Formidable barriers impede PACS adoption in developing nations

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For radiology to move into the digital arena in underserved areas around the world, financial, cultural, and technological stumbling blocks have to be removed, according to a recent case study.

Dr. Khan Siddiqui, chief of imaging informatics and body MRI at the VA Maryland Health Care System, conducted a case study of Pakistan to better gauge why a delay exists in adopting PACS in the developing world. He presented his research at the 2005 RSNA meeting.

Pakistan, the seventh most populous nation in the world, had an estimated $347 billion gross domestic product in 2004, yet allocated only 4.1% of its budget to healthcare, according to Siddiqui. In terms of an IT infrastructure, electronic medical records, computerized physician order entry systems, and even HIS and RIS programs are rare or nonexistent, he said. Additionally, while Pakistan is experiencing impressive growth in its IT personnel base, computer literacy is still poor among physicians and healthcare IT proliferation remains inadequate.

Bringing in simple networking technology can also be more expensive in the country. A 512-Kbps DSL setup can cost 19,200 rupees a month, or about $320 U.S., he said. A 30-Mbps connection in the U.S., however, could cost less than $200 per month.

Siddiqui and colleagues interviewed 18 radiologists from five large tertiary hospitals, 10 PACS vendor representatives, as well as numerous bureaucrats and politicians to develop a consensus statement highlighting key obstacles to implementation. These include lack of understanding about the role of radiology and imaging by the public, as well as lack of investment and reimbursement in IT infrastructure.

The institutions reported that almost 75% of imaging services are provided to outside referrals. Additionally, the public tends to view radiology departments as photographic studios, demanding their x-ray photography with payment, Siddiqui said. Under such conditions, image delivery outside of the institution is critical. The question then becomes how best to deliver those images, such as via wide area networks, CD-ROMs, or even paper prints.

Concerning radiology reports, referring physicians reported a lack of uniformity in radiology reporting quality. No standard training exists, and the majority of radiology providers are non-MDs with zero training, Siddiqui said. Clinicians reported that they were routinely interpreting imaging studies themselves.

Vendors reported several reasons why they had not entered the country, including perceptions that the market is not large enough; lack of reliable support staff to keep up the quality of service; lack of trained healthcare IT and biomedical engineering staff; and little physician, hospital, and government enthusiasm to go filmless, according to Siddiqui.

Many of the institutions have equipment mostly from the late 1990s, and only two institutions have CR, while the rest are still producing film. Shopping for the best healthcare deal is common, with patients visiting the physician with the cheapest radiology prices first, Siddiqui said. No national health insurance exists, and 95% of patients pay for their own imaging services. They may pay from $1 for a chest x-ray up to $50 for an MR spine study, creating an environment where this is little to no margin for investment in radiology infrastructure.

Despite these overwhelming obstacles, the government is motivated to reduce healthcare costs, he said. Since the survey was conducted, some of the facilities have moved towards a partial filmless mode.

Disclosures:
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