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Lions Gate Hospital uses demand forecasting to manage capacity, optimize staffing levels and reduce length of stay

BUSINESS CARE CONNECTIVITY

After years of struggling to overcome severe capacity constraints, Lions Gate Hospital (LGH), a regional hospital in North Vancouver, British Columbia, was ready to address its patient throughput issues. The facility operated at a 100 to 110 percent utilization rate, and staff was continually in crisis management mode. Without the ability to predict patient demand and optimize bed utilization, LGH couldn't staff effectively – which compromised the quality of patient care.

By prospectively matching staffing to predictive demand using McKesson Capacity Planner™, LGH is now able to create accurate staff schedules, reducing overtime by 50 percent in its surge unit alone. Proactive capacity management has helped the facility reduce length of stay, improve patient flow and decrease ED wait times – while earning $1.1 million in additional revenue through a provincial activity based funding program that allocates funds based on the type and volume of severity-adjusted services provided, similar to diagnostic related groups.
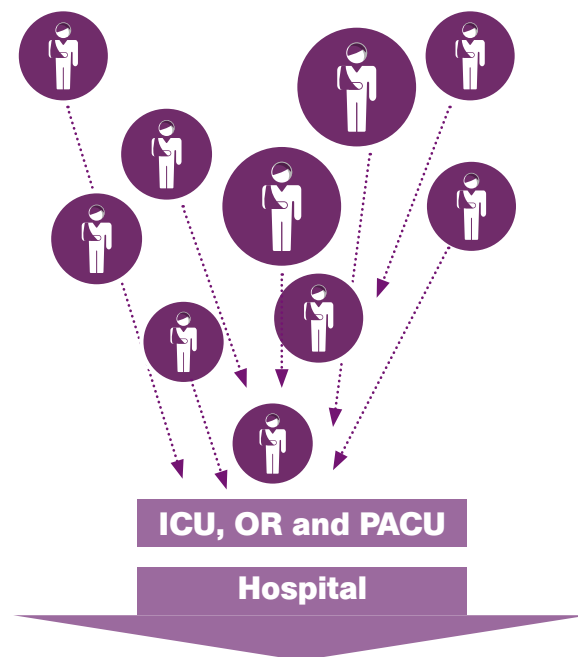
Challenges

Bottlenecks in the ICU, OR and PACU – coupled with discharge delays and a lack of awareness of available beds – led to systemic overcrowding. Even after new construction doubled capacity in the ED, diversions were common, and some patients spent their entire stay in the hallway.

Financially, LGH's capacity management issues were resulting in high and variable annual labor costs that exceeded budgetary targets by hundreds of thousands. Managers routinely opened a surge unit to provide available beds, and over 50 percent of shifts incurred overtime in 2011. Without the ability to predict patient demand, cautious nurse managers routinely overbooked staff, only to call them off at the last minute. Staff satisfaction was low, while turnover rates were high.

Lions Gate Hospital had already introduced an initiative to reduce average length of stay, prevent readmissions and optimize transitions for discharged patients. While they had seen improvements, executives realized the need for a broader approach.

ICU, OR and PACU

Hospital

Results

- Aligned predicted patient demand with capacity and staffing

- Savings of about $500,000 annually

- Achieved 3 percent reduction in NHPPD

- Decreased surgery overtime shifts by over 50 percent

- Together with a package of utilization management initiatives, Capacity Planner contributed to a decrease in average length of stay on medical and surgical units by 16 percent

Answers

LGH implemented McKesson Capacity Planner, a predictive analytics solution that helps organizations accurately forecast patient demand far enough in advance to enable proactive resource alignment. The tool incorporates three years of historical ADT data, applying selected algorithms to account for seasonal, day-of-the-week and other variations to create the baseline patient demand forecast. It then incorporates input from the organization's clinical experts regarding specific changes and events that are expected to impact demand.

In this way, McKesson Capacity Planner is able to continuously predict scheduled and unscheduled demand with a 95 percent accuracy rate one month out and a 98 percent accuracy rate one to three days out. By using the tool to make decisions three days in advance, Lions Gate Hospital has been able to optimize staffing levels and reduce overtime across the facility. "We've seen a cultural change across LGH. We are able to forecast consistently, which helps us make decisions more confidently," says Leanne Appleton, Director Acute Services LGH.

McKesson Capacity Planner provides real-time visibility into key performance indicators such as projected occupancy vs. actual and resourced occupancy. Managers can see which beds are free on which units, which patients are in the ER and which patients will be moved to the floor. Viewing forecasted patient demand by unit enables them to anticipate capacity shortages and resolve patient flow issues.

The ability to see projected discharges vs. actual discharges has proven to be a powerful motivator, as managers compete to beat the predictions. "If you beat the discharge targets, it's because you're beating the expected length of stay," says Mark Chase, Executive Director Decision Support Vancouver Coastal Health. "The daily challenge to optimize flow for today's situation keeps continuous downward pressure on our length of stay."

Organization

Lions Gate Hospital
North Vancouver, British Columbia

- Part of Vancouver Coastal Health Authority
- 260 inpatient beds
- 2200 staff
- 220 physicians
- 14,600 annual OR cases
- 56,000 annual ambulatory visits
- 60,000 annual ED visits

Results

Since the implementation of McKesson Capacity Planner and related initiatives on its medical and surgical units, the hospital's average LOS has decreased by an average of 16 percent. The facility estimates that it has created capacity comparable to over 40 additional beds.

Planning for demand surges is now a proactive process, not an emergency. Instead of opening a surge unit to accommodate last-minute overflow, the facility is able to anticipate surges and staff appropriately. Overtime on the surgical units has dropped from 7.9 percent of productive hours to 3.5 percent—a reduction of almost 50 percent.

LGH has successfully embedded capacity forecasting into its daily workflow. Managers review the three- to seven-day demand projections and set discharge targets to create the necessary capacity. Staffing coordinators smooth scheduling based on the seven-day plan, assigning floats, prioritizing short-call lists and preparing for variable staffing needs. An afternoon meeting confirms whether discharge targets were achieved and ensures the daily plan is on track.

Vancouver Coastal Health, the publicly-funded organization that operates Lions Gate Hospital, also uses McKesson Capacity Planner to analyze capacity and staffing at a regional level. After the solution was implemented successfully at five additional hospitals, the health authority began looking at ways to relieve congestion and optimize throughput across facilities.

For example, Vancouver General Hospital (VGH), the largest hospital in VCH, experienced "winter surge" every year and struggled to avoid cancelling surgery due to lack of beds. Physicians expressed interest in consolidating reconstructive orthopedic cases at the University of British Columbia Hospital (UBCH), also part of VCH. Using McKesson Capacity Planner's modeling feature, managers were able to test various scenarios to determine the annual volume of surgeries that could be moved and the associated impact on wait times. They were also able

Critical Issues

- Inability to predict patient demand
- 100 – 110 percent utilization rate

Variable labor costs with high overtime usage

Solution Spotlight

- McKesson Capacity Planner™

> **"The daily challenge to optimize flow for today's situation keeps continuous downward pressure on our length of stay."**
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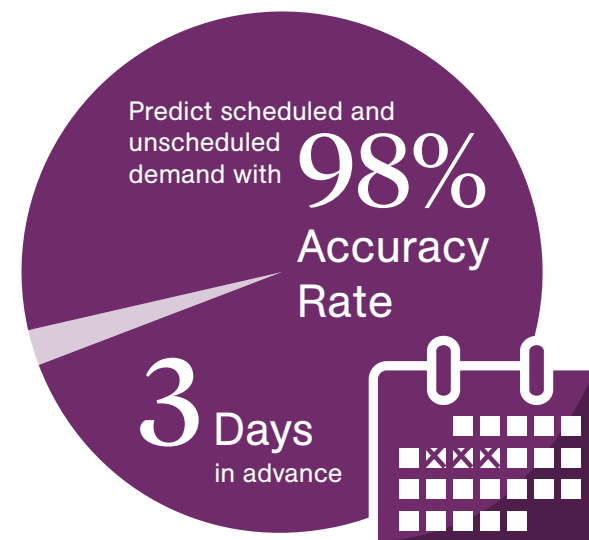> — Mark Chase, Executive Director of Decision Support

Predict scheduled and unscheduled demand with **98%** Accuracy Rate

3 Days in advance

to identify what adjustments were needed to best match inpatient census to staffing. "This is very complicated work, which was made possible with the use of the modeling tools," says Steven Kabanuk, Director VGH & UBCH Perioperative Services.

Management used McKesson Capacity Planner to model optimal OR flow and determine an OR allocation plan for the year, taking seasonal bed closures into account and determining elective bed requirements months in advance. They optimized weekly elective OR bookings

to meet targets, reduce waiting lists and alleviate logjams in the post-anesthesia recovery room.

Since implementing the solution three years ago, the health system has seen a $2.7 million reduction in staffing costs. It has also seen a 3 to 11 percent drop in nursing hours per patient day (NHPPD). "McKesson Capacity Planner has made a significant difference in the quality of the workplace for our staff, as well as the quality of care we provide," says Chase.

Contact us

To learn more about our McKesson Capacity Planner, contact your account executive or visit www.mckesson.com/providers/health-systems/department-solutions/capacity-and-workforce-management/mckesson-capacity-planner/.

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