New Media

Review of SimBioSys ACLS review

Advanced Cardiac Life Support (ACLS) is one of a family of instructional software products from SimBioSys®. It is available only for PC/Windows operating system. The program material derives from the American Heart Association's ACLS Guidelines (1996). It provides instructional material (nine text chapters such as patient assessment, universal algorithm, tachycardias and cardioversion; a reference section pertaining to drugs, procedures and ECG rhythms) as well as case-based scenarios. The latter can be attempted as a tutorial, with constant feedback or with known or unknown rhythms.

Microsimulators offer several advantages over conventional learning instruments. They are convenient and readily available, offer active-learning, patient instruction and provide contextual feedback at an appropriate pace. Judgement is impartial and confidential, allowing the user to repeat problematic scenarios. How does this product measure up? Can this program replace an experienced human instructor?

The textual material is extensively cross-referenced with "hypertext" meaning that double clicking the mouse button on an unfamiliar drug or rhythm will immediately take you to a discussion of the pharmacology or an ECG strip. If a procedure, such as carotid sinus massage is required, a photograph and description can be invoked with a mouse-click. Textual algorithms are generally dry and there is no easy way to memorize them. Algorithms presented in this program are also linked to descriptive elements, but ultimately, the material must still be memorized.

The scenarios were actually fun to complete. There are 55 scenarios and they don't always play out the same way. A small cartoon sets the scene; an ambulance is moments away as you assess responsiveness, airway patency, breathing and circulation, providing the required basic life support until help arrives. Help arrives and thankfully an ECG monitor, defibrillator, transcutaneous pacer, endotracheal tube and intravenous medications are made available. The clock is ticking - but can be stopped to ask for advice or to collect your thoughts.

The program has many more strengths than weaknesses. It is easy to install and its use is straightforward. The material is sufficiently diverse that similar subjects can be presented in several variations to reinforce concepts without seeming repetitive. There is a tutorial, but the manual suggests that you simply play. There is the occasional typographical error and some of the descriptive material is inaccurate (e.g. cricoid pressure can help with glottic visualization) or vague. Many of the photographs and drawings fail to take advantage of the possibilities that multimedia offer. The program is a mere 12MB while a CD ROM has a capacity for 650MB. There are no videoclips showing procedures. ECGs are all static strips when they could be dynamic rhythm strips. An ECG or pulse oximeter beep (with a mute button) would have added an element of realism. Pulseless electrical activity is probably the most complex component to teach, yet examination of the patient is very restricted and does not allow for inspection of the trachea, auscultation of the lungs or heart or examination of neck veins. I wanted to perform a pericardiocentesis or needle thoracostomy on my pulseless patient but was advised that nothing could be done.

I would recommend this program for anyone who has taken or would benefit from ACLS instruction. SimBioSys intends to update this program when an international consensus conference releases its guidelines late this year. The updated version will either be free or discounted, depending upon the date of purchase. Why not download the free demo on their website <<http://www.critcon.com>>.

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Critical evaluation of medical internet resources

A key concern of clinicians and patients is that medical information obtained via the Internet be trustworthy and of high quality. For example, how can a physician be confident that an article on a new drug represents a

mainstream clinical viewpoint and not an extreme position generally unaccepted by the scientific community? In the traditional print academic publishing arena, requiring prior peer review of published articles has usually addressed this problem. However, not all medical serials are formally peer reviewed - many are medical education serials more focused on updating practicing clinicians than at disseminating research results to leading-edge scientists. As such, these serials rely primarily on the authority of the writer to establish credibility.

Information quality is not only of concern within the medical community in regard to various forms of electronic information (e.g. web sites, image banks, electronic journals, and Internet Medical Discussion Groups (IMDGs)), but also in the patient and legal communities as well. These concerns arise from the novelty and exponential growth of the Internet, and the much slower development of regulations for Internet content, which are sometimes derived from negative experiences. The large number of users means that inaccurate information disseminated via Internet medical resources has considerable ramifications for the medical community, with patients often bearing the brunt of any negative consequences.

The quality issue can be broken down into four areas for examination. These are: peer review; distribution of extreme clinical opinions and information on alternative and novel medical therapies; the issue of information distribution in Usenet groups, where patients exchange anecdotal and factual information about a particular medical condition, often in an international forum; and the issue of legal liability.

Peer review regarding medical information distribution on the Internet is complex for many reasons. The Internet is enormous and international, constantly changing and growing exponentially. It is difficult to regulate, let alone peer review and scrutinize all the information available. However, for patient safety and to reduce liability, the accuracy of these medical resources must be examined. This raises two questions: how to monitor information accuracy, and who should conduct such reviews? This could be achieved through public and/or private initiatives. For example, state governments could develop a complaint's board, which could evaluate claims of medically harmful or fraudulent information, and possibly terminate websites that distribute such information. A certification system, where website administrators could apply to have their content reviewed and certified, could also be established. This public and/or private administered "seal of approval" would then be displayed on the website, allowing users to feel confident they are receiving accurate and helpful

medical information. Perhaps the safest way to ensure the information viewed from medical information websites is for users to adopt the attitude of *caveat emptor* - buyer beware - and always verify information with other medical resources known for their accuracy and honesty.

The distribution of extreme clinical opinions and information on alternative and novel medical therapies further complicates the information review process. Allowing uncensored information distribution is important in medicine, as all information has the potential to positively impact countless lives. Simultaneously, unchecked distribution of inaccurate information can have negative consequences that are expansive because of the large number of Internet users. This is complicated by inconsistent medical treatment approval between countries, and the considerable international variation in what is considered alternative medicine and an extreme clinical opinion. These issues must be incorporated in the development of any peer review process, especially one on an international scale.

An advantage of the World Wide Web is the ease in developing forums for discussion on a wide range of topics, often including international perspectives. This characteristic makes for useful exchanges of information and ideas, and explains the popularity of the Usenet and other on-line services, where users can exchange ideas on a plethora of topics, including specific medical ailments. Medical Usenet groups can provide patients with a relatively easy way of seeking and receiving information about a specific medical condition from those familiar with the condition from a professional and personal perspective. This has the capacity for important gains in distributing medical information, but at the same time has serious drawbacks. Part of the problem is the majority of information in Usenet medical groups is often anecdotal and distributed by lay people, who, while they may be very knowledgeable about a particular condition, may also lack the knowledge and resources to provide completely accurate information. Information about novel and unproven forms of treatment among fellow disease sufferers has already affected clinical drug trials and other forms of experimentation. Patients, understandably desperate to relieve their suffering and understand their illness, have taken untested, unauthorized treatments while participating in clinical studies, as well as exchanged information about drug trials with fellow participants, rendering many clinical experiments worthless. Individuals suffering from chronic or terminal diseases have had their hopes raised by the prospect of a miracle cure, only to find that such cures do not currently exist or are quack

remedies. Unfortunately, there are few solutions to stop these problems in UseNet participation. Education, by both UseNet administrators and clinical drug trial organizers, on the negative consequences of taking unauthorized treatments and distributing information about drug trials in progress, could assist in reducing some UseNet users' impact on treatment research. UseNet users should also exercise caution when reviewing postings and confirm all information with reputable sources.

Legal liability figures prominently in any discussion of inaccurate and potentially harmful medical information. Jurisdiction becomes relevant, given the international nature of the World Wide Web. Questions arise as to who is responsible if unverified and ultimately harmful information is distributed via a UseNet group. Is the person volunteering that information liable, or is it always user beware? What onus is there on individuals who use this content? What responsibility, if any, do website and UseNet administrators bear? In cases of international communication, in whose legal jurisdiction would liability proceedings take place? Should liability claims apply only to peer reviewed or organization certified sites? These questions must be addressed so that the international medical community can utilize the enormous potential the Internet possesses for medical practice with reduced liability. Until these issues are addressed, many physicians and patients avoid or restrict their use of the Internet for medical purposes, which will hinder the development of Internet technology as powerful resources for medical education, and allow the negligent to remain unaccountable for inaccurate information.

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