

Choices in Medication Carts:

Different Carts for Different Needs

By **Tommy Harvey**

JUST AS PHARMACY OPERATIONS CAN DIFFER GREATLY BETWEEN HOSPITALS, the practice of medication administration will often vary, resulting in different software needs as well as different equipment needs. To address those varying needs, most medication cart manufacturers currently have many different types of carts available. When purchasing new medication carts, a number of different factors should be considered to determine which of these is best suited to your institution. Some of those factors include the size of the institution, the presence or lack of automated dispensing machines, the institution's approach to bedside medication verification, and the number of patients each cart will serve. Considering such factors will help you answer this important question: What kind of cart do you really need? Most of the carts available fall into three main categories: the basic medication cart, the automatic locking cart, and the automated cart.

Most hospitals have been using the basic medication cart for years. This type of cart usually features a bin for each room the cart services, a locking drawer for narcotics, a second drawer for supplies, and a manual locking mechanism for the entire cart.

Many hospitals still use these carts today. They are easy to maintain and are very durable, and they are also the least expensive medication carts in the market. However, basic carts, unlike more advanced types, do not provide features that reduce medication errors. Therefore, if these carts are used, it is recommended to include a bedside medication verification tool in the patient rooms to verify medications before they are administered to the patients.

Automatic locking carts, while similar in many ways to basic carts, provide the additional benefit of an advanced locking mechanism. Many hospitals look to automatic locking carts to ensure secure medication control. Once the caregiver has completed pulling the medications, the cart will automatically lock, even if the caregiver forgets to lock it. Most of these carts can be set to lock automatically at different intervals of time, allowing hospitals to customize this feature. Automatic locking carts offer a variety of security mechanisms in addition to the traditional keys. IDs and passwords, numeric codes, and even biometric identification features are available.

The advantage of using these carts is the added medication control and security provided by their locking mechanisms. This additional level of security can become more valuable if you choose one of the electronic locking alternatives, eliminating the need to track keys.

The third type of cart, an automated medication cart, is sometimes referred to as a smart cart. This cart has a computer and a scanner attached to it, and is brought to the patient when medications are admin-

istered. At the point of administration, the caregiver uses the cart's computer to access patient information, including current medication orders, current labs, MARs, and any other necessary information needed to help prevent adverse events. Scanners attached to automated medication carts allow caregivers to scan bar codes to verify medications, ensuring that the right patient receives the right medication and the right dose, via the right route, at the right time.

Though these may be the best carts for ensuring patient safety, they require more maintenance and service, and are obviously more expensive than their more basic counterparts. Also, to use automated medication carts, hospitals need to have a wireless network in place, and the pharmacy information system must also be operating on this wireless network.

A last option is to eliminate carts altogether. In order to do this, a hospital needs to have automated dispensing machines in place. There are many advantages to this kind of system, such as improved inventory control, better charge capture, and very secure medication storage. However, it does present several challenges worth considering. The first is cost: automated dispensing machines are expensive. Second, because at least 90% of your medications must be loaded into these machines, inventory management becomes a complicated task. Third, because these medication stations are permanently placed in a central location for caregivers, their drawers are not filled in the pharmacy. Instead, medications must be delivered to the automated dispensing machines. Also, depending on the acuity of the patients, you may need several automated dispensing machines in a particular nursing unit, such as the ICU.

So how do you figure out what you need? The first step is to bring pharmacy and nursing together to figure out the best solution for their practice. You also need to be practical. For instance, think about both the size of the hospital and the size of the patient care areas. Furthermore, if you are thinking about purchasing smart carts, IS and infection control need to be involved in your selection process. The most important goal should be patient safety. Depending on which type of cart you decide to purchase, both pharmacy and nursing may be required to revamp their workflow process in order to meet this goal. However, this re-evaluation will ultimately benefit the patient, providing a more efficient way for pharmacy and nursing to cooperatively provide quality patient care. **PP&P**

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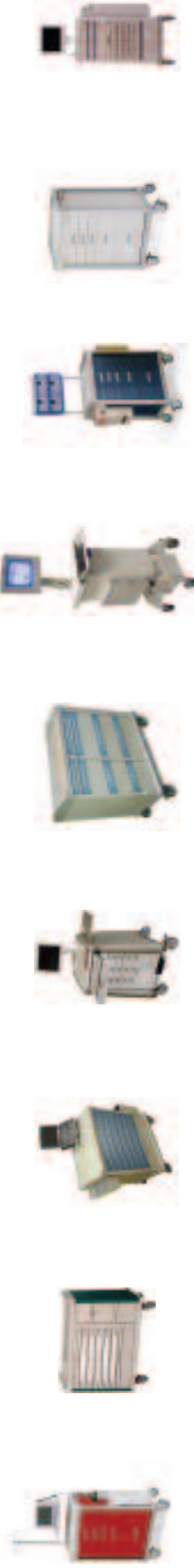
Medication Carts Marketplace

Each health-system pharmacy has varying equipment needs, particularly in terms of the features and design of its medication carts. PP&P has compiled this resource for our readers' use as they examine their product needs and explore what carts are available for purchase in the marketplace. On the following pages there are highlights from the product lines of some of the industry's premier medication cart manufacturers. Among these carts you will find some of the market's newest products. The chart below provides a quick and easy-to-use reference for comparing products and features.

At-A-Glance Product Guide

COMPANY NAME	WEBSITE	BASIC CARTS	AUTOMATIC LOCKING CARTS	AUTOMATED CARTS	LONG-TERM CARE CARTS
Alco Sales & Service Co. Circle reader service #3	www.alcosales.com	X			
Armstrong Medical Industries, Inc. Circle reader service #32	www.armstrongmedical.com	X	X		
Artromick International, Inc. Circle reader service #44	www.artromick.com	X	X	X	X
Distribution Systems International, Inc. Circle reader service #81	www.dsistemas.net	X			
Evercart Medication Carts Circle reader service #73	www.evercart.com	X			
The Harloff Company, Inc. Circle reader service #64	www.harloff.com	X	X	X	X
Herman Miller, Inc. Circle reader service #25	www.hermanmiller.com	X	X		
InnerSpace DateI Circle reader service #31	www.innerspacecorp.com	X	X		
InterMetro Industries Corporation Circle reader service #41	www.metro.com/pppm	X	X	X	
Lionville Systems, Inc. Circle reader service #57	www.lionville.com	X	X	X	X
MMI Medication Carts, Inc. Circle reader service #2	www.mmimedcarts.com	X			X
Opus Medication Systems Circle reader service #50	www.opusunitdose.com				X
Rubbermaid Medical Solutions Circle reader service #90	www.rubbermaidmedical.com	X	X	X	
S&S MedCart Circle reader service #24	www.medcart.com	X	X	X	X
Waterloo Healthcare Circle reader service #63	www.waterloohealthcare.com	X	X		X

The information contained in this chart has been provided by the manufacturers listed above.





Armstrong Medical's All Aluminum Medication Cart

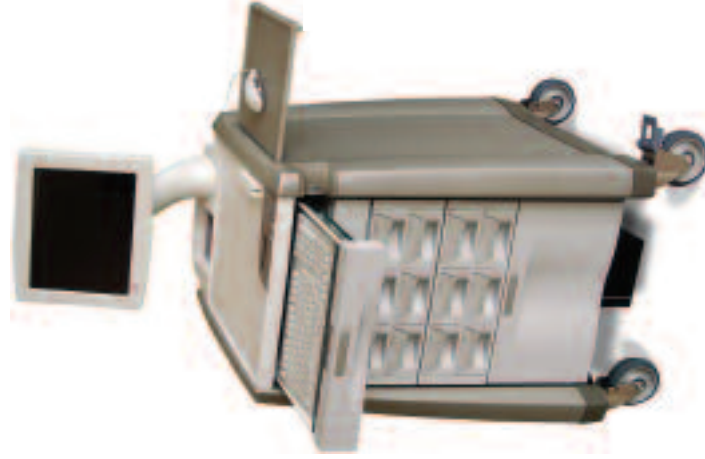
Armstrong Medical

New from Armstrong Medical, the All Aluminum Medication Cart's standard features include all-aluminum construction, lockable cassettes and bins, a stabilizing frame with bumper, double side-wall construction, soft-grip handles, aluminum mounting tracks, adjustable accessory panels, and ball bearing drawer slides. Additional optional accessories are also available.

Artromick

Artromick blends its medication cart design with mobile computing technology from Rioux Vision, a provider of health care information-management technology, in the **Avalo IMC Medication Cart**. The cart offers:

- Bar code scanning
- Wireless data transfer
- Electronic medical records management
- Self-locking medication control
- Extended-life power systems



Artromick's Avalo IMC Medication Cart

Harloff

Harloff's new **PL20CS Hospital Medication Cart** features:

- Keyless entry
- Programming for 2,000 access codes and 1,000 card transactions, and an optional printer that provides a hard-copy audit trail
- An automatic relocking mechanism
- 28-bin capacity
- Patient bins that are fully functional with most automated dispensing robotic systems
- A rechargeable, sealed battery
- A storage cabinet for cups and straws
- Aluminum construction, rounded corners, sealed ball-bearing casters, and vinyl bumper
- Various optional accessories

The **Standard Series Medication Bin Carts** feature:

- Key locks
- A narcotics drawer with a separately keyed, high-security turn lock
- Full-extension, self-closing drawer slides
- Steel body construction with aluminum drawers
- A full range of accessories



PL20CS Hospital Medication Cart from Harloff

Harloff's Economy Medication Carts offer:

- A dual lock for regulatory compliance and a two-key lock on the narcotics drawer
- Wrap-around vinyl bumper on a steel frame
- Removable plastic top
- Stainless steel top rail/push handle
- Economic pricing

Herman Miller for Healthcare

The **Procedure Carts** from Herman Miller for Healthcare allow for keyless entry for up to 89 users and are programmable by up to 11 supervisors. Features include a programmable time-delay alarm, low-battery alert, emergency overrides, and tamper lock-down. Carts are customizable and can be easily modified through a wide selection of cart sizes and an extensive assortment of interchangeable components.

InnerSpace|Datel Corporation

InnerSpace|Datel Corporation's **Harmony V Cart** is the newest addition to the Harmony line of multi-purpose carts, and starts at \$695.

The Harmony V Cart has a steel frame and aluminum posts. Standard features include an ABS plastic work surface with raised edges, a pull-out writing surface, a central locking system with key, and 4-inch swivel casters (two with locks).

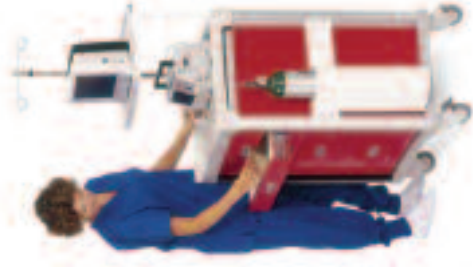
Other accessories can be added and reconfigured at any time. The Harmony V's metal drawers are compatible with the plastic trays with dividers that fit all other InnerSpace cabinets and carts.

InterMetro Industries Corporation

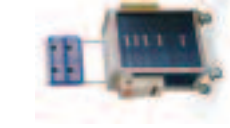
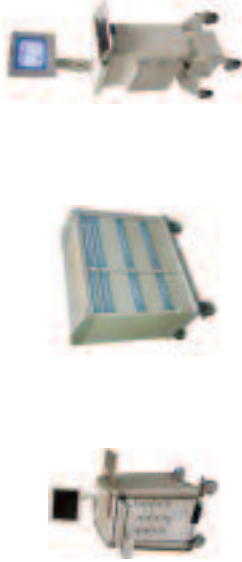
The **Starsys Medication Transfer Cart** provides front and rear storage for lockable Starsys Medication Cassettes. The cart is available in various widths and heights and can hold up to 240 medication bins at one time. Optional push handle or side storage units are available. All Starsys medication carts' drawers are full-extension, removable, and reconfigurable without tools. The Starsys system is constructed from polymer enclosures, which protect it from rust, dents, chips, and scrapes.

The **Starsys Unit Dose Medication Cart** is a customizable, modular cart system. The swing-out side storage units can provide up to 135% more work surface, and can be closed to free up floor space. For mobility in tight areas, leave off the side units to reduce the cart width to a narrow configuration.

Flo Healthcare's **Flo 2400**, a computerized Starsys med cart, can be equipped with hardware that allows the hospital's systems to be accessed wirelessly from



Harmony series from InnerSpace|Datel Corporation



MED CARTS (Continued from page 8)

the med cart. Hardware can include a display screen, onboard computer system and power supply, a wireless transmitter, and ancillary equipment such as a barcode reader.

The Starsys Medication and Transfer Carts and the Flo 2400 can be key-locked or equipped with a keyless-entry electronic locking system, multiple user codes, automatic relocking, and tamper-resistant features, all of which are programmable by the supervisor.



The Starsys Medication TransferCart



Starsys cart equipped with Flo 2400 hardware



The Starsys Unit Dose Medication Cart

MMI's Focal Series is well suited for dispensing punch cards, with a capacity of up to 750 cards. The series also offers a spring-loaded narcotics box, a pull-out writing surface, card-row dividers and sub-dividers, locking casters, and multiple configuration and accessory options.

MMI's Vintage Series caters to the assisted-living market. Available in three wood finishes, the VS-2000 med caddy features specialized and stylish hardware options, distinguished counter surfaces, an array of configurations, and allows for both lock and keyless security systems.

Lionville

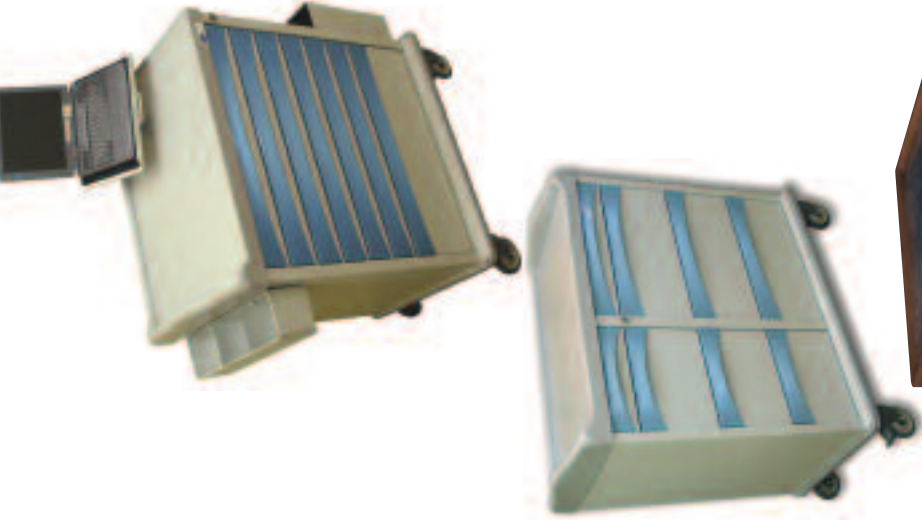
The Lionville iCart's locking system includes keyless entry, automated relocking, individual patient drawers, and a patented drawer "grabber" mechanism. Other cart options include an unobstructed workspace, keyboard trays that slide out of the way when not in use, a shock-resistant computer compartment, and a wide assortment of accessories. Available in several models, the iCart features:

- A technology platform that is compatible with most types of computing devices
- A high-capacity power solution for extended computing run times
- Integrated handles and twin-wheel swivel casters for increased maneuverability
- Ergonomic height adjustment, articulating keyboard tray, and monitor arm
- Customizable, locked medication and supply drawers
- Optional storage wells and accessory rails

MMI Med Carts

MMI's three-cart Stor-Flex series is space-conscious, but has high capacity; offers a reliable locking system; is lightweight and durable; and comes with a 10-year limited warranty, as do all MMI lines. Stor-Flex also offers additional optional features.

The Lionville iCart



Rubbermaid Medical Solutions

Using Rubbermaid's Mobile Medication Station, nurses only make one trip to the automated dispensing machine in their unit for maintenance medications. In centralized systems, pharmacy-filled patient drawers are transported on a Rubbermaid transfer cart to each unit. Nurses directly load these drawers onto their carts, and medications are electronically secured on the way to the bedside and when the cart is unattended. The cart is lightweight and has a small footprint, allowing for easy access to the bedside for barcode scanning.

Other features include PIN code access with an auto-locking system, a 28- to 43-inch no-lift height adjustment range, configurations with up to 12 patient drawers, an adjustable work surface for user comfort, a top surface scanner cradle that enables fixed-position scanning and off-cart scanning, and available envelop-fill drawer configurations.

S&S MedCart

S&S MedCart introduces the Partner POC Cart, a compact point-of-care cart for use in effi-

(Continues on page 12)

Three offerings from MMI



MED CARTS (Continued from page 10) patient medication distribution and bedside documentation. The cart supports 500 programmable user IDs, tracks cart access, provides graphical drawer status, and automatically captures partially closed drawers.

Each Partner Cart can communicate with a personal computer via serial cable and a unique code, allowing output of S&S' SilentPartner report and the transfer of user IDs to and from a PC file. The compact PRN-15 POC Partner Cart supports up to 24 patient bins with a storage drawer or can be set up for a combination of drawers and bins. The PRN-45 POC Partner Cart provides up to 30 patient bins plus three storage drawers.

The Partner Cart series is constructed of aluminum with perimeter bumpers, and uses battery systems to support the carts' touchscreen and electronic locking systems. The touchscreen displays a graphic of the battery's status to alert staff when a recharge is necessary.

The **Assistant Cart** is a cost-effective solution for transferring medications from automated dispensing cabinets to the point-of-care. It supports computing solutions for automated med charting, inventory tracking, and/or CPOE systems as needed, as well as a variety of barcode scanner solutions. S&S' optional power distribution system can ensure hours of use.

The Assistant Cart has five to 10 removable patient bins, a bulk storage drawer, and a locking door. The cart's footprint does not exceed 22x22 inches. Thin, standard, and wide cabinet configurations are available, and multiple optional accessories can be ordered. Locking options include

The PRN-45 POC Partner Cart and the compact PRN-15 POC Partner Cart from S&S MedCart, both with touchscreens.

keys, push-button locks and, on the enhanced version, up to 200 programmable user IDs with an audit trail of user access.

Waterloo Healthcare

Each side of Waterloo Healthcare's **Dual-Sided Medication Cart** features a combination of large and small drawers, cassettes, and bins. The cart comes in three stock models and can be custom-configured, it features a push handle, wrap-around bumper, tamper-resistant Best locks, storage shelves on the sides, internal waste receptacle, and a removable, ABS plastic top with a cup dispenser. Additional options are available to further tailor the cart.

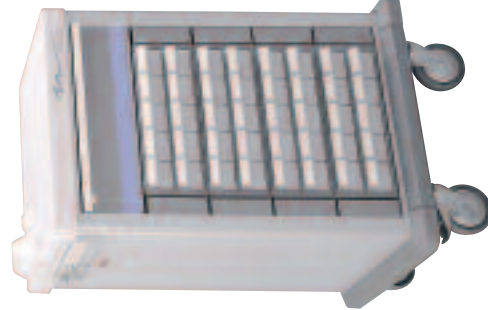
The **HALFTRX** series, available in compact and full sizes, is designed for long-term healthcare settings. The carts are customizable and include open/closed warning labels.

The **Med-TRX** storage system carts, also designed for long-term healthcare settings, are customizable, and feature a standard slide-out shelf, open/closed warning labels on both sides of the cart, full-sized drawers that hold up to 111 pill cards, and a half-size drawer that will hold 37 pill cards.

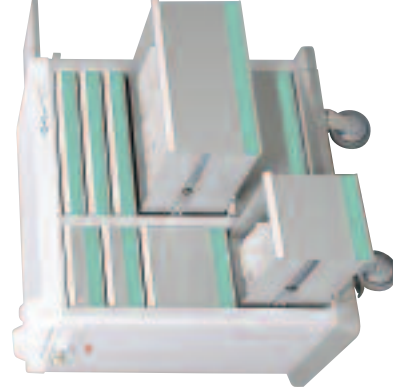
The carts are latex free and offer a Best key lock system, a Simplex push-button lock or an electronic, battery-operated keypad lock with a key override. **PR&P**



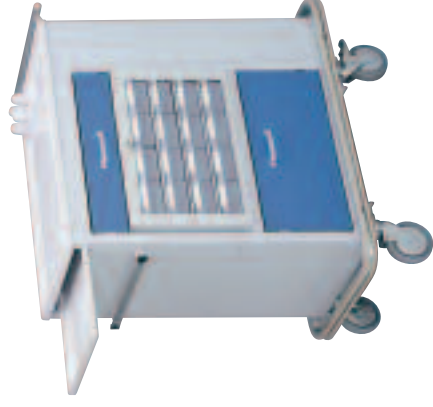
S&S Technologies Assistant Plus



Waterloo's HALFTRX



The Med-TRX from Waterloo



Waterloo's Dual-Sided Medication Cart



Rubbermaid's Mobile Medication Station

