

# Patient Placement Increased Floor Utilization 30%, Reduced Staffing, Saving \$608,000/year

An SBTI White Paper

## **Project Background**

Columbus Regional Hospital was experiencing a situation common to hospitals across the country: a higher than acceptable cost per discharge; unpredictable staff pattern and workload with high variation for staff schedules; unacceptably high overtime and agency usage; moderate occupancy rate with high patient transfers; inefficient throughput (surgery, ED, procedures); overspecialized care delivery contributing to quality of care issues; and a non-systematic approach to patient placement.

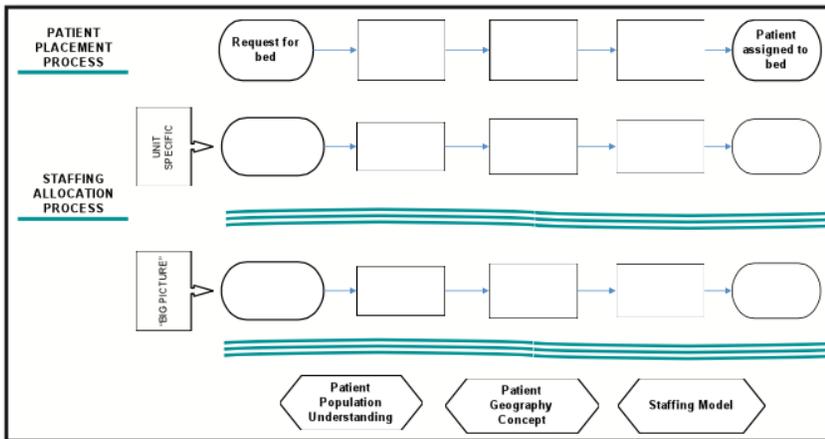
The hospital embarked on a four-phase project with the goal to develop:

- A new patient geography layout
- More appropriate patient-family groupings
- A more patient-centric nursing teaming model
- A demand-driven staffing model
- A robust patient placement process

## **Phase 1 – Assessment**

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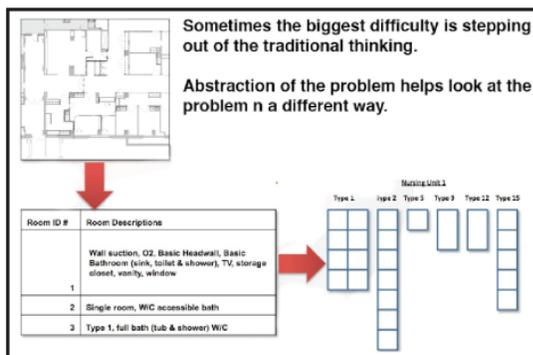
Phase 1 involved identifying the major metrics by which performance would be determined, along with the goals for the future state. Financial impact of the project was measured in terms of Cost per Adjusted (CMI) Discharge.



**Phase 2 – Concept Design**

Phase 2 revolved around construction of the conceptual elements. See Figure 1.

*Figure 1: Process and Organizational Concepts Involved in Patient Placement*



**Physical Facility:**

The team identified physical facilities for patient care by room types, special room needs, etc (Figure 2). For example: cardiac monitors, wide doorways, negative air flow, radiation implant rooms.

*Figure 2: Abstracted Physical Facilities*

**Patient Populations:**

The team identified small subsets of patient populations, their facility needs and nursing care needs. For example: chemotherapy and radiation patient placement in room with private bathroom cared for by nurses with chemotherapy and radiation therapy competency.

**Developing Patient-Family/ Geography Concepts:**

Multiple potential concepts were developed using the facility description, the population group facility and care needs, and patient annual demand profiles (Figure 3). The goal was to maximize room occupancy, minimize patient transfers, and group patients by room type and care requirement.

#	Population Description	Adult / Peds	Facility	Special Skill
...	...	...	...	...
8	<u>Radiation &amp; Chemotherapy Symptoms</u>	A	Bp	CH,R

Facility	Special Skills
Bp: Private bathroom	CH: Chemo
...	R: Radiation
...	...

Figure 3: Patient Populations by Type, Facility Need, and Special Skills Required

### Teaming Model Concepts:

The team created the Care Teaming Model by examining current work content, breaking down all work activities into component elements, determining “licenses” required and redistributing work content based on licenses and balance of workload.

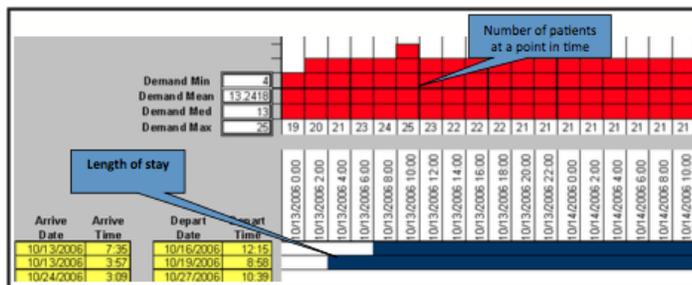
### Staffing Model Concepts:

The team constructed staffing “Running Modes” (Figure 5) and related them to demand levels. This was done by identifying the highest demand loading on the unit and then, using patient-family/geography as a backdrop, determining how the maximum staffing by role would look.

At this point, it was possible to create a Staffing Roster. The team has: measures of predicted demand, a required demand set point to maintain adequate staffing, and the relationship between demand set point and running mode.

### Financial Review:

Finance used the staffing concepts and roster predictions to determine the financial impact of the project.



### Staffing Allocation Process:

The team then focused on the process of allocating staff to nursing units. This typically involved focus on both the longer horizon scheduling of staff as well as the short term flexing of staff between units.

Figure 4: Understanding Instantaneous Demand

### Patient Placement Process:

Finally, the team focused on the process of placing patients on nursing units. They mapped current state process and created simple, streamlined routing decision rules for placement.

### Phase 3 - Detailed Design & Implementation

A description of detailed design and implementation plan was developed from Phases 1 and 2. Then the goals, duration and work content were determined once implications of concepts and new processes were understood.

“Lessons Learned” during implementation included:

- Implement the complete concept. This is a holistic, conceptual framework - all or nothing.
- Avoid permitting variation based on (physician) personal preference
- Plan for change
- Consistent message from management
- Accountability for the process, framework and roles at all levels
- Anticipate negative reaction to the concept
- Timely discussion on key roles and policy changes

#### Phase 4: Control Planning & Globalization

Once the working model was determined to be fundamentally stable, a Control Plan was developed. This plan encompassed the key control elements, such as triggers and tracking that ensure the model and supported processes are consistently and robustly followed. During Control Plan development, job descriptions, work content and reporting structures were formalized and communicated.

#### Results

Demand (Patients)	Running Mode	PCC	RN	CP	USP
16-20	Full	1	8	5	1
13-15	-1	1	7	4	1
11-12	-2	1	6	4	1
9-10	-3	1	5	3	1
7-8	-4	Float	4	3	Float
<6	-5	Float	4	2	Float

Using the disciplined, standardized approach of Lean Sigma in a rigorous, time-intensive project, the inpatient service at CRH was able to change the model of care to be more patient-centric, consolidate from six inpatient units to five (even with an 18% volume increase at go-live), increase floor utilization from 55% to more than 80%, and reduce inpatient annualized staffing costs by \$608,000. Since 2005, CRH leadership has been integrating Lean Sigma performance improvement into the way they do

business.

Figure 5: Relating Level of Demand to Running Mode

#### References:

1. Wedgwood, Ian. *Lean Sigma: A Practitioner’s Guide*. Prentice-Hall: Upper Saddle River, NJ, 2006.
2. Zinkgraf, Stephen. *Six Sigma: The First 90 Days*. Prentice-Hall: Upper Saddle River, NJ, 2006.

