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## **A Win-Win Wireless Plan**

As the mobile device market becomes saturated with the latest and coolest gadgets, the CIO is tasked with cutting through the hype

by Kate Huvane



Frank Clark, Ph.D.

The recent proliferation of mobile clinical point-of-care applications presents several significant challenges for the CIO. As more and more devices become available and clinicians are continuously courted with the latest magic bullets, CIOs are faced with tough situations, like how to determine which devices — and how many — to purchase in order to appease clinicians. And then there are the issues of how to support multiple applications on a wireless infrastructure, and how to anticipate and manage workflow changes.

Some have likened it to a juggling act, where the CIO stands at center stage trying to balance the needs and preferences of the clinicians with what is feasible, both from financial and logistical standpoints.

One of the biggest challenges, according to Frank Clark, Ph.D., CIO and vice president of information technology at Medical University of South Carolina (MUSC, Charleston, S.C.), is that there is so much disparity from one clinician to the next when it comes to personal preferences. And it isn't simply an issue of nurses and other clinicians gravitating toward one type of device while physicians liking another.



Marc Holland

"It depends on the individual," says Clark. "Some nursing units will have a predilection toward a cart or computer on wheels, and some like the handhelds. Some like to chart and assess in the room, others like to go outside. And physicians are the same way; there's no one type of appliance that's favored by all."

Clinicians' preferences also vary according to their setting, he says. At MUSC, which includes two adult hospitals, a children's hospital, and a psychiatric facility in its 600-bed system, Clark has found that the clinicians at each facility practice medicine — and therefore document care — differently. And the discrepancies aren't just seen from one facility to the next, but also from one unit to the next, making it next to impossible for a CIO to predict what types of applications to order.

"Sometimes we feel a nurse is a nurse, but that's not the case. What type of care someone practices has an impact on their preference of devices and how they deliver and administer care to the patient," says Clark.

As a result, Clark, who has been CIO at MUSC for five years, chose to deploy a variety of devices including carts, wall-mounted devices, and traditional PCs. Most recently, the health system implemented the C5 Mobile Clinical Assistant tablet from Motion Computing Inc. (Austin, Texas), which will integrate with San Francisco-based McKesson's Horizon Expert Documentation system for nursing documentation, and Horizon's AdminRx for bar coding medication administration. "We've tried to meet the clinicians' requests, and to that end, we've deployed a mixture of devices," says Clark. "I think you just have to estimate the total number of devices on the front end, but then try not to get into details as to the mix of how many fixed devices, carts, tablets and PDAs."

The strategy he has employed is not uncommon; in fact, more and more facilities are opting to offer multiple applications, even within the same units.

"There's enough opportunity for all of the devices that are currently being marketed," says Marc Holland, analyst, Health Industry Insights, an IDC company (Framingham, Mass.). "You have to look at who is the end user because what is appropriate for a nurse is not necessarily appropriate for a physician, and neither of those may be appropriate for one or more various professionals like phlebotomists or physical therapists," he explains.

Along those same lines, he adds, what is appropriate in an office setting or ambulatory setting may not be appropriate in an inpatient setting.



Tim Stettheimer

The solution, it would seem, is to supply applications to fit the varying needs of clinicians. The challenge here, says Clark, lies in planning and budgeting not just for different types

of devices, but also for the right quantities of each device.

"You don't want caregivers to have to wait in line for a device, particularly clinicians who are rounding," says Clark. "And you want to make sure the devices are accessible. It's a numbers game. Not only are you trying to have enough; you're trying to have the right mix of devices, and we've had to go back and refine and order additional devices to make sure of that."

Things can snowball quickly, says Holland, particularly if a CIO doesn't want to say no to devices that are favored by particular groups of clinicians. But, he says, "If you say yes to all of those, then you wind up needing to support five, six, or seven different devices."

And this, aside from stretching the limits of the CIO budget, can also wreak havoc on a facility's wireless infrastructure.

## Having the infrastructure

The first consideration in rolling out multiple point-of-care devices, says Clark, is to ensure continuous coverage — a task that can be quite daunting.

Making sure that the wireless network is up and running with no dropped connections and timely responses has been challenging, according to Clark. His staff has had to add additional access points and antennas, and has experimented with using different bandwidths and levels.

The complexities, however, don't stop there.

"The network cards in the tablets are different from those in the computers on wheels," says Clark. "It's very complex; people who aren't close to it don't realize just how complex all of this is. The wireless piece is just one small component of a plethora of different technologies that all have to come together, hopefully seamlessly, to make this work."

According to Holland, wireless infrastructure has come a long way since the early days, where there was no coalescence of standards, and some devices didn't communicate well, or even at all. Now, he says, devices are designed to accommodate multiple frequencies and signal technologies, and the wireless infrastructure can do the same.

"The problem, which the accommodation of the infrastructure really doesn't address," says Holland, "is the architecture of the infrastructure. If you didn't put in enough wireless access points, it doesn't matter what signaling technologies you can accommodate, you don't have coverage."

This is where retrofitting is often necessary to prevent the occurrence of dead spots, which can turn a clinician against mobile applications faster than anything else.

Holland explains that "if you're going to provide a clinician with a device that's going to substitute for whatever the manual process may have been, it's imperative that they remain connected while they're documenting, recording, or looking up information. If they lose connectivity, how many times does that have to happen before they say, 'This

is really not a viable alternative to what I am comfortable and used to," he says.

It's for this precise reason that many CIOs offer stationary computers in addition to mobile devices. This tactic enables administrators to avoid potential connectivity pitfalls, and to provide clinicians with an alternative option.

Tim Stettheimer exercises this strategy at St. Vincent's Health System in Birmingham, Ala., where he serves as senior vice president and CIO.

"In one of my hospitals we have computers in every single patient room, and that's how we provide bar code medication administration capability. We also have a completely saturated wireless environment where clinicians can use a tablet, cart, or even a PDA to get information on patients or to place orders," says Stettheimer, who also serves as regional CIO and national advisor for clinical information system development at Ascension Health System, a 77-hospital network based in St. Louis, Mo.

The stationary computers all utilize the same operating system of software and can be managed remotely. If a computer or bar code reader has issues, both can be quickly replaced without loss of information or disruption of flow, he says.

"Wherever we can standardize on the technical side, we do. We also try to standardize on wireless tablets and wireless carts that we provide for use," says Stettheimer. It's not always easy to do that, however. In fact, he says, "The reality is the manufacturers don't stay static; they're continually updating and upgrading their equipment. We have to be cautious as we deploy a new model or a new version of a new model."

Holland agrees, advising CIOs to use caution when dealing with specialized devices which often work in a vacuum.

"A lot of these devices are designed to work with one or just a couple of specific applications from a couple of specific vendors, and aren't necessarily designed to work with a different EMR product," says Holland.

Before purchasing a product, CIOs need to confirm that the independent software vendor supports it and will continue to support it. They also must be sure that the device is installed with the software necessary to communicate with the application that it is being designed to maintain.

"CIOs have a limited amount of money to spend, and they're looking to spread that money over a number of different processes that all lend themselves to this at the least cost, the most flexibility, and the lowest support cost," says Holland.

## The human element

The final — and perhaps most important — piece of the puzzle comes in understanding the human element.

According to Stettheimer, "The biggest issues with mobile point of care are not technical, but to get people to use this stuff. If they don't like the point-of-care opportunities you give them, they won't use them, and you've just wasted a whole lot of money."

In order to get clinicians on board, he says, it is critical to have a deep understanding of

the nursing and physician populations, and be able to sniff out literacy issues.

"You have to understand and be in tune with the culture you're working in, because culture can eat the best-laid strategy plans and deployments for lunch," says Stettheimer. "You can introduce change and basically what will happen is ripples will go out and the water becomes calm again, and you can't even tell you made a change. We need to understand where we might meet resistance and where we might find champions; beyond just the executive champions, we need to understand who are going to be the early adopters."

One way to accomplish this is by developing clinical excellence groups such as those at Ascension, which are comprised of clinicians, a chief medical officer, a chief nursing officer, and a vice president of clinical excellence—all of whom work to promote the best interests of clinicians throughout the health system. Ascension also has a national clinical excellence team made up primarily of clinicians from various ministries throughout the 20-state network.

Through this initiative, Stettheimer and Mary Paul, vice president and CIO at Columbia St. Mary's in Milwaukee, are able to oversee the clinical system efforts across the health system. More importantly, says Stettheimer, they can serve as resources, providing input and working to match the information systems efforts with clinical priorities.

Staying in tune with the needs of clinicians across the organization, says Stettheimer, is a vital part of his role.

"The expectation has started to change that the CIO is not just a technical expert but a participant in the executive discussions," he says. "CIOs need to be well-versed in clinical discussions, operational discussions, and strategic discussions, that creates a higher expectation," touts Stettheimer.

One of those key expectations, says Stettheimer, is the ability to move culture, a step that is often overlooked, but is necessary when migrating clinicians onto an automated system. "You can move culture; you just have to respect it," he says. One of the keys is recognizing that clinicians who have been in the field for years or even decades hold strong opinions about the way care should be practiced. "It's something you have to be able to recognize, plan for, and deal with."

Finally, before mobile applications are purchased or piloted, the executive team needs to make sure that the necessary groundwork has been laid. This, says Stettheimer, is where executive champions are a key element of success, and where the CIO role as an enabler becomes critical.

"You have to prepare the ground a great deal, and it shouldn't be the CIO who is primarily driving this effort," he says. "The CMO and the CNO should be the executive champions for any kind of deployment of devices for clinical support. You can be their partner, but you better have that lined up, and they better pretty much own the idea as you move forward," opines Stettheimer.

It may be a lot to take in, but following the advice of CIOs who have been through the experience is crucial. As Stettheimer says, it isn't going to get any easier as the industry surges ahead.



"There is no other industry on earth that is as information-intensive and complex as healthcare," he says. "And it's going to continue to exponentially accelerate. So you have to have all the pieces in place, and make the leap."