

The Balanced Scorecard: A Multidimensional Tool for Performance Improvement in Pediatric Anesthesia

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Introduction:

Continuous performance assessment and improvement are critical to the survival of all organizations. An assessment tool the health care industry has started to use is the Balanced Scorecard (BSC). The authors present their BSC, a multidimensional framework linking their department's values and goals with day-to-day activities. The BSC measures performance along multiple dimensions and the results are used to drive change and improvement.

Methods:

Our BSC, implemented over the past 2 years, contains indicators for patient health outcomes (clinical and functional), service quality, productivity, efficiency and work-life balance. The Institute of Medicine's six aims for improvement (safety, timeliness, efficiency, equity, effectiveness and patient-centeredness) served as the basis for our indicators.

- Clinical care indicators (post-operative respiratory complications, anesthesia adverse event rate and compliance with antibiotic administration to reduce surgical site infections) address patient safety.
- Functional status indicators address anxiety and pain. Anxiety is measured by the quality of the induction process, and quality of pain management is measured by post-operative pain scores.
- Service quality indicators include parental satisfaction and discharge times for common ENT procedures.
- Efficiency indicators include patients assessed per nurse practitioner per day, relative value units per FTE anesthesiologist per day, and concurrency (ORs to anesthesiologists).
- Staff well-being indicators include time components (staff release times and delivery of scheduled academic time).

Results/outcomes:

Improvement from baseline on most scorecard indicators (see Table).

- Clinical care indicators: % of patients with post-operative respiratory complications decreased from 9.8 at baseline to 2.2. Compliance with antibiotic administration increased from 60% at baseline to 98%.
- Functional status indicators: % of children experiencing distress on induction of anesthesia decreased from 7 at baseline to 2.
- Service quality indicators: % of parents highly satisfied increased from 84 at baseline to 95.
- Cost/efficiency indicators: relative value units per FTE anesthesiologist per day increased from 68 at baseline to 78.

Balanced Scorecard - Division of Anesthesia													
4th Quarter Fiscal Year 2006													
Access Flow Safety C/N Excellence Nurse Reduction Start/Waiting										Effective Timely Efficient Equitable Safe Patient-Centered			
					Baseline	Benchmark	Current	Goal 2006					
CLINICAL CARE INDICATORS													
Post-op respiratory complications for outpatients:													
	X	X			% of patients having post-operative respiratory complications	9.8%	9.4%	2.2%	3.0%			X	
	X	X			Anesthesia Critical Event Rate	3.8 / 1000	4 - 32 / 1000	3.4 / 1000	1 / 1000			X	
	X				Compliance with Antibiotic Administration	60%	Unknown	98%	100%	X		X	
FUNCTIONAL STATUS INDICATORS													
Quality of the Anesthesia induction process:													
	X				% of children experiencing distress during the anesthetic	7%	17%	2%	3%	X			
Postoperative pain scores (PACU):													
	X				1) % of patients comfortable on arrival to PACU	88%	Unknown	75%	> 90%	X			
	X				2) % of patients in pain made comfortable within 10 minutes	55%	Unknown	87%	> 65%	X			
SERVICE QUALITY INDICATORS													
Time spent in PACU:													
	X				Time from entry into PACU when discharge criteria met for outpatient ENT surgery								
	X				1) Placement of ear tubes (in minutes)	30	Unknown	34	TBD	X			
	X				2) Tonsillectomy & Adenoidectomy (in minutes)	53	Unknown	108	TBD	X			
Parental Satisfaction:													
					84%	Unknown	95%	> 90%					
					0%		0%	< 3%				X	
COSTS/EFFICIENCY													
	X				Number of patients seen per Nurse Practitioner per day	10	Unknown	11	18	X			
					Relative Value Units/FTE Anesthesiologist	68	62 / 70	78	75	X			
					Concurrency	1.05		1.41	1.4	X			
OTHER QUALITY: WORK LIFE BALANCE													
	X				1) Academic time as scheduled	98%	Unknown	99%	90%				
	X				2) Release of non-call staff from Operating Room	92%	Unknown	91%	80%				
	X				3) Release of post-call staff from Operating Room	91%	Unknown	97%	90%				

PACU, AP, PP, TBD (respectively, post-anesthesia care unit, academic practice, private practice, to be determined)

Discussion:

Presentation and discussion of BSC data at quarterly staff meetings enables us to implement and monitor process improvement initiatives as compared to national benchmarks. Financial incentives are linked to performance improvement goals for individuals and for the department. *Balance* is the key objective (i.e., increasing efficiency should not adversely impact parent satisfaction or staff well-being), and, as a result, the BSC is an evolving measurement tool, with existing indicators refined and new indicators added. A key future initiative is to automate both the data collection and analytical systems.

Summary:

The BSC links mission with strategy and operations, and answers the question, “How well are we doing what we professed and planned to do?” Critical to success are a high level of organizational commitment to continuous improvement, individual ownership of the indicators and the process, and strong IT support. The authors believe the BSC is a critical tool for continuous improvement easily adapted in any health care environment.

References:

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