



PHILIPS

Position paper

A path to building a **stronger healthcare system** for a stronger America

Now more than ever, we need to deliver care differently, and radical innovation can help us. This four-part series shows what's working and what's possible to build the healthcare system our country needs.

Part 1

Introduction

This is a crucial opportunity and **a time for radical innovation.**

America has faced serious healthcare crises throughout our history – but we’ve always overcome them and grown stronger.

Now, we have another opportunity to prove our resilience by expanding our healthcare system’s current capacity and capabilities to match tomorrow’s needs.

The COVID-19 pandemic – and the CARES Act passed to address the resulting fallout – have compelled us to reconsider what healthcare means and how the

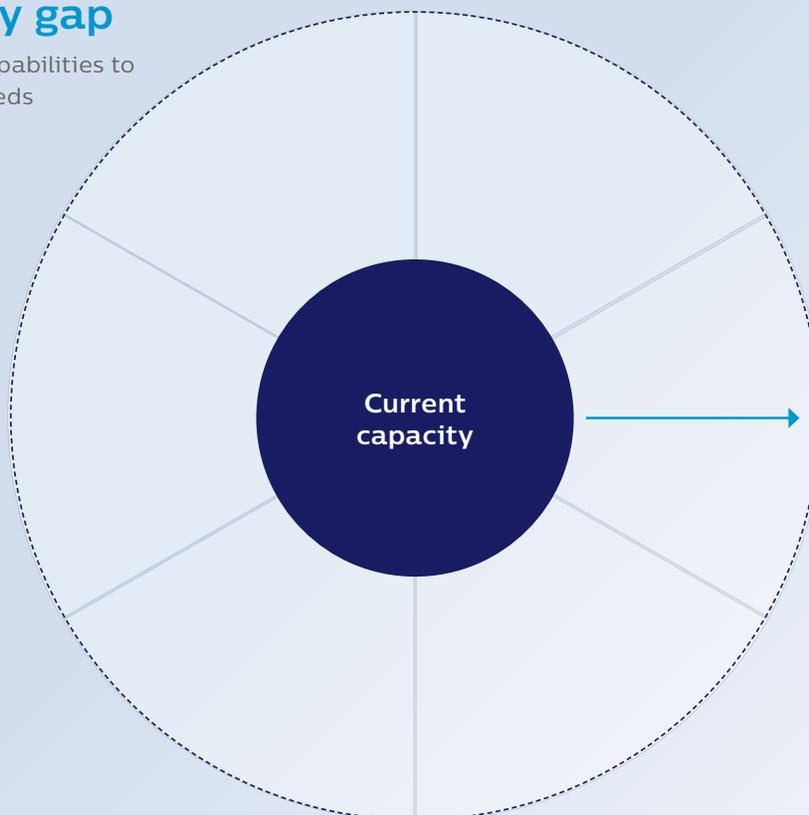
system through which we provide care must change. That means not only adopting cutting-edge innovations like eICUs and telemedicine but also redefining what it means to ‘see’ a doctor, building virtual doors to care and transforming homes and community centers into virtual exam rooms.

At Philips, we’ve partnered with health systems around the world to transform healthcare. Our long-lasting partnerships are built upon a foundation of deep expertise, close collaboration and a shared commitment to embracing radical innovation in healthcare.

In this four-part series of helpful guides, we aim to share what we have learned and to reveal the steps you can take to transform your health system and thrive in a postpandemic world.

The capacity gap

Expanding today’s capabilities to match tomorrow’s needs



A stronger healthcare system calls for being prepared – creating the capacity we need for the future.

Needed capacity

Three opportunities for **radical change**

Going forward, organizations that thrive will have closed the capacity and capabilities gap through:

Extended care delivery

Increasing touchpoints for care and providing virtual care to enhance the capacity of care teams

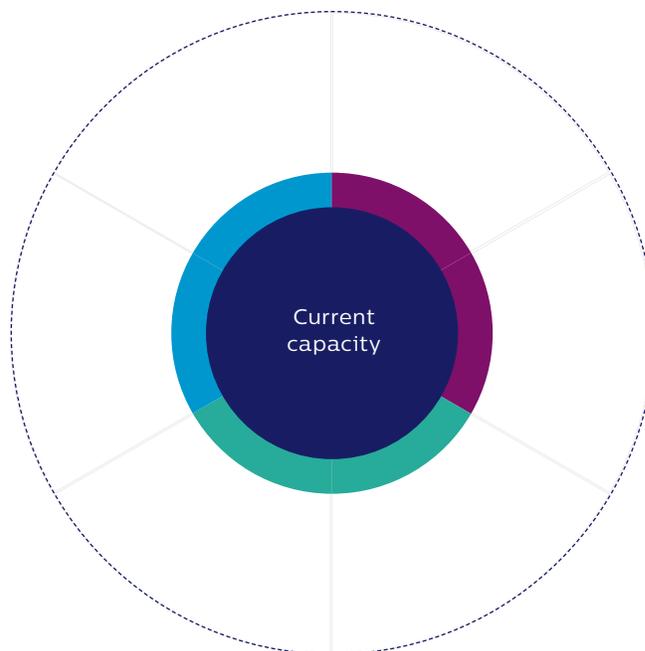
Optimized clinical and operational workflows

Improving efficiency while maintaining quality of care and optimizing staff allocation and productivity through data-driven insights

Robust interoperability and cybersecurity

Aggregating and protecting data from a variety of sources to provide system-wide insights and security

Health systems that incorporate these changes will come back stronger, be more resilient and get closest to achieving the quadruple aim of healthcare.



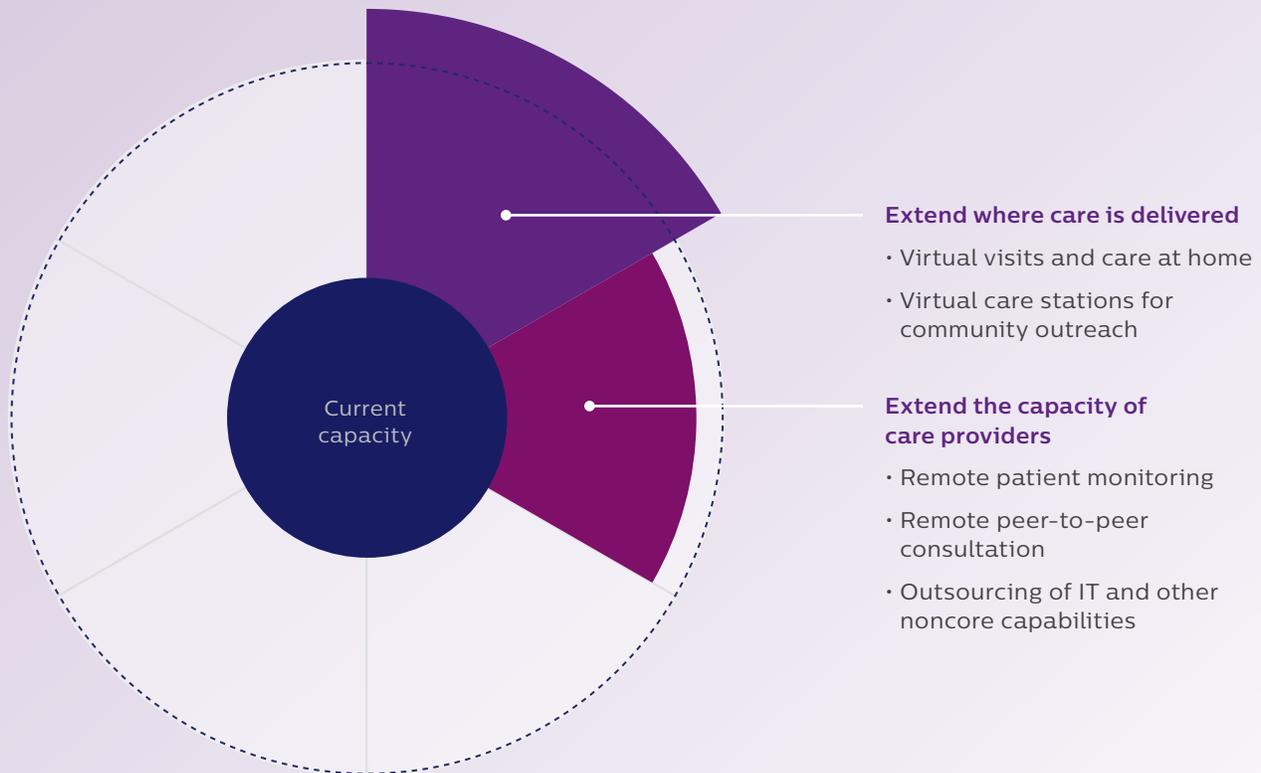
“Coming out of this crisis only to be the same organization you were before **is a lost opportunity.**”¹

—Robert J. Corona DO, MBA, FCAP, FASCP
CEO, SUNY Upstate Medical University and Community Hospitals



Extended care delivery

More touchpoints. Greater access. Remote care management.



A centralized healthcare operation is vulnerable at times of crisis and beyond – vulnerable to system failures, equipment shortages and staffing challenges that include shortages, turnover and burnout. Meanwhile, during a pandemic, the number of patients seen may decline as they try to protect themselves by avoiding unnecessary trips to the hospital. Because patients delay care they may otherwise need, their overall health may decline. This makes it all the more imperative that health systems put financial resources to their best use to deliver value.

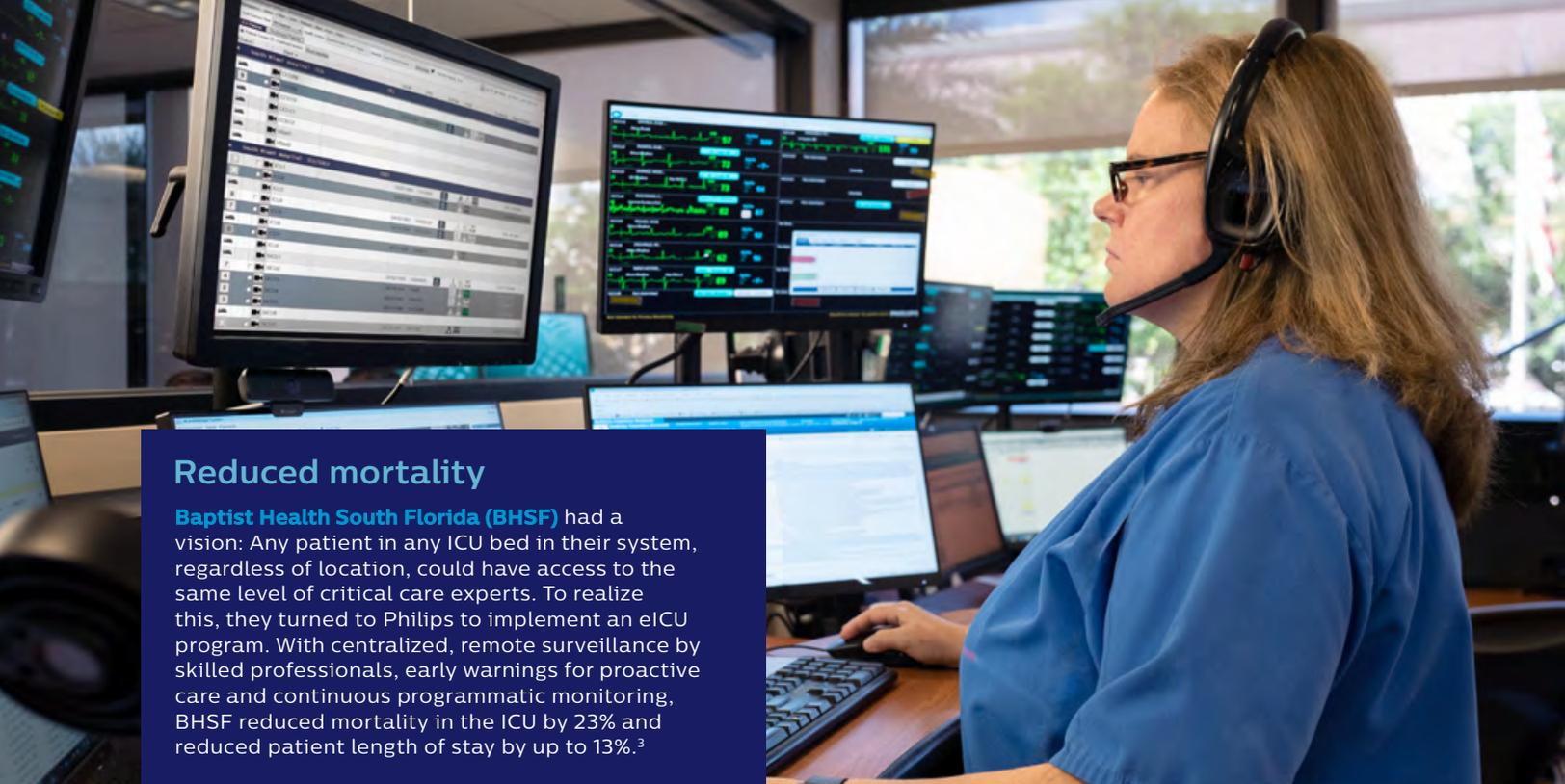
Extend where care is delivered

A stronger healthcare system means continuing to move caregiving beyond the hospital's walls – to clinical offices, virtual care stations and patient homes.

That flexibility will allow care to be delivered in lower-cost and lower-risk settings, scaling to more places to serve more patients.

Virtual or telehealth visits bring care to the home, allowing for remote screening and triage and helping to proactively manage patients in low-acuity settings. This helps to conserve equipment and hospital space for patients who need it and limits the risk of exposure for hospital-based care teams.

Care can also be extended into rural and underserved communities with **virtual care stations**, helping those who don't have connectivity in their homes to receive high-quality virtual care. In 2018, the Veterans Administration facilitated over 1 million video telehealth visits, a record for the VA.²



Reduced mortality

Baptist Health South Florida (BHSF) had a vision: Any patient in any ICU bed in their system, regardless of location, could have access to the same level of critical care experts. To realize this, they turned to Philips to implement an eICU program. With centralized, remote surveillance by skilled professionals, early warnings for proactive care and continuous programmatic monitoring, BHSF reduced mortality in the ICU by 23% and reduced patient length of stay by up to 13%.³

Extend the capacity of care providers

Health systems often need to address staff shortages and to align their staffing to better meet the needs of patients and communities. For example, many health systems need to extend their critical care capacity. Even before COVID-19, fewer than 15% of ICUs were able to provide care from an intensivist⁴ – and almost half of critical care physicians and nurses were reporting burnout.⁵

Remote patient monitoring removes some of the burden from these limited care providers, shifting it to remote locations, even halfway across the world, where there is coverage for 24/7 support.

For example, Philips worked with the University of Kentucky's UK HealthCare to power the state's only tele-ICU clinical command center, enabling intensivists and critical care nurses to remotely monitor ICU patients regardless of location, allowing for prevention of crises instead of merely responding to them.

Shifting care management for patients with chronic conditions from hospital to home may also alleviate workload, especially by keeping chronic oncology, cardiology and pulmonary patients out of the hospital during subsequent phases of treatment. This is potentially more beneficial to health systems during pandemics, when staff is shorthanded and when

reintroducing patients with comorbidities into a hospital could worsen health outcomes.

Philips supports chronically ill patients with connected devices, remote monitoring and customized clinical pathways to detect deterioration, allowing care providers to intervene earlier and to reduce costs. As an example, Philips Integrated COPD Care Initiative resulted in an 80% reduction in acute 30-day readmissions and a >70% reduction in total all-cause acute care events by initiative end – driving a savings to the hospital of \$1.3 million and \$4.4 million, respectively.⁷ For the veteran patient population, which has an increased prevalence of COPD, these types of connected solutions can be a lifeline.⁸

When care providers do not have the expertise aligned to a patient case, or they need an extra set of eyes, remote peer-to-peer consultation solutions can also extend care capacity. Bringing real-time expertise from off-site locations can distribute workloads among care providers and can hasten diagnoses (for example, when care teams in the battlefield need to make quick decisions to help save a soldier's life).

Operational teams are overburdened, too, especially during a crisis. To reduce these burdens, many health systems are transitioning to innovative business models and outsourcing. As-a-service, fee-per-study and outcome-based models are becoming more common, alleviating staffing shortages and reducing financial burdens. Working side by side with clinical and operational teams with a highly collaborative approach, Philips **managed services** allow hospital teams, for example, to outsource some of their IT management, enabling them to focus their efforts on patient care.

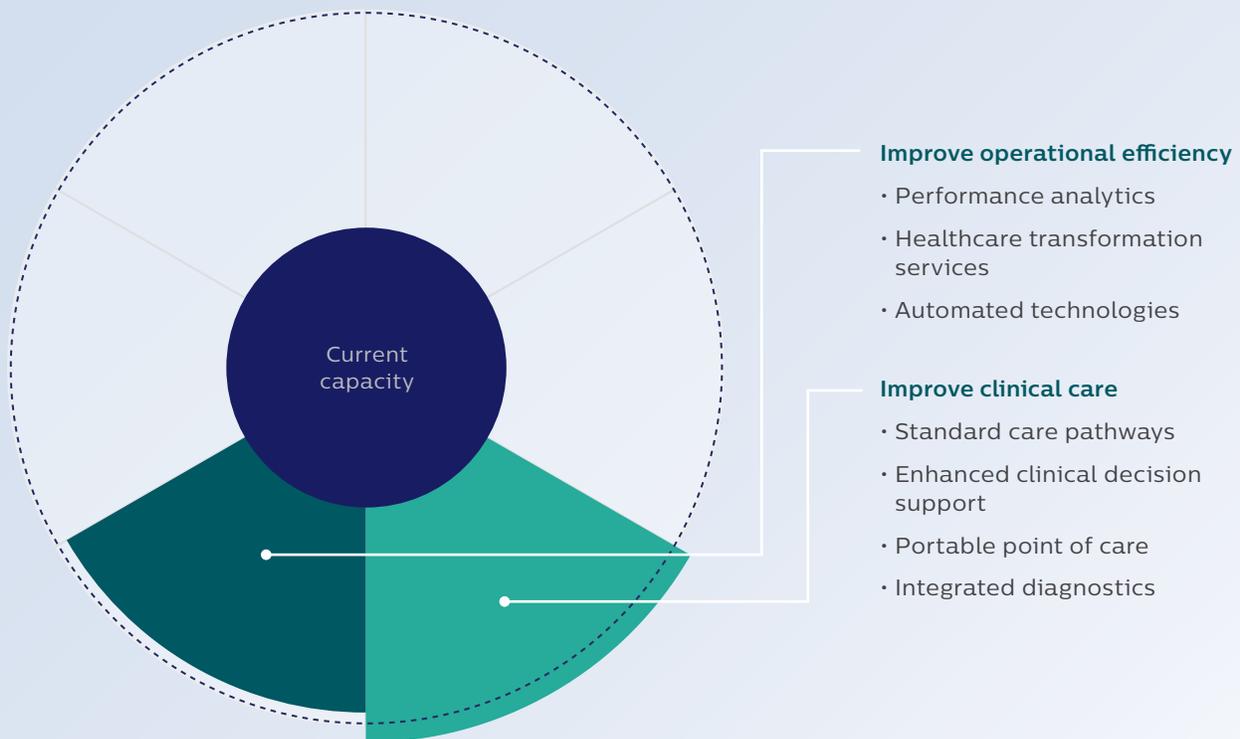


150.3%

Predicted growth of remote patient monitoring in 2020⁶

Optimized clinical and operational workflows

Insight-driven workflows. Standardized care.
Optimized financial health.



The pandemic has placed hospitals in a difficult bind.

Availability of services? **Constrained.**

Demand for acute care? **Up.**

Demand for elective care? **Unpredictable.**

Employees? **Shorthanded.**

For some health systems, COVID-19 has exposed frailty in important service lines, including radiology, cardiology and oncology. Other systems, as yet untouched, may face the impact of a future outbreak. To recover and protect against future shocks, and to deliver care in ways that once seemed unimaginable, health systems need the ability to visualize, measure and manage these service lines. As the famous

management consultant Peter Drucker once wisely said: “What gets measured gets managed.”

Cutting-edge, point-of-care solutions are necessary components of change but alone are not sufficient. What’s needed is a holistic, system-wide view to assess health system workflows, from scheduling to diagnosing to treating and beyond. Mapping and measuring each step, bottlenecks are revealed and efficiencies can be gained. This will drive improvements in care quality and financial health for better value – and ultimately will help save lives.

Improve efficiency by putting technology to work

Where is care stymied? Where is equipment underused – or even unused? Where are staff burnt out or unavailable? Analytics and **expert consulting** can

help health systems to begin optimizing workflows by pinpointing areas of opportunity to drive continuous improvement. This in turn helps hospitals achieve clinical excellence and operational efficiency while improving financial performance and delivering quality care.

Automated technologies and artificial intelligence can also reduce steps and accelerate processes to ensure those optimized workflows run smoothly. For example, Philips developed smart workflows for ultrasound exams that decrease keystrokes by as many as 300 per exam, reducing exam time by 30% to 50%.⁹ By reducing and simplifying patient preparation steps, even operators new to the scanner can proceed with confidence, and teams are better able to focus on their patients.

In image-guided therapy, Philips focused on how people actually work in the lab and saw ways to eliminate unnecessary steps to and from the control room. The result? A **next-generation platform** that has helped organizations reduce procedure time by 17%.¹⁰ Each keystroke and every step saved means more time to focus on quality patient care.

Improve quality of care and better support care providers

Efficiency of care is only one side of the equation, though. Health systems know well that quality of care is equally important. If care varies, systems incur higher costs and produce unpredictable outcomes. This is a risk particularly when protocols are changing rapidly as they are for COVID-19.

To help, **AI-enabled clinical decision support tools** sift through volumes of data to suggest next steps for treatments, alert providers to information they may not have seen or catch potential problems such as early warning signs of patient deterioration. A timely example is the use of Philips AI-enabled cardiology ultrasound to assess COVID-19-related lung and cardiac complications. Because timing is critical in



Agility at hand

Philips handheld and tele-ultrasound system recently received FDA clearance to provide COVID-19 diagnostic insight for frontline care providers. In addition, Philips has point-of-care solutions that bring care to the bedside and built-in capabilities, like smart protocols and optimized MR sequences, to shorten exam times or expand information through compressed sensing. These solutions increase productivity, diagnostic confidence and patient comfort.¹¹

monitoring patients post-COVID-19, this tool allows fast and accurate data assessment in as little as 15 seconds.

Wearable biosensors also enable teams to respond rapidly, and integrated diagnostics provide holistic insights. Portable or mobile point-of-care solutions can give care teams and patients the support they need.



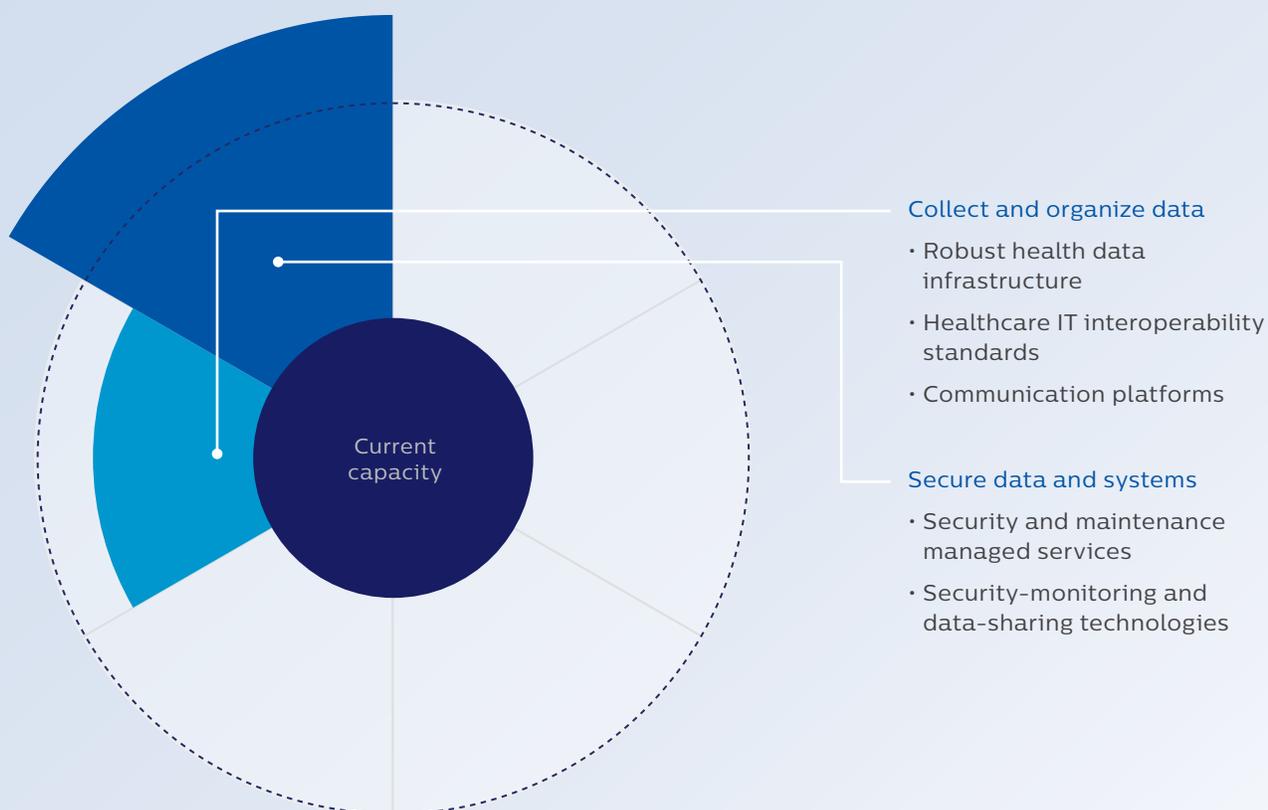
While **70% of cardiac patients show evidence of respiratory decline** within 8 hours of cardiac arrest,¹² a physician is only notified 25% of the time.¹³



But use of Philips early warning systems by clinicians has resulted in a **35% reduction in serious events.**¹⁴

Robust interoperability and cybersecurity

Organized data. Systems that work together. Secure networks.



Getting data to ‘speak the same language’ has long been a challenge for health systems, and miscommunication costs the US healthcare system \$1.7 billion per year.¹⁵

It’s a complex challenge, especially as health systems grow to encompass more care settings beyond the four walls of a single hospital and as rapidly changing situations like the COVID-19 pandemic require care providers to quickly access a patient’s health record regardless of where the patient previously received care. Errors occur because information is unrecorded, misdirected, never received, never retrieved or ignored. Patients, too, must have ready access to their health information, and costly fines and delayed Medicare payments can follow if access is denied.

Yet many health systems struggle to track longitudinal patient data, exchange information across different vendors or use the advanced analytics that interoperable data makes possible. A lack of interoperability limits their ability not only to manage current operations but also to scale and extend their services. This creates system-wide vulnerabilities, as disjointed networks are hard to defend against malicious attacks.

Collect and organize data

Essential to building a stronger healthcare system is the need to share information with patients about their healthcare across settings, per the 21st Century Cures Act, and to make that information readily accessible to their care providers. Philips IHE-HL7-based solutions

enable data from multiple sources and vendors to flow seamlessly from medical devices to the bedside monitor to the department – and then throughout the many points of care within and between enterprises.

For example, Eastside Health Network in Washington State needed to integrate 10 payer feeds over 40 practice billing systems and ~20 EHR feeds across two large health systems. By leveraging Philips Population Health Platform, they now are able to manage multiple payer contracts ranging from shared savings to full capitation, develop meaningful alerts and reports, turn data management into care management and progressively take on more risk.

As another example, to collect and organize its 40 million XDS documents a year, eHealth Ontario leveraged Philips Interoperability Platform to create a diagnostic imaging common services solution that supports the exchange of clinical information and fosters collaboration among care providers across the province.

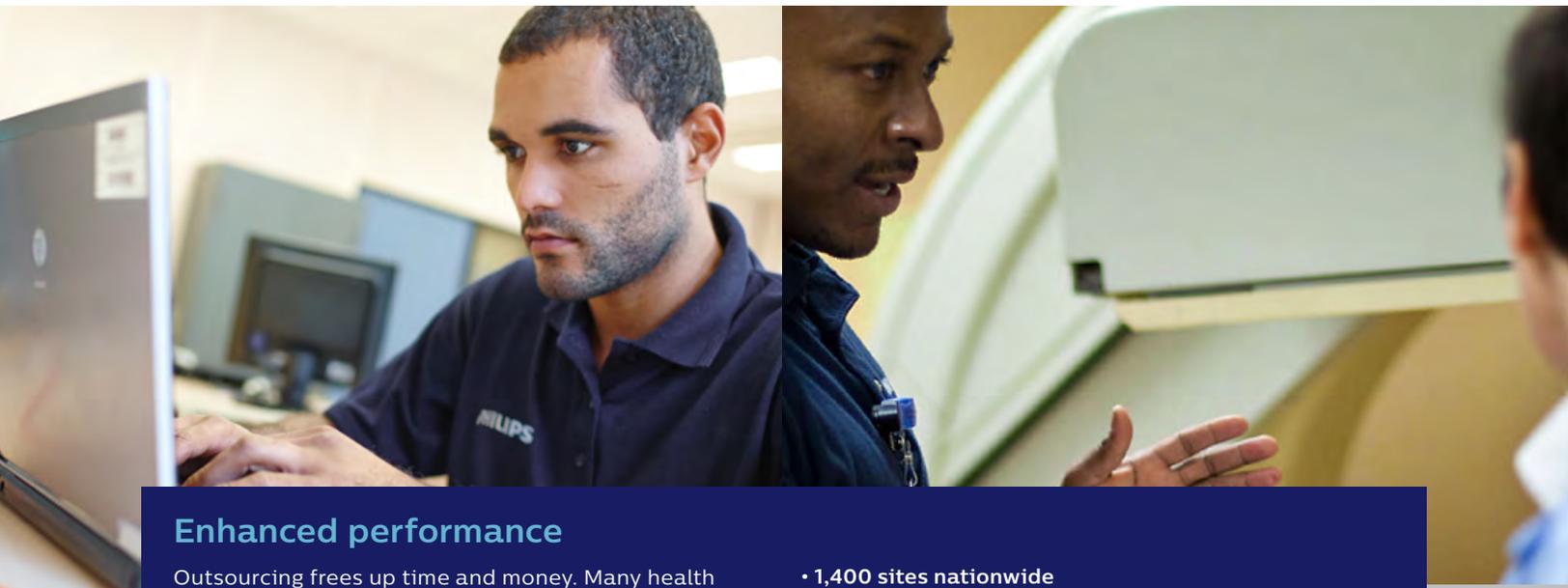
Secure data and systems

Every day, health systems face cybersecurity exploits, threats and vulnerabilities. Global regulatory authorities have also increased cybersecurity

compliance requirements. Protecting health technology and patient privacy requires ongoing vigilance, immediate response procedures and, most importantly, a proactive approach to security.

This approach starts before medical products and software even make it into a hospital. Medical devices and solutions should be developed with security embedded throughout the process, including having product security risk assessments, project-independent vulnerability and penetration assessments, specialized product security training and response activity plans for vulnerabilities. Philips is proud to have a HITRUST-certified digital platform and to be the first medical device manufacturer to receive a new product cybersecurity testing certification in compliance with security and privacy regulations, such as ISO 27001/18, SOC2.¹⁶

How you respond to imminent threats also starts long before incidents occur and includes having a clear incident management process, automated network threat detection, risk assessment, internal notifications, 24/7 incident response and on-site personnel to keep a watchful eye. It also includes having appropriate methods for validating and deploying patches as well as communicating disclosures quickly and regularly.



Enhanced performance

Outsourcing frees up time and money. Many health systems are turning to **managed services** for dedicated support from onsite advisors and multimodality expertise of service support specialists. At more than 1,400 sites nationwide,* Philips managed services, with vendor-agnostic support and management of clinical assets, have saved customers more than \$650 million cumulatively to date** and have achieved a 99% success rate in system uptime, performance and productivity guarantees.***

- **1,400 sites nationwide**
- **\$650 million cumulative savings**
- **99% uptime**

*Philips multivendor contracted installed base as reported via monthly service reports

**Philips data from estimates based on number of customers over service history time period x contract revenue x minimum 10% savings on contract revenue

***Philips data from measured quarterly uptime reports across multivendor installed base (for critical systems)

Summary

Recent events have exposed systemic issues in healthcare – the heavy burden of chronic illness, the urgent need to expand healthcare access, the unrelenting stress our healthcare teams face. In these challenges – at this pivotal time for our country – lies a crucial opportunity to build a stronger healthcare system for a stronger America.

Doing so requires us to work in trusted partnerships that are grounded in collaboration, sharing both rewards and risks. At Philips, partnership is far more than a buzzword. True partnership means rolling up our sleeves and working side by side with our customers to identify and implement meaningful solutions customized to each organization's needs and challenges.

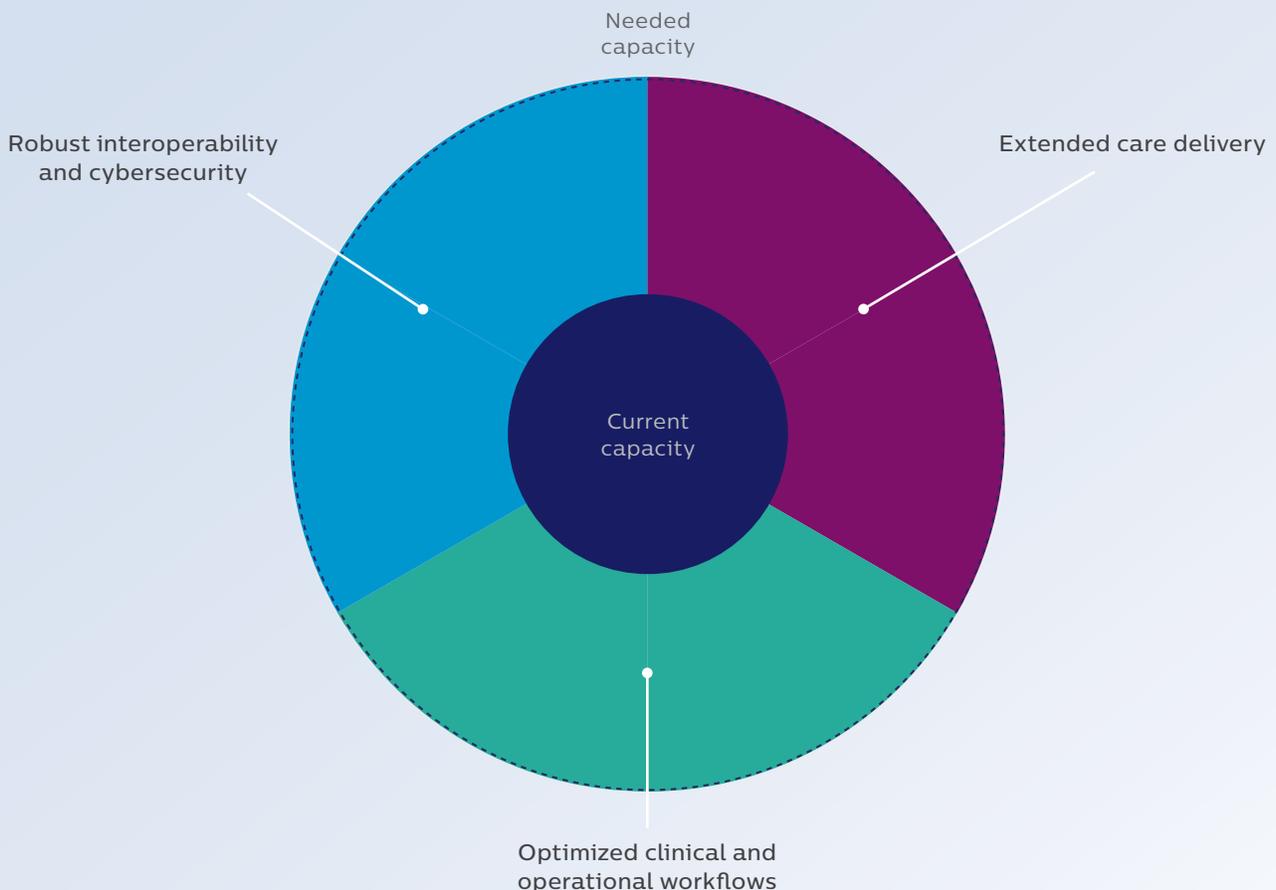
To help build stronger healthcare systems, we're publishing a series of guides that offer strategies, tactics and resources.

Sign up to be notified when the next guide becomes available.

Results from case studies mentioned in this paper are not predictive of results in other cases. Results in other cases may vary.

Closing the capacity gap

What a strong, more resilient health system looks like





References

1. <https://www.beckershospitalreview.com/hospital-management-administration/65-hospital-leaders-in-10-states-hit-hardest-by-covid-19-offer-advice-to-colleagues-if-you-do-nothing-else-at-least-do-this.html>
2. <https://www.va.gov/opa/pressrel/pressrelease.cfm?id=5196>
3. <https://www.usa.philips.com/c-dam/b2bhc/us/sites/leadership-perspectives/hub/eICU-Whitepaper-BaptistH-d.pdf>
4. Goran SF. A second set of eyes: An introduction to tele-ICU. *Crit Care Nurse*. 2010;30(4):46-55.
5. Chuang C-H, Tseng P-C, Lin C-Y, Lin K-H, Chen Y-Y. Burnout in the intensive care unit professionals. *Medicine (Baltimore)*. 2016;95(50):e5629.
6. Frost & Sullivan. *Telehealth—A Technology-Based Weapon in the War Against the Coronavirus*. K488-48 April 2020.
7. <https://www.usa.philips.com/c-dam/b2bhc/master/education-resources/copd-insider/common/alabama-paper/the-integrated-copd-care-intitative-copd-insider.pdf>
8. Murphy DE, Chaudhry Z, Almoosa KF, Panos RJ. High prevalence of chronic obstructive pulmonary disease among veterans in the urban Midwest. *Mil Med*. 2011;176(5):552-560.
9. <https://www.usa.philips.com/a-w/about/news/archive/standard/news/press/2013/20130830-Philips-launches-new-EPIQ-premium-ultrasound-system.html>
10. <https://www.philips.com/a-w/about/news/archive/case-studies/20180824-reducing-procedure-time-in-image-guided-therapy-with-philips-azurion.html>
11. <https://www.philips.com/a-w/about/news/archive/standard/news/press/2020/20200513-philips-receives-fda-clearance-for-the-use-of-its-ultrasound-portfolio-to-manage-covid-19-related-lung-and-cardiac-complications.html>
12. Sharek PJ, Parast LM, Leong K, et al. Effect of a rapid response team on hospital-wide mortality and code rates outside the ICU in a children's hospital. *JAMA*. 2007; 298(19):2267-2274.
13. Franklin C, Matthew J. Developing strategies to prevent in-hospital cardiac arrest: analyzing the responses of physicians and nurses in the hours before the event. *Crit Care Med*. 1994;22(2):244-247.
14. Subbe CP, Duller B, Bellomo R. Effect of an automated notification system for deteriorating ward patients on clinical outcomes. *Crit Care*. 2017;14(1):52.
15. CRICO Strategies. *Malpractice Risks in Communication Failures*. <https://www.rmfi.harvard.edu/Malpractice-Data/Annual-Benchmark-Reports/Risks-in-Communication-Failures>
16. <https://www.infosecurity-magazine.com/news/royal-philips-scores-a/>

