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Improving Patient Flow in America's Safety Net Hospitals: An Ethical Obligation to the Nation's Underserved Populations

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Abstract

Academic medical centers frequently serve as safety net hospitals, treating a large percentage of low income and uninsured patients. Emergency departments (ED) provide unscheduled care for these patients whose conditions range from non-urgent annoyances to life-threatening injuries. Most research has shown that only a fraction of these visits are truly emergencies. These visits contribute to ED overcrowding, often leading to delayed or denied admissions. A common misconception is that ED overcrowding is an ED problem. Rather, competing patient flows from ED and inpatient areas frequently converge to produce system-wide demand surges. During times of acute overcrowding, delays can frequently be attributed to lack of inpatient beds and resources, both of which are beyond the ED's control. Multi-disciplinary collaboration and system-wide cooperation is critical for successful patient flow management. This article presents evidence that improving patient flow enhances access to care for underserved populations, leads to better patient outcomes, and improves revenue for the organization.

Keywords: Patient Flow; Throughput; Safety Net Hospitals; Underserved Populations; Emergency Department Overcrowding

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Introduction

As medical reimbursement patterns change to benefit the insurer and heavy financial constraints are placed on hospitals, properly managing current resources takes priority over purchasing new fixed assets. Clearly, such resource management requires understanding and addressing organizational inefficiencies which lead to positive changes in health care policy. In hospitals across America, multiple patients following different care pathways are competing for a limited amount of shared resources. Today, more than ever, health care organizations struggle to reduce costs, maximize revenue, employ an experienced workforce, compete with other organizations, offer superior services, and improve patient care – essentially do more with less.

To maintain their market share and reputation, safety net hospitals cannot afford to continue sending patients elsewhere due to poor throughput management. Too often, such poor patient flow management results in hours, if not days, of medical-surgical and critical care diversions and periods of ambulance bypass which ultimately adversely effect patient care. Additionally, obligations to the consumers of health care and adherence to accrediting and regulating bodies urgently necessitate the need to reform current inadequate patient flow practices by safety net organizations across the country. By smoothing system-wide demand peaks whenever possible, patient flow will improve, diversions will be minimized, and access to care will increase.

Literature Review

Schappert and Burt (2005) note that African Americans and Hispanics have the highest utilization rates of emergency departments (ED) as a primary care setting than any other groups in the United States. According to DeNavas-Walt, Proctor, and Smith (2007), these two ethnic groups make up the overwhelming majority of families living in poverty, uninsured citizens, and recipients of government sponsored healthcare. Furthermore, McCraig and Nawar document that the African American ethnic group (the largest underserved group) has proved to be the most frequent user of emergency services nation-wide for both emergent and non-emergent cases (2006, p. 3). According to the Centers for Disease Control and Prevention, as cited by McCraig and Nawar (2006), the three largest payer groups who seek primary care and emergency services

in America's emergency departments are: those with government medical assistance (Medicare, Medicaid, and SCHIP), those who are classified as self-pay, and those seeking charity care (unable to pay).

According to Asplin, Flottemesch, and Gordon (2006), visits to America's EDs increased by 26% from 1993-2003, resulting in over 114 million annual visits. This, combined with a 15% decrease in the number of EDs in America (Stein, 2005, p. 279), clearly demonstrates that the imbalance in supply and demand for services is further waning. As noted by Miro, Sanchez, Espinosa, et al (2003, p. 146), the increasing importance of the emergency department as a provider of community health care has made it essential to periodically review the health system organization's ability to cope with such demands. According to The Joint Commission's *Sentinel Event Alert*, treatment delays in EDs are the source of just over one-half of all sentinel event cases of patient death or permanent injury. A root cause analysis of the ED sentinel events cited overcrowding as a contributing factor in 31% of the cases (2002).

In wide-spread efforts to decrease non-emergent cases in emergency departments, several organizations have attempted to divert lower acuity patients to other areas of the hospital such as after hour, on-site, or off-site clinics or urgent care centers. However, since "emergency departments are a fixed cost to hospitals, extraction of lower acuity-patients from the ED leaves it underutilized which increases the cost for truly emergent patients" (Rodi, Grau & Orsini, 2006, p. 168).

Often incorrectly viewed as unpredictable, Asplin, Flottemesch and Gordon (2006) demonstrated that ED census is highly predictable: "Emergency department census is cyclical; it follows predictable patterns according to time of day, day of week, and time of year" (p. 1110). Their research clearly illustrated that census peaks on Monday and falls through Sunday. Additionally, peak times occur between 2:00 and 5:00 p.m., with steady declines through the 6:00 a.m. hour (see Figure 1.).

A study conducted by Liu, Hobgood, and Brice (2003) revealed that "most patients experienced their most significant [emergency department] delays waiting on inpatient bed

placement...Therefore, further improvements in disposition would [more positively] impact throughput times” (p. 384).

Discussion

The purpose of this study was to evaluate the patient flow practices of an academic medical center and to identify opportunities to improve performance and therefore increase access to underserved populations. The medical center is situated in the state’s capital city and functions as a large safety net hospital. As the only academic medical center in the state, it provides the state’s residents with specialized services for which there are no suitable alternatives. Unfortunately, like most other safety net hospitals in the country, revenue collection for the organization is proportionately less than the area’s non-academic hospitals. Historically, nearly 62% of the organization’s expected revenue is paid by government insurance programs while 21% is from self payers, most of which is eventually written off as bad debt losses. With such relatively low revenue collection, combined with the perilous comfort of being the state’s only level-one trauma center, the hospital has an even greater obligation to improve patient flow.

Several signs of poor patient flow have been identified at the organization:

- The inpatient areas are frequently on diversion more than once a week;
- ED transfers from other hospitals are often denied due to bed shortages;
- Patient wait times in the EDs surpass several hours;
- Bed down times (duration of dirty but unoccupied rooms) often exceed 45 minutes;
- The majority of patient discharges occur later in the day;
- There is a daily inability to match planned admissions with specific beds before patient arrival; and
- Key patient flow statistics are not available at executive summary level.

During calendar year 2006, at some time(s) during the day, the hospital was on some form of inpatient diversion on 320.5 days. These diversions included critical care, medical-surgical inpatient, and psychiatric. During the same time period, the adult ED refused 743 attempted transfers, representing 13.04% of requests made from other hospitals (see Table 1.). Among the patients accepted and later admitted as inpatients, the average wait time (from presentation at ED

to disposition) was greater than seven hours. The Studer Group, a health care consulting firm, estimates that by decreasing ED stay by merely one hour, an additional 30 patients can be seen every day (Studer, 2006).

Reducing the average length of stay (ALOS) can not only have a profound impact on a hospital's patient capacity at any given time, but can also help the organization maintain its safety net obligations and increase revenue. With a system-wide inpatient ALOS benchmarked at 5.5 days, the medical center is currently bothered by an increasing ALOS of 5.85 days (up from 5.83 in 2006). Such a large variation over benchmark resulted in a loss of over 50,500 potential admissions last year. One method to slowly decrease ALOS is to focus on efficient output which will allow for earlier and more consistent input. Such efficient output requires early discharges, a product of early patient rounds and quick turnaround on diagnostic tests. In an effort to release resources for early admissions, the hospital established a goal of 50% of discharges occurring before noon. Unfortunately, in 2006 only 18.16% of all discharges met this goal. Among the 82% of discharged patients who left after noon, nearly 20% left after 6:00 p.m. (see Table 2.).

Perceived as one of the most important services of safety net and academic health centers, the organization's surgical services have been forced to contend with the consequences of poor patient throughput. In 2006, over 3,550 surgeries were canceled. According to the Systems Analyst of Operative Services, approximately two-thirds of those cases were cancelled by the hospital (as opposed to being cancelled by the patient), with the majority being cancelled due to a lack of inpatient beds. Additionally, one-third of all first cases in the operating rooms were delayed due to full inpatient and intensive care units. Another problem experienced by surgical services involved the 956 postoperative patients who remained in the post anesthesia care units longer than expected.

In 2002, the Robert Wood Johnson Foundation implemented the Urgent Matters campaign which was designed to find solutions to the increasing problem of ED overcrowding in America's safety net hospitals (Wilson & Nguyen, 2004). The program was implemented by ten hospitals across the country and each organization was given the autonomy to implement its own strategies based on four guiding principles:

- Recognize that ED crowding is a hospital-wide problem;
- Multi-disciplinary, hospital-wide involvement is necessary;
- An advocate for organizational change must be selected to oversee the plan; and
- Administrative support is critical.

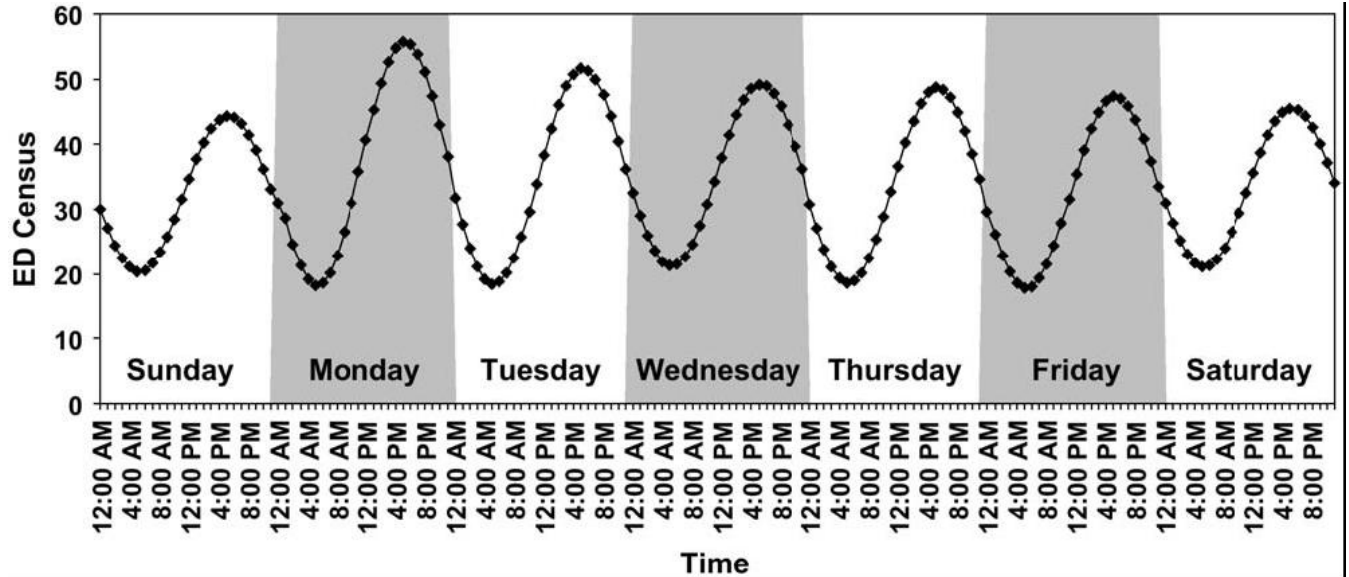
Based loosely on the four principles of the Urgent Matters campaign, the academic medical center implemented a patient flow initiative to reduce barriers to health care access. The aim of the plan was to transform a fragmented patchwork of isolated attempts into an integrated and well coordinated program of patient flow management. The methodology placed a special focus on the involvement of key stakeholders throughout the organization. Backed by top administration, hospital staff members at various levels and from multiple disciplines were charged with:

- Acknowledging the significance of the problem;
- Finding or estimating data that shows the current status;
- Thoroughly assessing the data;
- Implementing and evaluating proposed plans for improvement; and
- Communicating the importance of the endeavor to staff members at all levels.

Success of the initiative centered around the formation of five key task forces or teams: 1.) Emergency Department team, 2.) Operating Room team, 3.) Long-stay team, 4.) Discharge before noon team, and 5.) Communications, signals, and contingency planning team. Each of the five teams was led by members perceived by their peers as experts in their clinical area. They were noted by their supervisors to be facilitators of change and willing to accept challenges. In addition to frequent task force meetings, the leaders attended meetings led by a project facilitator to prevent duplication or nullification of efforts by the other task forces. Each team incorporated the use of ad hoc participants from various service areas. These participants provided input, suggestions, and explanations while also implementing department-specific actions as recommended by the teams. By empowering certain key employees, the organization capitalized on better communication, well-informed and realistic decision making, and collaborative troubleshooting.

Due to their large size and structure, academic health care settings' strengths rest primarily in their human resources. Consequently, to create positive change, multi-disciplinary staff empowerment is critical. Successes at these safety net organizations are measured by a variety of standards: saved lives, research products, persons treated, procedures performed, and financial improvements; but the most important measurement is how they meet their obligations to consumers. Overwhelmingly across America, the underserved populations are forced to endure the consequences of poor patient flow management in academic health systems. If these safety net hospitals are willing to implement well organized, multi-level patient flow initiatives driven by key individuals, their benevolent missions will have a greater likelihood of being accomplished and access to health care will improve.

Figure 1. Cycle of Emergency Department Census



Source: Asplin, Flottemesch and Gordon (2006). Based on national data, not specific to any single organization.

Table 1. Disposition of Emergency Department Transfer Requests: 2006

2006 Adult Emergency Department Transfer (Outside ED to Host ED)					
		Transfers Diverted		Transfers Accepted	
Month	Total	Number	Percent	Number	Percent
January	501	77	15.37%	424	84.63%
February	441	68	15.42%	373	84.58%
March	472	64	13.56%	408	86.44%
April	448	56	12.50%	392	87.50%
May	486	78	16.05%	408	83.95%
June	499	90	18.04%	409	81.96%
July	501	67	13.37%	434	86.63%
August	479	52	10.86%	427	89.14%
September	481	43	8.94%	438	91.06%
October	470	57	12.13%	413	87.87%
November	438	38	8.68%	400	91.32%
December	480	53	11.04%	427	88.96%
Total:	5696	743	13.04%	4953	86.96%

Table 2. Discharges by Day and Time: 2006

Average Weekly Discharges By Day and Time for 2006								
	SUN	MON	TUE	WED	THUR	FRI	SAT	Totals
00:00			4	3	1			8
01:00	2		1	2		1		6
02:00	3		3			2		8
03:00					1	2		3
04:00	2	2		2		1	2	9
05:00			1	1	1		3	6
06:00		1		2	1	1	3	8
07:00	1		2			3	2	8
08:00	4		4	1	1			10
09:00	3	2	1	7	1	4	1	19
10:00	5	4	5	5	6	6	5	36
11:00	5	10	6	7	11	13	5	57
12:00	6	9	3	13	13	15	9	68
13:00	8	10	10	6	27	14	8	83
14:00	6	13	21	11	16	19	14	100
15:00	8	8	17	8	14	12	15	82
16:00	1	5	14	9	10	13	6	58
17:00	4	9	10	10	7	10	2	52
18:00	5	10	10	6	10	7	3	51
19:00	2	5	9	5	7	2	1	31
20:00	1	4	3	1	5	2	1	17
21:00	3	3	2	3	3		2	16
22:00		1				1	1	3
23:00	1	2		1		1		5
Totals:	70	98	126	103	135	129	83	744

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