

**UNLEASHING THE
POWER OF POINT OF CARE
INFORMATION TECHNOLOGY
IN HEALTHCARE**

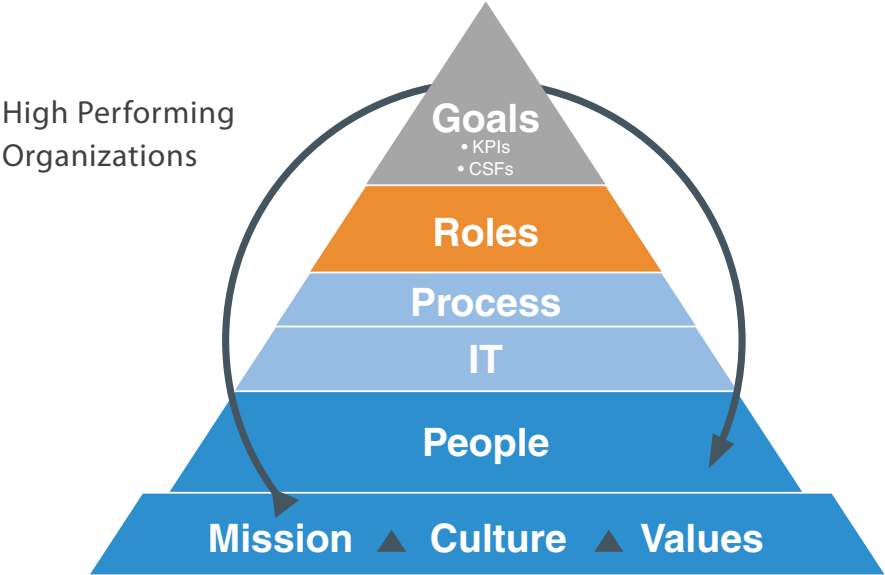


UNLEASHING THE POWER OF POINT OF CARE INFORMATION TECHNOLOGY IN HEALTHCARE

The clinical device market is experiencing a resurgence fueled by technology enhancements that are driven largely by extension of electronic medical records (EMRs) to the point of care (POC). EMRs are extended through mobile point of care devices that may be mobile e.g., mobile workstations on wheels (WOWs), or portable e.g., tablets, hand held, or wall-mounted in the patient's room.

First time and replacement device buyers can leverage “lessons learned” from successful early adopters and implement second or third generation clinical devices being acquired as part of facility, EMR and device upgrade or replacement initiatives.

High performing organizations looking to implement mobile devices take a strategic approach to traditionally IT-driven device selection and implementation processes with an eye toward achieving widespread clinician adoption critical for EMR benefits realization and the best possible results.



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Common Goals and KPIs Drive Successful IT Projects

Successful EMR and device deployments focus on defined goals and associated key performance indicators (KPIs or metrics) specific to the individual organization.

Business owners' and clinicians' goals often are not aligned, however, and may conflict with IT objectives and incentives which are typically tied to schedule and budget targets that fail to consider key adoption and clinician satisfaction strategies. The KPIs and metrics set by a hospital must be followed in order to clear results, both financially and in terms of efficiency.

Sustained device utilization is fundamental to achieving a return on investment (ROI) in EMRs, complementary IT (e.g. bar-coding) and medical grade wireless infrastructure. Executive leadership and 100% reliable, easy-to-use "end to end" solutions is needed to empower today's highly mobile clinical workforce with clinical device solutions that support "life critical" applications used in often chaotic care delivery settings.

Key Performance Indicators



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Device Adoption is Critical to Optimizing EMR Benefits and ROI

Successful clinician adoption entails acquiring a sufficient mix and device-to-staff ratios of workflow-enabling devices, investing in continuous device availability and committing to "medical device" level support for mobile devices (regardless of FDA classification). While targeted spending may increase the total cost of ownership (TCO) for devices, an ROI can be achieved by enabling EMR benefits. If devices are abandoned or the EMR is not used at the POC, investments in EMR as well as enabling devices and infrastructure are squandered.

One key to successful clinician adoption is picking devices that will be used by clinicians. Determining the best device portfolio for each organization requires focus on users' "future state" workflows at each point of service across the organization. In spite of technology advancements and building renovations, it's important to understand that no "perfect" mobile or in-room device solution exists. Each alternative requires compromises and tradeoffs among groups with different roles, processes, work environments and individual preferences.

Introducing Change is More Challenging than New Technology

To prepare for use of EMRs at the point of care, the organization and clinicians must transition to more “real-time,” team-based, patient-centric care models shortly before and during implementation. This transformation requires cultural, operational and process changes not possible with IT-centric approaches. Partnership and collaboration among business leaders, clinicians, clinical engineering and IT based on clearly defined roles, collaborative relationships and mutual respect across departments and disciplines is the foundation for success.

Patient-Centric EMRs Overlay Department-Centric Hospitals

Hospitals remain largely department-centric and many are reluctant to embrace change, particularly in times of economic uncertainty. Frequently, device implementations shine a light on cultural and process issues that deter adoption of patient-centric models inherent in EMRs. Focus on common patient-oriented goals can minimize department-centric decisions that promote automation of existing department “silos.”

Balancing Standardization with Needs of Different User Groups and Specialties

IT increasingly strives for standardization in device use and support, aiming to limit device vendors, types and models. Yet no single form factor can support every clinician and all processes at each point of service. Each department (e.g., Surgical Services) and work center (e.g., OR, PACU, staging areas) has unique characteristics that impact device types, mixes and ratios. Clearly, with mobile clinical devices, “one size does not fit all.”

Device Selection is More Complex than Meets the Eye

In most cases, clinical device decisions are led by IT and clinical engineering staff that lack an understanding of the impact that POC devices have on clinical workflows and patient care delivery. This is not ideal because, though choosing devices is incredibly important from a strict IT perspective, it is equally important from a user adoption and patient care perspective. For example, clinical device and application interfaces with medication dispensing cabinets are cited as a key potential point of failure. A myriad of diverse environmental, regulatory, ergonomic and technical factors must be considered in addition to how device supports users' core processes in their specific care setting.

"End-to-End" Solutions are Key to Successful Mobile Technology Strategies

"Best practices" for determining the most appropriate device types, mixes and ratios for a particular organization are emerging based on lessons learned from both earlier generation successes and failures.

Well-designed clinical device and application user interfaces, process support, data integration and 100% reliable wireless networks are each critical components of POC IT solutions. A sound clinical mobile device strategy is essential, but only one element of successful wireless IT deployments.

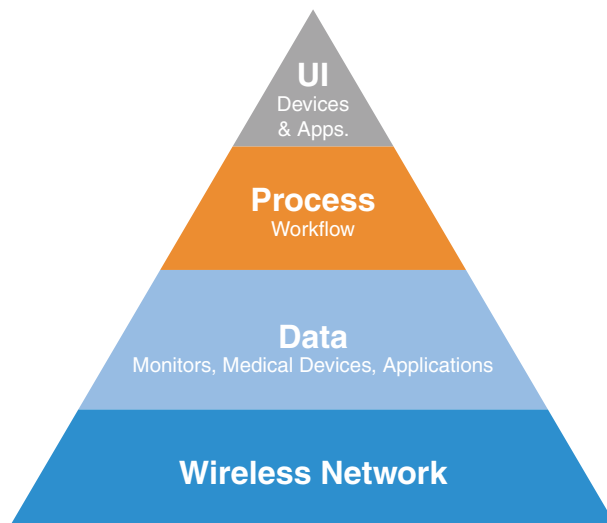
New Methods for Device Selection and Rollout

Clinicians' primary role in device selection is often via participation in "vendor fairs." Well-intentioned participants in these forums rarely receive guidance regarding transformational "future state" processes (e.g. bar-code medication administration, or BCMA) or other business and technical factors involved in sound device decisions.

In vendor fair settings, clinicians often select devices based on current "batch charting" and nursing station- and hallway-centric documentation processes, often prioritizing cosmetic or non-essential selection criteria. Uninformed or token end-user involvement in vendor fairs has failed to support organization goals for widespread clinician adoption.

Embedding icons of device alternatives in future state workflow diagrams can demonstrate the "end user experience." For best results, however, selected or alternative device use should also be simulated at the work center or an environment that, to the highest degree possible, replicates the users' work location(s). Experience in a training room or simulation center is helpful but often does not accurately reflect the users' actual work experience.

Key Performance Indicators



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The Large Payback for Prudent Investments in Clinical Device Adoption

“Pilot testing” offers an opportunity for a more rigorous, controlled evaluation of application and device performance and usability in limited settings prior to wide-scale deployment. It is motivating when expected benefits to the organization, clinicians and patients are continually reinforced among business leaders, clinician end-users and IT.

Training should be goal- and process-oriented and should include EMR use on selected device(s) and review of related policies and required device support (e.g. battery management, infection control procedures, etc.). eLearning, super-users and individual coaching can augment traditional training methods and help to increase the user adoption rate.

The Advisory Board Company named “workflow-based device selection” as the first of three “priorities of first order” for unlocking the potential of nursing IT. Clearly, prudent spending that supports clinician acceptance and use of clinical devices is an important investment in promoting EMR benefits realization.

Diverse Mobile Point of Care, Portable, Handheld and In-Room Solutions

New mandates for EMR POC access can be met via diverse mobile device strategies. WOWs (workstations on wheels) remain the dominant clinical mobile device form factor, although the majority of WOWs never reach the point of care.

Most often, POC data (e.g. vital signs, I&O, etc.) are transcribed on paper for later – or much later – EMR entry via the hallway WOW or nursing station desktop computer. Use of WOWs in hallways is often a work-around resulting from limited bedside access, unreliable networks and/or entrenched nursing culture that often includes resistance to charting in the patient’s room.

With more team-based, patient-centric care and proliferation of wireless IT, device and network requirements must support multiple physicians and clinicians gathering in patient rooms and other settings. Groups will congregate using individual or shared devices for rounds, collaboration during “hand offs” and teaching using the EMR for results and image review, order entry and clinical documentation.

BCMA Forces Point of Care Data Entry

BCMA “forces” nurses to the bedside for verification of the “Five Rights” of safe medication administration. Patient safety is universally a high priority goal for EMRs. In addition, The Joint Commission, national and local fire and safety regulations and visitor complaints are calling use of “hallway devices” into question in many facilities. The need to reach the POC and remove WOWs from hallways introduces change to existing workflows, device use and storage and wireless network requirements, causing “culture shock” in some less progressive organizations.

Transition to Real Time, Point of Care Charting Requires Care Model Transformation

The transition to point of care charting is often painful. However, more “real time” clinical documentation is critical with remote physicians, clinicians and care managers relying on these data for high impact financial and clinical decisions, such as discharge readiness.

Clinicians more readily adopt new approaches if fully informed of rationale and benefits, and devices are continually available and applications are easy to use. With extended EMR use and POC access, WOW innovations that lengthen battery run-time, simplify battery management and improve mobility are high priority user requests and the focus of recent WOW enhancements.

New Device Models Expand WOW Use

In addition to mobile POC use, WOWs are increasingly utilized as dedicated, in-room, “quasi-stationary” devices where wall space is limited or infection control is a key priority (e. g., isolation rooms). In-room WOWs offer benefits of a wall-mounted computer with the ability to remove the WOW for preventive maintenance or repair with minimal patient disruption.

In some specialty care areas, in-room WOWs may not be feasible or practical. Where system use is high and devices are in demand, rooms or alcoves can be designated as satellite nursing stations with continually available WOWs for case review, care planning and non-POC documentation.

Device Market in Flux – More Device Types Vie for Market Share

A variety of WOW enhancements, Mobile Clinical Assistants (medical grade, slate-based tablets based on Intel reference architecture), portable and handheld devices and smart phone-based solutions are flooding the market. Each offers a set of capabilities that must be evaluated in context of intended goals, targeted processes, environmental factors and user preferences. In addition, national and local legislations, regulations, accreditation, labor relations, support requirements and costs must be factored into device decisions.

Wall mounted solutions are frequently considered in renovation projects and new building designs. In-room solutions are preferred by many nurses if system access (i.e., repeated sign-on) and other known obstacles can be overcome. This model usually requires a change in the medication distribution process that necessitates additional pharmacy staffing and potential changes to existing pharmacy information systems.

Collaboration is the Key to Success

What's clear is the need for a strategic, solutions-based approach to mobile device planning and implementation that puts clinician adoption and satisfaction in the forefront. All stakeholders' opinions must be measured against common goals and objectives, and they must actively participate with clearly defined roles in the device evaluation and selection process.

IT must understand clinical processes as they exist and create future state processes that reflect best practices, embedding mobile devices into future state workflows. Planning for and managing those changes in care models and clinical workflow must be accommodated in project staffing and planning. The successful deployment of a mobile device strategy is much more complex than hardware purchases, space planning, vendor and device comparisons and wireless network installation or upgrades which typically drive device projects.

Building on the experiences of pioneering healthcare organizations, the industry now has the opportunity to achieve all the benefits that point of care technologies promise – better financial outcomes and more productive, satisfied clinicians delivering safer, more effective, personalized patient care.

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