

**PHILIPS**

Acute Care



Acute care that's in rhythm  
with today's healthcare

# Contents

**3**

Connecting acute care across dynamic environments

**5**

Bringing decisive, proactive care everywhere

**6**

Empowering your system of action

**8**

Customer Spotlight  
IRCCS Istituto Clinico Humanitas, Rozzano, Milan, Italy

**9**

Customer Spotlight  
Memorial Healthcare System, South Florida, US

**11**

Customer Spotlight  
Emory Healthcare, Atlanta, Georgia, US

**13**

Customer Spotlight  
Jackson Memorial Hospital, Miami, Florida, US

**14**

Actionable decision support for clinicians

**15**

Customer Spotlight  
NHS Foundation Trust, UK

**18**

Working in rhythm with you in acute care



# Connecting acute care across dynamic environments

Acute care has always been the urgent, dynamic and unpredictable frontline of healthcare. Today, the pressure to deliver acute care is greater than ever. Worldwide, the population is aging and chronic diseases are pervasive, yet wellness checks, preventative care and elective procedures have been neglected or postponed. Resources that are already limited are being stretched even further due to the staffing crisis. And although patients are sicker, there is pressure to reduce the length of stay and move care outside the hospital.

To navigate the complex challenges in acute care, healthcare providers must balance workflow efficiency with systems that put the patient at the heart of every decision. Health systems have traditionally been slow adopters of new technologies, but they are now exploring advanced capabilities and new ways of working that will help address the provider shortage and the rising demand for care across all acuities and environments.

Given the scale of the challenges, there is no quick fix. As healthcare delivery models change in response to limited resources, patients with co-morbidities are now being treated across a range of high-, intermediate- and low-acuity settings. Whether patients are in the emergency room, being prepped for surgery, in the intensive care unit (ICU), general ward, or a post-acute setting, clinicians face a

daunting task: to provide the right care at precisely the right time.

When a patient is acutely unwell or deteriorating, every second counts. Navigating complex enterprise infrastructures and searching for vital data across siloed platforms and systems disrupts the unique rhythm of care; irrelevant data and administrative tasks only slow the process further. And that can mean the difference between a steep decline and a smooth recovery.

**As healthcare delivery models change, patients with co-morbidities are now being treated across a range of high-, intermediate- and low-acuity settings.**



Healthcare leadership is committed to solving these problems — for clinicians and patients. They are investing in innovative technology and services that streamline and standardize clinical workflows to support clinicians as they take appropriate action, across the patient journey. From intake to discharge and beyond, in the moments that matter. How? By adopting technology and services that measure, harvest, organize and connect patient information across multiple devices and systems.

Technology with interoperable platforms can help close information gaps, automate administrative tasks and allow organizations to flex and scale. It can also deliver precise measurements that generate insights for timely decision-making at the bedside. All of which may improve staff confidence and the patient experience.



Our nurses are extraordinarily concerned with how our patients perceive their care. What's their level of satisfaction with the care that's delivered? And we measure that on a regular basis. I can tell you that every nurse that works here comes in every day and wants to give the best possible clinical care to our patients. And I want our patients to be satisfied and believe, at the end of the day, that they were cared for and cared about."

**Chief Nursing Officer**

## Seamless data integration powered by Philips

Healthcare leaders are partnering with Philips to solve their most complex challenges across acute care environments and care journey.

Philips solutions support the complex rhythms and settings of acute care to:

- **Accelerate new care models** as acute care moves into new environments.
- **Transform your system of action** to streamline and standardize clinical workflows across the patient journey.
- **Empower clinicians** with context-rich patient information for confident decision making in critical moments.

### Patient Care Management



### Acute Patient Management



### Enterprise Care Management

Our enterprise care, patient care and patient management solutions connect clinicians, specialists and caregivers. Rich diagnostics, therapeutics, monitoring and decision support help manage the patient journey. At the same time, care teams and administrative staff have the operational insights needed to enhance quality of care.

# Bringing decisive, proactive care everywhere

Clinicians must navigate complex challenges across settings while sharing vital information with multi-disciplinary teams.

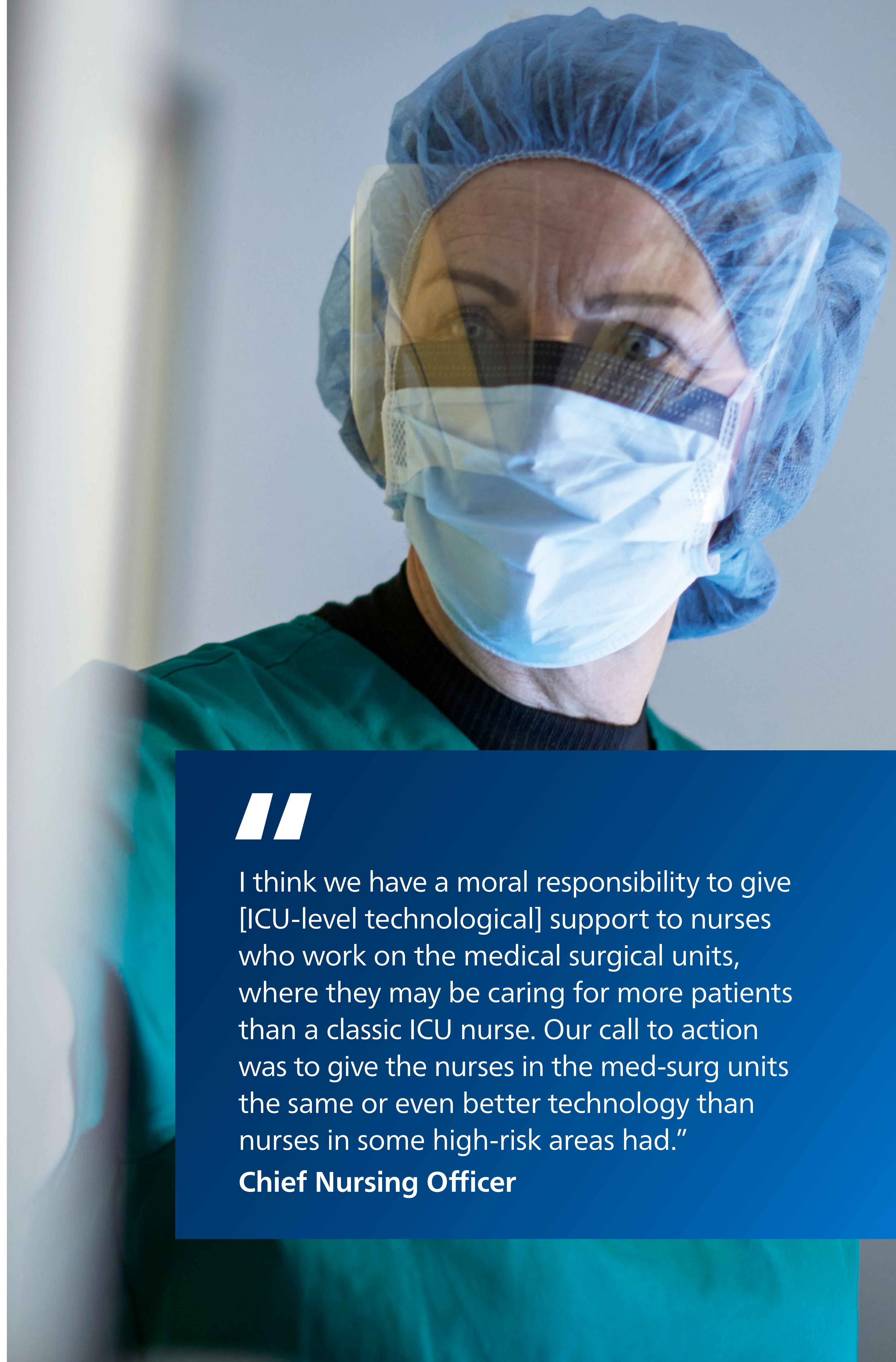
This dynamic requires a secure, yet open IT infrastructure. Only then can data flow seamlessly between devices and settings in rhythm with clinicians, with no dark spots or lost data.

Philips creates open, secure and interoperable platforms and solutions where data flows freely from all devices from a variety of manufacturers. This provides clinicians with high-fidelity data, intelligently filtered and presented in the right context, so they can confidently decide what's next. Care teams now have a holistic view of patient physiology as their patients transition across care settings. So they can help identify at-risk patients early, react confidently to changing patient conditions and fine-tune treatment.

## Ability to scale care, virtual nursing

The ability to monitor patients across care settings gives providers the flexibility to keep pace with dynamic changes in care and reduce readmissions. Before and during the COVID-19 pandemic, hospitals turned non-critical units into intensive care units managed by staff without the same skills as a critical care nurse.<sup>1</sup>

Telehealth and monitoring advances allow nurses to perform a variety of new roles virtually — and to monitor a larger cohort of patients. All enabled by a smart command center with core responsibilities for patient surveillance, admission and discharge activities, physician rounding, staff mentoring and even patient education.



I think we have a moral responsibility to give [ICU-level technological] support to nurses who work on the medical surgical units, where they may be caring for more patients than a classic ICU nurse. Our call to action was to give the nurses in the med-surg units the same or even better technology than nurses in some high-risk areas had."

**Chief Nursing Officer**

# Empowering your system of action

## Integrating data to support clinicians and advance health operations

Patient data benefits the entire care team — but only if it's truly connected.

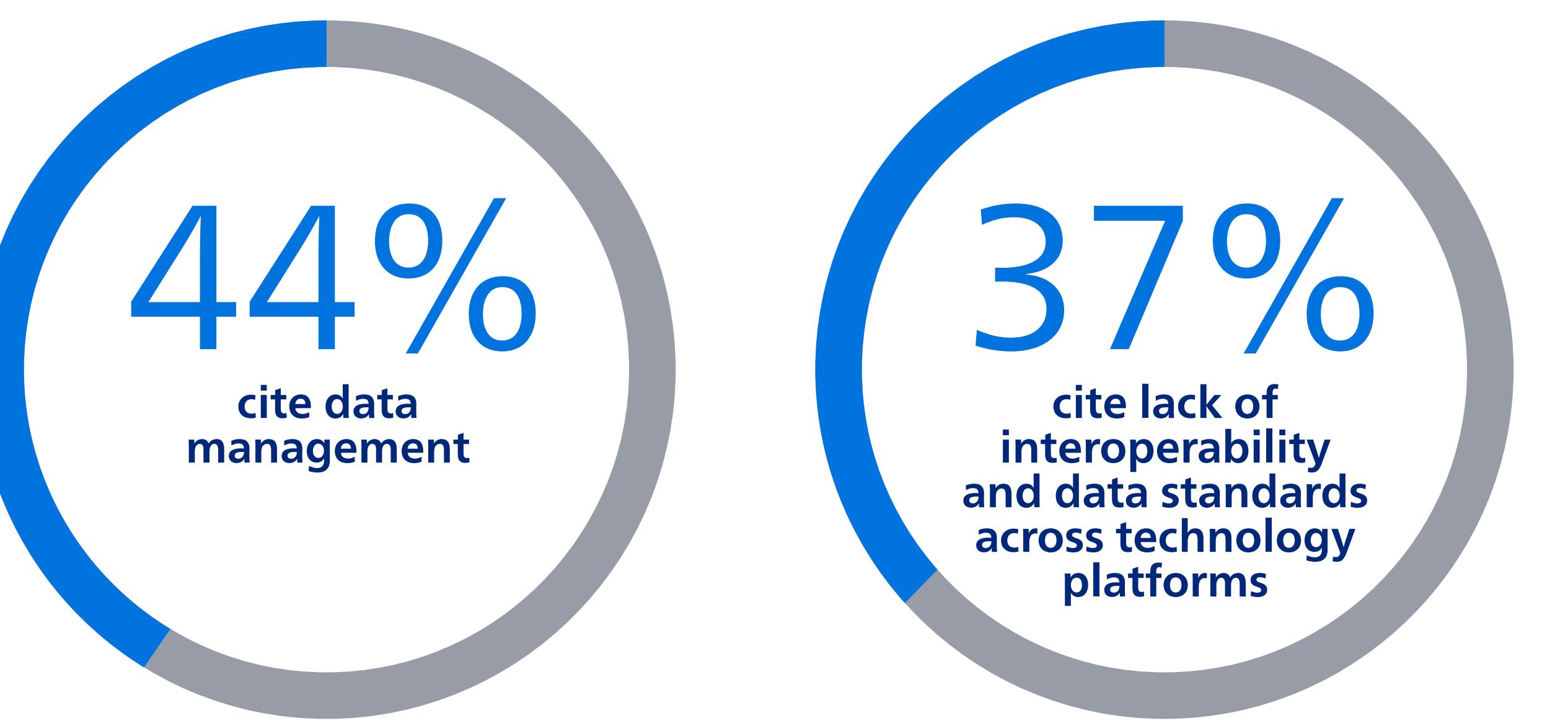
Expanding the boundaries of acute care requires a system of action that is agile, precise and interlocks with your care provision. It must also align with your system of record to help you meet the needs of today and tomorrow.

To address the staffing crisis, health systems are rethinking care models and care teams to alleviate the burden on clinicians – and that includes reassessing their facility's technological capabilities. For example, to alleviate the lack of staff in critical care, the Nurse Staffing Think Tank<sup>2</sup> recommended a holistic care delivery model. This included delivering onsite care, integrating patient monitoring equipment and providing ambulatory access and virtual/remote care.

According to the Nurse Staffing Think Tank, this model can improve access to care and enhance the patient and staff experience. It can also help to manage resources "with continuous measurement

for improvement and adjustment for sustainability and support." However, the lack of interoperability between devices and systems can disrupt the rhythm of care. In fact, healthcare leaders cite data management (44%) and lack of interoperability and data standards across technology platforms (37%) as roadblocks to the adoption of digital health technologies, according to the Future Health Index.<sup>3</sup>

**Healthcare leaders cite the following as roadblocks to the adoption of digital health technologies:**





The network effect can enhance staff mobility, enabling them to perform critical evaluation tasks at the central station, at the bedside or on the go.

### The network effect

The network effect can be a powerful way to improve performance because ideally the more relevant data that is shared across your network, the more efficiently your staff can operate. At the clinical level, siloed systems and gaps in patient data make it difficult to deliver appropriate and timely patient care; at the operational level, they slow down patient transfers at great cost to operations. Breaking down data silos allows clinicians, intensivists, nurses, doctors and administrators to have comprehensive visibility of the system with clarity over patient conditions and transfers.

Electronic medical records (EMRs) and Electronic health records (EHRs) have promised much on this front as systems of record. But Philips is taking this one step further, responding to the urgency to strengthen hospital systems by enabling them to acquire, organize and present physiological data, informing care decisions and powering their system of action.

This network effect of connected data is vital to help providers perform at the top of their license, leveraging technologies such as Artificial Intelligence (AI) so they can predict, manage and respond to patient needs and enable smooth transitions between care settings.

Philips secure, interoperable and future-ready enterprise platforms and solutions move patient data in concert with EMRs/EHRs. Our platforms integrate live-streaming, high-fidelity data with contextual decision support, presenting actionable insights for individual patients and at scale. Not only do Philips solutions provide clinicians with the technology they need, thanks to the flexible architecture, health systems can also invest in building on their existing networks with the goal of delivering lasting value.



## Customer Spotlight / Case Study

IRCCS Istituto Clinico Humanitas, Rozzano, Milan, Italy

# Data-driven, digital intensive care

IRCCS Istituto Clinico Humanitas is a highly specialized hospital, research center and university teaching center. IRCCS chose Philips to digitize its intensive care unit. Data is now at the heart of the ICU, enabling healthcare professionals to adopt a completely new approach to patient care.

### Computerized clinical decision support

Patient data and insights can now be collected and shared to support predictive analysis and clinical decisions. The computerized system, which is based on artificial intelligence, is designed to communicate with the IRCCS Hospital Information System to ensure continuity of patient treatment, while standardizing processes and supporting quality of care.

At the heart of the system is an electronic medical record designed to meet the specific needs of the ICU. The EMR can automate, standardize and document activities within therapies and create a clinical database to support decision making. It can also produce flexible and effective analytical reports to guide clinical and operational transformation.

[Read more](#)



“

There are multiple benefits to using a digital solution. One of these is the development of clinical alerts that help the physician's daily practice. The other is the development of predictive models to refine the prognosis in hospitalized patients. Furthermore, the electronic medical record is a formidable tool for scientific development and research.”

**Massimiliano Greco, Anesthetist,  
IRCCS Istituto Clinico Humanitas**

**HUMANITAS**  
RESEARCH HOSPITAL

## Customer Spotlight / Case Study

Memorial Healthcare System, South Florida, US

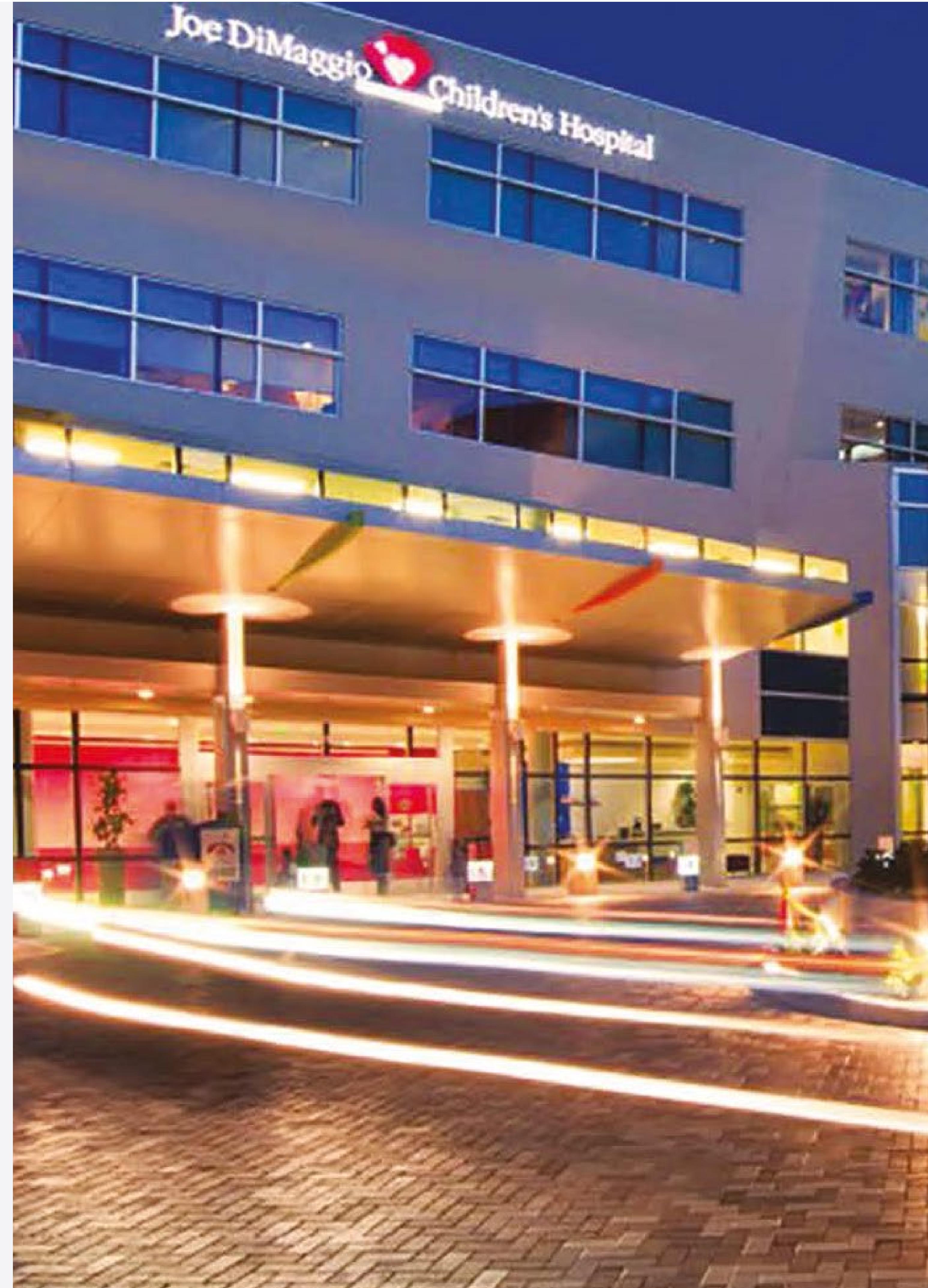
# Integrating data for real-time customer support

At Memorial Health, the Philips Capsule Medical Device Information Platform (MDIP) project goals were broad, demanding the installation of a large inventory of device drivers that would keep pace with the rapidly changing device market. Supported by Epic's OpTime operating room management system, Philips Capsule would make device integration a reality in the operating room, where complex anesthesia cart data was becoming increasingly difficult to record manually.

### Automating data collection

In high-acuity care areas, Memorial sought to integrate not only typical physiological monitor data but additional parameters to provide a more robust patient record. In low-acuity areas, the hospital system also wanted to automate data collection and provide clinicians with near real-time data using mobile spot check monitors.

[Read more](#)



With a commitment to remaining in the forefront of technology, Memorial sought a vendor that would continue to expand its system to keep pace with rapidly evolving health care technology."

**Lisa Levine, Supervisor of Clinical Systems for Memorial**





### Supercharging caregivers

When data is aggregated and contextualized, care teams can prioritize and coordinate interventions more effectively and efficiently. And as ICUs and general wards typically have technology from a variety of manufacturers, vendor neutrality becomes critical in closing data gaps between care settings that could interrupt the rhythm of patient care.

Philips solutions collect and integrate data from multiple medical devices and systems, including waveforms, delivering contextually-rich data into the hands of clinicians so they can gain insights into patients whenever they need them. Data that can be put to a wide range of uses, from alarm management and clinical surveillance to retrospective analytics and research.

It is this kind of decision support that gives multi-disciplinary care teams the confidence they need to act before a patient deteriorates or requires even more intensive care.

Having a holistic view of the patient's data allows clinicians to decide the optimal time to transition. For example, a patient with heart failure who arrives in the emergency department in respiratory distress and is transferred to the critical care unit, may stabilize and be transferred to a step-down unit, without loss of data.

Vendor neutrality becomes critical in closing data gaps between care settings that could interrupt the rhythm of patient care.



## Customer Spotlight / Case Study

Emory Healthcare, Atlanta, Georgia, US

# Improving productivity and quality in critical care

Emory Healthcare was challenged by the need to manage the growing number of intensive care unit patients due to a nationwide shortage of highly-skilled critical care nurses and intensivists.<sup>4</sup>

### Leveraging the Philips telehealth program

Emory Healthcare confronted these challenges by using Philips electronic intensive care unit (eICU) technology to expand access to critical care services to remotely oversee patients on a continuous basis.

With experienced intensivists and ICU nurses available 24/7 across their acute settings, Emory Healthcare improved continuity of care and quality, resulting in patients who are healthier at discharge and more likely to move to home.

Read more



## Results

\$4.6M

Estimated savings over  
15 months or \$1,486  
in Medicare spending  
per patient

4.9%

Increased discharge to  
home healthcare

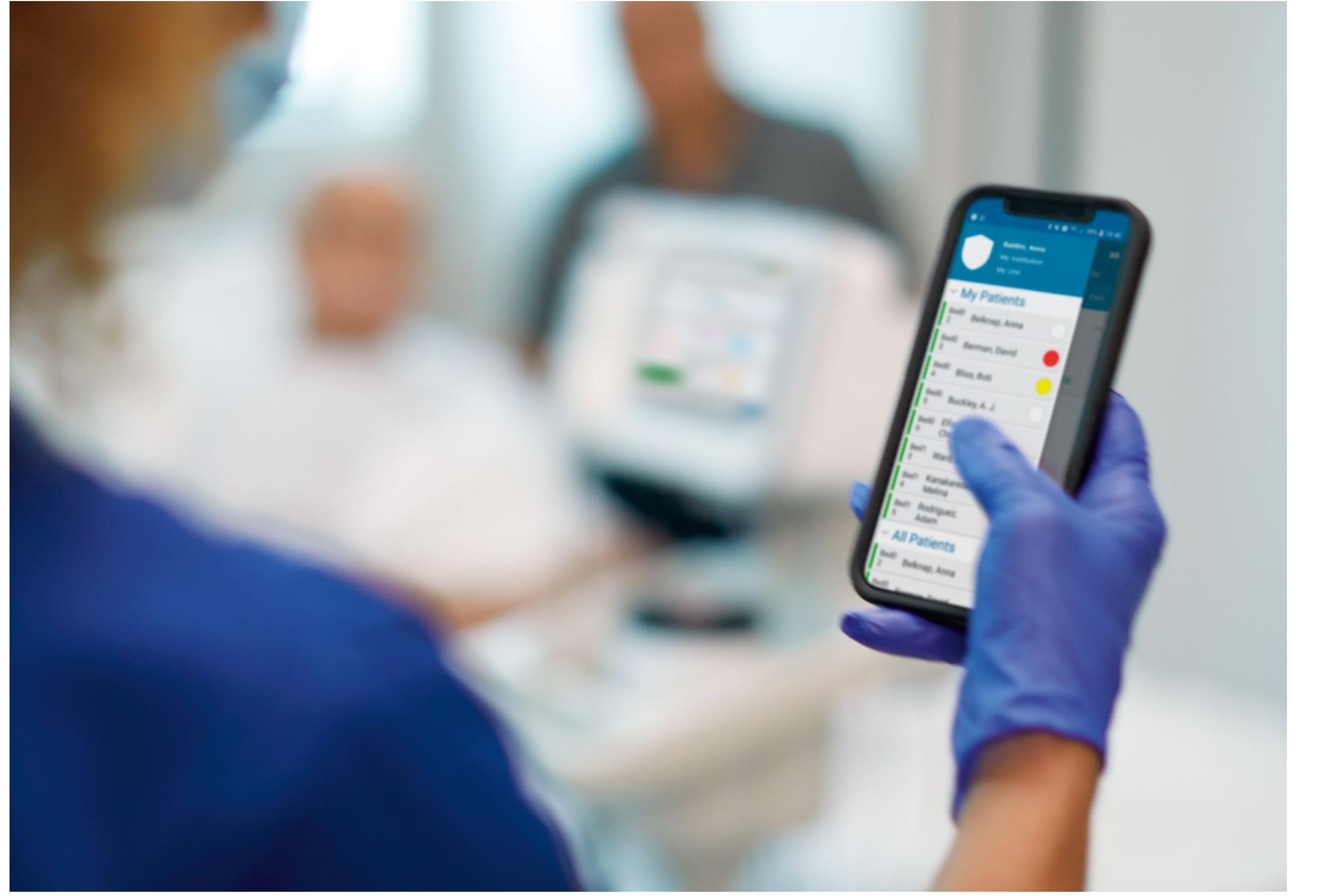
6.9%

Decreased discharge  
to nursing homes or  
long-term care hospitals

2.1%

Decrease in rate of  
60-day inpatient  
readmissions

Emory Healthcare achieved the results across its 136 beds at five hospital sites. Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions.  
<https://downloads.cms.gov/files/cmmi/hcia-hospitalsetting-thirdannualrpt.pdf>



### Scaling critical resources, new business models

At the operational level, integrating data makes it easier to orchestrate patient care and resources. With a bird's eye view of their operations, healthcare providers can track patients across settings, so they know exactly when and where staff are needed. Attention is also directed to those patients who need it most.

The impact can be significant. For example, tele-ICUs, led by an intensivist team in a central monitoring facility, can extend critical care resources to the bedside, regardless of the hospital's location. This leverages the skills and knowledge of critical care physicians over many patients. But it also helps ensure every patient can benefit from the most experienced nurses and clinicians. With time-critical data capture, these intensivists could access and support remote ICU beds and guide the bedside teams should the data indicate early signs of patient deterioration.

Harnessing the power of interoperable solutions provides the additional advantage of scaling and enhancing care through new delivery models such as managed monitoring services. At Jackson Memorial Hospital, a nonprofit tertiary care teaching hospital in Miami, leadership moved away from traditional capital outlay models. Instead, the hospital adopted a standardized patient monitoring approach for all acuity levels and settings. A model that was designed to help improve the accuracy of data, give greater transparency of performance and resource use and other improvements across the enterprise.

With time-critical data capture, these intensivists could access and support remote ICU beds and guide the bedside teams should the data indicate early signs of patient deterioration.



## Customer Spotlight / Case Study

Jackson Memorial Hospital, Miami, Florida, US

# Increasing patient throughput and optimizing transport

Jackson Memorial Hospital is a non-profit, tertiary care teaching hospital in Miami, Florida with 1,550 licensed beds.

## Greater efficiency without compromise

More efficient processes in high-acuity units to transport patients without compromising quality of care.

## Partnering with purpose

Standardizing across the Philips Patient Monitoring solution, including the IntelliVue transport monitors, has helped enhance clinical workflow to enable efficient continuous monitoring — improving staff satisfaction and saving time.

[Read more](#)



## Results

94%

Survey of overall nurse satisfaction with patient transport process\*

\* 94% of clinical team surveyed in critical care units indicated they were satisfied or highly satisfied when asked to rate their overall satisfaction with the current system: I am confident in my ability to perform the following functions with the existing patient monitoring systems to effectively transport patients to procedures when monitoring required.

3.9 sec.

Average time spent on the transport process, decreased from 5 minutes\*

\* Results from baseline and post time & motion studies conducted by Philips and Jackson Health internal teams in the high acuity units (ED, TICU, CCU).

75%

Nursing staff surveyed spent significantly less time looking for portable patient monitors\*

\* 75% of clinical team surveyed indicated that they agree or strongly agree that in last 3 shifts: I have spent significantly less time looking for portable monitors. Significant time is considered to be 5 minutes or more.

3,709

Potential hours saved through improvements from optimizing transport\*

\* Results of customer testimonies are not predictive of results in other cases, where results may vary.

# Actionable decision support for clinicians

## Using clinical surveillance to reduce data burden and provide contextual patient information

Data needs to move in rhythm with staff.

To realize a vision of acute care that is dynamic, data-enabled and patient centric, IT and data must be connected. But it must also support caregivers, with a goal of preventing patient deterioration by combining critical data from devices to steer changes more proactively than ever before. Connecting data in this way doesn't just support decision making; it may help reduce acute stays that are costly in terms of patient risk — and overall expense.

Although clinicians and healthcare leaders want to do more with the data they have, IT infrastructures may lack device integration and interoperability for actionable insights in critical moments.

Philips clinical surveillance brings together comprehensive, live-streaming patient data from virtually all connected devices. This includes everything from monitors and ventilators to continuous renal replacement therapy (CRRT) or dialysis devices. This smart surveillance provides a holistic view of patient status, along with the option to tailor condition-specific alerts.

Proactive surveillance scrutinizes multiple variables over time to help clinicians identify the subtle signs of patient deterioration, such as opioid-induced respiratory depression. It can also detect events such as accidental ventilator disconnection or potential deviations in evidence-based care plans. And ultimately, that may help to avoid escalations in care, extended stays and poor outcomes.

Philips clinical surveillance brings together comprehensive, live-streaming patient data from virtually all connected devices.



## Customer Spotlight / Case Study

NHS Foundation Trust, UK

# Expanding medical device integration to improve care quality, reduce clinician burden and lower costs

The NHS Foundation Trust decided to expand the number of beds utilizing Philips Capsule technology from 100 to more than 200 in intensive care units. With elective surgeries postponed due to COVID-19, 100 of those new ICU beds were installed in converted surgical theaters with anesthesiology machines used to ventilate COVID-19 patients. The expansion of Philips technology alleviates nurses from manual entry and enables them to use a computer at the patient's bedside to view and act on data collected from various devices.

### Confident decisions

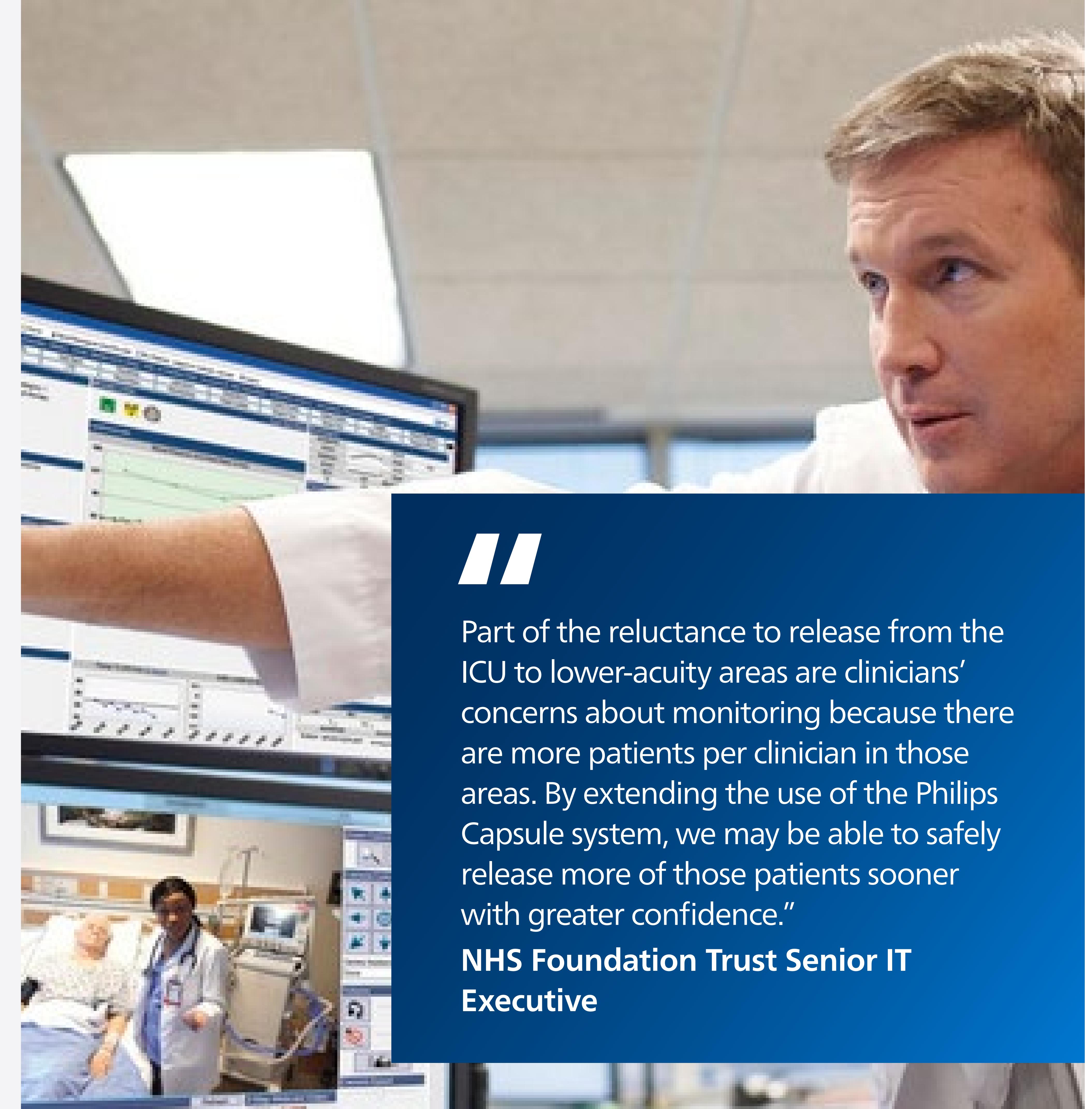
The new streamlined workflow is intended to give nurses the confidence to manage the larger nurse-patient ratios. More efficient clinical surveillance using Philips Capsule is also helping to accelerate ICU turnover for the Trust and maximize its capacity. "Part of the reluctance to release from the ICU to lower-acuity areas are clinicians' concerns about monitoring because there are more patients per clinician in those areas," said the Trust's senior IT executive.

"By extending the use of the Philips Capsule system, we may be able to safely release more of those patients sooner with greater confidence."

### Holistic view of patients

During the pandemic, the NHS Foundation Trust experienced streamlined data capture, more efficient workflows, and reliable, holistic and predictive views of monitored patients with Capsule MDI. The Trust expects that these benefits will continue long after COVID-19 is under control.

[Read more](#)



“

Part of the reluctance to release from the ICU to lower-acuity areas are clinicians' concerns about monitoring because there are more patients per clinician in those areas. By extending the use of the Philips Capsule system, we may be able to safely release more of those patients sooner with greater confidence."

**NHS Foundation Trust Senior IT Executive**

## Enhancing care transitions

With fewer beds in ICUs, the need to accelerate the transfer of high-acuity patients to a general care unit adds pressure on frontline nursing staff. That begs the question: is there enough clinical surveillance to allow us to catch and respond before the patient deteriorates? Caregivers require the full physiological patient profile but may not have access to it in critical moments, such as during a patient transfer, or on a general care unit where patient-to-nurse ratios are high.

Philips continues to work in close collaboration with research partners and surveying clinicians through organizations like the European Society of Intensive Medicine (ESICM) to understand how this long-standing issue might be addressed. Our research suggests that solving the problem of inefficient ICU care transitions begins with understanding three key metrics: patient flow, resource use and patient outcomes. Discharge evaluations and criteria should be holistic and multi-faceted, taking into account patient, process and provider, as well as organizational and social factors.

Based on these factors, our research group advocated standardized and objective ICU discharge criteria to address the current workflow crisis. These criteria are currently being tested in clinical practice to understand their impact on the three key metrics. But the ultimate goal is to support acute care transitions by identifying which patients can be safely discharged to lower acuity levels and which require further stabilization.<sup>5</sup>

Of course, concerns may be raised that delivering care across multiple settings can lead to information dark spots and data dropouts during transitions.

But it doesn't have to. If the data flows seamlessly during transitions, is ubiquitous, organized, relevant and contextual, clinicians can act fast. So, they can establish exactly what is happening and adjust care plans before a patient deteriorates.

## Decision support in the moment

What exactly do clinicians want from technology? Contextual patient information is a must, but they also place great importance on using technology to enhance their work, remove complexity and waste and free up more time to spend with patients.

One of the most pressing challenges for caregivers in ICUs is the volume of data they collect. Each patient in the ICU generates thousands of data points per day<sup>6</sup>, leaving physicians and nurses feeling overwhelmed as they struggle to decipher which data points are useful.

In fast-paced care settings there are digital tools that can cut through the noise. Tools that help care teams by only bringing to their attention insights that require action such as an early intervention, or when a patient is ready to be transferred to a lower-acuity setting.

For example, the Philips surveillance solution analyzes live-streaming actionable data from nearly any device using "customizable algorithms Smart Rules." It brings together detailed patient data, alarms and waveforms from connected devices to provide a holistic view of patient status and enables clinicians to set condition-specific alerts. A solution that may improve workflow efficiency and reduce the number of low-level alarms that could interrupt the rhythm of a clinician's care.



ICU nurses can't always watch patient monitoring equipment. Background clinical surveillance and multi-parametric algorithms can help to flag subtle trends towards patient deterioration that can occur without triggering an alarm.

<sup>5</sup> Hiller et al, BMC Health Services Research, 2022 <https://doi.org/10.1186/s12913-022-08160-6>

<sup>6</sup> HBR, 'How Mayo Clinic is combating information overload in critical care units' <https://hbr.org/2018/03/how-mayo-clinic-is-combating-information-overload-in-critical-care-units>



## Care beyond hospital walls

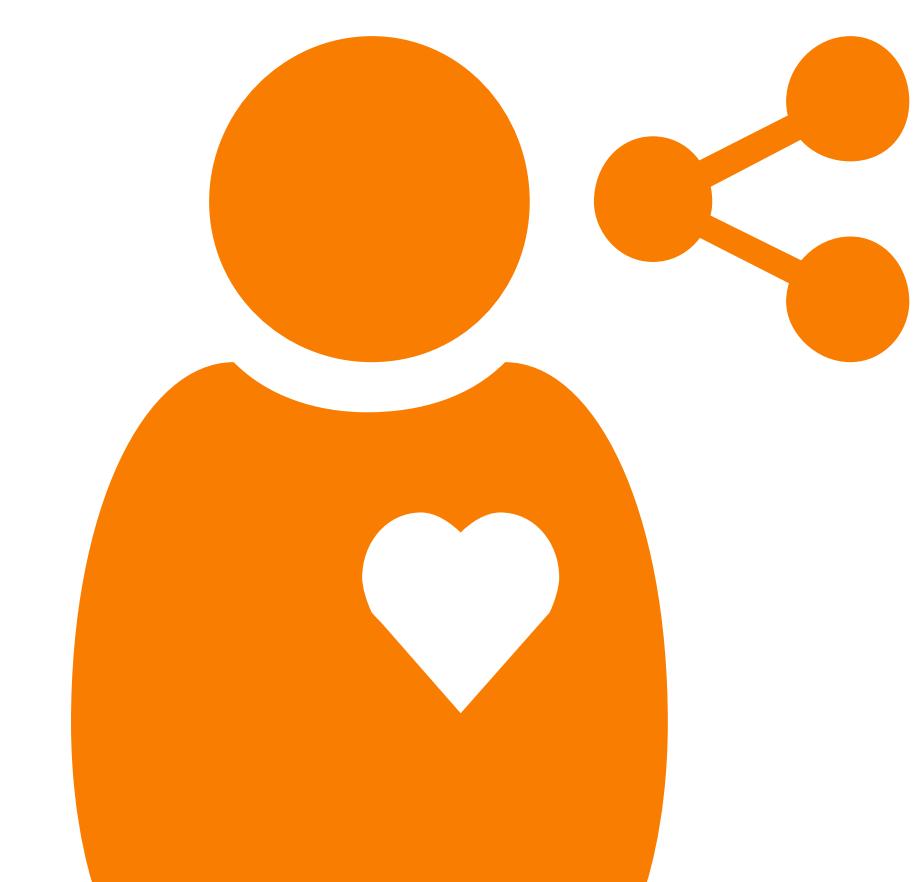
According to the Health Care Advisory Board, 30% of total inpatient volume could theoretically shift from hospital to home.<sup>7</sup> That's a significant number of episodes of care that represents approximately 162 diagnostic-related groups (DRG), 10.5 million patient admissions and \$82 billion in inpatient revenue. But despite its potential, home care has challenges, including the necessary technology and infrastructure required to ensure patient and staff safety.

Health systems around the globe are investing in care models, programs and partnerships to manage acute care outside the traditional hospital walls. Everywhere from ambulatory care facilities and specialty centers of excellence, to post-acute settings or patients' homes.

Patients expect to receive the highest level of care services wherever they are located. And that puts even greater pressure on healthcare enterprises to provide free-flowing data beyond the hospital walls.

During the pandemic, the growth of remote patient care accelerated remote care delivery models. In 2022, approximately 60%<sup>8</sup> of patients said they want to use technology more for communicating with healthcare providers and managing their conditions in the future. Estimates also suggest that 60% of chronic disease pathways will involve remote patient monitoring.<sup>9</sup> But using technology to manage ongoing care is about more than patient satisfaction; it has other clinical and economic benefits.

Patients may be in remote locations, but intelligent systems can extend the sight and reach of acute care, giving clinicians actionable insights into their status and wellbeing. That enables patients to be sent home, or to an appropriate post-acute environment, with services, diagnostic wearables for remote monitoring and chronic condition management programs. A measure that not only supports safe and timely discharge, but also frees up valuable bed space and takes pressure off overstretched staff and resources.



In 2022, approximately 60%<sup>8</sup> of patients said they want to use technology more for communicating with healthcare providers and managing their conditions in the future.

<sup>7</sup> Advisory Board analysis of health system billing data in conjunction with Market Scenario Planner forecasting model

<sup>8</sup> Accenture, 'Patients want to use virtual care even after the pandemic ends' <https://newsroom.accenture.com/news/patients-want-to-continue-to-use-virtual-care-even-after-the-pandemic-ends-accenture-survey-finds.htm>

<sup>9</sup> Hakkennes S, Singh P. Gartner market guide for virtual care solutions. October 26, 2020

# Working in rhythm with you in acute care

## A partnership to drive efficiencies, add value and support caregivers

The shift to providing acute care in bold new environments requires a unique kind of partnership. One built on a genuine understanding of the clinical and operational needs facing each health provider — and their stage in the digital maturity journey.

As a clinically-focused company embedded in acute care settings around the globe, Philips has a deep understanding of the challenges your clinicians face every day and the solutions they need to meet them.

For more than a century, we have supported the clinical practice of care, developing deeper, more accurate and timely diagnostics, measurement and therapeutics. Our partnerships are built on the relationships and understanding between two parties focused on the same mission: working in rhythm to help improve staff satisfaction and patient

outcomes, reduce operational costs and create a healthier tomorrow.

Our goal is to help you deliver a seamless, connected experience to address workforce challenges, drive new efficiencies and harness data for better decision making. All while taking a proactive approach to protecting sensitive health information across devices, systems and settings. So administrators, healthcare providers and patients have the ultimate confidence in how care is delivered.

**Acute care will always be dynamic.  
We know technology is truly effective  
when it works in rhythm with you.**





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