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# At the Bedside White Paper

## Top 10 Considerations for Mobile Bedside Point-of-Care Systems

1. **Simpler the Better** – Historically, health care software has not been developed with the end user in mind (e.g. 55 year old nurse with a severe case of technophobia), as a result many well-intended IT projects have failed to produce meaningful results. Bedside applications should feature a graphical step-by-step user interface that leads the caregiver through the care delivery process. Multiple settings should ensure that the application can be configured to match the hospital's standard operating procedures while displaying only the most relevant information. When caregivers are immediately comfortable using the system, it will lead to higher compliance and a reduction in training time. In the end, the point of deploying a bedside solution is for people to use it.
2. **No Wireless, No Problem** – Hospitals are full of electro-magnetic interference (e.g. patient monitors, refrigerators, and other equipment) which causes communication problems for mobile devices on the wireless network. Although the wireless signal strength may be excellent, mobile devices may have difficulty sending and receiving packets of information. Bedside systems that rely on wireless to complete critical steps (e.g. authenticating users, retrieving critical patient information, querying the hospital information system for product information) will often stop responding when unable to communicate with the server, resulting in confused and frustrated nurses which may delay or prevent patient care. Mobile applications that use 2D barcodes (e.g. on caregiver IDs, patient wristbands, product labels) contain all the necessary information to complete a transaction successfully with or without a wireless connection. At the end of each patient interaction, if wireless is still unavailable, the records should be encrypted and stored on the device. They can then be uploaded to the server automatically when the mobile device is placed back in the cradle for charging. Nurses should never be delayed, frustrated or inconvenienced in their delivery of care.
3. **One Scan, One Step** – Another advantage of using 2D barcodes (e.g. on caregiver IDs, patient wristbands, product labels) is that each step of the process requires only one scan. Most bedside systems use linear barcodes that force users to scan multiple barcodes (e.g. to be compliant with JCAHO or gather enough information to complete the task). Deploying 2D barcodes ensures that nurses are never delayed, frustrated or inconvenienced in their delivery of care.
4. **The Two Rs (Reliability and Redundancy)** – 2D barcodes also incorporate a level of redundancy not available in linear barcodes. Even if a 2D barcode is partially obscured or

damaged, typically it can still be read. In addition, the small size of 2D barcodes (typically 0.25" x 0.25") allows the placement of multiple copies of the barcode (e.g. around the wristband so the patient is not disturbed when trying to locate a barcode to scan, on the caregiver ID badges, or product labels) to ensure easy, reliable scanning. Nurses should never be delayed, frustrated or inconvenienced in their delivery of care.

5. **One Device, One User Experience** – The successful deployment of a mobile device should also include a single, user-friendly, application launching screen to allow users to start only selected mobile applications (e.g. BloodTrack Tx, PathCollect, Epocrates). This ensures that the baseline user experience is consistent. An application launching screen should also create a secure environment for end-users so that they don't accidentally (or purposefully) access inappropriate programs (e.g. games), files, or settings which could render the device unusable.
6. **Training is Everything** – Training is a very important component to the successful deployment of a bedside solution and is often overlooked by system providers. Bedside application must include a "Training Mode" that allows users to explore the application in a clinical setting without interfering with live patient data. Training Mode sessions should also be recorded as part of a comprehensive training management module (including e-Learning) to ensure training has been completed successfully.
7. **Grand Central Station (for Configuration)** – Web-based applications have grown in popularity over the years despite their reliance on a full-time network connection, less friendly user experience, and reduced reliability because they offer central configuration for IT departments (i.e. change configuration on the server and all the clients are updated). Selecting a mobile bedside solution that combines the features of a thick-client application (no need for wireless, rich user experience, and unmatched reliability) with the convenience of a web-application's central configuration ensures the best of both worlds. Using a central management workstation, an administrator can modify a setting for a device (or group of devices) then as each device connects to the server the new configuration is automatically uploaded. The configuration for all thick-client devices should be performed from the convenience of a single workstation.
8. **The Third R (Recovery)** – Typically when a mobile device runs out of battery power (or is hard reset for another reason), the installed applications, wireless settings, configuration, are lost. This renders the device unusable in a clinical setting until it is re-configured by trained IT staff. The bedside system should incorporate automated smart-recovery to ensure that even if the device completely loses battery power (or is hard reset), it will automatically restore itself and continue to function as if nothing ever happened. As a result, the day-to-day management of the system by the IT department is reduced.
9. **Start Fast, Out of the Box** – Bedside systems should come with quick-start installation tools to automatically upgrade each mobile device's operating system and drivers, install the appropriate applications, configure the application and wireless settings, and then add the device to the central management system with the click of a few buttons. This enables non-

technical administrators to get the system up and running quickly and even ensures that repaired (or new) devices can be put back into service easily.

10. **Smooth Performer** – Even more than Microsoft desktop PCs, Microsoft mobile devices need to be rebooted every so often to ensure performance and reliability. This process should be automatically managed by the bedside application which should be configured to reboot the device at a set schedule (and when not in use) so that nurses are never delayed, frustrated or inconvenienced in their delivery of care.

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