



# Paediatric hospital aims to improve patient care with interactive scheduling solution

The Children's Hospital of Philadelphia has a history of innovation in paediatric care that goes back to its inception in 1855. The hospital will use Microsoft Surface Hub to replace manual operating room scheduling with a digital, large-screen interactive display board that works with its existing electronic medical record solution. With one-touch access to consolidated patient data, care teams can work together to make critical decisions faster, improving care.

## Children's Hospital of Philadelphia

11,000 employees

[www.chop.edu](http://www.chop.edu)

United States

Healthcare



The Children's Hospital of Philadelphia®

Hope lives here.®

## Qwaltec

40 employees

[www.qwaltec.com](http://www.qwaltec.com)





Founded in 1855, the Children's Hospital of Philadelphia (CHOP) has repeatedly earned a spot on the US News & World Report Honour Roll of the best children's hospitals in the United States.

It is early morning at the Children's Hospital of Philadelphia (CHOP), and a young patient is being prepped for surgery. On the way to the operating room, her parents walk down the hall, alongside her bed. They squeeze her hand as she is wheeled through the door to a waiting team of green-gowned surgeons, anaesthesiologists, nurses and clerks. After a few deep breaths and a quick hug, it's time for her parents to join other family members in the waiting room. Every day, this private drama of hope and nerves will play out for another 100 families across the hospital's 21-bed surgical unit and 10 other locations in Philadelphia.

More than 36,000 children undergo procedures requiring anaesthetic at CHOP, every year. Some of these procedures, such as bilateral hand transplants and foetal surgery, represent the leading edge of paediatric healthcare. But whether it's a routine operation or a new procedure, the challenge of maintaining an accurate surgery schedule requires the coordination of a team of healthcare professionals on behalf of every patient. To meet that challenge, the hospital staff needs easy access to a single source of accurate patient, staff and location information.

Today, employees at CHOP use a manual system to manage the surgery schedule. This magnetic board consists of four horizontal panels covered in strips, each bearing a patient's name and corresponding medical

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**The Children's Hospital of**  
**Philadelphia**

notes. (See Figure 1.) Every time a patient is moved from one point to the next through pre-op and post-op procedures, a staff member moves the strip to update the patient's position. However, the scheduling board is available only to staff in the surgical unit and does not integrate with the hospital's electronic medical records (EMR) system, Epic, which has its own display screens set up in hallways and patients' rooms.

## A culture of innovation

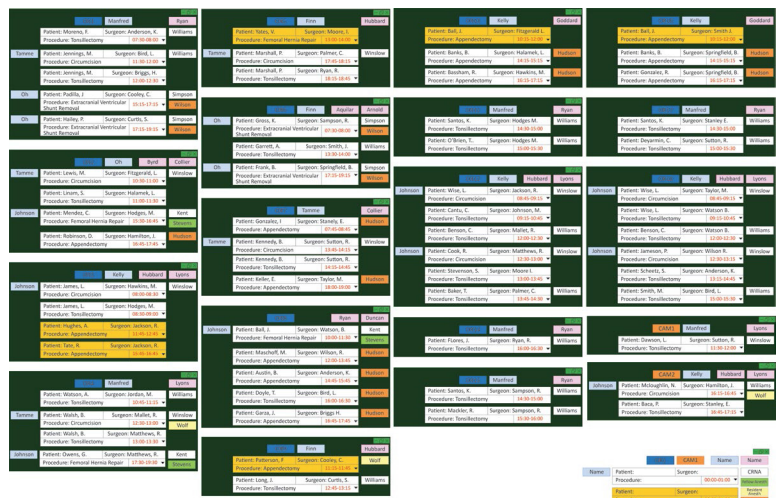
As the first children's hospital in the United States, CHOP has fostered medical discoveries and innovations that improve paediatric healthcare and save countless children's lives. This culture of innovation extends beyond the clinical realm to administrative and operational procedures. Today, CHOP is working with Qwaltec to evaluate the efficacy of applying a systems engineering approach—the norm in the space and aerodynamics industries—to its own operations.

"We call this concept the Hospital Operations Centre [HOC]," says Robert Bassham, Chief Operating Officer at Qwaltec. "The HOC encompasses all the systems used to keep patients healthy that are capable of being tied into a command centre for monitoring. After talking with CHOP, we felt that using real-time situational awareness for care teams who schedule and perform surgical procedures would generate the most immediate value as a first step toward a true HOC."

To that end, CHOP and Qwaltec are conducting a proof-of-concept (POC) process to validate the idea of replacing an analogue, manual process for scheduling surgeries with a digital, real-time situational awareness solution using the Microsoft Surface Hub team collaboration device and the Windows 10 operating system.

## Disruptive technology

Together, CHOP and Qwaltec worked out the hardware and software specifications for the POC. To ensure user adoption, the solution had to be easy to use while closely replicating the look and feel of the magnetic boards. It also had to interoperate with Epic.



Example of a real-time situational awareness application during development phase

"Digitizing the manual magnetic scheduling board is a disruptive innovation with huge potential, so it's critical that we deploy the best technology to get it right the first time," says Dr. Mohamed Rehman, Director, Transplant Anaesthesia, Department of Anaesthesiology and Critical Care Medicine at the Children's Hospital of Philadelphia. "CHOP is betting on Surface Hub to help change an entrenched culture around scheduling and managing surgical patients."

There are several reasons that CHOP chose Surface Hub for the POC. The large 84-inch Surface Hub display and Ultra High Definition 4K screen means it can display all four physical boards on a single screen, so staff can read more information on the display at one time and more easily from across the

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operating room. “Surface Hub is touch enabled, which means we can replicate moving the magnetic strips around just as we’ve been doing for years on the physical board,” says Rehman. “We are not asking the staff to do anything really different. I’m very hopeful for widespread user adoption.”

### **Better care, reduced costs**

In the existing system, only staff in the hospital’s main operating room can see the magnetic boards. Staff performing procedures requiring anaesthetic elsewhere in the hospital have to be notified by phone if there are any updates to the schedule that affect their patients. “For the existing system to work, you have to update both the magnetic board and the Epic system at the same time so everyone can see the notes. It’s difficult to do this when things get busy,” says Rehman. “Staff are frustrated by the gap between the manual and digital systems, which leaves us dealing with two versions of the truth. We are constantly making phone calls to check on the progress of surgeries and other non surgical anaesthetics. Manual workarounds like this take time away from patient care.”

The vision at CHOP is to deploy Surface Hub running a Windows 10 universal application, written by Qwaltec, that enables interoperability with Epic. CHOP will gain a single, interoperable solution that acts like a digital command centre, displaying updated patient data across the hospital. “Closing the gap between our surgical scheduling solution and Epic means we’ll be able to provide better care, boost knowledge transfer between shifts, and share medical results to the entire care team,” says Rehman. “I’ll be able to pick up the pen, add notes to Surface Hub, and know that they will update immediately in Epic. If I assign a different operating room for a patient, I’ll know that staff in that operating room will be ready and waiting. Ubiquitous access to real-time, accurate patient data across the hospital and on different devices, including tablets and mobile phones, is now within reach at CHOP, thanks to Surface Hub.”

The new integrated solution will eliminate the need for manual workarounds so clinicians can provide better care at reduced costs. “Any time you reduce delays and duplication of effort, you increase efficiencies that result in saving money,” says Bassham. “An ROI study performed by an independent third party, Decision Analysis Associates, demonstrates

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the value of the HOC approach. In a \$2 billion per year organisation, increasing operating efficiency by 10 per cent is projected to produce an incremental \$60 million per year annually in net patient service revenue following full implementation.”

And because the Surface Hub runs Windows 10, any functionality that Qwaltec develops for it will also be available for easy viewing on smartphones and mobile devices. So when a surgeon uses a smartphone or a mobile device in the operating room to add a patient note to Surface Hub, that information can be accessed by a colleague anywhere in the hospital, at home, from a smartphone, or wherever care decisions need to be made in real time.

“For a healthcare industry POC, you cannot get a better show-and-tell story than Surface Hub at CHOP,” concludes Rehman. “We will be using Surface Hub to upgrade from manual, analogue processes to digital patient management so the entire care team knows where the patient is, and can read an up-to-date medical chart, on any device, anywhere. That’s our vision and it’s going to be a game changer for hospitals with challenges around real-time situational awareness.”

## Microsoft Surface Hub

Surface Hub is a collaboration device designed to unlock the power of the group, powered by Microsoft software and services like Windows 10, OneNote and Skype for Business.

For more information about Microsoft Surface Hub, go to:  
[www.microsoft.com/surfacehub](http://www.microsoft.com/surfacehub)