Maximising the Benefits of RFID Integration in Clinical Contexts: A Linear Conduit

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Historical Context

- St Vincent Private Hospital, Sydney, NSW
- 14 years of developing and using Clinical Information System
- The Web based Clinical Information System – Web delacy
- Began developing Web delacy Hospital Information System in 2007
- Emerging case for integration – RFID.

The Business Case for RFID

- Web delacy : A well developed web based clinical information System with a key module - clinical support resource management system – which books, tracks and manages patient orderlies to efficiently move patients and equipment between wards, operating theatres and clinic appointments.
- Integration for better resource management: The clinical support resource management module was to be integrated with a real time location system or RTLS (using RFID technology), to enable a more efficient real time view of hospital resources.

RFID Tracking - What was done?

- Active RFID tags were attached to high value and high utilisation assets & patient transport equipment (such as wheel chairs); loan assets such as infusion pumps; and selected patients within the premises including the operating theatre and radiology departments.
- Tracking done through 5 in-patient floors of the private hospital, theatre complex and Radiology department, storage area in level 4 and the Sterilization Department.

Workflow Monitoring with a Pilot

- The impact in two areas studied:
  - Clinical Support that is involved with patient movements/transport
  - Sterilising Services that is involved with sterilisation and supply of critical/high utilisation equipment, on a regular basis to relevant areas
- Purpose:
  - Evaluate the benefits of the technology, as reflected in process efficiencies, at the same time demonstrating it to end users.
  - Extract key learning so as to inform the full scale RFID integration – particularly in the Emergency Wards.

Post Pilot – First Reflections

- Pro's:
  - Equipment availability improved by 60%
  - Reduced equipment replacement costs – 20%
  - Reduced equipment rental costs – 15%
  - Improved support unit productivity – 20%
  - Increased patient nursing time – 20%
  - Reduced staff frustration – 80%
- Con's :
  - Scrubs: "We use it when we lost something…"
  - Nurses: "we still look for equipment…"

Conceptualisation of Study: The Linear Conduit

- A Qualitative Analysis
- Interviews focus on users and processes
- Q1: To what extent has RFID technology been able to assist in reshaping clinical processes and enhancing their efficiencies?
- Q2: Can the benefits experienced by RFID be maximised with process integration in this context?

Possible Improvements

- "*the tracking system must be made more efficient to detect smaller devices, which have high utilisation, …they have the tendency to get lost "under a patient bed*".
- "*Integration with the clinical resource support system, which eliminated the need for users to learn another interface (particularly that the users are mainly part time and casual staff) is imperative for the continued use of RFID tracking system…then we can achieve time and cost savings…reshape the processes more efficiently*".

An Insight from Scrubs

- "*We work on pager messages, sent through by nurses. If the message also contained the "location of the equipment" it would be better. The messages usually contain the equipment that is required to be transported along with the patient. We take the patient and collect all the equipment on the way. If this message really also came with the "location of the equipment" – I feel it is much more optimal – saves us the time looking up the computer. Anyway, all the information comes in the pager message – why not just add this information? It is much easier for the nurse who is already looking up the rest of the information and sends us a message to do this…"*

Future Potential of Technology (1)

- "*Potentially, RFID tracking system could be integrated into other areas such as bedside applications/monitoring and extending into remote monitoring our multi-hospital environment, where patients do tend to "wander away".*
- *The extension into patient monitoring and after care, support – is another area, which could bring in better efficiencies for the hospital*

Future Potential of Technology (2)

- *"The potential of RFID is much more…for example there are RFID implants in prostheses that is now possible, and if this is done with the support of vendors, the specific prostheses to a patient may be possibly done without bringing the patient into the hospital each time…makes the process more efficient, saves time, and additional costs…"*

The Linear Conduit – for Future

- User involvement is critical from conceptualisation to deployment – it has the potential to enhance the process of RFID integration and exploit its future potential for the institution.
- Vendors and the institution has to continue to work together, as in the pilot stage, with more participation from end users.
- Users need to be aware of issues not being addressed during a pilot, with a justification, so that they will continue the use of the tracking system, and novel ideas may be revealed in support for RFID technology as it evolves.