Volume 7 - Issue 5, 2007 - Cover Story:Change Management

IT & Change Management: Dealing with Staff Resistance to PACS Integration

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In 2006, the Orthopaedic University Hospital Balgrist in Zurich treated more than 4,000 inpatients, saw approximately 40,000 clinical outpatients and performed approximately 42,000 radiological exams. The hospital is part of the university healthcare system. Orthopaedic surgery is the dominant clinical discipline. In addition, there are departments for paraplegiology, rheumatology and rehabilitation medicine, anaesthesiology and internal medicine. In 2000, a decision was made to install a PACS.This article deals with the varying degrees of resistance met with from internal staff, and how we overcame these management concerns.

The project team was aware that introducing a PACS was not only an informatics project but that it would change a number of processes both within radiology and in the clinics. After planning, tendering, decisionmaking and securing of financing the PACS went online in May 2002. An extensive training programme was initiated, and there was extensive internal promotion of the new PACS.

Post-Installation Review

A review of the PACS project was performed three months after installation. The result was generally positive on the technical side, in terms of system reliability and functionality, as well as interfaces with the HIS and network capacity. However, the DVD jukebox installed for long-term storage was already slow during heavy outpatient clinics, though most exams were still available via hard disk-based shortterm storage. The special equipment required for the operation theatre had long delivery times and was not yet installed.

On the human side, the new PACS was quickly accepted as an additional tool, for instance as a back-up solution when hardcopies were not available or for slide production. However, total integration was proving difficult, as the cost of film was decreasing more slowly than anticipated, in part due to an increasing number of MR exams performed after installation of a second scanner, but also due to the unwillingness of many clinicians to reduce hardcopies. Workflow changes were felt to be extensive, even for the department of radiology, which had been most closely involved in the project.

Tough Measures to Ensure PACS Uptake

The following guidelines were implemented to increase the uptake of PACS and to discourage dependency on hardcopies:

• No hardcopy printing for non-orthopaedic clinics.

• Pushing for individual commitments to use PACS in orthopaedic surgery.

• For reluctant surgeons, printing of hardcopy was performed only on individual request.

• Publication of statistics regarding percentage of exams documented on hardcopies.

• Absolutely no reprinting of lost hardcopies.

• Continuous PACS training, including thorough induction of new employees.

• Continuous internal promotion of PACS during morning conferences, with flyers, posters and electronic mailing.

• Refusal to handle any hardcopies by the department of radiology, such as mailing and storage, in contrast to the support provided for electronic data handling.

As expected, resistence against the PACS increased, following these activities. We encountered many of the well-known problems occurring in change management situations (Lewin 1951, Beckhard 1969).

Change Management

Change management "manages the people side of change and realises it effectively" (Hiatt and Creasey, 2003). According to Strebel (1998), there are four typical reactions to major change, as outlined in table 2 (see below).

Another approach to innovation is provided by the Everett Rogers' "diffusion of innovations" theory (1962), which differentiates five categories of product adopters, as outlined in table 3 (see below).

During our PACS project, a mixture of these personality types was found. Early adopters included radiologists, technicians and the informatics team. These persons were treated preferentially with regards to hardware and software upgrades, training and support. The majority of the employees adapted to PACS sooner or later, including most physicians, secretaries, nurses and the administration. This group had standard equipment, training and support.

Finally, there was a small group of traditionalists and resistors who complained about details such as spelling errors in the web viewer entry page. A negligible number of persons spread unfounded rumours about the lack of legal basis for running a PACS or regarding the reliability and technical quality of the PACS manufacturer. The comments of traditionalists and resistors were disregarded.

PACS Review: Four Years Later

Approximately four years after the installation of PACS, our hospital was filmless. Retrieval times were within requirements after the replacement of the DVD jukebox by a hard disk RAID. A number of teleradiology projects had been started. On the other hand, hardware costs increased more than anticipated, due to increasing requirements for processor and RAM for the web viewer used by clinicians. On the human side, PACS was widely accepted within the hospital. The majority of external referring physicians, however, still required film, preventing complete replacement of hardcopies.

Conclusion

A PACS project is a change management project with an important people side. There are many obstacles which can be overcome with persistence, good project management, fast and competent support as well as permanent communication. Major problems must be solved. Details, however, often have to wait, especially when only important to traditionalists and resistors.

Published on : Sat, 15 Dec 2007