



## Workshop: Hospitals and Health care



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Hamilton Health Sciences

## RFID in HealthCare



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## Hamilton Health Sciences

- Family of 5 unique hospitals and a cancer center
- More than 1,000 beds and 24 bassinets
- Over 108,000 emergency visits a year
- Approximately 80% of all cardiac surgery for the central South Ontario region performed here

About McMaster University Medical Center

- Founded in 1972 as a state of the art health care facility
- Home to McMaster Children's hospital; One of the country's finest and most highly regarded pediatric hospitals
- Pioneered Problem Based Learning in healthcare in the 1970s and has extensively used it ever since

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## RFID Market Dynamic

- Rapid growth in Retail, Pharmaceutical, Military etc.
  - Business Proposition: Cost savings due to better inventory management
- Total worldwide RFID expenditures: \$2.8 Billion (2006)
  - \$26 Billion (2016) with Real Time Location Services (RTLS) alone accounting for \$6 Billion
- Characteristic slower adoption in Healthcare sector
  - Traditionally Conservative & Risk Averse
  - Lack of Process understanding within multiple groups
  - Not mandate driven

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## Healthcare Industry

- 9.6% of GDP in Canada, 14.6% of GDP in U.S.
- Rising costs and tighter budgets
  - need for efficiency
- Public pressure for better healthcare experience
  - need for productivity
- IT Spending growing steadily (roughly 5% year over year)
  - Although overall percentage of budget still low

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## Changing Landscape of Healthcare

- Access to better technology advances
- Patients are more informed today than they were 10 years ago
  - Internet search
  - Information repositories
- Aging population is putting a strain on healthcare facilities
- Tighter budgets
- Need for greater operational efficiency
- Technology advances that can provide healthcare professionals with more real time information

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## The Adoption Cycle

**Key Messages:**

- 1 RFID Adoption is still in its early stages in Healthcare
- 1 The pace of adoption is driven by the ability of Healthcare organizations to learn, evaluate and find partners to implement.
- 1 83% of the market is still in the discovery phase.

RFID Implementation for Asset Tracking in Hospitals, State of Affairs (ECRH 2005)

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## Technology Trend

**Key Messages:**

- 1 The field of asset management continues to attract new technology development
- 1 The increasing complexity of new technology decisions supports the need for adoption and implementation consulting.

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## Different Applications

- **Asset Management (Active RFID)**
  - Real Time Asset Location
  - Triggering Alerts to better manage processes such as asset desensitization
  - Preventative Maintenance: If you can't find then you can't maintain them!
- **Patient Management**
  - Real Time Identification (Passive RFID or Barcodes)
  - Avoid patients from leaving pre specified zones: Wandering patients, newborn babies, patients with infectious diseases (Active RFID)
  - Pandemic Planning (Active RFID)

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## Different Applications


- **Staff Management**
  - Pandemic Planning (Active RFID)
  - Employee Identification (Passive RFID)
- **Drug Administration**
  - Drug dispensing (Smart Shelf + Passive RFID or Barcodes)
  - Drug Administration (Passive RFID)

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## HHS Project Overview

- Initiated in Jan. 2006
- Multi Phased Multi Year Project
- Initial Phase: Asset Management
- Future Phases: Patient Identification and Care, Pandemic Planning


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## HHS Project Overview

- Team consists of
  - HHS Staff
    - VP
    - Information & Communication Technologies staff
    - Unit Staff (Nurses/Porters)
  - McMaster University
    - Multiple Faculties including Engineering Physics, and DeGroote School of Business
    - Graduate Students from multiple disciplines including Engineering, Business and Nursing
    - Undergraduate Students from Engineering
  - Industry leaders: Deloitte, RF Code, LRNI


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## HHS Project Overview

- End Goal: To explore and help develop Better Business Intelligence Tools for Healthcare


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## HHS Project: Current Status

- Active RFID infrastructure deployed
- Data gathering started in November 2006
- Still mapping out business processes within the selected ward and for selected asset management processes
- Developing a business case for expanding the pilot from a single ward to a whole facility


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## Lessons Learnt

- Healthcare facilities are very receptive to exploring technology solutions that would help them provide better patient care while helping reduce operational costs
- At an initial glance RTLS technology (Active RFID or WiFi based RTLS) is mature enough to take the plunge.
- Change Management is actually more important than technology


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## Lessons Learnt

- Privacy issues are real and need to be addressed!
- A lot of effort has been put into gathering data but not enough effort has been put into transforming data into useful information!
  - Software applications that are readily available do not provide complete functionality required
  - With the lack of available software applications there tends to be a push for customized applications which raises costs and support issues
  - Huge market gap for developing reliable and functional applications

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## Lessons Learnt

- On the RFID hardware there are opportunities to develop
  - RF enabled Biosensors that can be used to monitor patient condition
  - Smart Shelf that performs reliably for drug dispensing

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2007 *Canadian RFID Conference*  
SHARING THE FACTS - DISPELLING THE MYTHS

RFID  
RADIO FREQUENCY IDENTIFICATION

Questions ?

The banner for the 2007 Canadian RFID Conference is set against a red background. It includes a stylized maple leaf icon, the text '2007 Canadian RFID Conference', the tagline 'SHARING THE FACTS - DISPELLING THE MYTHS', and a logo for RFID (Radio Frequency Identification) which consists of the letters 'RFID' in a white box with the full name below it.