“RFID for Healthcare and Pharmaceuticals 2008-2018”

• Publication date: May 2008
• Number of pages: 285
• Authors: Dr Peter Harrop & Trevor Crotch-Harvey
• Pricing: £1,345 (PDF) / £1,445 (print)
Report Description

The RFID business is growing so fast that few applicational sectors can beat that scorching rate of growth. Healthcare and pharmaceuticals is one of them thanks to the new tagging of drugs, real time location of staff and patients and other developments including automated error prevention. This unique report gives a full technical and market analysis illustrated by 70 case studies. It is a vital resource for the healthcare profession and all who wish to support it. We separately assess the opportunity for both passive and active tags in pharmaceuticals and healthcare in the following sectors:

- Pharmaceutical drugs
- Medical disposables and other items
- Pallets and cases
- Laundry
- People
- Secure Access
- Conveyances, vehicles, assets
- Real Time Locating Systems (RTLS)
- Sensor based applications

RFID in healthcare and pharmaceuticals has special requirements, unquantifiable benefits (safety, security, reputation, brand protection etc) and sometimes tolerance of longer paybacks for such reasons can often lead to very profitable and worthwhile business for suppliers. Extensive benchmarking in the business leads to rapid dissemination of the multiple benefits to users of given schemes and great pressure on the laggards to catch up.

Rapid increase in adoption

The market for RFID tags and systems in healthcare will rise rapidly from $120.9 million in 2008 to $2.03 billion in 2018. Primarily, this will be because of item level tagging of drugs and Real Time Locating Systems (RTLS) for staff, patients and assets to improve efficiency, safety and availability and to reduce losses. The tagging of the packs of blisterpacks and the plastic bottles used by patients is primarily a US phenomenon driven by the need for improved anticounterfeiting but there will be great improvements in theft deterrence and improved stock control and recalls.
Ten year forecasts for passive tags in healthcare and pharmaceuticals by tag value

Source: IDTechEx

This report analyses 10 year forecasts of RFID in the healthcare and pharmaceutical sector.
Table of Contents

EXECUTIVE SUMMARY AND CONCLUSIONS

1. INTRODUCTION
   1.1. Relevant challenges in healthcare and pharmaceuticals
   1.2. Radio Frequency Identification
   1.3. Real Time Locating Systems
   1.4. Trend of frequencies
       1.4.1. Form of Active RFID
       1.4.2. Radio regulations are changing
       1.4.3. No ideal frequency for everything
       1.4.4. Ultra Wide Band (UWB)
   1.5. Privacy issues
   1.6. Statement of independence

2. LOCATION AND STATUS OF STAFF, VISITORS, PATIENTS AND FIXED ASSETS
   2.1. Challenges
   2.2. Primary benefits of RTLS
   2.3. Detailed needs, concerns, impediments for RTLS in healthcare
   2.4. RTLS technology
       2.4.1. Definition of RTLS
   2.5. Choice of technologies
       2.5.1. Radianse view of technologies
       2.5.2. Zonal
       2.5.3. Radio fingerprinting
       2.5.4. Triangulation and Time Difference of Arrival (TDOA)
       2.5.5. Global Positioning System (GPS)
       2.5.6. Received Signal Strength Indication (RSSI)
       2.5.7. GSM and GPRS
   2.6. Suppliers
   2.7. RTLS Case studies: Indoor Positioning Systems for people
       2.7.1. IPS in hospitals
       2.7.2. Nagoya Ekisaikai Hospital Japan
       2.7.3. Alexandra Hospital/ Singapore National University Hospital, Singapore
       2.7.4. Mercy Hospital USA
       2.7.5. Brigham & Women’s Hospital, USA
       2.7.6. Borgess Medical Center patients USA
       2.7.7. City halls Japan
       2.7.8. Saarbrucken Clinic Germany
       2.7.9. Presbyterian Hospital USA
2.7.10. Changgen Memorial Hospital Taiwan
2.7.11. Tung Yuan Hospital in Hsinchu, Taiwan
2.7.12. Hospitals Israel
2.7.13. Werribee Mercy Hospital, Australia
2.7.14. Wirral Hospital UK
2.7.15. Birmingham Heartlands and Solihull NHS Trust UK
2.7.16. Academic Medical Centre The Netherlands
2.7.17. Sun Yat-Sen Cancer Center Taiwan
2.7.18. Lancaster General Hospital USA
2.7.19. Bangkok Hospital Thailand
2.8. RTLS case studies - assets and supplies
2.8.1. Jackson Memorial Hospital USA
2.8.2. Beth Israel Deaconess Medical Center USA
2.8.3. Bon Secours Health System, USA
2.8.4. Salmon Creek Hospital USA
2.8.5. Vanderbilt Children’s Hospital USA
2.8.6. Washington Hospital Center, USA
2.8.7. Hospital of the University of Pennsylvania USA
2.8.8. Legacy Health System USA
2.8.9. Good Shepherd Hospital USA
2.8.10. Palmetto Health USA
2.8.11. Holy Name Hospital USA
2.8.12. Catholic Medical Center - KangNam St. Mary’s Hospital, patients and staff Korea
2.8.13. Bronson Healthcare Group, patients and staff USA
3. PHARMACEUTICAL ANTICOUNTERFEITING, THEFT CONTROL AND TRACKING
3.1. Challenges
3.1.1. Solutions to counterfeit pharmaceuticals
3.2. Attitude of legislators and the industry
3.2.1. Food and Drug Administration USA
3.2.2. European Pharmaceutical Industry
3.2.3. East Asia
3.2.4. Case study Wal-Mart mandate for Type 2 pharmaceuticals
3.2.5. Leadership from Pfizer and other major suppliers
3.2.6. Pharmaceutical theft reduction and tracking
3.3. Technology
3.4. Case studies
3.4.1. Pfizer Viagra USA
3.4.2. GlaxoSmithKline Trizivir drug item level USA
3.4.3. Abbott Laboratories Wal-Mart USA
3.4.4. Cephalon, tracking pharmaceuticals, France, Germany, UK, USA
3.4.5. CVS Pharmacy USA
3.4.6. Felletti Spadazzi Italy
3.4.7. GS1 Europe
3.4.8. HD Smith USA
3.4.9. Johnson & Johnson USA
3.4.10. McKesson USA
3.4.11. Millennium Pharmaceutical UK
3.4.12. Novartis USA
3.4.13. Purdue Pharma USA
3.4.14. Ranbaxy Pharmaceuticals India
3.4.15. UK Pharmaceutical UK
3.4.16. Unimed Pharma Korea
3.4.17. Walgreens USA
3.4.18. West Pharmaceutical Services USA
3.4.19. Cardinal Health USA
3.4.20. Felletti Spadazzi, drug cases, Italy
3.5. Suppliers capabilities
4. ERROR REDUCTION, RECORDING PROCEDURES, PATIENT COMPLIANCE
4.1. Error reduction and recording procedures
4.1.1. Electronic handshake to prevent mismatching of patient to treatment
4.1.2. Human implants for instant medical record of high risk patients
4.2. Patient compliance
4.2.2. Bang & Olufsen Medicaid, Denmark
4.2.3. Precision Dynamics, USA
4.2.4. Brenmoor UK
4.3. Case studies
4.3.1. Fischer Clinical Services drug trials item level, USA
4.3.2. Melexis, Belgium
4.3.3. AstraZeneca, UK
4.3.4. Baptist Health USA
4.3.5. Veterans V/A Hospitals USA
4.3.6. Regenesis Biomedical USA
4.3.7. Mediplus, UK
4.3.8. South Tyneside Healthcare Trust UK
5. MANAGEMENT OF BLOOD, SUPPLIES, EQUIPMENT
5.1. Blood testing, transport and transfusion
5.2. Smart cabinets
5.2.1. Electrolux, Germany
5.3. Laundry - rented textiles
5.4. Document management
5.4.1. Uchida Yoko, Japan
5.4.2. Yoshikawa, Japan
5.5. Hearing aids
5.6. Case studies
5.6.1. Massachusetts General Hospital, blood USA
5.6.2. Portsmouth General Hospital, blood UK
5.6.3. Georgetown University Hospital, blood USA
5.6.4. Saarbrucken Clinic, blood Germany
5.6.5. St James Hospital Ireland
5.6.6. Medline Industries, surgical disposables, USA
5.7. Supplier capability
5.7.1. Hitachi, Japan
5.7.2. DHL healthcare logistics Europe
6. OTHER USES FOR RFID IN HEALTHCARE
6.1. Secure access
6.2. Recording and alerting to incidents
6.3. Case studies
6.3.1. NHS Security Management Service, staff safety UK
6.3.2. Hospital La Conception, pathology samples France
6.3.3. Human Fertilisation and Embryology Authority (HFEA), embryos, eggs, sperm UK
6.3.4. Paoli Calmette Institute, pathology samples Italy
6.3.5. Hart District Council, safety of disabled at home UK
7. MARKET FORECASTS
7.1. Total RFID market 2008-2018
7.2. Healthcare and pharmaceutical RFID market 2008-2018
7.2.2. Potential for RFID on prescription drugs
7.3. RTLS market 2008-2018

APPENDIX 1: IDTECHEX PUBLICATIONS
APPENDIX 2: CONTACT DETAILS
APPENDIX 3: INTRODUCTION TO RFID
APPENDIX 4: RTLS SUPPLIER CAPABILITIES
APPENDIX 5: RFID SOLUTION PROVIDERS
TABLES

1.1. Some of the relevant challenges in healthcare and pharmaceuticals and how RFID can help
1.2. Some tasks performed by RFID
1.3. The commonly used licence free frequencies for active RFID
2.1. Examples of needs and concerns about RTLS in healthcare
2.2. Wherify view of RTLS options
2.3. Comparison of today's favourite RTLS systems in healthcare
2.4. Examples of companies with RTLS systems or appropriate parts and services
2.5. Examples of suppliers and developers of RTLS systems
2.6. Required characteristics of an indoor positioning solution
2.7. Equipment Rental Costs: Financial Results
2.8. Associate Satisfaction: Nursing Satisfaction Scores
3.1. Some of the leading suppliers and aspiring suppliers of RFID labels for pharmaceuticals.
4.1. Telemetry technologies available and their drawbacks for patient monitoring
6.1. Comparison of the two types of RFID smart card
6.2. Comparison of RFID shoes, wristbands and implants for secure access
7.1. Assumptions for forecasts of healthcare and pharmaceuticals RFID market 2008-2018
7.2. Passive tags number million sold globally for healthcare and pharmaceuticals 2008-2018
7.3. Passive tags for healthcare and pharmaceuticals unit price cents 2008-2018
7.4. Passive tags for healthcare and pharmaceuticals value dollar millions 2008-2018
7.5. Active tags for healthcare and pharmaceuticals number million 2008-2018
7.6. Active tags for healthcare and pharmaceuticals unit price cents 2008-2018
7.7. Active tags for healthcare and pharmaceuticals value dollars millions 2008-2018
7.8. Chipless percentage share of the overall RFID market by numbers 2007 to 2017. Projection by IDTechEx
7.9. Addressable market in billions yearly as a function of tag price
FIGURES

1.1. Technical performance for active RFID in crowded environments as a function of frequency in the view of Savi Technology
1.2. UWB frequency spread compared with some alternative active RFID bands in the microwave region
2.1. The demographic timebomb.
2.2. Radianse view of the relative merits of some RTLS technologies
2.3. Example of Zonal RTLS
2.4. A typical business case for parasitic WiFi over conventional RTLS. An increasing proportion of hospitals seem to be convinced enough to buy such a radio fingerprinting solution.
2.5. How does the system work?
2.6. Ekahau WiFi tag
2.7. Monitoring system for personnel tags
2.8. Zonal personnel tracking system
2.9. Using RFID to guide people
2.10. Miyake white navigation system
2.11. Verichip Hugs and Kisses tags for mother baby matching
2.12. Hospital contact history and monitoring system
2.13. Overall strategic design
2.14. Patient track & alarm
2.15. Information systems in Wirral Hospital
2.16. Analysis - EDR/EIS
2.17. Radianse RTLS tags
2.18. A selection of UWB RFID tags
2.19. GSH equipment rental costs
2.20. GSH equipment purchasing costs
2.21. GSH associate satisfaction
2.22. HealthCare pilot RTLS tags
2.23. How The HealthCare Pilot system works
3.1. The TAGSYS stamp sized HF RFID label fitted to all US shipments of Pfizer Viagra
3.2. Short and Long Term Anticounterfeiting Strategies
3.3. Avery Dennison UHF smart label for item level drugs
3.4. 915 MHz EPC tag on item level drugs packages from Abbott Laboratories in the Accenture trials. The EPC code was only printed on the outside for the first phase (see bottom of label).
4.1. Usage and background data is read from the device and logged
4.2. Luer connectors in 'wrong' configuration
4.3. Luer connectors in 'correct' configurations
4.4. Traceability / medical devices in a manufacturer/distributor
4.5. Traceability / medical devices within a hospital situation
4.6. Level of non-compliance for different medical treatments
4.7. Patient compliance blisterpack from Information Mediary Canada
4.8. Precision Dynamics RFID wristband
4.9. What is Smart Band?
4.10. Hospital architecture model
4.11. Patient information data pipeline
4.12. Smart Band solutions at work through the complete patient care process
4.13. On-the-fly calibration - just show the bottom of the container to the glucometer
4.14. Glucometer application in detail - the MLX90109 reader
4.15. Glucometer application in detail - the MLX90127 sticky label transponder
4.16. Diprivan TCI tag construction
4.17. Tagged syringe and Diprifusor™
4.18. Pill bottle with smart label (printed prescription label not shown)
4.19. ScripTalk speaker
4.20. Mediplus tagged catheter
4.21. Mediplus Pressflow overview
5.1. Uchida Yoko's 'Pick up by light' system
5.2. Tag with LED - File by Light system. The LED is in the top left corner
5.3. Applying Coil-on-Chip to hearing aids
5.4. Square CoC tag chip enclosed in protective plastic coating
5.5. How the intelliaid™ system works
5.6. Intelliaid™ scanners
5.7. Paling Risk Scale for major transfusion hazards
5.8. SHOT project: cumulative data 1996 to 2001
5.9. Increasing errors within hospitals
5.10. Safe transfusion: Processes not just product
5.11. Automated warning generated when a possible mis-match of blood and patient occurs
5.12. RFID on blood container, next to interrogator
5.13. Blood labelled with RFID chip
5.14. The process - blood sampling
5.15. The process - pathology laboratory
5.16. The benefits - supporting change
5.17. Identifying patients and their blood
5.18. Hitachi CoC blood donor card
5.19. The card is flexible
5.20. CoC tags as cards or tokens shown in interrogators
5.21. Hitachi tagged test tube
5.22. Hitachi multihead antenna array, a form of 'smart shelf'
5.23. TAGSYS item level HF label
5.24. DHL in the healthcare supply chain
5.25. DHL RFID Pilot Experience & Development Areas
6.1. Principle of Miyake foot key system for secure access by staff
6.2. Principle of Miyake foot key system for control of disoriented elderly
6.3. Hospital staff with the Connexion2 alarm/record device
6.4. The reverse of the Connexion2 device showing the button that activates remote recording
6.5. HF tags from TAGSYS
6.6. Alarm button on the active RFID pendant
7.1. Passive tags number million sold globally for healthcare and pharmaceuticals 2008-2018
7.2. Passive tags for healthcare and pharmaceuticals unit price cents 2008-2018
7.3. Passive tags for healthcare and pharmaceuticals value dollar millions 2008-2018
7.4. Active tags for healthcare and pharmaceuticals number million 2008-2018
7.5. Active tags for healthcare and pharmaceuticals unit price cents 2008-2018
7.6. Active tags for healthcare and pharmaceuticals value dollars millions 2008-2018
7.7. RTLS as a percentage of the active RFID market in 2010 by value
7.8. RTLS as a percentage of the active RFID market in 2017 by value
SECURINGPHARMA.COM MARKET RESEARCH ORDER FORM

HOW TO ORDER

You can order this report by fax, email or by post (if you are ordering on behalf of a company, please ensure that you are authorised to make the purchase).

1. Fax your order to 0033 (0) 4 66 21 46 67.
2. Email your order to research@securingpharma.com.
3. Post your order to: Securing Industry Ltd., 17 Hazleton Close, Marlbrook, B61 0JF, Bromsgrove, UK.

A sales representative will confirm your order within 24 hours of receipt of this form.
Please note: Payment is due in full prior to delivery of any product. All orders are final.

REPORT DETAILS

| Title: | "RFID for Healthcare and Pharmaceuticals 2008-2018" |
| Format: | PDF - £1,345  PDF & Print - £1,445 |
| License type: | Electronic copies include a five user licence. Please contact us at research@securingpharma.com to enquire about additional licences. |
| Delivery information: | Prices are fully inclusive of delivery costs. Hard copies of reports are dispatched by courier (if delivery to outside of the UK) or first class post (if delivering within the UK) within one week of receiving payment. |
| Total price: | ________________________ |

PAYMENT DETAILS

Please invoice my company

Payment by cheque: Cheques should be made out in £Sterling for the full amount and made payable to "Securing Industry Ltd". Please send to: Securing Industry Ltd., 17 Hazleton Close, Marlbrook, B61 0JF, Bromsgrove, UK.

Payment by bank transfer: Transfer in £Sterling can be made directly to our bank account (details of which will be provided on the invoice).

EU Companies (excl. UK) must supply a valid company tax number (UK VAT at 15% will be charged unless provided).

BILLING DETAILS

| Name: | ________________________ |
| Title: | ________________________ |
| Company: | ________________________ |
| VAT Number: | ________________________ |
| Address (1): | ________________________ |
| Address (2): | ________________________ |
| City / State / Zip: | ________________________ |
| Country: | ________________________ |
| Phone: | ________________________ |
| Fax: | ________________________ |
| Email: | ________________________ |

SHIPPING DETAILS (if different)

| Name: | ________________________ |
| Title: | ________________________ |
| Company: | ________________________ |
| Address (1): | ________________________ |
| Address (2): | ________________________ |
| City / State / Zip: | ________________________ |
| Country: | ________________________ |
| Phone: | ________________________ |
| Fax: | ________________________ |
| Email: | ________________________ |