PHILIPS

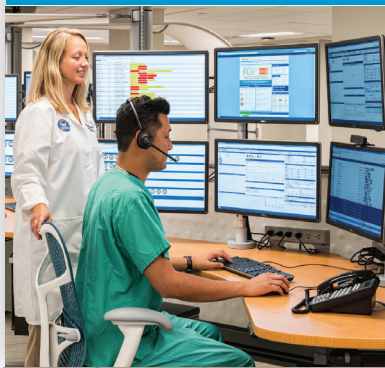## Success Story

Philips Design and Posen Architects

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A Blueprint for Enterprise Telehealth

How Philips Strategic Design Consulting and Posen Architects created a collaborative environment blending the latest technology and design concepts

Walking into the 5,500 square foot eHealth Center at Westchester Medical Center Health Network (WMCHealth) feels like walking into the future of healthcare. Equipped with 20 eICU telehealth workstations, the eHealth Center allows specialized ICU physicians and critical care nurses to support the care being provided at the bedside of ICU patients spread throughout the Hudson Valley. The workstations are equipped with vital-sign monitoring, predictive analytics, data visualization, and two-way audiovisual connection, allowing the remote specialists to provide an extra level of care and interact directly with bedside providers and patients.

The eHealth Center represents a new vision for how hospitals can deliver care, where doctors are no longer restricted by time or distance. Hospital command centers have been gaining traction in recent years, as health systems begin to co-locate resources in order to better manage patient flow and logistics. Taking a cue from the aerospace and aviation industries, these command centers are wired with monitors that display predictive analytics and monitor a patient's movements in the hospital.

Tele-ICUs, such as Philips eICU, take the command center concept a step further. Through advanced clinical decision support providing proactive alerting, workflow change management, and integrated audiovisual technology, the eICU is a proven solution to help reduce

potential medical complications leading to more stable patients across the continuum. Instead of only checking a patient's vital signs periodically, there is a continuous live-stream of data flowing from bedside monitors to the eICU, where Philips' advanced algorithms help identify and prioritize patients for early intervention. The synergistic benefits of technology coupled with care transformation help health systems realize the financial and operational outcomes in target areas of capacity and throughput through improved patient length of stay.

WMCHealth's eHealth Center was a key first step in bringing the benefits of enterprise telehealth to the entire system. It addressed one of the system's highest cost areas (the ICU) by standardizing practices, improving quality of care, and increasing access. It is a stunning example of how hospitals can blend technology and design to improve patient care, and with an eye for the future, it was designed for growth and expansion into new clinical areas beyond the ICU.

Designing a Telehealth Center
In preparation for designing and building the eHealth Center, Philips Design met with WMCHealth to understand their needs and vision for the project. WMCHealth had already spent over a year working with Philips to prepare for implementation of the eICU program, so many of the basic design elements and telehealth center components were already

established. The final step was partnering with a design team that could make their vision – to improve patient care and communication among the various WMCHealth hospitals – a reality.

The Workstation of the Future
What sets the WMCHealth telehealth center design apart from the typical bunker-style command center is how modern, light, and accessible it feels upon entering. The layout of the telehealth center was very deliberate. The workstations – where the doctors and nurses spend the bulk of their time – are located closest to the windows, while the lesser-used conference rooms and private offices are located further back. This is not just for aesthetic purposes. Exposure to daylight has been shown to not only improve mood, but also workers' health and overall well-being. The design team of Philips Design and Posen Architects focused a great deal of attention on maximizing daylight exposure, controlling glare, and installing recessed LED lights. They also worked closely with Herman Miller and furniture dealer WB Wood to design comfortable workstations with ergonomic furniture, adjustable work surfaces, and flexible monitor arms, which helps to improve both productivity and workplace satisfaction. The telehealth center staff provide bi-directional engagement with the patient and family, therefore the environment needs to be both professional and secure for patient privacy. The swinging privacy screen creates an intimate patient-to-provider relationship instantaneously, with the ability to swing away for team collaboration.

The eHealth Center is also purposefully integrated into the hospital, with a sense of connection to the rest of the hospital. It is located off the main entrance to the building in order to be highly visible and physically linked with the hospital. It was crucial that the telehealth staff be co-located on the hospital campus in order to support patient care in a collaborative way without interruption. In addition, Posen factored future growth into the design of the telehealth center, ensuring that there would be ample space to expand as WMCHealth began to use the eHealth Center with other specialties. The space is also designed for collaboration and innovation, with meeting spaces for team reviews as well as on-site training and demonstration rooms.

Challenges
In designing such a space, there are inevitably challenges. At WMCHealth, the design team had to work within the existing infrastructure, with little opportunity to change the basic structure of the space. The high profile location was a somewhat limiting factor and required updating adjacent corridors while maintaining access to other areas of the hospital. The ceilings and lighting layout were particularly difficult. With ceilings under eight feet high – and impossible to raise – the design team not only had to redesign the workstations in order to fit into the space, but also determine how to make the space feel as bright and spacious as possible.

They also had to pay special attention to the acoustics of the telehealth center and reduce noise from mechanical systems, since any background noise could interfere with communication with patients and bedside staff. In addition, the swinging privacy screens of the Herman Miller workstation solution both to give the patients a sense of privacy and to reduce any background distractions. Finally, the design team had to coordinate security requirements and design the telehealth center so that it could accommodate guests while maintaining HIPAA compliance.

The Future of Healthcare
WMCHealth's eHealth Center is a prime example of how to blend technology and design in order to deliver the best possible care to patients. It is not the detached, windowless bunker so often associated with command centers. Rather it is a bright and airy extension of the hospital, fully connected with the rest of the health system and an integral part of its overall eHealth strategy.

ICUs are one of the highest cost areas in healthcare, and therefore ICU efficiency is increasingly vital as health systems seek new cost-effective ways to manage their growing populations in this era of value-based care. The benefits of implementing a centralized telehealth center such as Philips eICU are well documented. A growing body of research has demonstrated how eICU programs reduce length of stay, lower mortality, and improve contribution margins.[2] They allow trained critical care specialists to help manage the care of critically ill patients who might be thousands of miles and several times zones away, providing a consistent high level care regardless of patient location.

By starting with an eICU, WMCHealth addressed its most cost-intensive area and made optimal use of its critical care resources. Importantly, the eHealth Center was designed with growth in mind to bring the benefits of telehealth throughout the health system.

1. Boubekri M, Cheung I.N., Reid K.J., Wang C.H., Zee P.C. Impact of Windows and Daylight Exposure on Overall Health and Sleep Quality of Office Workers—A Case-Control Pilot Study. Journal of Clinical Sleep Medicine. 2014;10(6):603–11.
2. Lilly CM, Motzkus C, Rincon T, et al. ICU Telemedicine Program Financial Outcomes. Chest. 2017; 151(2): 286-297.