CAAPS: A case-based course for family physicians. 10 years of experience (1994-2004) In 1993, with the objective of fostering the accessibility of continuing education activities, the Institute of Health Studies began to develop educational activities in Distance Learning. One of those was the self-learning in primary health care course, a case-based distance learning course for family physicians structured as:
- Educational material for personal work
- Evaluation system
- Feedback with the authors

Educational material for personal work consists of 12 booklets, which content is organized through monographic symptoms, signs, and syndromes. The titles and authors are proposed by the Catalan Society of family physicians according to criteria of frequency of presentation in the consulting room, and a survey to the participants. The learning aims of the course are that the participants should be able to manage symptoms, signs and syndromes relevant to primary health care, based on clinical cases. The material is sent by mail every two months. Every booklet has self-assessment (20 multiple-choice questions, with incorporated solutions and immediate feedback) and hetero-assessment, also 20 multiple-choice questions with 4 possible answers in a clinical problem-based format, that has to be sent to the HIS.
For those who pass the hetero-assessment of the whole 12 booklets there is an optional final exam. In the last 10 years, 3,800 family physicians have followed this course.

**Continuing Professional Development in Dermatology, a web-based solution**

**Keywords:** Continuing Professional Development, Dermatology

**Authors:** Hugo, AP; Van Der Westhuizen, LL; Bam, E; Sinclair, Yoshii, C.; Yamauchi, H.; Ishimori, K.; Kaneko, H.;

**Institution:** Faculty of Health Sciences, University of the Free State, South Africa

**Summary:** The Continuing Professional Development Division and the Dermatology Department of the Faculty of Health Sciences, University of the Free State embarked on a venture to establish a web-based CPD questionnaire application for dermatologists in South Africa. The institution policy regarding the use of our institution LCMS, WebCT by persons not registered as learners forced the development of the web-based application. The application enables dermatologists to obtain CPD points by reading articles on specific dermatological topics and answering the multiple-choice questions.

**Application requirements**
- The application should be accessible online.
- The application should display questions and images on the same page.
- The questions must be MCQ and each possible answer must be weighted.
- Participants must be able to register themselves to the application.
- Participants failing the evaluation must be granted a second opportunity.
- The final score of participants must be processed as CPD points.
- A 70% pass rate as required by the Health Professions Council of South Africa.

The application is hosted on an Apache server with Linux as operating system. MySQL is used as database and the scripting language is PHP. A Pharmaceutical company sponsored the development, hosting and maintenance of the application. Dermatologists in South Africa may obtain these CPD points free of charge. The CPD Division at the Faculty of Health Sciences, University of the Free State handles the CPD accreditation. The application enables dermatologists to obtain CPD points by reading articles on specific dermatological topics and answering the multiple-choice questions.

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**The educational effects of the lung sounds auscultation trainer (LSAT)**

**Keywords:** lung sounds, auscultation, trainer

**Authors:** Yoshii, C.; Yamauchi, H.; Ishimori, K.; Kaneko, H.; Kawanami, Y.; Kido, M

**Institution:** University of Occupational and Environmental Health Japan

**Summary:** We developed a lung sounds auscultation trainer (LSAT) in 2001. This device has 15 built-in speakers inside a human sized manikin. Lung sounds were recorded from actual patients at 15 points on the chest wall. The data was then inputted into a computer and edited as educational sounds. Each sound was positioned on 15 speakers in the manikin. To evaluate the educational effects of the LSAT, we compared the outcome among fifth year medical students from 2001 to 2003. In 2001, we began to use the LSAT for small group bedside training among fifth year medical students. In 2002, we opened our skills laboratory so that fifth year students could study the LSAT in preparing for the OSCE. After the students passed the OSCE, they took part in small group bedside training. In the lung sounds auscultation class, small tests were performed. Namely, students listened to three cases of abnormal lung sounds on the LSAT through their stethoscopes and answered questions corresponding to the portion and quality of the sounds. The ratio of correct answers (students in 2001, 2002 and 2003) of lung sounds were 36.9%, 35.4% and 64.1% for differences between bilateral lung sounds, 52.5%, 55.8% and 52.3% for coarse crackles, 34.1%, 59.3% and 84.1% for fine crackles, 69.2%, 70.8% and 76.9% for wheezes, 62.1%, 90.7% and 88.6% for rhonchi, and 22%, 32.6% and 71.8% for stridor. From the results, the self-training on the LSAT in the laboratory is an effective way to improve auscultation skills.

**A unique computer based model to determine educational needs**

**Keywords:** cme, computer education

**Authors:** Tonality, L., Payne, P

**Institution:** Queen’s University

**Summary:** A computer based tool was developed to assist in the determination of continuing medical education needs. This model proved highly attractive to participants and ended up being a self-learning tool in addition to providing CME with data on educational needs. Focus groups of 8-10 family physicians with broad clinical practices participated in the study. During the focus group session, they were asked a number of open-ended questions related to their educational needs. Discussion by the facilitator was encouraged but all information was submitted by computer to maintain anonymity. After inputting suggested needs, all submissions were presented in a random list by the facilitator. The group then condensed the list and ranked the topics in order of importance. Ranking was again done in an anonymous fashion. The process proved to be highly attractive to the participants. The ability to input in an anonymous fashion was consistently commented upon as being one of the strengths of the approach because it provided a safe environment in which to interact. The ranking process enabled participants to determine their own educational weaknesses and strengths. To determine if there were unperceived educational needs, the ranking process was done a second time after inputting educational topic suggestions previously obtained from specialists. Participants were then asked to re-prioritize the list. In a number of instances, suggestions by the specialists had not been previously identified by the participants. A number of these suggestions were prioritized by the group. This tool has wide applicability in medical education.

**Development of a Self-Teaching System (STS) for cardiovascular physical diagnosis**

**Keywords:** simulation, physical diagnosis, cardiology

**Authors:** William E. Thornton; Steven A. Lieberman

**Institution:** The University of Texas Medical Branch

**Summary:** Several studies over the past decade have demonstrated deterioration in student and resident physical examination skills, notably those related to cardiovascular diagnosis. As faculty time grows scarce, the time available for bedside instruction in physical diagnosis is threatened. The Cardiovascular Self-Teaching System (STS) was designed to address these issues. The system reproduces heart sounds and pulses via two portable transducers in combination with a self-paced PC-based tutorial, allowing students to learn the physical manifestations of cardiac abnormalities in direct relationship to the underlying pathophysiology. The two transducers connect to the PC via a single headphone jack. Four lessons, entitled Introduction to Cardiac Auscultation and the Normal Heart Sounds, Normal Variant Cardiac Sounds, Abnormal Heart Sounds and Murmurs, provide comprehensive instruction in fundamental skills. The system takes a pathophysiologically-based approach to diagnosis, covering tactile and auditory findings. Among the interactive techniques utilized, students diagram heart sounds in workbooks for comparison to correct diagrams and descriptions. The
workbooks also provide students with material for later review. A review and self-evaluation requiring identification of heart sounds is part of each lesson. The transducers can also be used with a CD player, allowing the sounds and pulses to be incorporated with standardized patients into clinical skills testing of cardiac diagnosis. With the system, students can learn basic skills without faculty instruction, allowing faculty to focus on clarification and higher level skills. Preliminary studies comparing the STS with live instruction show greater student satisfaction and comparable proficiency with the STS compared to faculty-based instruction.

**Surgical Interactive Multimedia Modules (SIMMs)**

**Keywords:** web linking, animation, asynchronous learning, case-based learning

**Authors:** Hopkins, M.

**Institution:** NYU School of Medicine

Summary: Teaching in the surgical clerkship faces many constraints: the clerkship is shortening as patient length of stay decreases, reducing student exposure to patients and faculty. Concurrently, didactic components of the clerkship remove students from the fertile educational grounds of the hospital. The Surgical Interactive Multimedia Modules (SIMMs) are case-based teaching modules targeted to medical students and designed to address the limitations of modern surgical training that limit student/patient interaction. The SIMMs use 3D animation, web linking, and video to provide exposure to particular disease processes and surgical decisions. The SIMMs integrate — in both linear and hierarchical fashion — all aspects of medical training, including skills and professionalism, in an engaging and user-friendly format that can be accessed by students across locations and time. Four pilot modules on cholecystitis, carotid artery disease, colon cancer and adrenal have been developed and integrated into the surgical clerkship. Initial study indicated no differences in knowledge gained between students exposed to both the SIMM and traditional didactic sessions compared to students exposed only to the SIMM. As a result, lectures on the four SIMMs topics have been dropped from the clerkship, leaving students more time for experience in the clinical setting. Preliminary qualitative feedback from students and faculty indicate a high level of satisfaction with the SIMM and a greater level of preparation and enthusiasm for experience in the OR and clinical setting. The study team is now focused on development of additional modules and on implementation of an assessment tool based on clinical reasoning.

**Nursing and Midwifery faculty's opinion on Distance Learning in Medical sciences**

**Keywords:** e.learning-nurse&midwife -medical sciences

**Authors:** Afshari, P.

**Institution:** dezful azad university

Summary: Nursing and Midwifery faculty's opinion on Distance Learning in Medical Sciences

Materials and methods: In this descriptive study, 45 members of academic staff of nursing and midwifery School were requested to fill in the questionnaires containing items focusing on knowledge and attitude of members on distance learning.

Results: 28/6% believed in lack of such educational system in Iran. 23/8% had no information in this regard. 71/4% believed that the graduates within distance learning system are able to teach, while only 19% strongly believed that the distance learning graduates capability is equal to that of attending graduates. 52/3% believe in efficiency of the distance learning in medical sciences. The effectiveness of this educational system was considered as 76/2% believed it is applicable in any environmental conditions and 66/7%, applicable in any time, 47/8% cost-saving, 38%-facilitating the theory of “Education for All” and also a better learning due to the possibility of repetition of the lesson taught. 9/5% believed the learning process would occur more rapidly. 52/9% agreed with distance learning in medical sciences, 43% believed distance learning is more advantageous than being disadvantageous. Finally, 81% preferred to apply this method in postgraduate studying.

Discussion: Seemingly, the knowledge on “distance learning” approach in teaching is low, but proportional to their knowledge, they possess a positive attitude to distance learning in medical sciences and higher education.

**The development of an educational web-based resource for the undergraduate radiation therapy curriculum.**

**Phase I: the development of the textbook**

**Keywords:** Lymphatics textbook and web-based resource

**Authors:** Di Prospero, L.*, Spence-Ariemma, M.*, Chai, M.*, Moyo, E.*, Barker, R.*, Kane, G.+, Bayley, A.+, Potvin, M.*

**Institution:** “Medical Radiations Sciences Program, Faculty of Medicine, The Michener Institute for Applied Health Sciences and The University of Toronto +Department of Radiation Oncology, Faculty of Medicine, The University of Toronto

Summary: The development of this educational resource stemmed from the realization that our undergraduate radiation therapy students, although required to learn the lymphatics system in detail for use in professional practice, did not have the resources to understand the significance in radiation medicine. There was no comprehensive lymphatics guide for radiation oncology professionals. This guide is meant to fill this void by providing the lymphatic location and drainage routes for anatomic areas and organs for key treatment sites in radiation oncology. The guide is comprised of text accompanied by diagrams defining bone, organs and lymphatics, as well as flowcharts that detail the major drainage routes. The medical illustrations were customized to detail the lymphatic system in relation to bony and soft tissue landmarks utilized in radiation oncology. A medical illustration was created for each anatomic region: the head and neck,
Simulation, informatics, distributed web-based, case-based curriculum, pediatrics, Soler-González J, Ruiz M.C, Soler-Balagueró J.M., ABS Balafia-Secà-Pardinyes University of British Columbia Bonzo, J. www, medical teaching, family physician Wesseling, K. Ahwaz Medical Sciences University, Iran assadullahi, p. University of California at Los Angeles summarization. In light of the recent recommendations from the American Academy of Pediatrics task force and the Pediatrics Review and Education FOPE II task force and the Pediatrics Review and Education Program (PREP) Content Specifications. Cases are web-based, interactive scenarios that vary from in-depth, detailed cases exploring the pathophysiologic basis of electrolyte and acid-base disorders, to multiple brief scenarios aimed at cultivating clinical judgment in such disorders as the workup and management of hypertension. Resident knowledge and clinical judgment in handling common renal problems will be assessed with a short examination before and after participating in the case-based curriculum. Resident performance on each case (based on time spent on each part, number of errors made during working through each case) will be monitored and correlated with pre and post case scores. Long-term retention of knowledge will be evaluated by assessing for overall residency improvement on in-service exam scores and pediatric board pass-rates.

FOTOMEDICA.COM: The WWW that combines medical teaching with the new technologies Keywords: www, medical teaching, family physician Authors: Soler-González J, Ruiz M.C, Soler-Balaguero J.M., Riba D, Santafe P, Rodríguez-Rosich A. Institution: ABS Balafia-secà-Pardinyes Summary: Introduction: At present, the use of internet as a medical information providing tool is being progressively established. Objectives: To offer: A digital image photographic library of teaching interest. A selection of high-quality scientific material. A forum to comment and discuss cases and experiences as a new way of doing interactive clinical sessions. A monthly clinical case. Accessibility to digital photography knowledge. Characteristics to comply with: To optimize navigation. To provide links. To update the contents and records weekly. Methods: The contents and shape were designed. It was established with the following structure: Introduction to the web. Photographic library. Monthly clinical case. Digital photography in the consulting room. Clinical guides and medical records. Medical resources in internet. Forum and contacts. Medical events and conferences. The latest news. Results: 800 high-quality images have been incorporated. A medical forum restricted to case discussion has been established. Screening the information and links, they are weekly being updated by the informatics team and the consultant doctors in order to show a dynamic and interactive web. Conclusions: Fotomedica.com has consolidated as a teaching, dynamic and interactive web addressed to the family physician based on digital photography as a teaching discipline.

Distance learning System Defects Keywords: distance, learning, defects Authors: assadullahi, p. Institution: Ahwaz Medical Sciences University, Iran Summary: Communication, is a process of transferring the message from sender to receiver on the condition that it is a two-way condition. In definition, tells us that communication is, firstly, a kind of process. Secondly, three elements are necessary: "sender" receiver" and ‘message’. Thirdly, the condition underlined in the content. this means if the message is transferred to the receiver, but no reaction is reflected, there is a failure in communication.
Digital photography as a docent tool for family residents

Keywords: Digital photography, clinical practice, resident formation

Authors: Riba D, Soler-González J, Rodríguez-Rosich A, Ruiz M.C.

Institution: ABS Balafia-Secà-Pardinyes

Summary: Introduction: Digital photography offer big advantages versus conventional method. We describe our docent experience in clinical practice.

Material and methods: Two primary care centers used a digital camera characterized by 3 megapixels, macro function and manual function of use in obturation velocity and diaphragm aperture. We recollected images interesting in resident formation, especially from dermatological lesions, radiographies and reumatological processes. We did an internal circuit for images realization, classification and registration of them.

Results: We obtained a total of 790 images from 305 different pathological processes, distributed in 44% radiographies, 28% dermatological lesions, 7% reumatological processes and 21% others. These images bring us the possibility of various communications in several congress, much more clinical sessions in our primary care centers and elaboration of a web site (www.fotomedica.com). This portal serves for clinical discussions and offers technical, scientific, biomedical, social aspect of human embryology. A variety of materials (text, images, videos, ultrasound images of normal and foetal anomalies) are included in our guide about biological, ethic and social aspect of human embryology undergraduate campus course.

Conclusions: Use of digital camera in clinical practice is useful for creation a big database that offers docent possibilities to the residents of our specialty, and the web site created open great interest to the other professionals and students motivated in formation. Therefore, our experience in this technical area represents a good tool in resident formation.

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Distance learning, learning styles and medical education: bridging the gaps

Keywords: e-learning; distance learning; learning styles

Institution: University of Central Lancashire

Summary: This poster presents current progress on a project linking learning styles and distance learning. Maximising the advantages of distance and online learning may depend on learners being able to adapt their learning style to fit the learning situation. Research has shown that learning style can differentially affect examination performance – with holistic learners, for example, obtaining higher marks on questions based on online material (Smith and Whiteley, 2002). These points apply particularly to medical education, where learners and content are very diverse. There are also implications for teachers, who, ideally, should cater for a wide range of learning styles. This poster outlines ways in which awareness of learning styles can aid distance learning by enabling students to identify their preferred approaches to learning, match these to the particular curriculum they will meet, recognize when a particular experience may not meet their learning style, take steps to change their learning style to suit the situation and take steps to change the situation to suit their learning style.

Results are reported on the development of a self-assessment measure for learning style, with which to identify the most appropriate learning style for particular learning environments, and on measures with which to extend and enhance learning styles to meet any educational setting.


Webs-Guide: a virtual tool support for teaching-learning biological, ethic and social aspect of human embryology undergraduate campus course

Keywords: Webs-Guide; virtual tool support; teaching; learning; biological, ethic and social aspect; human embryology

Authors: Avila Rodolfo; Samara Maria Elena; Andrómaco Marta

Institution: National University of Cordoba, School of Medicine. II Histology, III Diagnostic for Imaging and Radiant Therapy I and II

Summary: The Internet has evolved into the largest computer network in the world, allowing access to vast amounts of information and services. The Internet has always provided useful resources to embryology, implemented at various academic departments and national organizations or by specialists or specific medical web sites offering technical, scientific, biomedical, social and ethic information. Based in this reality we analyzed different places in Internet in order to elaborate a web-guide to virtual tool for teaching-learning biological, ethic and social aspect of human embryology undergraduate campus course. We used searches like euroseek, excite, fast search, hotbol, lycos, MSN and google. The database used were Lilacs and Medline. We found a wide spectre of didactics resources for teaching Embryology on line that can be employed as study material and be included in our guide about biological, ethic and social aspect of human embryology. A variety of materials (text, images, videos, ultrasound images of normal and foetal anomalies) are available through the World Wide Web (WWW). We selections diffe-
rent types of educational material: human embryology sites, outcomes research, discussion lists, research laboratories, publications, virtual medical libraries, news and medical conferences, organizations, academic departments and medical resources for the ethical debate on in vitro fertilisation (IVF), cloning and use of the Stem Cells. In conclusion this web's-guide is a positive virtual tool support for teaching-learning biological, ethic and social aspect of human embryology undergraduate campus course.

**On-line QC System for blood film morphology evaluation**

**Keywords:** EQAS, Quality Control, Haematology, Blood Cell Morphology

**Authors:** Castella, M. and Vives-Corrons, J.L.

**Institution:** QC SYSTEM PROFICIENCY TESTING, Casanovesa 18, 08901, L’Hospitalet de Llobregat. Barcelona

Summary: QC System is an EQAS for clinical laboratories in the areas of Biochemistry Haematology and Microbiology. QC System is running by Internet and accordingly, the participant can send their results and receive their evaluations very quickly and in a safer mode than the traditional postcard method. Conversely, it gives a new style of relation between the organizer and the participant laboratories. In the Haematology Scheme, May-Grunwald-Giemsa stained films for blood morphology are monthly or bi-monthly send to the participants for evaluation. In each survey a short clinical history of the patient and a summary of the haematological data are given. Participants are encouraged to indicate the most relevant abnormality for each blood cell line (RBCs, leucocytes and platelets). A diagnostic approach is given by QC System Web site as “the case of the month”.

**Standarized versus actual in-patients to teach history taking and physical examination skills**

**Keywords:** standardized patients, in-patients, Introduction to Clinical Medicine (ICM)

**Authors:** Gilliland, W. (USUHS), G. Bordage (University of Illinois-Chicago), S. Downing (University of Illinois-Chicago), L. Pangaro (USUHS)

**Institution:** Uniformed Services University of the Health Sciences (USUHS)

Summary: Purpose: To examine the short-term and mid-term effects of using standardized patients (SPs) in a simulation center versus hospitalized inpatients (IPs) to teach history taking and physical examination skills for second-year medical students.

Methodology: A historical cohort study was conducted at the Uniformed Services University of the Health Sciences with 323 students enrolled in an ICM course during two academic years. Students self-selected to receive their instruction using either SPs or IPs. Baseline characteristics were collected, including age, gender, verbal and total MCAT, and first-year GPA. Forty primary (short-term) outcomes included data from final observed history and physical examinations, physical examination checklists, OSCE examinations, NBME ICM subject examinations, and preceptor evaluations. Five secondary (mid-term) outcomes included medicine clerkship grades, clinical points, and end-of-clerkship tests. A Bonferroni correction was applied to adjust for multiple variables, resulting in an alpha level of < 0.001.

Results: No statistically significant differences were noted between the groups in baseline characteristics or primary or secondary outcomes.

Conclusions: For purposes of this ICM course, the use of SPs in a simulated setting, compared to the traditional IPs, did not disadvantage the students in either immediate or mid-term outcomes. SPs represent a viable alternative to IPs for teaching ICM.

**Online Learning: what do we know about the learner and the need?**

**Keywords:** online, CHE, e-learning, e-learners, physician need

**Authors:** Haslett, L.

**Institution:** AstraZeneca Canada Inc

Summary: 11th International Ottawa Conference on Medal Education July 6-8th Barcelona Poster Submission Subject: Online Continuing Health Education Authors: Lynne Haslett, AstraZeneca Canada Inc., Pat Payne, Queen’s University, CME Office, Lewis Tomalty, Queen’s University, CME Office. Brief Description: Over the years, there appears to have been an increase in online Continuing Health Education (CHE) programs available in Canada. Various providers are offering online CHE programs targeted at physicians in several therapeutic areas. In an effort to provide “one stop shopping”, many Canadian University CME offices have agreed to post their respective CHE programs on a website named “Mdcme”. This site provides University accredited CME for family physicians and currently houses various Queen’s University CME programs and therefore is our ‘test’ site for this project. These authors have set out to determine more about the learners who utilize online learning. They will be collecting demographic information about the Queen’s University online CHE users as well as experience and competence with the computer, online CHE program mechanics; and format and content assessments. This will offer the authors more information about the online learner and aid in the development of future online CHE program development. These authors have posted a number of CHE programs online, through the “Mdcme” Website. These programs are posted between January and July 2004. Participants who select to take part in the Queen’s sponsored CHE online programs, will be asked to fill in a brief online survey, and will be offered a small incentive to do so. The survey results will be collated and presented, in poster format, at the 11th International Ottawa Conference on Medal Education, July 6-8th in Barcelona.

"Stimulation of the self-learning of medicine students through interactive computer programs elaborated for their own partner"

**Keywords:** self-learning, own partner, module

**Authors:** Barrera Berrocal, C.

**Institution:** Facultad de Medicina, Universidad Austral de Chile

Summary: “Stimulation of the self-learning of medicine students through interactive computer programs elaborated for their own partner” Bravo L. Carolina1, Herin S. Verónica2, Barrera B. Claudia2, Rebollolo S. Sandra1. (Medicine Student1 , Pediatric Teacher2 Faculty of Medicine -Universidad Austral de Chile).

Summary: The growing increase of the medical information, the demands every time bigger than our society as for satisfying the
problems of health and the appropriately necessity of maintai-
ning modernized the medical knowledge have taken to look for
new teaching alternatives to able to face the current scenarios of
the medical practice. In this context the self-learning appears as
an interesting method of exploring since it allows the student to
question to investigate and to have a critical posture in front of
certain situations. If supplemented with medicine based eviden-
ces, solid and excellent information will help to solve in the best
way the problems. Method. A simple Interactive Self-Learning
Module (ISLM) for a medicine student that will contain real
cases selected of an Unit of Neonatology. The module will present
the student clinical cases that they will go solving step by step in
accordance to the outlined problems until being able to establish
diagnosis and appropriate behavior as it corresponds. The infor-
mation that the student requires will surrender through links; to
evaluate the opinion of the students on the ISLM they will be
subjected to an opinion survey valuing the credibility, interest,
stimulus to work with the ISLM and quality of the used material
when being elaborated for their own partner.

Use of a virtual learning environment as a
complementary tool for teaching cell biology
to a large group

Keywords: virtual learning environment large group
Authors: García de Galdeano, A., Landabaso, M.
Institution: Dpto. de Biología Celular e Histología, Facultad
de Medicina y Odontología, Universidad del País Vasco
Summary: A virtual learning environment (VLE) has been offe-
ted to the students of the first year of Medicine to be used for
learning Cell Biology. In the website the student can find basic
information about the course, all the contents presented in the
lectures (notes and power point presentations), complementary
information and links about Cell Biology, audiovisual materials
(videos and animations); and also can obtain online support and
electronic communication with the teacher. In addition the pro-
ducts of several learning-teaching activities (assays, exercises,
multiple-choice questions, exams, surveys, etc) are also available
at the website. After four months of using this resource the gene-
ral feeling was of satisfaction nevertheless some problems has
been detected. With the aim of better assess the students’ percep-
tion of this new tool and the level of their computer skills, a sur-
vey has been done (39 items). Data were statistically analysed
and the more relevant results can be summarized as follows:
1. Most of the students use and find the course website a very
valuable tool, 2) all the resources included in the website were
judged very positive even though not been used, 3) the most fre-
quent complain has been about the downloading of videos and
images, 4) the level of computer skills is low (students’ own per-
ception), and 5) this is the main drawback that limits the use of
the website.

Integrating handheld computers in clinical
education: Development and Evaluation
of a PDA centered curriculum in an Internal
Medicine Clerkship

Keywords: Mobile learning, Computer assisted
instruction, handheld computing, clinical education
Authors: Relan, A.
Institution: David Geffen School of Medicine at UCLA
Summary: Background: Medical schools across the US are adop-
ting personal digital assistants (PDAs) to enhance their clinical
education curriculum, widely known to be uneven in its imple-
mentation and outcomes. Studies have documented the effective-
ness of handheld patient tracking systems to monitor student
experiences during clinical instruction. However, these reports
do not address how PDAs can exploit the full spectrum of capa-
bilities and tools offered by modern mobile computing systems.
In this paper we describe a PDA centered curriculum implemen-
ted in a required Internal Medicine clerkship, where students
are required to use their PDAs in multiple, prescribed ways.
Methods. Approximately 120 medical students have rotated
through the clerkship to date. Instructional strategies are incor-
porated to promote knowledge of drug-drug interactions, drug
choices and costs, knowledge of common medical problems, epi-
demiology of disease, differential diagnoses and treatment
options, all in the context of patients seen during the clerkships.
Contextual learning and teaching is promoted using the data on
patient problems collected via PDAs. Feedback is provided on
individual student experiences and on collective problems seen
as a group. Reading assignments are derived from patients seen
by students. Results: On-site observations and clerkship evalua-
tions indicate that students have positive perceptions towards
the PDA oriented curriculum, and intend to use PDAs in their
clinical practice. Conclusion: PDAs have a vast, yet untapped
potential in enhancing clinical education. This study is a step
towards illustrating how this potential can be maximized. Further
enhancements to the curriculum via wireless applications
of PDAs will be discussed.
Web-based teaching materials: A challenge to traditional views of academic ownership?

**Keywords:** Web, Online, Resources, Ownership, Validity

**Authors:** Chara Balasubramaniam, Stephen Harvey & Terry Poulton

**Institution:** St George's Hospital Medical School

Summary: Four years ago SGHMS introduced a new graduate entry course for medicine, open to graduates of all subjects, without having to have any formal qualification in science. The decision was taken to underpin the course with web-based delivery of all teaching 'content', particularly the basic and clinical sciences, to provide an appropriate level of support for all students. SGHMS took advantage of the opportunity that medicine, as an image-rich subject, is ideal for web-based construction by professional designers, who can produce materials in an attractive, interactive, 'image-to-text' format that maximised the learning experience. This format embraced a new principle in academic ownership. Conventionally a single member of staff would construct a learning topic, produced as an unmonitored 'handout', or entry in a module handbook. Instead, each topic is now prepared from images and text sourced from many members of staff. A topic that requires support is identified, and internal subject experts are contacted to outline the Key Topic. Suitable resources are sourced or created in-house e.g. diagrams and anatomical, pathological, historical and radiological images and an online framework for the topic is created. A final edit is agreed with the lead subject expert. To ensure quality and accuracy all teaching materials are printed out, to be checked and 'signed-off' by the respective teachers/specialists. The outcome of this high quality process was that teachers no longer 'owned' individual key topics; many teachers embraced the process for its improvement in quality, but which some more conservative teachers still found difficult to accept.

"Stimulating self-learning of medicine students through interactive computer programs elaborated by their own partner"

**Keywords:** self-learning, medicine students, computer program, own partner

**Authors:** Hering S. Verónica1, Barrera B. Claudia1, Bravo L. Carolina2, Rebolloso S. Sandra2. (Pediatric Teacher1, Medicine Student2)

**Institution:** Facultad de medicina. Universidad Austral de Chile Valdivia - Chile

Summary: SUMMARY: The growing increase of medical information demands every time bigger in satisfying health problems of our society as the necessity for maintaining modernized the medical knowledge, have taken to look for new teaching alternatives to able to face current medical practice scenery. In this context the self-learning appears as an interesting method of exploiting since it allows the student to question, to investigate and to have a critical posture in front of certain situations. If supplemented with medicine based evidence, solid and excellent information will help to solve in the best way the problems presented. **METHOD:** A simple Interactive Self-Learning Module (ISLM) easy for use will be elaborated by a medicine student, that will contain real cases selected from an Neonatology Unit. The module will present the student clinical cases that they will go solving step by step in according to the outlined problems until being able to establish diagnosis and appropriate behavior as it corresponds. The clinical cases as well the information required will be surrendered through links in this interactive computer program. The evaluation of this teaching method based on their own partner will be done after 3 months student module application. EVALUATION: To evaluate students opinion about ISLM they will be subjected to an preestablished opinion guideline valuing the credibility, interest, stimulus to work with this teaching methodology and quality of the used material when being elaborated for their own partner.

Virtual Hospital to Improve Management Skills in Nursing

**Keywords:** Medical Simulation, Nursing, OSCE, High Fidelity Simulation

**Authors:** Benita S., Levine I., Tsevet H., Behar Z., Gun Ushishkin M, Berkenstadt H., Toren O., Zin A.

**Institution:** Israel Center for Medical Simulation

Summary: Introduction: Head nurses have many responsibilities including: management of patient care, dealing with unsatisfied patients and their families and team management in extreme scenarios. The goal of the presented project was to use advanced medical simulation to improve these nursing skills. Methods: The Israel Center for Medical Simulation was turned into a virtual hospital and simulative scenarios were enacted in various venues. Different simulation modalities were used based on their relative advantage to the scenario. Simulated Patients (actors) were used to train communication skills, high fidelity medical simulators (JPS (MET, Florida), Sim-Man (Laerdal, Norway)) and simulated patients were used to train preparedness for extreme cases like: a fire in the ward, resuscitation, and the management of the team during a tumultuous shift. All the scenarios were filmed on an advanced audio-visual system and debriefing was done by experts immediately following each training session. The communication skills scenarios received feedback also from the simulated patients on structured evaluation reports. Results: The course was conducted lately in 2 days to 70 trainees – nurses that act as shift managers in the various departments at the Sheba Medical Center. According to a feedback questionnaire - 87% of the participants said that the scenarios were realistic, 95% stated that the taped debriefing added to their training and 92% stated that there is a need to add simulation to their training in the future. Conclusion: Advanced medical simulation may be used as a complementary tool to the training of extreme cases, teamwork and communication skills to head nurses.

Determining the effectiveness of web based formative assessments versus classic formative assessments (quizzes) on knowledge and attitude of medical students

**Keywords:** web based, self assessment, quizze, medical education,medical student

**Authors:** Farshidfar, F. Koleini, N

**Institution:** isfahan university of medical sciences

Summary: Introduction: Formative assessment with appropriate feedback is an effective method of promoting learning. Software
tools are now available to facilitate the delivery of formative self-assessments via the World Wide Web in many countries.

Methods: To determine the effectiveness of web-based self-assessments in Iranian medical schools we divide the students into groups. At the end of class, one group takes part in classical quizzes, which prepared by the teacher from the concepts of that session but students in the other group signs in as their own username and password in the web site and answers the questions online. At the end of the term the score of midterm and final test are compared between two groups. Also attitude about web-based courses is compared between two groups.

Results: The mean score the final and mid term exam of the experienced group was significantly higher than the control (p<0.005). The students of the experienced group was more eager to give exams than the other group.

Conclusion: Online formative self assessments can incorporated to all courses successfully.

Student’s opinion of Internet teaching in cardiology

Keywords: Education, medical, pre-graduate, cardiology, Internet


Institution: Faculty of Medicine. University of Lleida. Lleida. Spain

Summary: Objectives: Deliver and evaluate an educational web for medical students. Design: A web of the complete cardiovascular course was prepared for the 4th year medical students as an adjunct educational material for the classes. The use and utility of the web was assessed through a questionnaire. Subjects: 79 medical students. Main measures: The questionnaire was about the frequency of use of the web, impact of the web on in-class attendance and student’s satisfaction. The number of visits to the web per day, the time of day, the frequency of use of the web during class, and student’s satisfaction. The number of visits to the web per day, the time of day, the frequency of use of the web during class, and student’s satisfaction. The number of visits to the web per day, the time of day, the frequency of use of the web during class, and student’s satisfaction. The number of visits to the web per day, the time of day, the frequency of use of the web during class, and student’s satisfaction. The number of visits to the web per day, the time of day, the frequency of use of the web during class, and student’s satisfaction.

Results: The web was available for 10 weeks and visited 1062 times, specially on weekends. An increase in visits to the web was noted prior to final examination. 76 students returned the questionnaire. All of them used the web minimum one time. The web was accessed preferentially from the Faculty of Medicine or hospital computers. The quality of the web was assessed by a score from 1 to 10, and rated a mean of 7.7. Most students (93.4 %) attended the class, but the web freed them from transcribing the contents. 88.2 % students evaluated the web as a useful or useful adjunct to medical teaching.

Conclusions: Internet can be used to deliver learning in medical students and could be considered as an added value to the pedagogic process. The web did not preclude students from attending ordinary classes.

Teaching Emergency Care Using Deteriorating Patient Scenarios

Keywords: simulations; impact on teacher training;

Authors: Snell, L., Wiseman, J.

Institution: McGill University

Summary: Teaching emergency care in the clinical setting is challenging. Emergencies may arise during on-call time, when learners supervision is variable. Physician-teachers may have difficulty articulating their clinical reasoning processes in the acute setting while simultaneously caring for a very ill patient. Rare emergencies may not occur. Simulations of emergency situations can address these challenges but must reproduce the cognitive and emotional environment of being able to accomplish multiple tasks while pressured by time, excitement and anxiety. The Deteriorating Patient scenario models how the components of an ideal simulation can be exemplified without a large input of resources or technology. It is an inexpensive teaching strategy that makes explicit the reasoning skills and reproduces the heightened emotion of managing an acutely ill patient under time pressure. The workshop is aimed at clinical teachers, faculty developers and educators interested in teaching clinical reasoning. They will take part as learners in a Deteriorating Case scenario, discuss the components of an effective simulation, design a scenario relevant to their own discipline, and apply this simulation to teach a varying number or different levels of learners.

Principles of Electronic Portfolios

Keywords: portfolios, elearning

Authors: Simon Cotterill, Tony McDonald

Institution: School of Medical Education Development, University of Newcastle, UK

Summary: This workshop discusses design and implementation issues with an emphasis on maximising the potential educational and technical ‘value-added’ features of using electronic media. It will be of particular interest to those wishing to develop learner-centric ePortfolios which can serve formative as well as summative purposes. The workshop draws on the experiences of developing, implementing and evaluating Web-based systems to support medicine both for undergraduates and postgraduate CPD at the University of Newcastle [1,2,3]. The benefits and pitfalls of ePortfolio approaches are discussed in an interactive manner with workshop participants covering issues such as: a) designing ePortfolios for multiple / discrete educational purposes (such as assessment, presentation, reflective learning and personal development planning), b) customisation of pedagogy and nomenclature, c) supporting an integrated approach with curricula and managed learning environments and d) making the most of technical features such as support for mixed-ownership models, sharing, cross-referencing, transferenceability, searching, security, usability and the potential for reduced administration costs. The workshop also includes discussion of approaches to implementing ePortfolios, linking with administrative data and embedding within the online learning environment.

1. http://www.eportfolios.ac.uk
2. http://mypimd.ncl.ac.uk
3. http://www.internet-pars.ac.uk