

## A Real Asset

# Asset tracking targets efficiency to reduce hospital costs, improve patient care

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Patient safety and outcomes have traditionally been key performance indicators for hospitals in Canada, but recently value and efficiency have emerged as increasingly important performance metrics. The introduction of new devices and technology that contribute to clinical and financial targets provide an opportunity for hospitals to leverage strategic investments.

### Real-Time Locating Systems

In 2012, Canada spent \$60.6 billion on hospitals alone, up more than \$10 billion from 2009. Although total healthcare spending (encompassing hospitals, drugs, physicians, administration and capital) has grown steadily in the last two decades, the percentage share of funding allocated to hospitals has steadily dropped in the last 40 years, from nearly half of total healthcare spending in 1975, to less than one-third in 2012. Hospitals have had to deliver the same services to more patients without significant increases in funding to match demand. As a result, there is a greater emphasis on efficiency alongside patient safety and satisfaction.

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American hospitals are considered by many to be at the forefront of embracing cutting-edge technologies aimed at reducing costs and improving efficiency. Other countries often follow-suit once there are proven U.S. hospital business cases that substantiate the benefits.

A recent example of this is the widespread adoption of real-time locating systems (RTLS), which are used to track patients, staff and assets. RTLS typically uses Wi-Fi or proprietary technology, or a combination of both, to triangulate the location of radio-frequency tags within a building and then display the locations on a map. Tags are attached to people or items to be tracked. Authorized staff are able to easily search for the location of a specific tag or category of tags. RTLS is now being implemented in the majority of new build and redevelopment hospital projects in Canada.

Many of the financial benefits of RTLS come from the ability to track assets and equipment in a hospital. Other benefits include increased staff efficiency and satisfaction, improved maintenance, reduced capital replacement costs and evidence-based decision-making.

### **Increased Staff Efficiency and Satisfaction**

Data from the Canadian Institute for Health Information suggests that worker compensation makes up more than 60 per cent of total hospital costs and the majority of this goes to nurses. Other studies have shown that nurses spend between seven and 20 per cent of their shift searching for equipment and supplies, taking time away from patient care and other responsibilities. Asset tracking significantly reduces “wasted” time locating items, which improves nursing efficiency. It also benefits patients since outcomes improve when nurses are able to spend more time at the bedside.

### **Improved Maintenance**

The efficiency gains extend to biomedical and facilities staff as well. Preventive maintenance is not only important for maintaining warranties and extending the useful life of equipment, but also has a critical impact on patient safety by ensuring that medical equipment is functioning properly. Research by the World Health Organization indicates that globally, up to 60 per cent of hospital medical equipment is not maintained properly, potentially leading to premature failure or adverse patient outcomes. Given that significant time is often spent locating equipment for maintenance or recalls (with mixed success), asset tracking improves operational efficiency, capital replacement and clinical metrics by ensuring that support staff are able to easily find it.

### **Reduced Capital Replacement Costs**

A study by the American national care network VHA, Inc. (formerly “Voluntary Hospitals of America”) found that, on average, U.S. hospitals spend \$4,000 per bed per year replacing lost or stolen equipment and supplies, leading to a total capital cost of approximately \$2 million per year for a typical 500-bed hospital. Furthermore, research suggests hospitals buy 20 to 50 per cent more equipment than required, and most equipment has only a 40 to 50 per cent utilization rate.

Asset tracking reduces the required fleet size by making equipment more available and increasing its utilization, a benefit which the Ottawa Hospital leveraged to reduce an upcoming infusion pump deployment by approximately one-third after implementing a RTLS on its 3 million-square-foot campus.

### **Evidence-Based Decision-Making**

When it comes to making purchasing decisions, there is generally a lack of clear information related to hospital needs, which can lead to an inefficient use of capital funds.

Asset tracking provides the data required to assess equipment usage, maintenance and failure rates in order to drive evidence-based purchasing decisions. This eliminates unnecessary equipment purchases and improves the overall usefulness of the hospital’s assets.

## Building a Business Case

The return on investment (ROI) for RTLS is typically based on three areas of cost savings: improved clinical efficiency (operational/labour savings); increased utilization/fleet reduction (capital equipment savings); and reduction in loss/theft (capital equipment savings).

There are a number of different methods used to estimate the ROI for a given area of cost savings.

For operational efficiencies, ROI can be estimated using time studies, which track the amount of time spent finding equipment and supplies. These time studies should target assets that are routinely needed or those that take a long time to find, such as stretchers, wheelchairs, infusion pumps and IV poles.

Savings in capital expenditure can be estimated using industry averages. When considering the savings associated with fleet reduction, equipment fleets can generally be reduced by up to one-third. Theft can be reduced up to 50 per cent, depending on the current theft rate in the healthcare organization.

ROI calculations should take into account both the operational and capital expenditure savings anticipated through the implementation of asset tracking by calculating a total annual savings and estimated payback period based on information available within the organization.

## Maximizing the Investment Value

Although asset tracking is an effective tool for improving hospital efficiency, maximizing the investment value requires looking beyond immediate cost savings to understand how the solution fits with the overall strategy and goals of the healthcare organization. For example, automatically making the real-time information available (through asset tracking) to other hospital systems helps reduce manual data entry,

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freeing up additional resources and improving the quality and availability of information. To identify and maximize these opportunities, design and implementation of the RTLS should include consultations with clinical, support and facilities staff. The Angus Connect group facilitates this process by providing clinical and technical input to the design and planning for a real-time locating system, and how its functionality fits with the overall organizational strategy.

Ultimately, asset tracking provides an opportunity for healthcare organizations to reduce costs and provide better quality care for patients by improving hospital efficiency. The outlook is still optimistic: There may be unprecedented financial pressure on hospitals but there is a parallel unprecedented opportunity in the availability and effectiveness of new technology.