

Rubbermaid Medical Marketing Case Study

University of Colorado Hospital Denver, CO



One-room/One-cart: New model for point of care documentation improves mobility and nurse work-flow

UCH adopts room-based mobile computing carts from Rubbermaid Medical Solutions to support bedside patient interaction.

The Challenge

UCH moved its primary hospital operations to the new Anschutz Inpatient Pavilion in July 2007. The hospital staff was excited to move from a building that had been constructed nearly 50 years ago to the state-of-the-art, 410-bed facility. The new floor plan, however, necessitated changes. Originally, UCH intended to keep the same mobile computer carts it had been using to support electronic medical record (EMR) documentation.

“We soon realized that our approach — assigning each medical-surgical nurse a cart — would not work with the cumbersome carts we had,” said Karen Henz, RD, MS, senior systems analyst for information services at UCH. “The new hospital had much longer hallways to navigate.”

In the new building, nurses were assigned to work with patients in rooms that were not always adjacent. Compared to the linoleum floors in the older building, the carpeted hallways in the new facility made carts harder to push and maneuver. Door thresholds jostled the equipment. All of these factors, compounded by the weight of on-board batteries, combined to create physical challenges and even a few back injuries.

The UCH information technology (IT) support team had its own concerns about the existing fleet of computer carts. Battery maintenance was costly and presented a host of logistical problems, ranging from leakage to frequent, time-consuming replacement projects. Getting repair parts could take as long as 12 weeks. Theft of peripherals and accessories was yet another persistent problem.

The Solution

Reviewing its options, UCH first reconsidered its fundamental model for mobile computing. Based on its research and discussions with peers, UCH abandoned its one-cart-per-nurse approach. Instead, it decided to place a dedicated computer in each patient room to support EMR access and, eventually, electronic medication administration (eMAR).

UCH then evaluated mobile carts as opposed to wall-mounted work stations. Cost and construction-related disruptions were key considerations because mounted stations would require retro-fitting the rooms. For convenience and to avoid disturbing patients in their rooms, support staff preferred having the option of removing carts and computers for maintenance.

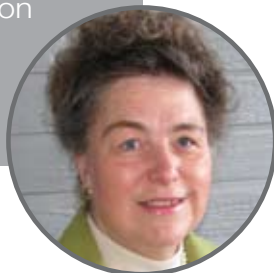
In addition, these permanent fixtures often required that nurses have their backs to the patients while documenting care – an unfortunate and unacceptable scenario.

The UCH project team chose the room-based mobile cart model, assigning one cart per patient room. This decision immediately alleviated physical strain placed on nurses who had been pushing older, heavier carts in the longer hallways of the new hospital building. Within the room, this approach provided the ideal level of maneuverability. Nurses using EMR or eMAR technologies could get closer to the bedside for improved patient interaction.

Having settled on this room-based mobile cart model, UCH invited six manufacturers to exhibit their carts. Nurses and other personnel evaluated vendors using a standard ranking scale across about a dozen factors, including:

- Mobility
- Ease of adjusting height
- Ease of cleaning
- Stability of the unit
- Cable management
- Method of LCD monitor mounting
- Size of medication drawers
- Security

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Karen Henz,
Senior Systems Analyst for
Information Services

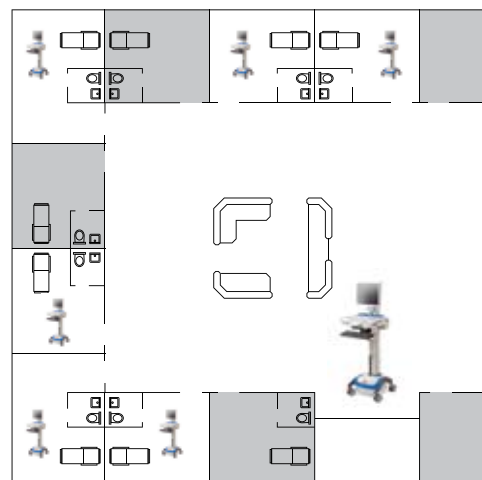
Beyond ergonomics and usability, the IT and nursing staffs also considered a range of larger issues like vendor parts and maintenance services, warranty programs and willingness to customize equipment. The IT and nursing staffs both came to the same conclusion – carts from Rubbermaid Medical Solutions were the top choice.

UCH deployed 65 carts immediately, in September 2008. These carts were assigned to floors and departments that had already begun using the eMAR component of UCH's clinical information system.

“Even with such a large implementation, the rollout was uneventful and the carts worked flawlessly,” recalled Henz. The second implementation phase was gradual, coinciding with UCH's ongoing eMAR installation.

“During the transition, we required help with an unexpected complication, but the carts were so well designed that the solution was relatively easy and inexpensive,” said Henz, UCH had specified that the new cart model should secure its computer and accessories. But UCH did not anticipate needing access to the locked computer/accessory box when, for example, a malfunctioning wireless scanner had to be replaced after hours. The locked box had a number of small holes which were used to thread a short USB cable for nurses to attach a temporary scanner until IS techs arrived to repair the broken scanner.

Rubbermaid Medical customized the carts in other ways as well, solving one challenge by fabricating a special shelf for the base of the wireless scanner used for bar code scanning. This proved an effective solution that consumed no space on the nurses' work surface. Rubbermaid Medical also supplied a soft, nylon sheath to wrap around the many cables and wires and make the carts easier to clean.



Simplify workflow

The Benefits

Every stakeholder at UCH has been satisfied with the room-based mobile computing strategy. "This model worked well in the new facility," said Henz, "and it's also been well received by everyone from nursing to IT Tech Support to housekeeping."

"Nursing job satisfaction is critical, so it was important that our nurses responded well both to the one-cart-per-room workflow and the performance of the Rubbermaid products," said Henz. "One of the nurse managers was so pleased with the new carts that she conveyed her appreciation in a letter to the president of the hospital."

With the room-based model, mobile carts tend to remain plugged in. As a result, the IT staff's battery maintenance work load has decreased. Rubbermaid Medical carts are easier to maintain in other ways. With UCH's previous vendor, it could take six weeks to three months to receive replacement parts.

"Rubbermaid Medical's online ordering system for parts and service was a unique, standard vendor service which we did not have with previous suppliers. Rubbermaid Medical even took the additional step of contracting with a local manufacturer's service representative who toured our campus so he could familiarize himself with the hospital layout. It saves a lot of time and frustration," says Henz. Rubbermaid Medical's three-year parts and labor warranty is also a major selling point.

In years past, UCH had maintained a wide array of cart types. The hospital had gone through five different manufacturers, with multiple models from some. Needless to say, this variability placed a sizable maintenance and management burden on support staff. With a standard cart of choice now identified, UCH is now reducing that workload. From five different brands in use, UCH is now down to two models. Though it still has a mix of carts in circulation, the majority are now Rubbermaid Medical carts.

Even housekeeping has indicated its approval. The Rubbermaid Medical carts have more curves and fewer right angles, making the surfaces easy to wipe down.

Though the Rubbermaid Medical carts were the most favorably reviewed solution during evaluation, they were not the most expensive option. "The Rubbermaid Medical carts came in under budget," said Henz. "This was an unexpected budget surplus that probably made even our financial managers happy."

As UCH begins to apply its successful, new mobile computing methodology in outpatient facilities and other settings, it will be looking to Rubbermaid Medical for a functional, well-designed solution at a good value.

The benefits of room-based mobile carts



- Improves nurse work-flow and technology accessibility
- Reduces physical strain on nursing staff
- Eradicates down time related to battery depletion since carts are plugged in
- Improves timely clinical documentation
- Enables nurses to remain at the bedside, improving patient interaction
- Decreases material and human-resource costs related to maintenance of power systems and batteries

About University of Colorado

The University of Colorado Hospital (UCH) consistently ranks among the top hospitals in the country, according to U.S. News & World Report and other rating agencies. UCH has earned this acclaim for its medical expertise, patient outcomes and overall clinical excellence. Among many other achievements, UCH performed the world's first liver transplant, discovered how the human cancer gene functions and set the international standard for classifying human chromosomes.

M38 Mobile Computing Line



Specifications by Platform

NON-POWERED CARTS

- Configurations starting at 70 lbs
- Accommodates up to 17" notebook and tablet PCs
- External spiral cord recharges notebook
- Will accommodate LCD monitors if used in applications where cart is always plugged in

ALL POWERED CARTS

- Battery: 35 or 55 AMP SLA AGM
- Certified to UL 60601-1 standard for patient point of contact
- Input: 12V 60 hz; Charger: 10 amps
- Automatic transfer switch enables full use of PC without affecting battery charge time
- Gentle shut-down at critically low power levels
- Power indicator at work-surface height with audible alarm
- Accepts LCD monitors up to 19"
- Power system initiated auto-shutdown of computer prevents deep discharge
- Software tracks battery age and notifies when replacements are due
- Email setup sends cart specific critical alerts

AC POWERED CARTS

- Configurations starting at 114 lbs
- External CPU configuration accommodates 2 3/4" to 4" wide CPU's

DC POWERED CARTS

- High efficiency system provides more than 12 hours of run-time
- Configurations starting at 103 lbs
- 3 DC adapter power outlets
- Supplemental on-screen battery indicates time remaining

Standard Across M38 Line

GENERAL

- Base size: 17" x 17" contoured to 14.5" wide at center
- Height adjustment: 16" adjustable tension spring
- Contoured front and rear handles
- Work surface size: 21" w x 16" d
- LED keyboard light with auto shut-off
- Accommodates 8 3/4" deep x 18" wide keyboards
- Keyboard tray adjustment: 6" height; +10° to -15° angle; 180° swivel
- Keyboard tray has left/right mouse pads, gel wrist rest, and easy access mouse holder
- Work surface Document Protector: 16" w x 9.5" d
- Bin accommodates barcode scanner heads up to 4 x 3 3/4"
- Casters: 4" precision bearing casters/2 locking
- T-Track provides universal mounting point for accessories
- Smooth, cleanable surfaces
- 2.5 ft hospital grade spiral cord extends to 8 ft
- Internal cable management
- Internal CPU storage: 15 1/4" w x 13 1/4" d x 3 1/4" h
- 3 available power outlets

STORAGE

- 2 general purpose bins
- Storage for cables under work surface
- Drawer with mechanical keyless lock (optional)
- Wire basket (optional)

WARRANTY

- 3 year mechanical; 2 year electrical
- Extended warranty available (please inquire)

OPTIONS

- 35 or 55 AMP battery
- Wire basket, side bins, IV poles, vital signs mounts, scanner/printer shelf
- Drawer with mechanical keyless PIN lock
- Universal mounting bracket to add items such as bins, sharps containers, hand sanitizers, and IV poles

SUITED FOR

- Bedside documentation
- Clinical documentation
- e-Mar/Bar-coding implementations
- Automated dispensing cabinets such as Pyxis and Accudose
- Patient registration
- Physician order entry/rounds
- Med/Surg, Emergency, Ambulatory/Outpatient, OR's, ICU, Clinics



SERVICE GUARANTEE

We are committed to providing best in class service to maximize your uptime. Our service guarantee includes:

- Onsite Parts/Service next business day as needed
- Call back within 2 hours
- Help desk support
- Dedicated Technical Account Manager and Field Engineer



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