



Phoenix Children's Hospital Improves Patient, Family, and Clinician Experience — One Nudge and Text at a Time

A Single Communication Platform for the Entire Care Team Delivers It All — Calls, Texts, Consults, Alerts, Nudges, and Hands-Free Communication

At Phoenix Children's, an infant chemotherapy patient is ready to go home. The discharge order is placed, triggering a nudge notification that is sent to the patient's nurse on his or her mobile device. The nudge includes a reminder to collect the patient's home medications and the mother's breast milk. It also includes the name of the drug and the name of the patient. The nurse knows exactly what needs to be done to prepare for a smooth transition home.

A Leading Provider of Neonatal Care

For more than 25 years, Phoenix Children's has been providing hope and healing to thousands of children and their families. It is one of the largest children's hospitals in the country and a leading provider of neonatal care.

Phoenix Children's continues expanding, adding staff, developing new programs, and implementing the latest technologies to meet the needs of its growing community.

In 2002, Phoenix Children's opened Arizona's only licensed freestanding children's hospital and in 2007 renovated its newborn intensive care unit (NICU). One year later, the hospital broke ground on an 11-story medical center.

Today, Phoenix Children's boasts a medical staff of nearly 1,000 pediatric specialists across more than 75 pediatric subspecialties. As the hospital's footprint has expanded and the number of care team members has increased, its leaders have always recognized that effective communication is an indispensable element of delivering patient-centered care.

An Integrated Communication Solution for Patient-Centered Care

When Phoenix Children's renovated its NICU in 2007, clinical and IT leaders wanted a way to provide wireless communication technology integrated with clinical and operational systems that would work over the hospital's existing LAN. They wanted a communication solution that could connect to the NICU's patient monitoring system and enable nurses to hear alerts outside each patient room.

The leaders had experience with Vocera® communication solutions at the hospital's main campus, where the care teams were using Vocera technology to communicate and collaborate. The solution featured the Vocera Badge, a wearable, hands-free communication device that lets care teams communicate directly and instantly. Users can connect from anywhere with the right person simply by saying the name, function, or group of whom they want to reach.

The staff "loved it," Michael Biegen, RN, IT Supervisor at Phoenix Children's said of the Vocera solution. "It definitely decreased the amount of footwork nurses and physicians needed to do in a day to connect and communicate about patient cases. Staff had a very positive experience with it," Biegen said. "Plus, Vocera helped us create a quiet, healing environment for our patients."



"The entire ecosystem of messaging and communication at Phoenix Children's is fundamentally built on Vocera. It's not only a valuable tool for our inpatient services; it is also used in surgery, respiratory, outpatient, IT, and housekeeping. Our interpretation and support services also use the solution."

David Higginson

Executive Vice President, Chief Administrative Officer, Chief Information Officer at Phoenix Children's



With their Vocera solutions, clinicians and support staff can choose the mobile device they prefer or what works best in the situation. Many nurses choose the wearable Vocera Badge because it lets them communicate hands-free, while most physicians and many nurse leaders favor using a Vocera smartphone app for secure texting and calling. Vocera software also runs on a web console option for staff who need to be at a workstation.

“The entire ecosystem of messaging and communication at Phoenix Children’s is fundamentally built on Vocera,” said David Higginson, Executive Vice President, Chief Administrative Officer, Chief Information Officer at Phoenix Children’s. “It’s not only a valuable tool for our inpatient services; it is also used in surgery, respiratory, outpatient, IT, and housekeeping. Our interpretation and support services also use the solution.”

The hospital’s Vocera solution is deeply ingrained into clinical and operational workflows.

Caregivers’ Lives Made Easier – One Nudge at a Time

When managing multiple patients and competing priorities, a nurse’s cognitive load can max out halfway into a shift. So, the IT Team and the Nursing Practice Council at Phoenix Children’s are collaborating to make nurses’ lives a little bit easier with simple nudge notifications.

Together, nursing and IT identified, designed, and implemented more than 10 nudge notifications in less than three months. When the Nursing Practice Council requests a new nudge, it takes IT a week or less to set it up and integrate it into the workflow. Nudge notifications are triggered by a specific event and sent automatically to a patient’s nurse or care team on their mobile device or at their workstation. Intelligent nudging removes the hassle of having to track down information, improves clinical workflows, and increases operational efficiencies while saving valuable resources and personal cost for patient’s families.

Nudges for Pharmacy

Nurses at Phoenix Children’s often spend time following up on pharmacy orders and tracking the arrival of orders in the med room. A simple nudge lets them know the order is in process, out for delivery, or delivered. This saves countless calls and disruption to nurses and pharmacists.

Nudges for Surgery

Nudges are also invaluable when surgery times change, which often happens as emergencies occur. Keeping nurses up to date on last minute changes is a challenge. An automated, proactive nudge about a change in a patient’s surgery can prevent confusion and stress, and ensure patients are properly prepped.

“Nudge notifications are a proactive way to remind busy care team members about patient-specific events at the right time,” said Biegen. “Nudges are more than alerts, they provide contextual patient information, so nurses know exactly what they’re supposed to do.”

Nudge Reminders for Pain Medication with Automatic Updates to the EHR

Nudges also enable nurses to close the loop on important tasks and documentation. After administering pain medication, nurses are required to document pain scores with 45 minutes. If the score hasn’t been documented in the EHR within that timeframe, a nudge is sent to the nurse, who can respond directly to the notification on his or her mobile device with the pain score, which will automatically update in the EHR.

Nudges to Collect Home Medications and Breast Milk

An especially valuable nudge notification is used when a patient undergoing chemotherapy comes to the hospital with a home medication. The drug must be stored in a refrigerator. During discharge, patients and parents are often anxious and ready to go home. Discharge can be a stressful process with lengthy instructions and lots of questions and answers. Many caregivers may be involved, increasing the risk of home medication being forgotten in the refrigerator. By the time the patient and parent arrive home and realize they don't have the medication, it's likely the hospital refrigerator has been cleaned out and the expensive medication discarded.

With Phoenix Children's nudge notifications, a patient's home medications are entered to the EHR with rules and routing instructions which are set at hospital admission. When the discharge order is placed, a nudge notification is triggered and sent to the patient's nurse on his or her Vocera Badge or smartphone app. This nudge reminder includes the name of the drug and the name of the patient, so the nurse knows exactly what is supposed to be done, and for whom.

As with home medications, breast milk should not be left in a hospital refrigerator. Using intelligent alerting and escalation rules like those used for the medication nudge, Phoenix Children's is ensuring that mothers receive their breast milk before leaving the hospital.

Hassle-Free Communication for Physicians and Nurses

Nudge notifications are great for nurses, while secure texting is ideal for physicians. And when nudges, alerts, texts, calls, consults, and hands-free communication can all be done using one system, that is good for the entire care team, and the IT Department is happy, too. Vocera provides the single platform for Phoenix Children's.

"I regularly use the Vocera secure texting app on my personal smartphone to communicate with nurses," said John Hartley, MD, Pediatric Hospitalist at Phoenix Children's. "I prefer to communicate with nurses through a Vocera text message because I can respond as soon as it is convenient and not be interrupted if I'm with a patient or talking to a family."

Unlike with a missed phone call or traditional page, secure texting provides patient context to physicians. It also eliminates phone tag, which is time consuming and frustrating.

Secure Texting with Patient Context

"Before Vocera secure texting was introduced, I would have to return a page by calling the nurse back," said Dr. Hartley. "If the nurse was busy or in another room, I would be on hold for several minutes. With the secure texting solution, I can understand and respond to nurses' requests quickly. I simply read the message and patient context, take action, and respond to the nurse to let him or her know the task is complete."

Physicians and nurses alike benefit from communicating with each other using the same system.

"Our nurses have been using Vocera technology for years, so it has been very convenient for them to be able to communicate with physicians the same way they communicate with one another routinely," said Dr. Hartley. "We've wanted a platform like this for years that would allow physicians to communicate with the rest of the care team at Phoenix Children's."

Contact Any Physician or Nurse Anywhere, Instantly

"What I like the most about the Vocera solution is the ability to reach any care team member without having to stand at a nurses' station on the phone," said Andrea Polach, RN, Nursing Director at Phoenix Children's. "We have a large campus and Vocera secure texting has been a great addition because we can contact nurses or physicians anywhere, as long as they are logged into the Vocera system on their phone."

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Send Photos – Securely

In addition to enabling, calling, alerting, and secure texting, the Vocera app enables nurses and physicians to securely send photos to other members of the care team. For example, a nurse looking for additional information or advice on a patient with a severe wound can easily send a photo of the wound to the on-call wound specialist for expert assessment. Polach finds this functionality valuable and the user interface and navigation easy. And a photo taken with Vocera secure software is not saved to the phone.

“We love the ability to get expert feedback or a second opinion quickly on a patient by sending a secure image through Vocera secure texting,” explained Polach. “I also particularly like the ability to search for messages – the interface makes it simple to find information.”

Strong Partnership and an Adaptable Platform for Unified Communication

“I attribute a lot of our success in rolling out Vocera secure texting to the innovative workflows that David Higginson and Michael Biegen have provided to us,” said Nursing Director Polach.

Chief Information Officer Higginson and IT Supervisor Biegen will continue innovating in partnership with physicians, nurses, and other care team members. More nudge notifications are in the works and more interoperability with clinical systems is mapped out for the future.

“I’ve watched Vocera technology grow with us over the past decade and a half. The adaptability of the platform, and the progress we’ve made over the years to get most of our staff communicating through this one tool, is outstanding,” said Biegen.



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Michael Biegen, RN

IT Supervisor at
Phoenix Children’s

For More Information

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