New Media

[1] WAP and the Wireless Future in Hospital Practice

The past few months have seen an escalation of interest in accessing the web using wireless technology. This is especially true with the emergence of digital phones using WAP (wireless application protocol) in order to provide cell phone access to special web sites, such as stock quotation sites or mobile banking sites. (WAP / WML is a global open standard for small-screen information displays. It is similar to HTML, the standard for normal web pages, but is downsized for smaller devices. Essentially this technology allows for a form of simplified web access using small handheld wireless devices)

Since the small screen size on cell phones makes web access especially difficult, many people expect WAP technologies to become increasingly popular with users of Personal Digital Assistants (PDA's), given their larger screen size. WAP modules and services for various PDA systems are at various stages of commercial maturity.

Many people expect that the emergence of wireless services for these devices will facilitate clinical care delivery. For instance, a wireless PDA network with secure access to the hospital's main information system would greatly help clinicians track patient's laboratory tests, eliminating the tedium and potential for error entailed in the manual transfer of patient data.

Similarly, password-protected wireless medication management applications might include electronic prescribing, electronic medical charting, and requests for social services or drug fulfilment by a local pharmacy.

E-mail and instant messaging services via PDAs might help a clinical team work together "seamlessly", despite being in disparate locations. (Imagine sending an e-mail or instant message to the resident working with you asking him/her to see a consult before returning to the OR. Or imagine being e-mailed a chest x-ray to review while taking call from home).

Several leading-edge health care institutions such as Cedars-Sinai Medical Center have already implement-

ed wireless Palm-based information systems for clinical use. Will it be in our future too?

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[2] Bluetooth Enabled Medical Devices

[Harald Bluetooth was a Viking king of Denmark who ruled between 940 and 981. One of his special skills was diplomacy: he was uniquely gifted in getting people to communicate. During his rule Denmark and Norway were Christianized and the countries united.]

Bluetooth is a wireless (radio link) communications and networking technology designed to eliminate cables between computers and cell phones, printers, scanners, digital cameras and other such peripherals. Bluetooth technology supports both voice and data. In the words of the official Bluetooth web site (www.bluetooth.com), this technology enables "users to connect a wide range of computing and telecommunications devices easily and simply, without the need to buy, carry, or connect cables". Because Bluetooth wireless technology can be used for a variety of purposes, it should eventually replace multiple cable connections with a single radio link. In summary, as noted at the Ericsson Bluetooth site "Bluetooth wireless technology is a low-cost, low-power, short-range radio link for mobile devices and for WAN/LAN access points". It offers "fast and reliable digital transmissions of both voice and data over the globally available 2.4 GHz ISM (Industrial, Scientific and Medical) band."

From the idea of simply replacing cables, Bluetooth technology soon evolved to become more diversified, to become "a universal bridge to existing data networks, a peripheral interface, and a mechanism to form small private ad hoc groupings of connected devices away from fixed network infrastructures." (Technical information is available on the Ericsson Bluetooth site).

The idea for Bluetooth was initially conceived by Ericsson, well known for its mobile phones, before being adopted by numerous other companies with the formation of a consortium. Essentially, a Bluetooth transmitter chip sends information normally carried by cable, transmitting at 2.4 GHz to a matching receiver chip, which then passes on the information to the computer, phone, printer etc, as appropriate. Maximum length of the radio link is ordinarily 10 meters.

The Bluetooth specification also allows for multiple devices to be connected and so offers the potential of forming dynamically changing, ad hoc networks to provide synchronicity between Bluetooth enabled devices. Finally, Bluetooth also supports the electronic equivalent of a printed business card, where the business card is an information file and can be exchanged between Bluetooth devices.

MicroMedical Industries, an Australian company that “develops and exports cardiac e-health solutions”, has been awarded a European patent for the development of wireless medical monitoring technology “using a combination of Bluetooth, wireless LAN technologies, GSM, and 3G mobile phone networks”. The idea is that a cardiac patient at risk would wear an electrocardiographic sensor patch that would be connected to a remote monitoring centre through a Bluetooth enabled device. Because the technology for monitoring the patient would be wireless, the patient would no longer need to be tethered to the wall with a wire cable, and would now be much more mobile.

As promising as is this technology, it is not yet clear where in the medical community Bluetooth will be embraced. And how will Bluetooth impact on the fledgling Medical Information Bus (MIB) standard? This technology is still quite young; most consortium companies did not start work on Bluetooth products until 1998. Still, it's a safe bet that Bluetooth will pique the world's interest in Danish history.

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Erratum

Concluding sentence missing in the Correspondence section:

In a Letter to the Editor of the January 2001 issue, page 101, entitled: “Dystonic reaction after anesthesia” the last sentence was missing: “We wish to alert readers of excitatory reaction during recovery from propofol anesthesia”.