



A PRACTICAL APPROACH TO REAL-TIME LOCATION SOLUTIONS (RTLS)

presented by
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(formerly Associate Administrator, UCSD Medical Center)



Introduction: Tom Hamelin, Senior Vice President Business Process Improvement, Awarepoint



- Prior Associate Administrator, UCSD Medical Center
 - > 25 years' experience managing complex hospital depts (Perioperative Services, Radiology, Trauma and Burn Center)
 - > Responsible for all aspects including strategy, operations, and budgeting
 - > It was in this role that Tom led search for an RTLS system
- After years of innovating with RTLS at UCSD, determined he could better impact healthcare cost containment and quality of care initiatives through an industry role
- Tom holds a BS, BSN, MSN and an MBA



About UCSD Medical Center



- Thornton Hospital:
 - > 119-bed, 238,792 sq. foot general medical-surgical
- Hillcrest Hospital:
 - > 386-bed, nearly 1,000,000 square feet general medical-surgical
- Moores UCSD Cancer Center
 - > One of just 41 National Cancer Institute-designated Comprehensive Cancer Centers in the United States
- Shiley Eye Hospital
 - > The only academic institution in San Diego area with comprehensive programs for clinical care of patients with eye disorders

Today's Agenda



- ⦿ Introductions
- ⦿ Problem (Visibility of Resources)
- ⦿ Solution (RTLS)
- ⦿ RTLS 5 Critical Success Factors
- ⦿ Why Now?
- ⦿ What's In It For Me?
- ⦿ UCSD Value Drivers
- ⦿ Review: Engagement Model
- ⦿ Summary



What is RTLS?



- RTLS is an acronym for Real-time Location Systems
- Used to track location of assets and people in indoor environments
- Effective for tracking mobile equipment assets in hospitals
- Networked awareness infrastructure enables future applications



The Problem: Inadequate Resource Visibility



- **Where** Resources are **Located** (Assets, People)
- **What** Resources are **Doing**
- **When** Resources are **Used**
- **How to Improve**



The Solution: Enterprise RTLS



Track location of assets and people in an indoor environment

- **Map Resource Location**
- **Monitor Resource Status**
- **Measure Resource Utilization**
- **Improve Resource Processes**



WHAT to Consider for Real-time Location Solutions



1. What is Adequate Coverage?
2. What Level of Accuracy Makes Sense?
3. What is the Impact of Installation and Maintenance?
4. What Does Interoperability Really Mean?
5. What is Considered Low Risk?

5 Critical Success Factors



#1 Enterprise Wide Coverage



- ⦿ Enables user adoption
- ⦿ Provides awareness of location, status and movement
- ⦿ Impacts
 - > Rental Efficiency
 - > Utilization Optimization
 - > Shrinkage Reduction

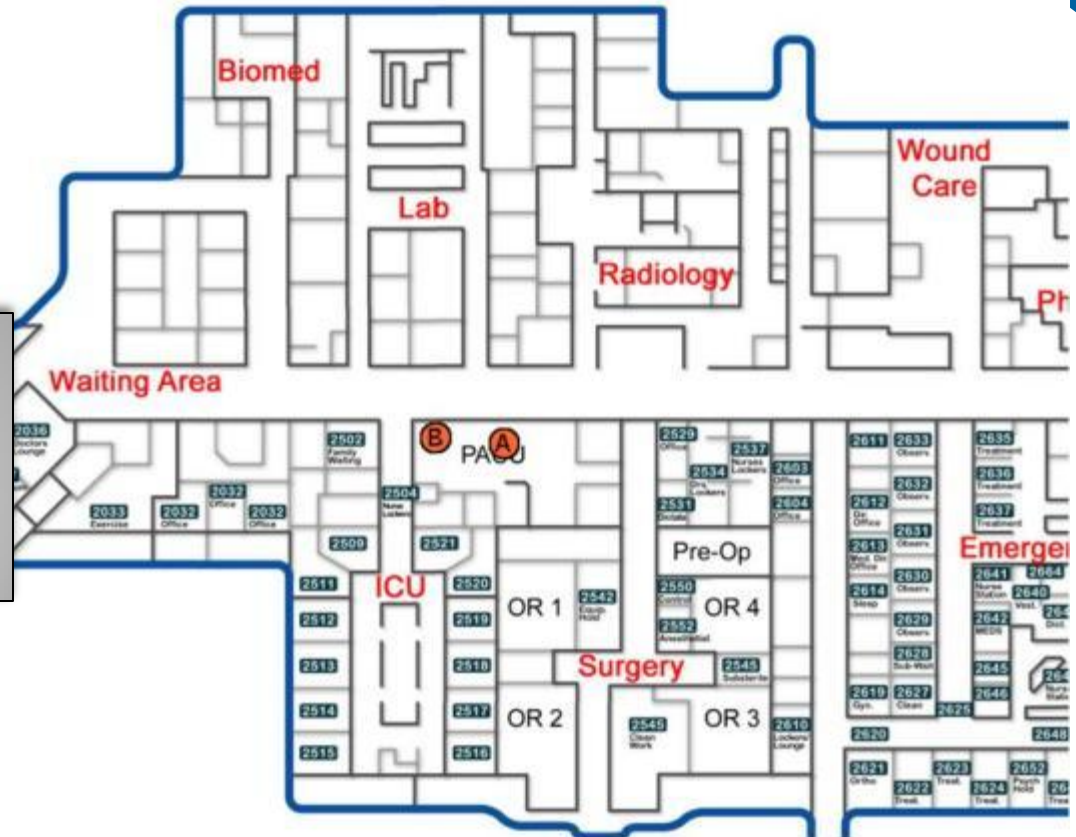


#2 Sustainable Room Level Accuracy



- Impacts User Adoption
- Enables Clinical and Financial Outcomes

Sustainable room-level accuracy is critical



#3 Minimally Invasive Install and Low Maintenance



Minimally Invasive Installation

- ⦿ No Hard-Wiring or Room Disruption (Cable Pulls / Dust / Ceiling)
- ⦿ No Operational Disruption
- ⦿ No Systems' Interference

Low Maintenance / Low IT Burden

- ⦿ Self-Forming Mesh Network
- ⦿ Self-Calibrating, Self-Healing Network
- ⦿ Fully Managed Service

#4 Interoperability

- 3rd Party Integration
- Infrastructure Independent
- Browser Based
- Standards Based



#5 Minimize Risk



- Financial
 - > Enterprise Wide
 - > ROIs
 - > Flexible Business Model
 - Inclusive 24x7 Fully Managed Service
 - Predetermined Total Cost of Ownership
- Outcomes
 - > Time to Value



RTLS in Healthcare: Why Now?



ECRI: C-Suite Watch List for 2009 and Beyond

RFID included in Top 10 list of important technologies hospital leaders should pay close attention to this year

KLAS: 2009 Perception Study

Validating reports that RTLS can save money, create efficiency and improve quality of care

Gartner Research: Technology-Driven Healthcare Transformation

The real “real-time” enterprise is the 4th platform of the future - Location & Condition Sensing, Revenue Cycle Management, ERP and Core Clinical applications

How It Works: UCSD



Tags to track assets:



◀ Equipment Tag



◀ Sterilizable Tag



◀ External Sensor Tag

Sensors that detect tags & wirelessly communicate their location & status:



Software to search for assets:



Reporting analytics, alerting and monitoring tools:



Central Distribution / Materials Management

What's In It For Me?



- Managing the flow of materials in today's hospital involves complex and coordinated movement of staff and equipment
 - > Locate Equipment Enterprise-Wide
 - Thousands of pieces of equipment constantly move around the hospital
 - > Manage Rentals
 - Easily locate owned equipment to reduce need for rentals
 - Active altering to monitor rental equipment status
 - > Initiate Proactive Equipment Par Level Management
 - View and manage par levels from a central computer

Biomed / Clinical Engineering

What's In It For Me?



- ⦿ Repairing, calibrating and performing preventive maintenance on thousands of medical devices is a constant challenge
 - > Locate Equipment Enterprise-Wide
 - Minimize equipment out-of-service time, reduce staff time and frustration “hunting” and reduce potential clinical incidents
 - > Improve Preventive Maintenance
 - Provide date-specific alerting and pinpoint location of asset anywhere in the facility
 - > Speed Critical Asset Recall
 - Immediately locate equipment to remove from operation or conduct required safety adjustment
 - > Ease Temperature Monitoring
 - Obtain insight into current temperature; reduce burden on staff with manual logs; improve response time

Finding Assets: Web-Based Application

- Requires no additional third party software
- Available via our Intranet
- Unlimited user access / no license fees
- Easy one-click access to find assets



The image shows a screenshot of the UC San Diego Medical Center Intranet. At the top, the logo for UC San Diego Medical Center is visible, along with a search bar and a 'GO' button. Below the logo, there is a navigation menu with links for 'Job Seekers', 'Employees', 'Nurses', and 'Managers'. A large green box with white text is overlaid on the center of the page, reading 'FIND IT! EQUIPMENT TRACKING'. To the right of this box, there is a 'Quick Links' section with various links such as 'Payroll and Orientation Calendar 2010', 'Dress and Appearance policy', 'Lawson Log in', 'Lawson Instructions', 'Learning Exchange', 'Medical Center Intranet', 'Safety Office', and 'Star Rewards'. Below the 'Quick Links' section, there is a 'HIPAA News & Information' link and 'The Joint Commission' link. The main content area of the page is partially obscured by the green box, but some text is visible, including 'Our staff achieves clinical excellence through service, innovation and education while exhibiting core values such as quality, caring, integrity, creativity, and teamwork.' and 'Working as partners and consultants with our staff, our management, and our community, the Human Resources Department provides high quality customer service, and prompt and accurate Human Resources information while serving Medical Center clients as an effective business partner in order to attract, retain and develop a qualified and diverse workforce committed to clinical excellence.'

Location Search Results

The interface is intuitive, offering simple, one-click searching

SKYTRON
powered by
awarepoint

Equipment [Advanced Search](#) [Help](#)

Search for Equipment:

Frequent Searches
[Asset Type: Infusion Pump](#)
[Asset Type: Bed](#)
[Asset Type: Vital Signs Monitor](#)
[Asset Type: Bed - Hoana](#)
[Name: Bariatric Rental Bed](#)

Med/Surg, 3rd Floor, Building One, Awarepoint Demo [change](#)
Coverage Area Includes:
Department, ICU, IMC/T2/Outpatient Surgery, Radiology, Surgery, Wound Care & Endoscopy
Floor: Central Services, Dining Hall, Med-Surg
4th Floor: Med/Surg
5th Floor: Labor & Delivery

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Owner Show All

- Bed (22)
- Breast Pump (3)
- Camera (3)
- COW (3)
- Crash Cart (24)
- Crib (4)
- ED
- Feeding Pump (1)
- Flex-Tip Laryngoscope (2)
- Gumey (7)
- Hypothermia Unit (4)
- Infusion Pump (9)
- Laryngoscope (2)
- Master Key (2)
- Over-bed Table (6)
- Capnograph (6)
- Patient Lift (3)**
- Portable Ultrasound (1)**
- SCD (1)
- Thermometer (2)
- Ventilator (1)
- Vital Signs Monitor (9)
- Wheelchair (26)



Staff can see exactly where equipment is located – anywhere throughout the facility using any computer

UCSD Value Drivers with RTLS

- Alerts Used to Proactively Manage Assets
- Infusion Pump Rental Fees Reduced
- Eliminated Budget Redundancies
- Medical Device Recall
- Use During San Diego Fire Disaster
- Temperature Monitoring

Alerts Used to Proactively Manage

Stationary Alerts:

Turnaround time in clinical engineering, rentals no longer in use, owned equipment that has not moved

Exit Alerts: First floor, Main lobby, ED, Dock, Trash

Temperature Compliance: Freezer-Immunization, Pharmacy Refrigerators, etc

Missing Assets: All Assets

Par-Level Alerts: Soiled Utility, Wheelchair

Entry Alerts: Laundry, assets entering certain floors

Zone Alert: OR Equipment leaving the OR

Infusion Pump Rental Fees Reduced

- Rental expense down from ~\$8,000 to ~\$2,000 in 90 days
- Rental spending stabilized at \$1,968 monthly average over last 22 months
- Perioperative Services total savings \$72,000 - \$90,000 annually

Eliminated Budget Redundancies

- Utilization data identified excess inventory and rentals
- Staff could not readily find otherwise available equipment
- Elimination of these inefficiencies resulted in budget savings for IV pumps alone of \$450,000



FDA “Urgent Medical Device Recall”

- Recall notice required hospital to immediately locate and apply warning labels to nearly 200 IV pumps
- Such recalls often require enormous staff time and several weeks to completely satisfy
- With pumps tagged, located and labeled
 - Recall completed within 48 hours
 - Used 1/2 the staff typically required

Use During San Diego Fire Disaster

- Code Orange for 72 hours during San Diego's 2007 fire disaster
- Burn Center cared for patients with both hospitals at capacity (over 350 inpatients a day)
- Command Center used RTLS to prep for evaluation and track location and status of mobile medical equipment



Temperature Monitoring

- Able to monitoring 24/7/365 with preset alerts for all modalities to include warmers and/or refrigerators
- Currently reviewing the possibilities of replacing the log journal required for the joint commission being signed off by RN
- Looking to expand throughout the hospital

Review: Engagement Model

- ⦿ Entire Health Center Coverage
- ⦿ Room Level Accuracy
- ⦿ Minimally Invasive Install & Nominal IT Support
- ⦿ Standards Based Interoperability
- ⦿ Low Risk Business Model
 - > Inclusive 24x7 Fully Managed Service
 - > Predetermined Total Cost of Ownership
 - > Hard Dollar ROI



Summary



- RTLS increases equipment utilization
 - > Eliminates budget redundancies; decreases rentals; reduces lost, stolen, misplaced
- RTLS automates manual processes
 - > Temperature monitoring
 - > Equipment par level management
- RTLS helps find what you need when you need it
 - > Imperative to patient care and safety – right equipment, right time
 - > Improves staff work environment – eliminates frustration and burden



Questions