CHOT Summer Healthcare IE Internship Program
Summer 2012

Title: Physician Assistant Staffing Model

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Project Dates: July - August 2012

Project focus

Nurse patient ratios give departments a benchmark for how many nurses are needed for adequate staffing. No such benchmarks exist for physician assistants. In the neurosurgery department, there are currently three physician assistants on staff, who provide care for patients after their surgery. Already feeling understaffed and with the most experience PA leaving end of August, the department is motivated, but unsure of how many new PAs they should hire. Our initial goal was to provide the neurosurgery department a tool to evaluate PA workload and aid in this essential decision, with an end goal to provide a general staffing tool for flexible utilization in other departments.

Results

All three physician assistants were interviewed and three full days of observations were done. Triangular distributions of task frequency and duration are a mix of interview estimates and observations results. Model results were also validated in this way. To make this tool practical for hospital use where resource intensive observations aren't feasible, the model accounts for under/over-estimated inputs with a simple self-validation algorithm. The daily model outputs an aggregated total of the hours needed to complete all tasks in a day, accounting for duplicate work that cannot be shared. Comparing this requirement with the PA hours available, overtime and percent utilization are derived. The four scenarios (slow, average, busy, and peak) represent common to extreme workload demands. A weekly model was also built for potential use with historical data that would capture daily seasonality.

Our recommendation is have three PAs on staff: two PAs on even an average day will each have overtime while three PAs can manage most days without overtime, occasionally staying late at peak levels. Seeing value in this staffing tool, the director of PA services, Debra Leven, is reaching out to other departments to collect data and test the model.

		Slow (35%)			Average (50%)			Busy (85%)			Peak (98%)		
# of PAs	**Hrs Avail**	Hrs Needed (Total)	Hrs Overtime (Per PA)	Util	Hrs Needed (Total)	Hrs Overtime (Per PA)	Util	Hrs Needed (Total)	Hrs Overtime (Per PA)	Util	Hrs Needed (Total)	Hrs Overtime (Per PA)	Util
1	12	20	7.9	166%	21	8.9	174%	24	11.6	197%	26	14.2	218%
2	24	23	-0.6	95%	24	0.0	100%	27	1.5	113%	30	3.0	125%
3	36	26	-3.4	71%	27	-3.0	75%	31	-1.8	85%	34	-0.6	95%
4	48	28	-4.9	59%	30	-4.5	63%	34	-3.4	72%	39	-2.3	81%
5	60	31	-5.7	52%	33	-5.4	55%	38	-4.3	64%	43	-3.3	72%