Informational Resources: Computer-Assisted Instruction, Expert Systems, Health Information Online

- Educational resources on the Internet
  - The Visible Human—computerized library of human anatomy at the National Library of Medicine.
  - Explorable Virtual Human is being developed. It will include authoring tools that engineers can use to build anatomical models that will allow students to experience how real anatomical structures feel, appear, and sound.
  - The Vesalius Project (Columbia University) is creating these three-dimensional models (called maximal models) of anatomical regions and structures to be used in teaching anatomy.
  - The Virtual Human Embryo is digitizing some of the 7,000 human embryos lost in miscarriages, which have been kept by the National Museum of Health and Medicine of the Armed Forces Institute of Pathology since the 1880s.
- Computer-assisted instruction
  - Drill and practice for skills requiring memorization
  - Simulation software
    - ILIAD
    - ADAM
    - Virtual reality simulators are particularly useful in teaching procedures that are guided by haptic clues
  - Used to train surgeons to perform minimally invasive operations
    - Human patient simulators are programmable mannequins on which students can practice medical procedures.
- Distance learning
- Decision-support (expert) systems: an expert system (or computerized decision-support system) is an attempt to make a computer an expert in one narrow field.
  - MYCIN
  - Internist
  - POEMS
  - Databank for cardiovascular disease
- Health information on the Internet
  - Tens of millions of people logging on to the Internet are looking for health-related information. Advantages: cheap and easy way to get information leading to well-informed patients.
• The digital divide means that access to computers and the Internet is not distributed equally in society; many people do not have access to the Internet.
• About 100,000 health-related Web sites, most with no quality control leads to misinformation.
• Reliable sites: those maintained by federal government (http://www.nih.gov) like the MEDLARS databases, including MEDLINE. Other reliable sources: CINAHL for allied health professionals; the Virtual Hospital. (Even reliable sites may contain dated and unreliable information.)
• AMA guidelines for judging information: check the source, check the financing, check the latest update, does it refer to outside print sources. If a site is trying to sell you a miracle cure that sounds too good to be true, it probably is. Do not believe anything with the words “scientific breakthroughs,” or miraculous, or claims of a conspiracy of the medical establishment. Less than 25 percent of sites offering health info meet these minimal standards.
• Support groups on the Web can offer community, support, and advice (Starbright World), but the anonymity can also lead to fraud.

• E-mail
  • Used by 15 percent health care providers and consumers to communicate with each other (although 90 percent consumers want it)
    ▪ Advantages: less intrusive than a telephone call, allows time to compose thoughts and put them on paper. Leaves a hard copy record. Doctors who use e-mail say it gives patients the sense that they can contact the doctor at any time; there has never been a suit based on e-mail.
    ▪ Disadvantage: lack of security and confidentiality. According to doctors who will not use it, paper trail can lead to suits; takes up extra time.
    ▪ Suggested guidelines from one practice that invites patients’ e-mail
      • Inform patients—who will read the e-mail, likely response time, what will and will not be discussed via e-mail (e.g., psychiatric diagnosis, HIV test results, or work-related injuries will not be discussed).

• Computers and psychiatry
  • First uses of computers in psychotherapy were in testing.
  • Other uses are in self-help Internet sites, computer-administered therapy, virtual reality therapy
  • Web-based depression and anxiety test was found effective in diagnosing anxiety disorders and depression.
• Programs that are effective include Fear Fighter for phobias and panic; BTSteps for OCD; Cope and Overcoming Depression Course for depression; Balance for general anxiety disorder.
• Internet therapy (Interapy) for those suffering from post-traumatic stress disorder according to self-reports.