



Deploying iPhone for Nursing Care

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Overview

Within healthcare institutions, nurses need to be able to communicate quickly and efficiently with patients, families, doctors and other care teams. They also need to perform a range of tasks to support their patients, such as coordinating with the broader care teams, responding to alerts and alarms, ensuring compliance with medication administration regulations, and documenting patients' vitals. Deploying iPhone with third-party iOS apps can make it easier for nurses to accomplish these tasks, which can help them deliver the best care possible to their patients. Nurses can also use App Store apps to access clinical reference materials and fulfil continuing education (CME/CE) requirements straight from their iPhone devices.

This document is intended to help hospital leadership teams understand the benefits of using iPhone with iOS apps to support nursing care, and the technical considerations involved in deploying for this purpose.

Benefits

Using iPhone as a multipurpose device

Nurses are dedicated to delivering the best possible patient care. But there's often friction involved in daily routines that can prevent a nurse from focusing directly on the patient. Carrying several single-purpose devices — such as VoIP phones that deliver voice-only functionality or rolling in a Workstation on Wheels for barcode scanning of medication — can make managing daily tasks challenging.

With iPhone and iOS apps, nurses can accomplish much more than they can with a single-purpose device, including tasks like:

- **Medication administration.** By scanning both patient and medication barcodes, nurses can ensure that they're administering the right medication in every case. If a dose is being administered for the first time, the nurse is prompted to provide patient education.
- **Specimen collection.** While collecting specimens, clinicians can use iOS apps on iPhone to receive orders, scan barcodes, print specimen labels and document that the collection has been completed.

- **Mobile documentation.** Documenting vitals and input/output (I/O) at the bedside can be more efficient and accurate, and gives nurses more time to interact with patients.
- **Wound documentation.** Using the iPhone camera and a secure third-party nursing app, nurses can capture the progress of a wound by characterising its type, size, colour and exudate, then document and send the images to the EMR with patient symptoms.
- **Secure communication.** Third-party messaging apps on iPhone combine secure messaging and VoIP calls to help nurses reach the care team, both inside the hospital and remotely, whilst maintaining confidentiality. These apps can integrate with the staff directory and schedules, so nurses are able to search for members of the care team by role, staff assignment and current location on their rounds.
- **Alert and alarm management.** Using apps on iPhone, nurses can receive instant alerts and alarms from patient monitoring systems. Alerts and alarms can be customised to the care unit and tailored to hospital initiatives and safety protocols.

Leveraging the iOS platform

Powering every iPhone is iOS, Apple's advanced mobile operating system. The iOS platform is the best choice because of its comprehensive security, integrated hardware and software, vast library of existing apps for healthcare, simple yet scalable deployment, and complete device management options.

Today's successful healthcare institutions view their mobile platform and its devices as mission-critical tools — and their selection as an essential enterprise decision. When you invest in iPhone and the iOS platform, you're not only choosing the best devices for the current deployment, you're also considering the potential for future innovation across multiple use cases.

To learn more about how Apple technologies and third-party apps are helping healthcare providers, download [Transforming Healthcare](#).

Deployment Considerations

Successful deployments typically have strong executive sponsorship as well as a clear understanding of technology solution requirements. Once your organisation is aligned on your mobile strategy, Apple can help you assemble a team of providers that will help set up your infrastructure and deploy your devices. This section is intended to highlight best practices and learnings from successful deployments.

Align key stakeholders

As you prepare to introduce iPhone as the core of your mobile nursing care strategy, it's critical to engage both clinical and IT leadership to develop a common vision for success. Many institutions find it helpful to assign a senior-level clinical sponsor, such as a nurse executive. This can allow your organisation to stay focused on the end-user while also helping to get other stakeholders to buy in both philosophically and financially.

Then assemble a team dedicated to your initiative, focused on being champions for successfully bringing mobility to your organisation. Your team should include representation from nurses, doctors, IT infrastructure and other services (for example, pharmacy, lab and transport).

Leverage Apple programmes and MDM

Setting up and deploying iPhone throughout your hospital environment has never been easier. With the following key programmes from Apple and a third-party mobile device management solution, your organisation can easily deploy iPhone and content at scale.

- **Mobile device management (MDM)** allows you to configure and manage your devices, and wirelessly distribute and manage your apps according to your enterprise security policies.
- **The Device Enrolment Programme (DEP)** automates enrolment of Apple devices into your MDM solution to streamline deployment.
- **The Volume Purchase Programme (VPP)** lets you purchase apps and books in bulk and distribute them to users.

These programmes and tools are covered in greater detail in the [iOS Deployment Overview for Business](#) and the [iOS Deployment Reference](#).

Select a solution provider

Solution providers can help support key nursing tasks through targeted iOS app solutions and robust integration services.

Evaluate potential app solutions

A variety of iOS app solutions support tasks related to nursing, including secure communications, alerts and alarm management, and medication administration. Companies offering app solutions for nurses include PatientSafe Solutions, Epic, Voalte, Kainos Evolve, Mobile Heartbeat, Vocera and Vitalpac.

In evaluating a potential app solution, consider the following:

- What specific tasks and workflows does each app solution support?
- Does it support soft-scanning or is a sled required?
- Does the voice solution integrate with your communications platform and network?
- Is the app intuitive and easy to learn for new users?

Sign up for integration services

Many solution providers can supply your hospital with a wide range of integration services, including project management, clinical leads and technical oversight. They can also offer live support options such as clinical process redesign, clinical device integration, education planning, rounding post-implementation, app configuration, troubleshooting and upgrade management.

Plan your network infrastructure

Every iPhone is equipped with mobile data capability. But to avoid mobile data charges, iPhone automatically sends and receives data via Wi-Fi when a Wi-Fi network is available. Having consistent and reliable Wi-Fi network connectivity in the hospital is essential for optimal iPhone functionality. Within the hospital environment, sensitive healthcare data also demands a secure Wi-Fi deployment such as WPA2 networks with certificate-based authentication.

Nurses and other care team members are inherently mobile as they move around the hospital. Ensuring that users move seamlessly between access points on the same network while roaming is critical to delivering a good user experience, especially for voice and video communications. As you plan your network's coverage and capacity, take into consideration the physical layout of the hospital and the ways people interact in those spaces.

Assess your network performance

Your hospital's Wi-Fi network should be able to support multiple devices with simultaneous connections from all users throughout the entire facility. It's critical to assess your current WLAN environment's readiness for deploying iOS devices.

To learn more about recommended best practices on Cisco network performance, download [Enterprise Best Practices for iOS Devices on Cisco Wireless LAN](#).

Enhance your Wi-Fi network for iOS devices

Having a consistent, dependable wireless network is critical for real-time data access. It's also essential for setting up and configuring iOS devices in your hospital. If your institution uses Cisco products running AireOS 8.3 or later, Apple and Cisco have optimised the network experience for devices running iOS 10 or later. In addition, the Content Caching feature of macOS High Sierra can speed up access to your hospital's most frequently requested apps and updates.

- **Optimised Wi-Fi connectivity.** Because hospital wireless networks often need to support a high volume of traffic, optimising Wi-Fi can have a significant impact. As staff move around the hospital, iOS devices must be able to transition quickly between wireless access points without dropping their Wi-Fi connections, especially if VoIP calls are being made. iPhone must

also have a reliable connection to the best available access points to provide staff with real-time access to critical health and medication data.

Cisco enterprise wireless networks can automatically recognise iOS devices, enabling intelligent and efficient roaming to deliver high performance. Devices running iOS 10 or later and Cisco wireless access points perform a unique “handshake” that allows the devices to intelligently choose access points to connect to and transition quickly between them.

- **Prioritised business-critical apps.** By using iOS apps that developers have optimised with Quality of Service (QoS) tags, IT managers can prioritise mission-critical apps to ensure that they get the optimal level of performance. Through app prioritisation, critical health apps used by nurses, doctors and other caregivers get the best network resources to run optimally. For example, a nursing VoIP app can be given priority over a streaming film being watched by a patient on the same network.

Talk to your Apple or Cisco representative to get the latest information about these networking features. To learn more, visit https://www.cisco.com/c/m/en_uk/solutions/strategic-partners/apple.html.

- **Content Caching.** An integrated feature of macOS High Sierra, Content Caching stores a local copy of frequently requested apps from Apple servers, helping to minimise the amount of bandwidth needed to download content on your network. Content Caching speeds up the download and delivery of software through the App Store, Mac App Store, iTunes Store and iBooks Store. It can also cache software updates for faster downloading to multiple iOS devices. Content Caching includes the tethered caching service, which allows a Mac to share its Internet connection with many iOS devices connected via USB.

Learn more about [Content Caching](#).

Work with your Apple Authorised Reseller

A key step in a successful deployment is to select an Apple Authorised Reseller to act as a trusted adviser and coordinator of many of the other deployment activities. Your reseller will help you choose the appropriate iPhone for your institution’s deployment, and provide various financing and support options from Apple and others. Once you choose the iPhone model, the solution provider will help you select the appropriate accessories for your clinical and operational needs.

Choose the right iPhone for your clinical and network needs

When selecting an iPhone device for deployment, take into consideration the different technical specifications of the various models.

- **Wireless capabilities.** iPhone X, iPhone 8, iPhone 8 Plus, iPhone 7, iPhone 7 Plus, iPhone 6s and iPhone 6s Plus all support MIMO (Multiple Input, Multiple Output) technology. This allows them to use multiple antennas for faster data rates, improving the reliability of the network connection. This is especially critical for VoIP, where interruptions in connectivity can result in dropped or missed calls.
- **Screen size.** Some hospitals and nurses may prefer the larger screen size of iPhone X (5.8 inches diagonally) or iPhone 8 Plus, iPhone 7 Plus and iPhone 6s Plus (5.5 inches diagonally), as they allow more information to be displayed on one screen. iPhone SE (4 inches diagonally) offers iPhone power at the smallest form factor. In between these two options, iPhone 8, iPhone 7 and iPhone 6s offer a popular compromise between size and weight. iPhone 8 weighs just 148 grams, yet offers a 4.7 inch Retina HD screen. For comparison, single-purpose devices for nursing can weigh 40 per cent more and have a smaller screen.
- **Processing power.** iPhone X, iPhone 8 and iPhone 8 Plus run on A11 Bionic, the most powerful and smartest chip ever in an iPhone. iPhone 7 and iPhone 7 Plus offer the powerful A10 Fusion chip with 64-bit architecture and embedded M10 motion coprocessor, while iPhone 6s, iPhone 6s Plus and iPhone SE feature the A9 chip and M9 motion coprocessor.
- **Camera resolution.** All devices offer a 12-megapixel camera. This camera has been used by some app vendors, such as PatientSafe Solutions, for soft-scanning, allowing them to do barcode medication administration without the need of a specialised sled.

Learn more about [iPhone technical specifications](#).

Select accessories for your iOS devices

Your iPhone deployment will probably include sled and storage accessories that provide charging, protection, barcode scanning and device storage solutions.

- **Sled.** This accessory houses iPhone like a case to add additional device functionality. A basic sled like the mophie juice pack provides extended battery life and added protection. Other sleds can offer mobile barcode scanning for apps that don't support soft-scanning using the iPhone camera. AsReader is a modular barcode scanner that uses a magnetic connector to enable efficient charging. The AsReader battery powers the scanner, which allows the iPhone battery to last longer. The device's charging station charges both the scanner battery and iPhone.

Increasingly, solution providers are supporting soft-scanning using the built-in iPhone camera, which reduces the cost of having a dedicated barcode scanner.

- **Storage.** A storage unit serves a dual purpose — charging iPhone devices and sleds, and securing them when not in use. Solutions such as Voalte have their own locked box. Others, like the Griffin MultiDock, feature an open charging station that can be stored securely in a locked supply cupboard.

Establish a refresh cycle for your iOS devices

iOS also supports devices that were released several years ago, giving iPhone a huge advantage from a return-on-investment perspective. But, as many hospitals have learned, there are benefits to establishing refresh cycles for mobile devices (for instance, every two to three years). Achieving regular technology upgrades through leasing reduces compatibility issues and minimises the costs associated with having multiple generations of equipment. In addition, leasing equipment often means paying less over time than an initial cash purchase.

If you're looking to finance new iPhone devices, Apple offers many flexible options. Learn more about [Apple Financing](#).

Sign up for AppleCare support

For healthcare institutions that are deploying iOS devices, it's strongly recommended they purchase 24/7 technical support at the time of deployment. This helps ensure that Apple resources are available for troubleshooting for your mission-critical communications or in the absence of additional IT resources. AppleCare programmes help protect iOS devices, deliver advanced support for IT and allow companies to service devices onsite. For companies looking for complete coverage, AppleCare for Enterprise offers all of the above, and more — including onsite support delivered by IBM Global Technology Services, a worldwide Apple Authorised Service Provider.

Learn more about [AppleCare programmes](#).

Summary

With iPhone and iOS apps, nurses can provide care easily and intuitively, while staying focused on patient interactions — much more than they can with single-purpose or stationary devices. A successful iPhone deployment for nursing will include app selection, integration services, network evaluation, and device and accessory selection. Apple can provide deployment support through financing and extended care programmes. By streamlining how nurses communicate with staff, access the EMR, receive alerts and administer medication, iOS apps on iPhone help reduce friction and increase productivity and overall patient care.