



Global Healthcare Vision Study

# Smarter, More Connected Hospitals

Intelligent Workflow Automation Ushers In a New Era



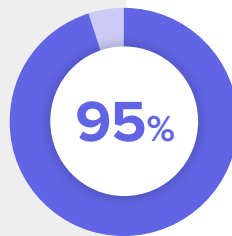
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## About the Study

Zebra's *Global Healthcare Vision Study* was conducted among more than 500 senior-level hospital leaders within the clinical, IT and procurement disciplines. The study's goal was to better understand the role of technology in acute care hospitals. All data was collected and tabulated by third-party research firm Azure Knowledge Corporation, which surveyed respondents in Asia Pacific, Europe, Latin America and North America.



**95%** of IT decision-makers expect to increase spending in healthcare IT and clinical mobility in the next year.



## The Story in Numbers

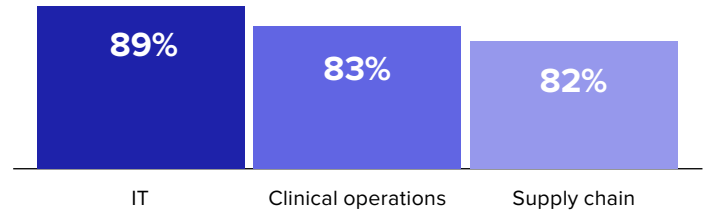
A Connected Ecosystem Reduces Workarounds and Heightens Patient Care

### Technology shifts from siloed to integrated solutions

55%

of clinicians report that connecting hospital systems for better communication between workers is a top operational challenge.

### Decision-makers plan to deploy business intelligence and analytics across functional areas



### Automated workflows are on the horizon

Leading areas where decision-makers plan to implement workflow automation in the next year

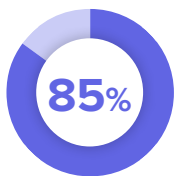
83% Managing the supply chain

80% Orchestrating emergency rooms and operating rooms

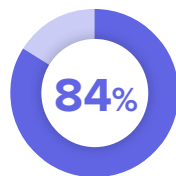
80% Locating critical equipment and medical assets

### Clinical mobility is helping in more ways

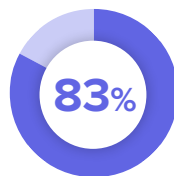
Clinicians and decision-makers emphasize improvements gained in their hospitals



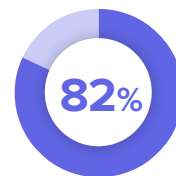
Increases medical workflow accuracy and precision



Reduces preventable medical errors



Raises focus on patient care and attentiveness



Boosts accuracy of supplies tracking and inventory management

### More investment in the right technologies is needed

Healthcare-ready device usage preferred to consumer selections



1 in 2

decision-makers say they are providing employees with hospital-owned devices intended for healthcare (disinfectant-ready, durable, secure)



2 out of 3

decision-makers agree their hospital is not investing enough to maximize staff efficiency



## Unburdening the Delivery of Care

Impacts of the COVID-19 pandemic continue to reverberate throughout the healthcare sector as it fights to overcome issues related to patient care, inventory and asset visibility, labor shortages, and workflow management. Many hospitals are increasingly turning to integrated technology solutions to cope with these new demands and better prepare for future uncertainties.



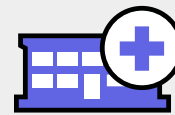
### Enabling Collaborative Workflows

In the not-too-distant past, hospitals took a siloed approach to technology, focusing specifically on transforming individual tasks and workflows. Though hospitals realized tremendous benefits, healthcare technology applications were just beginning to emerge.

Early technology iterations promised greater control and efficiency, but frequently added clunky layers and complex processes that frustrated users. Instead of the integrated solutions hospitals were counting on, many were burdened with a tangled web of standalone systems that detracted from their goals, led to errors, and placed additional strains on healthcare professionals.

Today, acute care facilities realize the need to take a more holistic approach to technology investments, emphasizing unified solutions that make it easy to connect with colleagues, equipment and information instantly.

Forward-thinking clinicians and decision-makers recognize that bringing disparate functions of the hospital into a single cohesive system is the key to providing the finest patient care in the most operationally efficient way. Many are making a move to unified systems for greater visibility. Three technology-powered strategies are leading the way: real-time intelligence, intelligent workflow automation and healthcare-optimized mobility solutions.



### COVID-19 has disrupted the care model, perhaps for the better

Over **8 in 10** decision-makers agree the pandemic accelerated investment in technology at their hospital.



## Unburdening the Delivery of Care (Continued)



### Beyond the Bedside

Knowing the location and the status of assets, people and equipment is crucial to making smarter, in-the-moment decisions. As the adoption of the Internet of Things (IoT) accelerates, more sophisticated technologies like radio frequency identification (RFID) and real-time location systems (RTLS) are rising to the top of hospitals' wish lists. Key to their success is these technologies' ability to bring more workflows and functions into an optimized information ecosystem.

Intelligent workforce automation is on the horizon and promises to have a significant impact on the future of healthcare. Hospitals continue to innovate patient care and increase operational intelligence by integrating visionary solutions like prescriptive analytics. Artificial intelligence (AI) also has the potential to improve outpatient care with more opportunities for remote consulting and diagnostics as the telehealth opportunity grows.

The new era of clinical mobility puts powerful devices into the hands of both clinical and support staff across the hospital. No longer confined to communications alone, devices and applications are evolving to meet the changing needs of the healthcare environment.



### Establishing better preparedness for future crises or unexpected events is top of mind

**60%** of decision-makers and **55%** of clinicians rank improving supply chain transparency among their top five challenges.



## Hospitals Are Confronting Long-Standing Challenges

The incredible influx of patients and uncertainties around the coronavirus presented hospitals with unprecedented challenges. While many of the issues facing hospitals are not new, they quickly worsened as the pandemic ripped through communities, straining resources, underscoring inadequacies and highlighting shortcomings.

It is no surprise that inefficiencies throughout the hospital are among the top challenges facing both clinicians and executives, who have for many years operated under the goal of reducing costs whenever possible. As a result, minimizing waste, improving patient throughput and reducing clinical errors have plagued healthcare operations. Preventing the spread of infection is a perennial concern in the healthcare environment, though it has risen in relevance in the wake of the pandemic.

### Hospitals Recognize Front-Line Workers Are Experiencing Fatigue and Burnout

The events of the pandemic have highlighted how heroic front-line healthcare workers are in their commitment to care for patients, with scores stretched beyond limits. With labor in short supply, nearly all staff are having to work longer hours and extra shifts. Approximately two-thirds of clinicians and 69% of decision-makers agree that physicians and caregivers are overextended during their shifts. This has made employee well-being a pressing issue.

It isn't just workers on the front lines of care bearing the brunt of increased demand, either. Over half of those surveyed report that their administrative staff is overburdened and unable to complete their work during their shift.

**More than half of respondents agreed that technology could help improve medication tracking, patient throughput and nursing workflows.**

The pandemic pushed decades of innovation to occur seemingly overnight. Instead of turning away from technology, hospitals gravitated to solutions that helped them overcome challenges. Many now see technology as essential to improving operational efficiencies, reducing clinician burnout and developing an enhanced standard of care in the long term.



### Clinicians and decision-makers weigh in: Technology solutions believed to improve operations

- 1 Medication tracking
- 2 Patient throughput
- 3 Nursing workflows
- 4 Inventory management
- 5 Asset tracking



## Clinical Mobility Gains Traction

Clinical mobility is defined as the use of mobile devices (such as handheld mobile computers and tablets) by physicians, nurses and other healthcare professionals at the point of care. Hospitals first piloted clinical mobility with nurses at the patient's bedside and then expanded usage across clinical and non-clinical disciplines as the benefits of mobile technology were realized.

The employment of purpose-built mobile devices at various points in the hospital has evolved along with this new approach to healthcare technology. Zebra's last survey of the healthcare community in 2017 found that most mobility investments were focused on bedside nurses to provide access to electronic health records (EHR) and ease staff communications. Now, hospitals are looking to technology to help them manage the supply chain, locate critical equipment and assets, and orchestrate emergency and operating room logistics.

**Hospital-provided mobile devices purpose-built for healthcare are becoming more common in many clinical areas.**

### The Healthcare Environment Requires Performance Beyond That of a Consumer Smartphone

Almost half of the decision-makers surveyed say their facility provides purpose-built, hospital-owned devices explicitly intended for healthcare workers. Disinfectant-ready, durable and secure devices now rank No. 1 in mobile device usage over bring-your-own-device (BYOD) alternatives.

Healthcare mobility manufacturers are integrating essential new capabilities into the devices—like GPS locationing, barcode scanning, RFID readers and more—with the hospital experience in mind. Intuitive interfaces, durable design and streamlined applications that include real-time intelligence and tracking solutions can improve efficiency and help to minimize burnout—an important priority for hospitals.



### The right technology positively affects patient care

**80%** of clinicians and **87%** of executives agree patient care would improve if nurses, clinicians and non-clinical healthcare workers had collaboration tools and healthcare applications.



## The Pendulum Has Shifted

### Purpose-Built Devices for Healthcare



	2017	Today
1	Allow employees to bring their own devices to work	Provide employees with hospital-owned devices purpose built for healthcare
2	Provide employees with hospital-owned devices	Provide employees with hospital-owned devices
3	Provide employees with hospital-owned devices purpose built for healthcare	Allow employees to bring their own devices to work

### Growing Mobile Device Usage



	2017	Today
	By clinical departments	
1	Bedside care	Intensive care unit
2	Emergency room	Emergency room
3	Operating room/theater room	Bedside care
4	Post-operative patient recovery	Pharmacy



	2017	Today
	By non-clinical departments	
1	Facilities management	IT support
2	IT support	Security
3	Security	Patient transport
4	Biomedical engineering	Facilities management





## Enabling Better Patient Care with Real-Time Intelligence

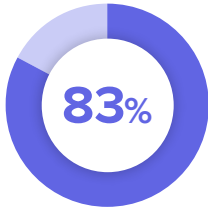
The pandemic highlighted the need to collect and analyze information as close to real time as possible. Real-time intelligence can help to heighten the quality of patient care and enhance outcomes. In improving operational efficiency, real-time information about the status and location of assets, equipment and supplies can help reduce costs and save precious time for hospital staff.



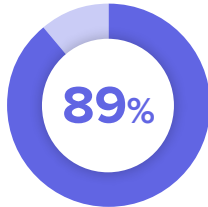
### The Benefits of Real-Time Data



The majority of clinicians and decision-makers agree real-time intelligence is essential to optimal patient care.



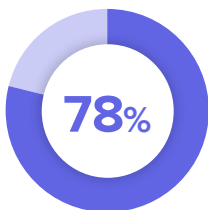
Clinicians



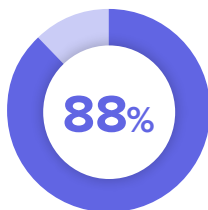
Decision-makers



Respondents also agree that technology can help prevent and reduce medical errors.



Clinicians



Decision-makers

The more time hospital staff spend looking for medical equipment or supplies, the less time they have to devote to delivering quality patient care. Limited and inconsistent access to data remains a significant impediment to many hospitals. Up-to-the-minute information becomes even more critical in an unexpected and emerging situation—as most hospital staff found during the height of the COVID-19 pandemic.



## The Power of Locating Technologies

With locating technologies, hospitals can achieve the visibility required to improve accountability, optimize patient throughput and heighten asset visibility by converting data into actionable insights. Using technology like RFID tags and readers, locating solutions can identify, track, locate and monitor the status of every patient, staff member and asset.

About four in 10 executives say they are currently using locating technologies across many areas of their respective hospitals. While patient monitoring and security lead among current use cases, decision-makers indicated that deployment over the next year would focus on improving patient flow and staff operational efficiency. For example, the system can measure workflow steps or time and motion activity to understand the movements of clinical and non-clinical staff members.

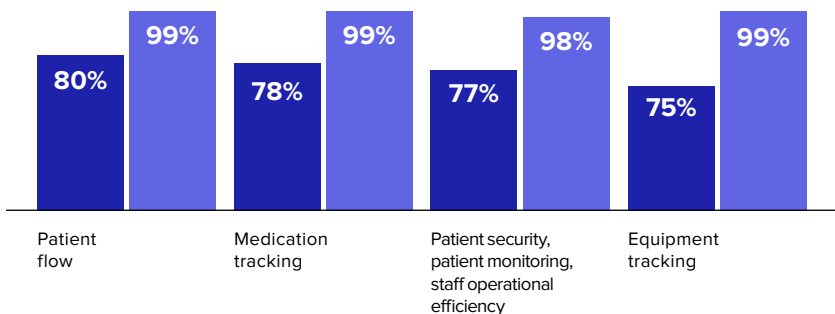
## Easier Compliance

Healthcare is subject to changing regulations and stringent standards for quality control. Regulatory compliance plays a role in “greatly” accelerating locating solution implementation for about four in 10 decision-makers surveyed.



## How Decision-Makers Plan To Use Location Solutions In The Next Five Years

- Within the next year
- Within five years



## Patient Expectations of Connectivity Advance Technology Usage

While we're entering a new era of healthcare technology, we are also experiencing a new age of heightened patient expectations. Eighty-three percent of clinicians and 88% of decision-makers agree that patients expect increased visibility into their treatment plans and more control over their care.

### How Technology Benefits Patients

Hospitals recognize that the right collaboration tools and healthcare applications can positively impact patient care. Both clinicians (80%) and decision-makers (87%) agree that the quality of patient care would improve if nurses, clinicians and non-clinical support staff had access to mobile devices and healthcare applications.



### Top Three Improvement Goals Among Non-Clinical Decision-Makers

1

Clinician-to-patient communications

2

Supply chain optimization

3

Critical test results management

### From Reactive to Predictive

Aided by technology solutions and increased connectivity, patient care is moving from manual and reactive processes to responsive and predictive systems. More predictive operations leverage visibility to assign the right tasks and equipment to the right person at the right time. This benefits staff by increasing efficiency while also avoiding misspent costs or time.



#### Reactive

Operating with legacy systems and mobile devices



#### Predictive

Assigning the right person/equipment to the right issue at the right time

## Transformational Tech Trends: The Next Five Years

Technologies that enable better remote care are leading the way



1

Telehealth



2

Patient health tracking devices



3

Real-time health platforms



4

Artificial intelligence (AI)



5

Electronic health records (EHR)



6

Blockchain  
(data security and accessibility)



7

Cloud computing



8

Workforce analytics



9

Augmented reality



10

Computer vision



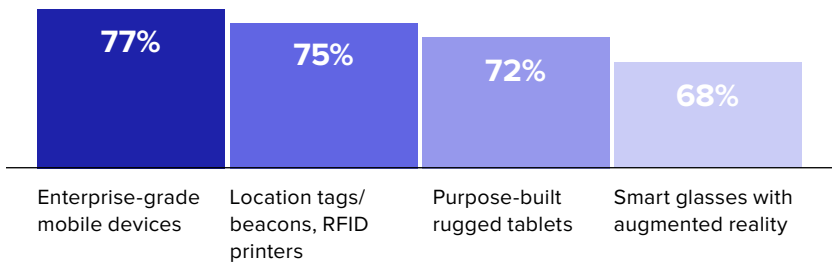
## Streamlining Workflows Across Care Environments

Hospitals understand technology adoption increases efficiency and elevates patient care. Long faded are pen-and-paper manual solutions. And while many clinicians and decision-makers appreciate the transformative benefits technology provides, they also want a cohesive approach that eliminates information silos, enables smarter workflows, and enhances communications and collaboration.

Both clinicians and decision-makers are aware of the power of the right devices and applications to improve daily workflows across the hospital. Devices dedicated to connecting teams, or collecting and leveraging real-time data, were identified as the most beneficial to daily workflows.



### Decision-Makers: Device Implementation Plans in the Next Year



### Hospitals are increasing their technology spending

Approximately nine in 10 decision-makers plan to increase their technology investments in IT, clinical mobility and location solutions, with over 35% indicating that the increase will be more than 10%.



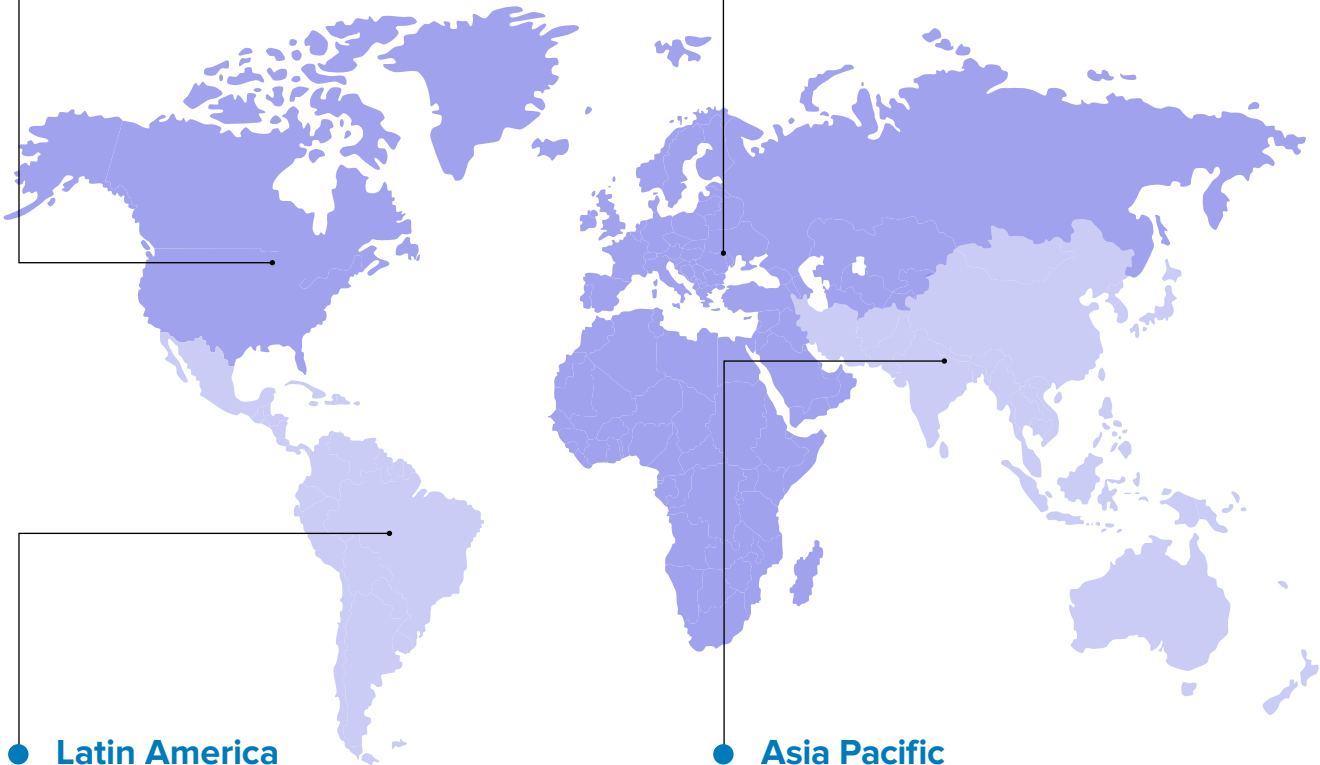
## Regional Perspectives

### North America

Eighty-seven percent of decision-makers report front-line workers are experiencing fatigue and burnout, compared to the global total of 73%.

### Europe

Eighty-five percent of clinicians agree that preventing the spread of infection is of great concern among hospital staff, the highest of all four regions. Conversely, substantially fewer decision-makers (69%) see the spread of infection as a significant concern, lowest of all regions.



### Latin America

Locating medical equipment is too timely a task for hospital staff, according to 84% of decision-makers. However, only 52% of clinicians cite this as a top challenge.

### Asia Pacific

The Asia Pacific region often leads in the adoption of new technology, and healthcare is no exception. Both 97% of decision-makers and 83% of clinicians agree that technology helps prevent medical errors.



## The Future of Healthcare Is Here

A time of unprecedented challenges has inspired a new age of collaboration and creativity across hospitals, enabled by the power of technology. More data-led intelligence and streamlined workflows enable clinical and administrative support staff to deliver predictive rather than reactive care, while increasing agility for the hospital to respond to unexpected future events. Smart, connected hospitals are the future of healthcare.

### KEY TAKEAWAYS



The pandemic has accelerated the need for better preparedness across the hospital. Technology is the key to achieving more supply chain transparency to better leverage assets and resources. Hospitals are enabling this transformation by deploying hospital-owned, purpose-built devices from critical care units to facilities management.



Real-time data is largely viewed as essential to delivering advanced patient care. Most hospital leaders agree that technology solutions can help improve workflows and reduce medical errors. Hospitals are investing in location solutions across most use cases, particularly to enhance patient flow and staff operational efficiency.



Improving patient communication is a top goal of many hospitals, with a particular focus on the growth of telehealth and remote patient tracking systems. The advancement of AI is also thought to play a crucial role in improving future care, supporting predictive analytics and other real-time collaboration tools.

## About Zebra

Zebra (NASDAQ: ZBRA) empowers the front line of business in retail, manufacturing, transportation and logistics, healthcare, and other industries to achieve a performance edge. We deliver industry-tailored, end-to-end solutions that intelligently connect people, assets and data to help our customers make business-critical decisions.

### Your Partner in Tech-Enabled Care

To learn how Zebra can help your hospital deliver seamless operational efficiency across departments, please visit [www.zebra.com/healthcare](http://www.zebra.com/healthcare).



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