

## Operating Room Software Purchasing Trends Reflect Expanding Care Delivery Organization Vision

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Enterprise computer-based patient record and niche application vendors seek to capitalize on two major purchasing trends in the operating room software market. Despite different approaches, an organizationwide vision is finally gaining ground.

## WHAT YOU NEED TO KNOW

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Two major purchasing trends — first-time clinical automation and the replacement of older administrative applications — are driving operating room software market growth. Although most purchases are driven by a pressing need for specific functionality, users should limit product evaluations to complete OR administrative and clinical applications. Integrating an OR suite with the hospital computer-based patient record or establishing interfaces to clinical, financial, materials management and patient management applications is essential for sharing patient information at the care delivery organization. Evaluations must include vendors' expertise and plans to exchange information with outside stakeholders in the healthcare community. To do otherwise will limit the long-term usability of the OR software investment.

## STRATEGIC PLANNING ASSUMPTION(S)

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Computer-based patient record vendors will overtake niche vendors in operating room software market penetration by the end of 2008 (0.8 probability).

## ANALYSIS

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Successfully managing the operating room (OR) suite is essential to the financial viability of U.S. care delivery organizations (CDOs). In many hospitals, the OR generates as much as 60 percent of revenue and accounts for 40 percent of costs. OR administrative and financial functionality in most hospitals has been automated for about 20 years. Automation of clinical functionality, however, has been discouragingly slow. About 90 percent of hospitals continue to use paper-based perioperative charts and nonautomated physician dictation. The situation is finally changing for the better, driven largely by the desire among surgeons, anesthesiologists and hospitals for more timely reimbursement by healthcare payers. The OR software market is being re-energized by two major purchasing trends:

- CDOs are finally replacing paper charts with perioperative charting and anesthesia documentation applications.
- CDOs are replacing older surgical scheduling, billing and inventory applications. Simultaneously, they are evaluating perioperative software, even if they do not plan to implement it for one to two years.

Regardless of which of these trends that they identify more closely with, CDOs should limit their product evaluations to those with complete functionality. OR applications under consideration should provide software modules that automate the administrative and clinical aspects of surgical care. Examples of administrative functionality are procedure scheduling, surgeon preference cards, case kit preparation, inventory management, charge capture and billing system interfaces. Examples of clinical automation include nurse charting, physician documentation and anesthesia documentation. For a complete overview of OR administrative and clinical functionality, see "Operating Room Key Requirements Emphasize Perioperative and Anesthesia Care."

A suite with integrated administrative and clinical modules supports the CDO's long-term vision for OR optimization. This includes connectivity with in-house applications and external stakeholders in the healthcare community.

Two types of vendors — computer-based patient record (CPR) system vendors and niche software companies — market OR suites. Each product varies in how well it supports integration with or interfaces the CDO's internal applications (including the hospital CPR) and connectivity

with outside stakeholders. Tables 1 and 2 show the representative vendors in each category that have successfully penetrated the market.

**Table 1. CPR System Vendors**

<b>Company</b>	<b>OR Software Product</b>
Cerner	SurgiNet (internally developed as part of the Cerner Millennium product line)
Eclipsys	Sunrise Surgical Manager (offered through a partnership with Surgical Information Systems)
Epic	OpTime (internally developed as part of the Epic acute and ambulatory care product line)
GE Medical	Centricity Perioperative Surgery Management (acquired from iPath and incorporated with the Centricity product line)
IDX Systems	Carecast OR (offered through partnership with Picis)
McKesson	Horizon Surgical Manager (internally developed as part of the Horizon product line)
Meditech	Operating Room Management (internally developed as part of the Health Care Information System product line)

Source: Gartner (August 2005)

**Table 2. Niche OR Software Vendors**

<b>Niche Vendor</b>	<b>OR Software Product</b>
Picis	Caresuite
Surgical Information Systems	Surgical Information System
Per-Se Technologies	ORSOS One-Call
Mediware	Perioperative Solutions
Unibased Systems Architecture	Perioperative Resource Management System

Source: Gartner (August 2005)

### **Market Consolidation**

Like most other hospital application markets, the OR software market experienced a reduction in the number of software vendors as a result of mergers, acquisitions and partnerships in the 1990s. Most CDOs evaluate niche products as part of their product acquisition due diligence. Most CDOs evaluate the OR application that is marketed by their CPR system vendor, if one is available. CPR vendors' OR applications are often given considerable weight because of their potential to integrate with the CPR system. CPR integration benefits include a single clinical record for each patient and fewer point-to-point system interfaces between the OR application and hospital's enterprise and departmental information systems. Not every CDO has a CPR. Some use older products that are candidates for replacement. CDOs that are evaluating the purchase of a CPR are wise to incorporate the OR product acquisition with the CPR evaluation strategy. CPR vendors are generally larger companies and may be more experienced than small niche companies in helping CDOs collaborate with other healthcare stakeholders. CPR vendors will overtake niche vendors in OR software market penetration by the end of 2008.

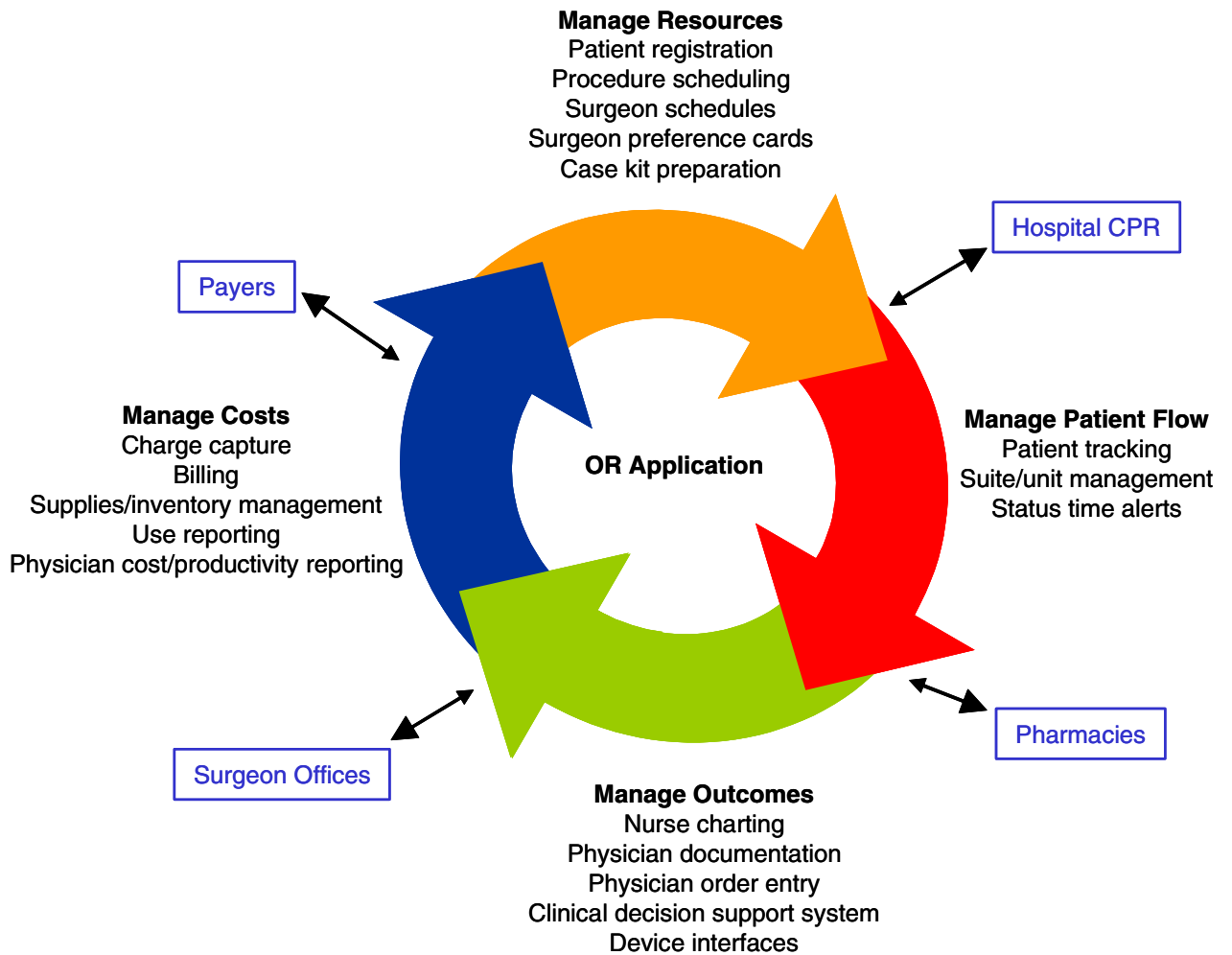
CPR system and niche vendors focus their marketing and sales efforts on the major purchasing trends: first-time automation of the perioperative chart and replacement of older scheduling and inventory applications. This strategy is intended to capture as much market share as possible. Regardless of whether a CDO seeks to automate perioperative charting for the first time or

replace an aging scheduling and inventory system, it must select an OR software vendor with a proven track record for interfacing with its established internal hospital systems and some experience in connecting the OR product with external stakeholders in the healthcare community.

**Internal and External Connectivity**

Many older OR applications use Health Level 7 interfaces to exchange information with selected applications, such as patient registration, materials management and patient accounting, inside the hospital. When deploying an OR application, users should evaluate those that support connectivity within the CDO as well as with outside stakeholders. A well-defined internal and external connectivity strategy enables the CDO to better manage its resources, patient flow, patient outcomes and costs associated with surgical care (see Figure 1).

**Figure 1. OR Application Effects Inside and Outside the CDO**



Source: Gartner (August 2005)

**Manage Resources**

Resource management, a key driver for the second purchasing trend, begins with patient registration and scheduling. Ideally, CDOs should integrate or interface their OR scheduling

system with the hospitalwide system and an enterprise person master index, if one is in place. Accessing patient demographic and insurance information from hospitalwide systems and uploading any changes saves considerable time in scheduling procedures, locating patient records and reducing costly duplicate records. To achieve an economy of scale, reduce software maintenance fees and better manage vendor relationships, CDOs should try to replace disparate OR administrative systems in multiple-owned entities with an organizationwide system. Additional benefits include optimum management of surgeon schedules, a reduced number of surgeon preference cards and more-productive case-kit preparation, a functional capability that should be closely aligned with inventory management and charge capture.

### **Manage Patient Flow**

OR software can track patients' physical locations as they progress through preoperative, intraoperative and postoperative care. Status-tracking software can alert clinicians when a patient is moved from one bed, suite or unit to another and collect information on wait times. Another important benefit, closely tied to resource management, is tracking OR suite use and procedure times by suite number, surgeon and procedure type. Managers can use this information retroactively for decisions relating to optimum use and maximum productivity. An empty OR suite represents a lost revenue opportunity. Like resource management, OR optimization is driving the replacement of older surgical scheduling, billing and inventory applications that are already in use while evaluating perioperative software.

### **Manage Patient Outcome**

When perioperative software, monitoring device interfaces and medication administration device interfaces are implemented, every aspect of OR clinical care can be documented. Most CDOs start with nurse charting and nurse order entry and subsequently add physician documentation, physician order entry and anesthesia documentation. Clinical decision support software provides real-time clinician alerts and saves time reviewing paper charts. When clinical information from the OR procedure is incorporated with the hospital CPR, it becomes available online to clinicians in other care units. It is subsequently available when a patient requires future care at the hospital or other facility with online access to the CPR. CDOs that embrace the replacement of paper charts with perioperative applications should use these demonstrable benefits to justify their investment.

### **Manage Costs**

OR applications capture patient charges for hospital resources, supplies, medications and professional services and forward them to the patient accounting system. Most hospitals use bar-code readers to capture charges and update the OR inventory as supplies are used. Interfaces to the materials management system enable OR applications to generate supply requisitions when predefined low levels are reached. Utilization reporting includes inventory and cost analysis by surgeon, procedure type and procedure time. CDOs should implement the same OR product in each owned hospital to achieve an economy of scale. The benefits, including organizationwide roll-up reporting and accurate comparisons among hospitals and surgery centers, are driving the second purchasing trend.

### **External Stakeholder Connectivity**

Increasingly, CDOs are expanding their IT strategy to incorporate Web-based connectivity with other stakeholders in the healthcare community. External connectivity should be part of the CDO's long-term vision for OR automation. The following stakeholders are the most important in managing the CDO's OR business:

- Payers — OR applications can support batch downloads of payer-specific rules for medical necessity checking when procedures are scheduled. Eligibility verification and referral management help ensure that a patient is eligible for the procedure and that payer requirements are satisfied before care is provided. These upfront revenue management processes help speed reimbursement and reduce the number of rejected claims that must be resubmitted.
- Surgeon offices — Few surgeon offices can access hospital OR schedules or submit online requests for procedure dates and times, other than by e-mail. Most communications are by fax and telephone. Online connectivity reduces the amount of time administrative staff spend leaving voice messages, returning calls, and faxing confirmations and supporting documents. Issues such as patient data ownership and information security are barriers to Web-based connectivity between surgeon offices and hospital OR scheduling departments. Additionally, many physician offices lack practice management systems that support Web connectivity. This scenario will change gradually. Early adopters will be integrated delivery networks and hospital groups that own the surgeon practices and have financed their practice management automation. CDOs that own surgeon offices should evaluate the potential productivity benefits and begin with relatively simple functions, such as providing their offices with read-only access to the surgeon's OR schedule, before attempting to roll out interactive procedure scheduling.
- Pharmacies — Many OR applications support online prescription faxing to retail pharmacies for same-day surgery patients who are discharged after their procedures. While adoption is still low, e-prescribing will grow in this market. CDOs should ascertain how an OR vendor's other customers are using e-prescribing.

## Key Issues

How will healthcare enterprise application markets be defined and evolve?

How will healthcare delivery organizations successfully justify, evaluate, select, deploy and support vendor application and sourcing services?

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