

RFID in Health Care

Study on the requirements and options for actions in RFID in healthcare

The study on the requirements and options for actions in RFID in healthcare' reviewed RFID applications in health care delivery in Europe. It set out to identify the drivers, obstacles and critical uncertainties surrounding the current and future deployment of this and similar technologies. RFID is thought to have high potential for increasing efficiency, quality of health care, and most importantly: patient safety. Therefore the Commission strives to develop policies to maximise this potential and limit possible risk, where possible.

Objectives of the Study

The potential of RFID applications in the healthcare sector has been identified a few years ago. However, no recent and actual data gather is available to support this claim and to further qualify it. To allow public authorities to effectively support the deployment of the technology, more evidence of current and potential benefits, costs, obstacles and drivers is necessary.

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- Assess the costs and benefits of actual applications
- List the most promising RFID applications in the delivery of healthcare, the obstacles, drivers and critical uncertainties
- Review the market for RFID in Europe, with a particular focus on the health care sector
- Identify policy options and research areas for the European Commission (EC) to ensure large-scale, effective, and secure implementation of RFID in healthcare and the pharmaceutical market.

“RFID will not succeed if it is considered to be a replacement for current solutions. RFID will succeed where added value is clearly visible in comparison to existing solutions”

Study Description

RFID is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. A RFID tag is an object that can be applied to or incorporated into a product, animal, or person for the purpose of identification using radio waves. Some tags can be read from several metres away and beyond the line of sight of the reader. An RFID system consists of a transponder, a reader, a database and a software programme for processing the data collected.

The application of RFID technology in healthcare has been showing great potential to improve patient safety, reduce medical errors, save costs and overall contribute to the quality of care delivered to patients. In addition, the efficiency of healthcare delivery may also benefit from RFID technology. It is expected that availability of the technology, both inside and outside healthcare, will grow quickly over the coming years (for example, one forecast predicts that the number of tags delivered in 2016 will be over 450 times the number delivered in 2006). A key question for policy makers is what actions should be taken, and what further research is necessary, to ensure the new technology will reach its full potential. It is possible that without taking proper action, cost savings, improvements in patient safety and reductions in medical errors might never be realised.

CASE STUDY

Birmingham Heartland hospital deploys the “Safe Surgery System”, which comprises a digital operating list, enabled by automated patient recognition. It is a passive pre-OR decision support technology (process management & identification system) using printed RFID wristbands and digital photo identification linked to an electronic pre-operative checklist. The following benefits were associated with this case:

- In terms of hospital efficiency this system is likely to address the existing problem of under-utilization of operating theatre time
- Patient through-put improvement
- Improved patient safety: 4 wrong site/side near misses avoided
- Nursing staff time saved on
- Impact of automatic generation of metrics for daily/weekly analysis which result in:
- Litigation risk reduction effect value
- Ability to comply with NPSA Safer Practice Notice 24
- Effect of OR nurse satisfaction on turnaround
- Value of ability to print patient-ID associated labels for specimen analysis obtained during surgery, thus avoiding risk of wrong patient/sample errors

At the same time, the application of RFID raises issues of privacy and security. For example, a patient might be concerned about her privacy when hospital staff can track her whereabouts through RFID. When RFID is used as a means of identification, illegal copying of tags could pose a security threat.

Methodology: A variety of methodologies were used to review the scientific literature, assess the current practice, engage expert opinion and to scope future requirements and possible policies:

- Systematic review of literature (>20 sources)
- 6 Case studies of current applications and pilots in Europe and the United States
- Online Delphi to assess and validate barriers, drivers, to RFID deployment in healthcare and also the most promising applications
- Expert interviews for validating and deepening the survey results
- Cost benefit analysis of various RFID applications
- Scenario gaming workshop to identify and assess current and future policy options
- Roadmapping RFID deployment and policy interventions

Expected Outcomes

The Study will provide the most recent insights in RFID deployment in Health care in Europe. It is intended to highlight why certain applications are successful and why others are not; but also what possible obstacles exist to the wide scale roll out of RFID in Healthcare. In doing so the cost and benefits of RFID projects in Healthcare are assessed, to infer the current and future potential for sustainable RFID solutions. The findings from literature, expert surveys, interviews and case studies will allow identifying policy options for the Commission. These intend to ensure optimal conditions for improving care delivery, patient safety and more efficient provision of care through the use of RFID and alternative technologies.

Key to success is not the technology, but the application design, leadership, stakeholder involvement, the embedding in the local delivery processes and organisational context

Preliminary conclusions

The most promising applications can be found in four areas:

- (1) Tracking medical staff and tools which can lead to better supply chain management and general operational workflow.
- (2) Improved identification and authentication for staff access to locations and medical equipments.

Still, these two areas can provide the basis for even better applications when these RFID tools are directly integrated with the overall IT infrastructure of a care delivery organisation leading to:

- (3) automatic processes in critical areas such as supply chain management or medication processing.
- (4) Sensing, used for compliance monitoring and data collection to provide real-time information on individual health indicators.



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Additional information:

http://ec.europa.eu/information_society/activities/health/studies/ongoing/index_en.htm

KEYWORDS

RFID, Health care, Obstacles, Drivers, Promising applications, Case studies, Delphi survey, Care scenarios, Tracking and tracing of patients, Tracking and tracing of assets, Tracking and tracing of staff, Data matrix, 3D barcode, EHealth, patient safety