

**LIVING AND WORKING IN A WIRELESS WORLD**  
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**RIGHT NOW** The Healthcare industry faces one of the most challenging workforce shortages of our time. It spans multiple disciplines to include Radiology, Pharmacy, Respiratory, Transcription, Information Technology, and of course, Nursing. But this shortage is fundamentally different than those experienced in the past. While research indicates compensation remains a strong component of employee satisfaction - it is not the primary component required to entice and commit clinicians and support staff. At its core, this workforce shortage is about fundamental quality of life and quality of work issues. These issues include among other things:

- Balance of family and work,
- Flexibility in work hours,
- Ability to influence the work environment, and the
- Use of technology to enable and simplify work.

As we attempt to integrate a new workforce - born in the 80s and schooled in the 90s, our greatest challenge is to provide them with adequate technology. The young people of this generation don't just like technology - they have never lived without it. They are technoliterate. They possess a new set of skills that fit the needs of the new economy.

**TODAY** Handheld and wireless represent the next generation of enabling technologies. You can rarely find a professional journal, industry survey, research note, or technical publication that doesn't reference wireless or mobile computing. In healthcare it is not surprising that many of these references are directed at physicians. With a daily workflow that moves physicians between their offices, the inpatient hospital setting, the ambulatory setting, the emergency room, and back to their offices - they are prime candidates for a technology that supports mobility.

Wireless has been slower to enter the healthcare environments where caregivers generally access information in fixed settings such as a central or distributed nurse stations. But as is indicated in this recent quote from Healthcare Informatics, "people who say there is no need for wireless in the inpatient setting... probably never had to find a pc." While this quote is directed at personal physician use, it speaks to the overall requirement for mobile devices for all caregivers.

**FACT** It is now commonly documented that traditional nursing workflow paradigms are being challenged by the shrinking workforce. We are all seeking methods to deliver

more effective and efficient care to the patient. The fact is - wireless does hold the key to the future.

With the use of cell phones, smart pagers, and mobile computing devices, we are radically improving, if not forever changing, the way we work. Whether we recognize it or not we have already become a mobile workforce.

**REALITY** While there is a growing assimilation of wireless devices in our daily work, we must face the reality of the emerging technologies. Technical surveys from magazines such as Info Week suggest a high usage rate for handheld devices with more planned use in the coming year. Sadly the numbers are not yet that high in healthcare and to great extent growth in healthcare is directly tied to software availability, processing speed, security concerns, and workflow redesign.

We can expect new technologies to be adopted slowly in healthcare, to deliver less than expected, and to be more costly to acquire and maintain than expected. The reasons for this are varied, but the most obvious is the complexity of the healthcare environment. Our decisions are not business decisions with only dollar and cents impact - they are decisions that impact the life, health, and welfare of people.

**FUTURE** When Bill Gates of Microsoft speaks of the future of mobile computing - he speaks of revolution. The future holds promise and computing history illustrates the distance we have come in the twenty (20) short years since the mainframe computer was our only technology "frame of reference".

Introduction of the personal computer, graphical user interfaces, and of course, the Internet, have changed healthcare computing forever. They have put computing power in the hands of the masses. They have put computing power in the hands of our children, our educators, healthcare professionals, and healthcare consumers.

The wireless challenges are great in healthcare with multiple caregivers and support staff interacting with a single patient, moving across complex and diverse healthcare systems. The earliest examples of wireless computing found in the pioneering companies of Frito Lays and UPS don't begin to address the complexities the healthcare industry faces.

With these complexities, wireless technologies are most commonly found in paging devices, wireless phones, telemetry, bar coding applications, and some limited use of portable laptops for such functions as patient registration, quality review, and case management.

**WE BELIEVE** The true value of handhelds and wireless will be seen when we have integrated them into our daily work processes. When they enable us to capture and interact with data that is populating a comprehensive clinical record. Only then will we realize the full potential of how online, real-time access to information can change the way everyone in the healthcare delivery system interacts with the patient or healthcare consumer. Imagine the power of not ever looking for the patient chart again, or being

able to query results from a previous visit and know not only that a test has already been completed, but also know the results of that test. Take it a step further and imagine a system where knowledge bases can be accessed and alerts and reminders prevent costly and potentially deadly errors. All of this occurs with one simple premise. Information must be available real-time. Information doesn't become available real-time without enabling tools available to care givers and support staff at the point of thought or the point of care.

In simple terms, we have high expectations for wireless technology due to our need to be mobile and our belief that mobility changes, in very positive ways, our ability to perform our jobs more effectively. We need wireless to facilitate clinical activity on a single device that moves as we move, or is strategically placed in proximity to the point of thought or point of care.

Early wireless deployments are evidenced along several points in the care delivery process, but the fact remains that use is still limited by cost, battery life, processing speed, and availability of software applications to run in a wireless mode. When we consider deployment of wireless enabled applications, thought should be given to the required level of access, the need for mobility, and the ease of technology expansion.

Point of care access allows clinicians to capture and update information in a timely manner, while facilitating accurate documentation. Early adopters of online documentation have seen they can eliminate redundancy due to the fact that key data points are entered once and then made available to all. Eliminating redundant data capture and documentation proportionately reduces the consumption of paper forms and the handling of those forms.

Mobile processing facilitates and enables point of care and point of thought access. It saves time and makes the work more efficient. Most importantly, wireless computing gives you the power of knowledge and predefined rules when it is most valuable to you - at the point of contact. So whether you are placing a drug order and need drug-drug interaction information, administering a difficult chemotherapy protocol and want to verify allergies and historical reactions, or simply seeking online personal information that can help you console a distressed patient or family member - mobile computing allows you to integrate those activities into your workflow. Wireless deployments ease technology expansion in significant ways. By its very definition, mobile computing requires less wiring - less cabling - less equipment. It allows for expansion and access in historically hard to cable locations. It allows you to more easily transfer services and the equipment to support the services as business objectives and staffing change.

**VISION** Our industry already has a strong vision for the use of wireless computing in healthcare. It is an exciting vision, but one that can't yet be fully realized. Therefore it is the responsibility of healthcare professionals and others serving the industry to critically assess the available wireless computing options to meet defined goals and objectives today and in the future. The truth is that we are at the beginning of the wireless revolution. Wireless applications can be useful today - but there are limitations

Healthcare delivery systems can strengthen the opportunity for successful wireless deployments if they first define requirements linked to clinical and business goals and objectives. The next step is a reality check to determine what technologies and applications are currently available in the market. This is where an organization's due diligence can sort the reality from the hype. As these are emerging technologies, there is much learning along the way. Early adopters should follow tried and true implementations in setting their technological direction and standards and then adhere to them in all subsequent planning and purchasing. It is only through this disciplined activity that an organization can set a framework that allows for the inevitable expansion that will be required as wireless computing matures.

**STRATEGY** Wireless technologies in healthcare can move mountains. The addition of smart phones and handheld devices to our growing arsenal of wireless computing options continues to stretch our imaginations for their potential use in the healthcare industry.

There are many effective strategies to deploy wireless technologies, but it is important to note that they can result in very different outcomes. Tactics not linked to technology efficiency or business strategy represent the least potential gain for an organization. It is possible to achieve limited operational success with this method, but it is the riskiest and potentially the most costly method of planning for wireless technology deployment. Somewhat better, but with obvious limitations, are tactics that are either technology-centric or process-centric. Planning in either of these categories, without equal consideration for the other, will undoubtedly result in partial solutions that might not stand the test of time.

A full alignment of business strategy with technology insures wireless planning activities result in a more complete and strategic solution. This type of planning insures the most compelling business and clinical definition and use will be gained - with the greatest technological efficiency, cost effectiveness, and ability to sustain ongoing growth and expansion.

Beyond the emerging technological capabilities, we must consider the growing concern for security and privacy in mobile computing. Regulations such as those found in HIPAA strongly impact strategic planning for wireless or mobile computing. Very specifically we must consider...

- How to protect information that is stored on a mobile device, and;
- How to protect information as it is being transmitted from one device to another.

Both of these points become critical when the device used to collect, store, and retrieve patient information is as mobile as the person carrying the device.

**TECHNOLOGY** For all its inherent benefit and potential to revolutionize caregiver workflow, implementing wireless technology is not as simple as it may seem. Embracing new and revolutionary technologies can be costly, time consuming, and downright difficult.

An organization must determine the right solution to support clinical or business requirements. Wireless solutions are not "one size fits all" and much of the "cutting edge" pain can be avoided if the right solution is put to the right task. Critical assessment of business or clinical workflow will help to categorize wireless computing solution requirements as "all the time", "some of the time", or "not very often". Each organization will arrive at different definitions for mobile computing usage, but the message remains the same, there are times when an ordinary desktop computer with a large monitor fits the task better than a handheld device.

Once there is a clear plan for how wireless can be used effectively, the acquisition and deployment of such technologies can be equally difficult. Solutions can be expensive to purchase and implement with many commonly used software applications not currently configured for wireless or handheld use. Justifying these purchases and calculating return on investment requires creative analysis and documentation of the current and future impact the desired wireless solution promises.

Regardless of the healthcare environment being served, Living in a Wireless World is about getting

- ...The right information
- ...To the right person
- ...At the right time
- ...With the right technology.