

[CASE STUDY]

Customer: Children's Hospital of Philadelphia

Solution: A dependable mission critical wireless communication system quickly delivering over 50,000 messages to mobile clinicians each day.



CHILDREN'S HOSPITAL OF PHILADELPHIA CASE STUDY ASCOM RELIABLE WIRELESS COMMUNICATION WITH PROFESSIONAL MESSAGING IMPROVES EFFICIENCY

Introduction

The Children's Hospital of Philadelphia (CHOP) is one of the largest and most prominent children's hospitals around the world with a top ten ranking in the USA for every pediatric specialty area. As the nation's first children's hospital, CHOP has a historical reputation for innovation and excellence. The 470-bed facility in Philadelphia is home to world-renowned programs for cancer, cardiac care and fetal surgery.

The hospital admits more than 15,000 children every year and cares for more than 600,000 in their emergency and outpatient departments. CHOP is located in Philadelphia's University City neighborhood and since 2001 has undertaken a \$1.5 billion expansion to double the hospital's size. Due to its academic surroundings, CHOP has an unusually young nursing staff (average age is 24 years) with significant requirements for technology and usability.

The hospital's strategy aims to provide the best and highest quality of care by enforcing a blend of patient care, education and research within one organization. As with any hospital, efficiency can often be dramatically improved through better utilization and coordination of staff, patients and medical equipment. For a children's hospital, the coordination and information flow with family members is equally as important as the need to maintain a high level of privacy. An error in communication may result in devastating consequences. To combat this, clearly defined communication regimes and processes are critical.

Questions About Ascom Wireless Solutions?

Learn more about dependable Ascom solutions at www.ascom.us, or call our experts today at 877-71ASCOM to learn how we can improve the efficiency of your business.

[CASE STUDY]



"We needed a mission-critical communication system because we are dealing in life and death situations."

— Dr. Bryan Wolf, SVP and CIO
Children's Hospital of Philadelphia

A tranquil atmosphere is an important characteristic for any children's hospital as it aids in reducing stress for the children and parents alike. At CHOP, this fundamental requirement is combined with a commitment to use technology and processes that enable staff to respond to family needs effectively. This philosophy sets CHOP apart by making it flexible, accessible, responsive and sensitive. The Hospital needed a communication system that demonstrated these same traits.

The Challenge

The Hospital's Board of Directors (BoD) made a decision in 2007 to lease 2-way, wide area text pagers to reduce noise from the overhead Public Announcement system and improve patient privacy. The paging system was initially integrated with the nurse call, patient monitoring and other hospital-specific systems, leading many clinicians to count on the pagers as their primary communication system for critical patient information.

The paging system soon became a vital tool for thousands of clinicians; however, over time it became a great disappointment as the system failed to provide critical information in a timely manner. It also became unreliable in the early phase of deployment with too many queued messages due to issues associated with its system architecture, storms, and fire outages.

The key issue was that the hospital had limited to no control over the infrastructure as messages were sent over a shared public system that was not reliable for mission critical communications. The paging system had outages numerous times, causing stress and anxiety within the user group. The Hospital regularly had to shift its workflow into "crisis mode" which was highly stressful and disruptive to all users, patients, relatives and management involved.

In September 2008, it was decided that this fractured communication set-up was no longer acceptable. The management team formed the Mobile Communications Committee (MCC) which included both clinical and IT leadership to investigate other possible solutions and solve the communication issues. Dr. Bryan Wolf, SVP and CIO of CHOP, led the MCC on its mission to replace the 2-way paging system with something much more reliable.

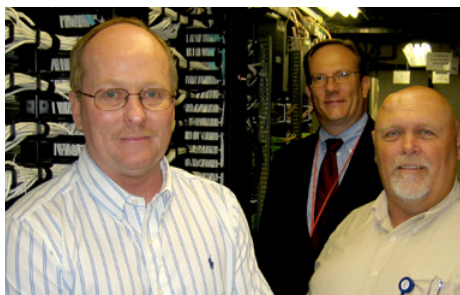
Dr. Wolf stated, "We had a very strong list of requirements for the new system. It needed to have less points of failure than the current 2-way paging system. Therefore, it needed to be an in-house system that was completely in our control, be bullet-proof and reduce our down time. We needed a mission-critical communication system because we are dealing in life and death situations."



"It is important that our staff be able to perform at a very discrete level even in the busiest of environments since we are surrounded by newborn babies, sleeping children and concerned parents."

— Leanne Cimato, RN and Clinical Manager
Children's Hospital of Philadelphia

CASE STUDY



“Once I was able to demonstrate that the Ascom IP-DECT system provided superior stability due to its dedicated system, interference-free radio and what the DECT technology is able to provide with regard to user density, voice and message capacity, then the joint decision was easily made.”

— Patrick McDevitt, Senior Systems Architect
Children’s Hospital of Philadelphia

After the negative experiences with the existing public paging system, the expectations of the new system were now set very high for reliability, ease of use, functionality and performance. The new system had to be on-site within the hospital’s own control for reliability, modifications, performance and coverage. It had to support 5-digit extension numbering to be compatible with the identification and addressing of users in the existing paging system.

The new system had to support 2-way text messaging since it provides the silent and concise communication needed to let vulnerable patients rest and at the same time support the Hospital’s patient privacy requirements. Initially, voice was not a key requirement but the MCC realized it could be a beneficial feature if available.

The technology chosen needed to be stable, future proof and provide service for many years to come without the need for complex upgrades. For reliability, it was essential that the new communication system be deployed on a separate network. CHOP did not want a network that required regular RF-surveys to identify potential interference from any other technology. The Hospital wanted a low touch network that was totally under its control.

The Ascom Solution

Initially, members of the IT department looked into IEEE 802.11 VoWLAN solutions since they were the most publicized systems available. Patrick McDevitt, Senior Systems Architect for CHOP, decided to broaden the search to alternative technologies in pursuit of the best solution for CHOP’s requirements. Patrick learned about Ascom’s IP-DECT technology and studied the benefits that it offered as over other VoIP solutions. McDevitt stated, “Lower radio frequency, better penetration, traffic isolation and zero to minimal interference were some of my top criteria when evaluating the Ascom IP-DECT architecture compared to other systems.”



“Ascom provided a system with bullet-proof coverage and interference-free communication compared to other existing technologies available in the market.”

— Mark A. Stauff, Telecom Manager, IS
Children’s Hospital of Philadelphia

CHOP decided to do a trial and evaluated a number of wireless device vendors including Ascom, Nortel-SpectraLink, Vocera and Cisco. The clinical and IT staffs agreed that Ascom offered the best total solution. Kathy Gorman, CNO at CHOP, was a particularly strong advocate for Ascom since she had used an Ascom system at her previous job with Children’s National Medical Center in Washington, DC. Patrick McDevitt went on to say, “Once I was able to demonstrate the superior stability of the Ascom IP-DECT system due to its dedicated, interference-free radio, higher and more reliable user density and its voice and message capacity, then the joint decision was easily made”.

Mark A. Stauff, Telecommunications Manager, Information Services explains, “Ascom provided a system with bullet-proof coverage and interference-free communication compared to other existing technologies available in the market. This was extremely important because the hospital has medical equipment already running on Zigbee, WLAN and other standards in the 2.4 GHz frequency band which meant putting voice on our WLAN quite vulnerable. The 5 GHz (IEEE 802.11a) WLAN band was also considered but the hospital had other medical equipment present on that band which could present a risk”. 802.11n was not considered since this would require a total replacement of the 802.11 wireless access points.

In March of 2009, CHOP decided that Ascom IP-DECT was the best solution but it lacked the funding to make an immediate purchase. The Hospital’s BoD decided in November of 2009 that CHOP had too many 2-way pager outages and immediately approved funding for a Proof of Concept Ascom IP-DECT system. The system worked as expected and in August 2010 a fully functional Ascom IP-DECT system with d62 handsets was rolled out to all care givers in the Pediatric Intensive Care Unit (PICU) as well as the care givers in the Gastroenterology (GI), Hematology & Nutrition Inpatient Unit of the Main building.

In about 5 weeks, all the Ascom BS330 Access Points were installed to provide 100% hospital-wide coverage. During this period additional departments were brought on-line at a rate of approximately 100 handsets per week. Patrick McDevitt commented that, “Complete radio coverage of the hospital’s 2,173,000 sq.ft. would not have been as easily configured with any other on-site wireless technology.” McDevitt explained, “The difficulty in this project was not the IP-DECT technology itself but figuring out how to improve the actual workflows for the clinicians.”

Mark A. Stauff stated that, “The deployment of the system was successful due to the involvement and collaboration among IS, clinical staff and management. We have kept the Mobile Communication Committee that was originally formed to overcome the acute needs of the new system. However, as these different competence areas meet on a weekly basis we are able to discuss improvements in the communication system and how we can further develop it and organize ourselves to better meet the clinicians’ needs and requirements. It has proven to be a very successful concept and a process that we want to continue to feed upon.”



Ascom Communication Solution Profile

- 2,012 d62 handsets
- 3,500 registered users
- 1,043 shared phone, 969 role based users
- 32 centrally installed Ascom IP-DECT gateways,
- 329 BS330 access points providing voice, message, alarm coverage
- Unite appliances for message routing, escalation, priority handling
- Report Manager for logging and audit trails
- Medamax and Mailgate for integration with existing nurse call system
- External Carrier Gateway for message delivery to and acknowledgement from GSM mobile phones

Leanne Cimato, RN, BSN Clinical Manager, PICU, says that her staff is excited about the new Ascom system. "It is extremely easy to use. It is important that our staff be able to perform at a very discrete level even in the busiest of environments since we are surrounded by newborn babies, sleeping children and concerned parents. We want the ability to control surrounding noise and do not want any loud ringtones going off. The Ascom system centrally manages ring signals, vibrator or any other profile settings of the Ascom wireless handsets so we can make sure that we reduce the disturbance to a minimum."

There are now over 3,500 staff members utilizing more than 2,000 Ascom d62 handsets throughout the hospital. Coverage is rock solid over the entire hospital area, including stairways, elevators and storage areas. Thirty-five of the d62 handsets are on standby status in the Hospital's Command Center in case of disasters. If a large scale disaster were to occur then those handsets would be handed out to key hospital personnel to coordinate between departments. The phones are also integrated with the Zettler Nurse Call system running Sortec Software. This connection allows the nurses to get alarms from the nurse call even while they are down the hall or in another room. The phones are also being used by all of the clinicians throughout the hospital to initiate a code call. In a patient emergency, a user presses the button on top of the Ascom phone twice and it automatically opens up a 2-way, hands-free speakerphone connection to the transport department. The transport department then sends out an immediate message to all members of the code team to alert them about the event.

The Ascom wireless handsets are preferred to any other communication devices by IT and the clinicians with a current usage rate of over 16,722 hours of voice traffic and over 1,472,000 text messages transmitted in the month of June 2011. The usage rate is still increasing and more users want to get a durable Ascom d62 handset as CHOP makes plans to extend coverage to other buildings and provide the non-clinical staff with handsets. Expansion plans include covering the ground floors of Colket and Abramson Research building along with the future Ambulatory Care Center and outside courtyard between the buildings.

Summary

This has been a long process for CHOP but the Hospital is convinced that it made the right decision by purchasing the Ascom IP-DECT system with d62 handsets. The system has proven to be much more reliable than the previous 2-way paging system. In fact, now when the paging system goes down it is no longer considered a "crisis situation" because most clinicians have already converted to an Ascom phone and they continue normal operations.

[CASE STUDY]

OPERATIONAL RETURN ON INVESTMENT	
RESULT	BENEFIT
Overall Improved Communication	More efficient use of time. Reduced ambient noise from PA-system and badges. Dedicated communication to individuals and teams. Sustainable positive impact to work-flow.
Reduced Overhead Paging	Patients and families now enjoy a more tranquil healing environment.
Reduced Message Delivery Time	The new system is now being utilized in more critical alarm and messaging applications where the previous system was too slow.
More Reliable Message Delivery Time	The new system is now being utilized in more critical alarm and messaging applications where the previous system was unreliable.
Fewer Calls To Department Secretary	Immediate access to colleagues through corporate directory and having the possibility to directly call and/or notify colleagues via text messages.
Fewer Handset Repairs	Better reliability, improved life-time and usage of devices with an overall lower cost.
Low Touch Network	Highly reliable dedicated network with reduced need for tuning and/or maintenance.
Improved System Up-Time	Less stress and anxiety among staff, patients and relatives



CHOP's commitment to use technology and processes that enable staff to respond to family needs effectively led it to select Ascom for its voice and messaging solution.

Overall, all users appreciate the effectiveness and reliability of their new Ascom d62 handsets. The d62s are functional and user-friendly which allows staff members to focus on their jobs at hand. The voice-capability of the handsets has proven to be a bonus over the 2-way pagers, allowing clinicians to communicate much more efficiently. Wireless phones have eliminated the need to page others and then wait by a fixed phone for a call back. Now, users call each other directly while they continue to provide care to patients.

CHOP is already planning other integrations to further enhance workflow improvements. CHOP is looking toward enhancing the messaging function with solid integration to patient monitoring and patient assignments. Another area of interest is improving the messaging communication to off-site staff traveling and working among CHOP's many locations. The Hospital also plans to install the Ascom Unite messaging client on some staff member's iPhones and Android devices to keep them connected and informed of alerts and messages.

Dr. Wolf refers to CHOP as a "Perfectionist Organization" and it shows in everything that it does. Members of the clinical and IT staff continue to work with Ascom as a partner to continually improve both the solution and the processes so that they provide the excellent patient care for which CHOP is known. The MCC continues to meet every Friday where communication and the increased usage of the Ascom system is always a topic on the agenda. CHOP has already been instrumental in identifying improvements that have been implemented on the Ascom handsets and Ascom looks forward to working with CHOP for years to come.

About Ascom

Ascom is the Americas' market leading developer of workplace wireless communication solutions providing system users with greater freedom of movement, better service and increased safety. Our research and development focuses on products and solutions for our core business of on-site wireless communication. We are committed to providing the Americas with products that are unique, durable and innovative.