VIDEOCONFERENCING
in Your Practice

by Eugene R. Worth, M.D., M.Ed.

PHOTOGRAPH BY EYEWIRE

Beyond cost, the first question to answer before you can decide whether you need a teleconferencing or a telemedicine system in your oncology practice is: what are you going to do with the system? Will it be used to see patients, communicate with other physicians about the care of patients, or perhaps serve both functions? If you require only face-to-face communication between two or more people in different locations, then desktop videoconferencing may be the solution. In some cases inexpensive web cams and free (or inexpensive) software will work well. However, patient examinations require top-quality video and sound resolution to examine lesions, listen to heart and lung sounds, and perform other clinical procedures, so a full-function telemedicine system is required.

The second question concerns quality of service. Is a high-speed Internet connectivity good enough, or do you need dedicated point-to-point integrated services, digital network (ISDN) connectivity? Desktop videoconferencing systems require a bandwidth of 384K-bits/second to produce an acceptable image. This type of connectivity can be purchased with DSL (digital subscriber line) service from your ISP or telephone company. Pay attention to the type of service because most DSL connections are advertised as 128/768, meaning 128K bits/second upstream and 768K bits/second downstream to you. This is asymmetric DSL (ADSL), perfectly acceptable for home use, but *not* for videoconferencing since an ADSL connection cannot maintain a link for more than a few minutes. If you use DSL as your service, then you must specify a 384/384K symmetric (SDSL) connection at a minimum.

Until recently, videoconferencing required a T-1 line between two points or multiplexing 4-6 ISDN telephone lines. The standard for videoconferencing was written to exclude Internet connectivity. This standard, H.320, is mature and stable, providing the best quality-of-service results. Recently, however, a new videoconferencing standard, H.323, has emerged. The H.323 standard allows Internet Protocol (IP) videoconferencing, so Internet connectivity is possible. Today, 15 percent of videoconferencing use an IP interface, while more than 80 percent continue using the ISDN/T-1 interface. More people will predictably shift to an IP interface as quality-of-service issues with IP, such as poor image quality, poor audio, and the inability to maintain the connection between parties for an extended period of time, are resolved.

For desktop communication between two or more practitioners at different locations, almost any desktop web camera will work. There are many to choose from in the $100 price range. Videoconferencing software is free and usually bundled with the web cam. CuSeeMe (pronounced "see you, see me") videochat software costs $40 and makes group videoconferencing simple by using your existing broadband Internet connection. CuSeeMe (http://www.cuseemeworld.com) is an industry leader in desktop videoconferencing software and has a proven track record.

My recommendation for a high-end desktop system is Polycom's ViaVideo™ for $600. Polycom (http://www.polycom.com) is one of the industry leaders for videoconferencing technology. This unit plugs into the USB port on your computer, and after the software is installed it is ready to go. The digital audio on this unit compares to more expensive business-quality units.

Beyond the desktop come small, medium, and large conference room videoconferencing solutions. Polycom has excellent equipment, but so does VBrick Systems (*http://www.vbrick.com*). Aptly named for a "video brick," VBrick Systems has solutions for broadcasting video to a number of sites, point-to-point videoconferencing, and a number of other Internet video options.

In summary, videoconferencing can be as simple as a web cam or as complicated as a multi-network telemedicine system. Depending on the equipment, bandwidth requirement, and number of endpoints, fixed costs may run from $150 to $15,000 per site. Variable costs include telecommunications connectivity (what the phone company likes to call "last mile" charges), and salary for support technicians to make the system work. For a good tutorial on videoconferencing, visit Network World Fusion (*http://www.nwfusion.com/research/videoconf.html*).

If you want anything more than desktop communication and do not have a telemedicine department at your disposal, you should seriously consider an application service provider, such as GlowPoint (http://www.glowpoint.com), to get you up and going.

Eugene R. Worth, M.D., M.Ed., is president of Medical Information Technologies, Inc., an infomatics and medical computing consulting firm for physicians and the health care industry. He can be contacted at eworth@tranquility.net, or call (573) 449-6861.