

Moving Toward More Streamlined Mobile Healthcare Cart Solutions

Hospitals and other medical facilities are seeking efficient, “all-in-one” tools to enhance nurses’ ability to provide optimal patient care. Pairing all-in-one (AIO) computers with lighter-weight, nonpowered medical carts is one approach gaining momentum in the industry.

INTRODUCTION

Healthcare Regulations Usher in New Era of Medical Technology

Today’s hospitals and long-term care medical facilities are at the forefront of the integration of sophisticated medical computers and modern information technology in a variety of patient care settings. The advent of US policies such as the Health Information Technology for Economic and Clinical Health Act and the Health Insurance Portability and Accountability Act (HIPAA) of 2009, have led to accelerated adoption of health information technology (HIT) in these settings. This is especially evident with regard to electronic health records (EHRs), and in 2010, the Centers for Medicare and Medicaid Services established the EHR incentive program to promote a robust HIT infrastructure. To satisfy the government’s mandate, healthcare facilities began to implement advanced capabilities in earnest to receive financial incentives.

The implementation of EHRs and associated HIT has a direct impact on the delivery of patient care. For nurses who care for patients every day, it is essential for them to have efficient and effective ways to incorporate HIT into their workflow.

THE NURSE’S “OFFICE”

Where Flow Must Meet Efficiency

Along with a more robust IT infrastructure, today’s hospitals are also taking advantage of technological advancements in terms of the type of equipment available that can provide solutions for nurses and other providers during their rounding, charting and administering of care. When it comes

to a nurse’s “office”—the workstation on wheels or WOW for short – it is all about workflow, ergonomics and efficiency.

- **Workflow** - Nurses spend 35% of their time on documentation, or 3.5 hours of their workday entering information at a computer.¹ Maximize their workflows and choose design and devices appropriate to the setting, that are comfortable and easy.
- **Ergonomics** - Ergonomic equipment increases nurses’ efficiency and productivity, while helping to reduce fatigue, exertion and musculoskeletal disorders—all side effects caregivers can experience during a long work shift.
- **Efficiency** - Correctly integrated technology creates a clinical workflow that benefits all involved, promoting increased interaction, satisfaction, safety and efficiency during the patient-caregiver exchange.

Satisfied nurses are motivated in their ability to deliver higher quality care. Injuries and physical discomfort directly affect patient interactions. When the proper tools are integrated into the healthcare environment it helps nurses and in turn, patients.

INVEST IN INFRASTRUCTURE

No matter what happens in an always changing regulatory environment, investing in infrastructure and equipment that helps drive down delivery of care cost while improving patient outcomes is a constant. But what do facilities—and ultimately nurses and other caregivers—truly want and need from their mobile workstations?

WORKFLOW

The ultimate goal of any piece of medical equipment is to help hospital staff perform their duties faster, more safely and more effectively. Yet, nurses struggle daily with several aspects of workstations on wheels. Their major concerns can often center on the workstations' size, weight and ergonomics. A powered medical cart paired with the traditional computer components requires a battery in the bottom of the cart—that can weigh around 50 pounds.

Nurses often suggest other areas for improvements:

- Small screens on monitors
- Clutter of peripheral equipment onto the powered cart like printers or scanners for patient wrist bands
- Dongles getting tangled, damaged and lost

THE SOLUTION: MAKE IT LIGHTER AND STREAMLINED

Integrate More Seamlessly into the Routine

Nurses have long wanted a lighter-weight, more streamlined solution while IT seeks technology and hardware that is easy to integrate and maintain across various clinical applications.

Move Toward Mobile AIO Computers with Hot Swap Batteries

With an eye toward meeting these healthcare professionals' requirements and streamlining processes for healthcare facilities, many healthcare technology providers have helped enable and spur a trend toward nonpowered carts paired with medical grade mobile AIO computers with built-in hot swap batteries.

“Medical grade mobile AIOs with a nonpowered cart is an effective turnkey solution to lighten care provider's workload while bringing care right to the patient's bedside,” said John Chuang, President of Onyx. “The system has more computing power when it's integrated as one piece of equipment, and it is less hassle for IT to manage. Over the past year we have also seen the healthcare profession become more adept at using the touchscreen as part of the workflow, giving them increasingly easy access.”

AIOs—also known as medical panel PCs—address the

challenges of weight, maneuverability and efficiency.

“When you think of the average person who is pushing this cart around, it's a nurse and he or she most likely isn't a body builder,” said Greg Daurio, Vice President of Sales and Marketing at Cybernet. “Making it less cumbersome to maneuver these around definitely makes their jobs a little bit easier.”

These computers come in different weights, sizes, and battery options, including the popular “hot swap” batteries. “We developed the battery-powered computer in response to a lot of the conversations we were having with IT directors that they were looking for a more streamlined solution,” said Mr. Daurio. “It takes off about 50 pounds of weight.”

“Features of mobile AIO computers can be tailor designed toward for a wide range of clinical applications. With a highly customizable and smart design, Onyx mobile AIO solution streamlines clinical tasks allowing caregivers to access all applications in one spot,” said Mr. Chuang.



WHAT MAKES MEDICAL GRADE MOBILE AIO SO ATTRACTIVE

Always a “Hot” Battery

The key to these AIO computers is that they are built with the option of “hot swappable” battery technology that can power the unit without the need to plug into an outlet, while at the same time, considerably reducing the overall weight of the workstation for the nurse.

This means that, as batteries are depleted, they can be swapped out for a fully charged battery without powering down the unit (ie, while it is “hot”), allowing for 24/7 uptime. “When the computer’s hot—that’s why we call it hot swap—you can take those batteries out and replace them as you go,” said Mr. Daurio. “If your computer’s running down, and the battery is low, you can take that battery out, put in a fresh battery, and then put the depleted battery into that charging station and never have to, plug the computer into a wall. It literally runs 24 hours a day, 7 days a week without ever having to power down or plug in or recharge.”

Mr. Chuan noted: “To ensure the 24/7 uptime throughout the workflow, battery bank designed with rapid charging capability is crucial prevent potential downtime. A hot swappable battery that has a one-click power level indicator also allows nurses to conveniently identify the battery capability to swap the batteries promptly.”



Onyx Hot Swappable Battery X2

Up to 10 hrs of operation 24/7 nonstop shift with hot swap technology



U Power

Two slot battery charger



Six Slot Battery Charger

Simultaneously charging six batteries in 2.5 hrs

Power Peripherals

Because these medical computers can also power peripherals like barcode scanners and printers, they are an ideal solution for nurse’s carts and rounding. The significant weight reduction with this approach is a huge benefit for nurses and greatly increases their satisfaction with their ability to do their job. The computer touch screen monitor is also cited by nurses as an advantage, helping them further focus on patients and not the screen. A mobile AIO computer battery can last up to 16 hours, having a direct and positive effect on productivity. When hot swappable batteries run low on power, they can be switched out for fresh batteries without having to shut the machine off.



Powering External Drives

With UL60601 medical grade design for patient and device safety protection, VENUS Mobile Nursing Workstation is outfitted with a unique external 9/12/24V DC output to supply power to additional medical devices such as a blood pressure monitor, portable printer, or barcode scanner used throughout the shift.

Lose the Weight

An AIO computer with hot swap technology is designed to be paired with a lightweight, nonpowered cart. “The role of an AIO computer plus nonpowered cart solution for nurses is to fit seamlessly into their flow,” said Mr. Daurio. “The solution makes their flow more efficient by saving steps. This in turn, makes the care they provide safer and faster and allows them to stay focused on the patient.” With no need for a heavy battery in the bottom of the cart, nurses can more easily maneuver their workstations into small spaces to provide care at the bedside.

Medical Grade

“Decision makers should realize that commercial desktops do not have any of these options. Medical grade computers have gone through rigorous testing—you can’t just buy a monitor off Amazon,” Mr. Daurio noted. Obviously, that increases the price tag compared to others, but the AIO and a nonpowered cart represents a turnkey solution.”

“At Onyx Healthcare we have always been focused on

designing medical grade computer solution for various healthcare provider's needs," said Mr. Chuang. "Today we definitely see healthcare professionals starting to adopt our purpose built mobile AIO computers for nurse rounding from acute-care to post-acute care settings. Most healthcare facilities we serviced first began implementing healthcare IT initiatives with commercial grade products for cost saving reasons. Since commercial grade IT products are not designed for the healthcare environment usage, the potential liabilities such as infection control and increasing repair costs associated with commercial grade equipment later become challenging concerns for most healthcare facilities to address."

- **Certified.** In order to be a medical PC, computers must be UL/IEC60601-1 certified as safe for near patient use. Manufacturer should provide documentation proving that their devices have gone through this international standard for electromagnetic and radiation emissions certification process. "All medical computers must be certified by the International Electronic Commission as safe to be near patients," said Mr. Daurio. "Protecting against surge, for example and interference from any electromagnetic emissions. Such options do not exist on commercial grade desktops. Medical computers are also sealed for cleaning, so they can be totally wiped down with hospital grade disinfectant and are safe and the entire surface is antimicrobial." Another international standard known as IP65 certification is important and denotes protection against liquid and dust penetration, keeping internal components free from damage during disinfection and cleaning.

- **Antimicrobial.** Medical computers must be antimicrobial. Users should always look for a medical grade computer that has had the antimicrobial properties baked right into the resin during the manufacturing process, protecting it forever. Some manufacturers may apply an antimicrobial coating after the manufacturing process, which will degrade over time.



- **Fanless/Noiseless.** Fanless AIO computers are made to be shock and vibration resistant, using low power and therefore running cooler but with processors powerful enough to handle medical applications that need to run 24/7. With no fan, there is no risk of mechanical failure in its moving parts and no dust stirring up pathogens, because the machine is engineered to dissipate heat from its components passively. The fanless AIO computers run silently, ensuring patients are not disturbed by the humming of fans in medical computers. "Medical grade AIO computers have a durable purpose design and are built for longevity. Onyx has more than 15 years of design manufacturing service experience. Our product longevity has always been crucial, as we provide stable and reliable technology support to tier-1 medical device manufacturers and healthcare providers globally," Mr. Chuang said.

Customizable

The AIO medical computers feature ports and expansion slots that allow it to integrate with nearly any device. "The AIO saves IT and nurses a lot of hassles," said Mr. Daurio. "Before, on the cart, you would have the computer, and need to plug in an RFID reader/fingerprint scanner for HIPAA requiring two factor authentication so this leads to extra

"EVERY HEALTHCARE FACILITY IS A FACILITY OF ITS OWN," said John Chuang.

"In order to satisfy the particular demand of each facility's workflow, we often have to customize the mobile AIO features such as built-in privacy filter, integrated RFID scanner, integrated surface reading light, etc. in to meet healthcare professional's use case requirements."

dongles hanging off the computer, those get lost and broken.

The AIO can include an integrated barcode scanner, RFID reader and fingerprint scanner secure login, and additional functionality without the need for third party dongles, or peripherals. "The AIO solution removes many of the third-party accessories, so no more dealing with multiple vendors. A driving force behind the move to AIO technology is that it streamlines the workflow," Mr. Daurio said.

- Single sign on
- Clinical efficiency and streamlined authentication
- Integrated authentications and RFID/badge tap
- IR camera facial recognition
- Fingerprint reader
- Track fleet/analyze system



Imprivata SSO Certified

The CyberMed NB24 and NB22 can be customized with internal RFID or biometric readers that are natively Imprivata certified. There is no longer a need to attach external dongles to your computer, reducing the clutter and freeing up ports.

Medical Computer Checklist

- Certified for near patient use UL/IEC 60601-1 Certified/ EN/IEC 60601-1-2 technical standards/ IP65 rating
- Antimicrobial coating "baked" in
- Sealed/nondegrading/waterproof for disinfection
- Fanless
- Noiseless
- Customizable
- Single sign on



PICKING THE CART

Workstation with a smaller footprint

Powered carts, while sometimes necessary, can be an expensive and heavy solution in some applications or facilities. The physical toll exacted on nurses in the course of doing their jobs, beyond just the workstation, is very real and should not be overlooked. Not only do they contend with maneuvering often heavy equipment, they are also caring for patients who are heavier and sicker than ever² In fact, there has been a rise in workplace injuries with an associated increase in unfilled nursing posts projected for the coming years.³

A nonpowered workstation on wheels paired with an AIO computer is a streamlined, efficient and light weight solution that provides even more opportunity for customization.

TouchPoint Medical workFLO Single Monitor

Documentation Workstation, is a height-adjustable single monitor/AIO computer workstation on wheels that offers lightweight mobility. The streamlined design and directional tracking caster create an easy-to-move workstation that can turn corners and be maneuvered with minimal effort. Because it has a stable wheel stance and 5-inch casters, the workstation is reliable, stable and can be maneuvered over thresholds and varying surfaces variants. The workstation also features keyed access for security.

Touchpoint Medical offers fully customizable solutions, with the ability to add or upgrade components as needed.

Workstation Checklist

- Key locking tech bay - universal key or optional key

codes available

- Secure (no drift) positioning with tilt/swivel VESA 75/100 mount
- Lightweight construction
- Easy height adjustment - gas spring push button actuation
- Stable maneuverability
- Tracking casters for easy mobility
- Antimicrobial surfaces
- Accessory portfolio

Accessories

- VESA Mount
- Tablet Mount - holds up to 12.9" tablet
- Brackets - scanners, Zebra printer
- Cup holder mounts
- Laptop Security brackets
- Supply bins
- Drawer
- E-signature pad mount

BENEFITS THROUGHOUT THE PROCESS

IT. The implementation of mobile AIO computers is an easier task for IT when it comes to integration into existing systems. “The AIO and the nonpowered cart should be understood as a component, a turnkey opportunity,” Mr. Daurio said. “IT managers are starting to see, together, it provides a full solution with cost savings to the facility. It improves workflow, it improves efficiency, the battery life’s better, and nurses can get through an entire shift without having to plug their cart into a wall.”

No more worry about added hardware to support and manage peripherals on the cart fleet for RFID readers and fingerprint scanners—a common pain point of IT departments. AIO medical computers make integration easy—just plug in direct to monitor and go—versus cable routing and connecting to inside a tech bay to the

power supply.

Nurses. Nurses’ satisfaction is crucial to effective hospital management and essential for providing top-quality long-term care to patients. The medical technology industry is responding to their calls for more streamlined workstation solutions, with easy-to-integrate, maneuverable components that can be paired with up-to-the minute advanced computers. An AIO computer combined with a nonpowered cart is a problem solver for both nurses and IT alike.

Patients. When nurses have easier access to the tools they need to provide personalized, fast and efficient care, it stands to reason patients will be happier and with outcomes and satisfaction rates improving.

WHAT TO EXPECT

Lighter, smaller, more nimble

As the popularity of AIO computers gains traction, facilities will continue to shift toward the more nimble, non-powered carts. IT managers are beginning to recognize the benefits of this streamlined approach, seeing that the cart and the computer need to be considered together, not as separate entities, and together are cost effective. “The appeal of combining AIO computers with nonpowered WOWs goes back to efficiency and empowering nurses to make their workflow better,” said Mr. Daurio “We are not changing what they do or how they do it, we are making it easier.” An AIO computer paired with a nonpowered cart is a complete turnkey solution, and experts say the industry is on the cusp of a large shift in this direction.

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