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Project Success

Strategic Scheduling

Elkhart General Hospital analyzes scheduling data to identify and capitalize on opportunities to improve productivity.

By Beverly Paul

Elkhart General Healthcare System (EGH), where I work as OR systems coordinator, is an independent, community-owned care system located in Elkhart, Ind. Founded nearly 100 years ago, EGH's full-service, 367-bed main hospital serves more than 18,500 patients a month. The EGH medical staff is comprised of nearly 300 physicians representing 37 medical specialties, and we employ more than 2,000 people in nursing, technical, administrative and support capacities. EGH's Regional Center for Joint Replacement, a 16-bed orthopedic unit dedicated to caring for patients who have undergone hip and knee replacements, is a unique resource in our service area.

EGH has utilized two applications from RES-Q Healthcare Systems (RES-Q Labor Resource Management for staff scheduling and RES-Q Perioperative Resource Management for surgery scheduling) since we deployed the original DOS programs in 1990. We migrated to the Windows-based, client/server versions of RES-Q Labor Resource Management in 2001 and Perioperative Resource Management in 2004. Today, we have more than 350 licensed application users.

Basic benefits

Hospital managers at EGH use RES-Q's software day-to-day to manage staffing and scheduling. RES-Q Labor Resource Management produces clinically sound, skill-matched, financially optimized and productive staffing in schedules that account for staff preferences. Its basic benefits include faster scheduling than manual processes; clinically appropriate scheduling of the right staff with the necessary skill levels and credentials; greater consistency in the application of scheduling policies; and more efficient deployment of cross-trained nurses (an important factor in managing labor resources in the context of the prevailing nursing shortage).

RES-Q Perioperative Resource Management reviews and verifies surgeon needs and preferences, personnel and equipment requirements, supply lists and inventory, and operating room (OR) availability. The application then establishes surgery schedules that maximize productivity. It gives us the ability to anticipate and prevent staff and equipment scheduling conflicts before the actual procedure, thereby saving time and reducing surgeon and staff frustration. With block scheduling, we reserve blocks of time for specific surgeons and surgical services on designated days. For example, an orthopedic surgeon can schedule a procedure within any block reserved for orthopedics. This reduces scheduling disputes and enables surgeons, staff and vendors to more efficiently plan for upcoming procedures. In addition, EGH patient satisfaction scores have improved for outpatient surgery; by effectively managing resources and minimizing time-consuming conflicts, we have eliminated delays and excessive waiting time.

Weekend OR schedules

At EGH, we have also found innovative ways to use the data resulting from the application of our scheduling software. Detailed data analysis identifies strategic opportunities to improve the efficiency and effectiveness of resource utilization. We present these opportunities to senior-level directors and executives for review and development of action plans.

For example, in January 2001, EGH did an analysis of all surgical cases performed on weekends during 2000. At the time, approximately 80 percent of the weekend case load was split almost evenly among three services: orthopedics, general surgery and OB/GYN. Procedures for emergent cases during weekends included fracture repair, exploratory laparotomy, craniotomy for subdural bleeding and cesarean sections. In addition, some patients hospitalized during weekends required urgent procedures, such as laparoscopic cholecystectomy, carotid endarterectomy and other procedures that needed to be done as soon as possible. At the time, however, EGH did not schedule regular shifts on weekends. Instead, nurses and other staff required for surgical cases were on call and paid overtime. Analysis of the data identified the opportunity to move from on-call staffing on weekends to staffing and scheduling one eight-hour shift per day. The results indicated the potential to save approximately 2,690 overtime hours per year by staffing and scheduling regular eight-hour shifts on Saturdays and Sundays.

Instituting regular weekend shifts in 2001 reduced overtime and double-time hours by 27 percent and saved approximately $80,000, without reducing staffing levels. Cumulative savings from 2001 through 2005 totaled an estimated $189,000.

Establishing regular weekend shifts made it possible to institute creative staffing policies. Specifically, nurses and other staff can

schedule days off during the week in place of the weekends they work. Such modified schedules have proven to be attractive to many employees, giving them more time with their families during the week. They also reduce child care costs, because spouses can care for children while they work selected weekends. In addition, surgeons discovered that they could schedule their hospitalized patients for surgery on the weekend instead of holding them over until Monday. And patients with chronic conditions who require multiple surgical visits, such as wound debridements, can be scheduled more quickly, thus improving their level of care.

One unexpected change of staffing weekends with regularly scheduled shifts: EGH's growing spinal surgery program has been able to schedule urgent spinal fracture cases on weekends. Spinal fracture cases are not usually emergent, but the procedures must be done as soon as the patient is stable. With staff available on weekends, surgeons can care for those patients without waiting until Monday and possibly delaying their other cases.

Managing implant costs

In 2003, EGH instituted competitive bidding for orthopedic device vendors to submit fixed prices for certain types of implants (such as primary non-cemented total knee replacement). In addition to offering flat-rate pricing for implant components, vendors were called upon to extend discount rates for emerging technology, revision cases and biotechnology products. And we asked vendors to offer no-cost equipment trays for the procedures. Analysis of six months of RES-Q data for total joint costs in 2005 concluded that the program yielded $322,526 in net savings over vendors' list prices.

However, maximizing potential savings requires the agreement of orthopedic surgeons to use the best-priced components that will provide good outcomes for patients. Surgeons, of course, have strong personal preferences. Further analysis of hip and knee replacement cases by surgeon identified opportunities to increase savings — if specific surgeons would agree that they could shift to a different vendor's products while continuing to achieve excellent outcomes.

To compare costs by surgeon, we reviewed cases performed by each surgeon and examined the case information as well as the entire hospital stay. The three main elements of costs were identified as the implants, surgical supplies and general hospitalization costs (including therapy, drugs, room and board, and so forth). Review of the surgical supplies used for the cases helped identify wasted supplies and opportunities to streamline total joint set up. Providing a dedicated unit for care of total joint patients post-operatively enabled us to better manage patients' hospitalization costs, given individual patients' overall health and needs. Implant costs were reviewed both by vendor and by surgeon, and average costs per case data were made available to our surgeons and hospital management.

Surgeons can select the appropriate implant type based on the needs of their patient instead of being locked into a specific vendor. One surgeon was surprised to learn that implants from the vendor he had been using were more expensive than those of another vendor that he considered to be of equal quality. That knowledge allowed him to consider costs when discussing implant selection with his patients.

Lessons learned

Robust, enterprise software for staff and OR scheduling enables hospital managers to get the right resources in the right place at the right time. It is important to view the data resulting from the use of scheduling applications as a strategic asset. Thoughtful analysis of scheduling data uncovers opportunities to further improve the effective deployment of resources in order to reduce costs and boost productivity and thereby contribute to a hospital's operating margin.

Two critical success factors are noteworthy: First, key findings must be summarized concisely in order to focus attention on priority problems. Second, the staffs who undertake data analysis must highlight practical policy alternatives for review and consideration by the relevant senior-level managers who have the responsibility and authority to implement changes.

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