

**PHILIPS**

Service-oriented Device Connectivity (SDC): A revolution in medical device interoperability

The new wave of clinical innovation puts interoperability at the forefront so hospitals can do more with less

We are at a major crossroads in healthcare. Patients are sicker and more medically complex than ever. Clinical workflows are burdened by complexity, and resulting stress and burnout is causing clinicians to leave the profession in high numbers. Inflation is adding cost pressures, and unexpected spending during the pandemic created financial challenges never seen before, creating a dire need to do more with less.

Hospitals and clinicians tackle these challenges with extraordinary skill and determination, but we know today's pace is unsustainable for them. Clinicians struggle as they have to check multiple screens – from EMRs to ventilators to patient monitors – to piece together insights on a patient's status to provide treatment.

In fact, it's estimated that a 1,000-bed hospital generates up to:

1 terabyte 
of data a day¹

And they struggle to acknowledge and act on seemingly endless alarms from different vendors' devices.

So, it's no surprise that interoperability and data exchange is one of the main challenges cited by both healthcare leaders and younger professionals. In this year's [Future Health Index 2023 report](#) – the largest global survey of its kind – they were asked which factors will determine the success of new care delivery models.

Both groups cited interoperability across systems and platforms.²

28%

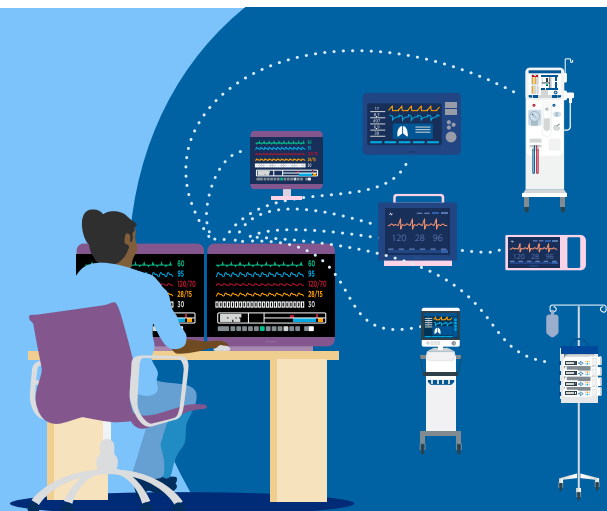
across the groups
combined

27%

timely and smart
data sharing

It's going to take a new approach to solve this. And it won't be solved by one vendor alone.

The SDC family of standards can replace proprietary networks by giving devices a common language to speak. It will enable interoperability and data exchange, so patient information can be shared bi-directionally and securely in near real-time. Using SDC-ready medical devices can radically change clinicians' experience by enabling them to see – and act on – data derived from truly integrated technology regardless of manufacturer.



Next-generation interoperability is coming

At Philips, we've seen enough of watching our customers struggle and have made the decision to move away from proprietary communication protocols and closed ecosystems to an open interoperable environment. We're building on 40 years' experience advocating for interoperability standards by embracing Service-oriented Device Connectivity (SDC) and actively encouraging all medical device companies to join us.

“Every day, clinicians make countless care decisions based on information from divided medical devices and systems. It's time we start caring for the carers by making data more accessible.”

Christoph Pedain

General Manager, Hospital Patient Monitoring, Philips

In working to make true device interoperability the new standard, we at Philips are building on data integration capabilities available today to provide a new, modernized integration option that enables future workflows and use cases. An SDC-capable care environment allows us to expand our ecosystem even further to include medical technology vendors across the healthcare industry, and enables vendor-neutral, remote device management.

While Philips capabilities currently enable clinicians to take certain actions outside of patient rooms from mobile devices – acknowledging alarms, starting vital sign measurements and changing alarm limits – future SDC-ready devices in an open ecosystem can allow us to expand this functionality to third-party devices, too. Clinicians will be able to see holistic patient information clearly, all in one place, in order to reduce complexity and more easily take action remotely.* This will enable clinicians to use devices of their choosing and have them connect to one another to enhance their workflows.

We envision a future where a clinician can command and control all devices and act on clinical data more easily. A future that enables closed-loop therapy built from open standards on a common infrastructure that can be centrally managed, maintained, serviced and secured.

A call to arms: Let's collaborate, rather than compete

Making this a reality means prioritizing the development of devices that don't just connect to their own channels or limit the fidelity of data they share. But it's not enough that we have implemented this capability in our devices, we must take it a step further: All acute care technology and systems must seamlessly connect with one another regardless of the manufacturer.

New approaches often involve a shift in mindsets, new kinds of partnerships and cooperation across an industry, and we are proud to be a leading member of the SDC consortium that is shaping this change in perspective.

We have a responsibility as an industry to our customers or we will never truly make care less complex for clinicians. As a leading member of the SDC consortium, we:

- Lead multi-vendor developer meetings and test standards being developed
- Collaborate with subject matter experts from healthcare, academia, industry and third-party vendors – advancing the digitization of healthcare data for the benefit of both patients and providers

What is SDC?

SDC is the future basis for communication between medical devices that:

- Enables communication between devices at the point of care
- Replaces proprietary networks by enabling interoperability and data exchange
- Allows patient information to be shared bi-directionally and securely in near real-time
- Supports data integration of vital signs, waveforms, alarm and alert reporting/delegation
- Allows for remote control of devices regardless of the manufacturer

*anticipated future benefit

We actively encourage other vendors to join us in creating an open ecosystem that will truly be interoperable for the benefit of clinicians and patients – and so vendors and their hospital customers don't get shut out of the device connectivity revolution.

Disruptive capabilities in action: the ICU of the future

One clear use case for SDC-ready care environments is the smart use of technologies in the ICU. We plan to partner with hospitals and other vendors to create a tranquil healing environment by enabling clinicians to manage alarms and take action from anywhere.

Currently, clinicians can use Philips technology to acknowledge and silence alarms from our monitors, as well as distribute alarms for third-party devices, helping to make patient rooms quieter.³ There are times when entering a patient's room to acknowledge an alarm may be disruptive. In a Silent ICU, SDC-enabled devices' bi-directional capabilities and an open ecosystem change that. Clinicians will get a holistic view of patients and can remotely acknowledge and adjust vendor-agnostic alarms and point-of-care device settings, radically changing their – and their patients' – experience.

We are working to create SDC-enabled therapy use cases with the other vendors, including the future of the Silent ICU: the Smart ICU. This leverages features of the Silent ICU and adds AI capabilities to alert clinicians of early signs of patient deterioration. It will also enable multi-device closed-loop therapy, as well as simplified management of ICU technologies*.

This modernized, redesigned plan for ICUs – where devices are working together and remotely manageable – tackles the lack of interoperability among systems head-on. ICU device connectivity helps address the challenge of alarm fatigue in particular, and will make it simpler for clinicians to navigate information pathways and deliver personalized care.

Making the most of specialized industry intelligence

As a world leader in monitoring more than a half a billion patients each year, we're leveraging our position as a leading patient monitoring vendor and our long-term partnerships with hospitals to advocate for all vendors to become SDC-ready.

One reason why Philips is uniquely positioned to lead the charge is our vast experience and leadership in handling streaming patient data. Ours is the only system that communicates bedside patient data to the EMR, and we're able to communicate it to mobile devices, which allow clinicians to take action remotely. Within our monitoring ecosystem, our data already flows both ways so that clinicians can remotely acknowledge alarms, start vital sign measurements and change alarm limits.

For example, Philips Event Notification is an enterprise event management system that delivers alarm notifications from clinical systems, including Philips and third-party patient monitors, nurse call systems, EMRs and devices (ventilator, infusion systems) to the caregiver's mobile (currently Android) device. SDC in an open ecosystem can allow us to massively expand this functionality by including third-party devices, too.

Philips also provides an end-to-end patient monitoring solution that includes monitoring at the bedside, monitoring at the central station and mobile applications on caregivers' smartphones. When ICUs become fully SDC-capable, this will require management across bedside, systems and mobile devices, and we're prepared for our monitoring systems to act as the hub for managing aggregated device data.

The next wave of clinical innovation is coming

At Philips, we're making it our mission to allow healthcare organizations to get what they've demanded for decades – true command and control across all devices, across all care settings. **Join us.**

1. Based on Philips historical data collected at customer sites using Data Warehouse Connect.

2. Philips. Future Health Index 2023. Published 2023. Accessed December 7, 2023. [philips-future-health-index-2023-report-taking-healthcare-everywhere-global.pdf](#)

3. Ruppel, H., De Vaux, L., Cooper, D., et al. Testing physiologic monitor alarm customization software to reduce alarm rates and improve nurses' experience of alarms in a medical intensive care unit. *PLoS one*. 2018;13(10): e0205901.

*anticipated future benefit

