Hospital Support for Anesthesiology Departments: Aligning Incentives and Improving Productivity

Laureen L. Hill, MD, MBA
Emory University School of Medicine

EMORY UNIVERSITY SCHOOL OF MEDICINE

Disclosures

- I have no disclosures related to this lecture

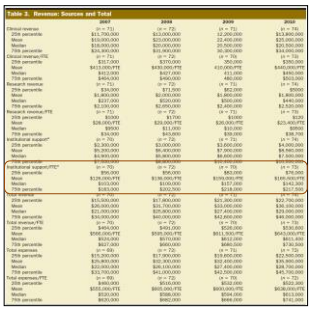
Objectives

- Review the factors that drive anesthesiology practice dependence on economic support
- Examine the mechanics of anesthesiology productivity and traditional models of OR governance
- Discuss a conceptual framework that redefines the anesthesiology-hospital operational and financial relationships

The Issues: Financial Dependence

Kheterpal S et al; Anesth Analg 2011;112:1480 –6

- Anesthesiology groups are increasingly dependent on support



The Issues: Academic "Burden"

- Academic groups are disproportionately affected
  - Multiple specialty call demands
  - Longer case length
  - Concurrency limitations
  - Unfavorable payer mix
  - University taxation
  - Academic missions require cross-subsidy (cost share, GME decreases)

The Consequences: Hospital Relationship

- Dependence on hospital support may erode department autonomy
  - staffing patterns, resident workforce, service /site choices i.e. preop clinic
- Particular hospital focus on clinical services and costs
  - Lack of clarity around financial drivers (call, remotes, OR block policies)
  - Lack of aligned interest in academic missions
  - Poor understanding of opportunity in leveraging anesthesiologist expertise
- Negotiations may be difficult and strain relationship
  - Hospital emphasis on *support* rather than *service*
- Stigma of "charity"
- Competition from external groups offering economies of scale

Table 1. Summary of Article

Substantive Opportunities for Cost Reduction

1. Reduce Unnecessary Interventions That Do Not Have Potential To Benefit Patients
   - *Anesthesiologists' roles are as managers (systems-based practice):*
     - Medical Director of Preoperative Assessment Clinic
     - Director of Anesthesia Informatics
       - Effectiveness depends on feedback to clinicians from AIMS
   - *Use applies to nearly all facilities*
   - *Use is encouraged by the "Choosing Wisely" campaign*
   - *Use is related to new payment systems*
   - *Research opportunities for additional interventions and assessment of value*
2. Staff Scheduling, Case Scheduling, and Staff Assignment
   - *Anesthesiologists' roles are as managers (systems-based practice):*
     - Director of Anesthesia Informatics
     - Operating Room Medical Director
       - In this role, the anesthesiologist has other opportunities to reduce costs
         - Example: decreasing use of expensive disposables and implants
   - *Cost reduction applies principally to facilities with workdays > 8 hours (e.g., hospitals)*

Limited Opportunities for Cost Reduction

3. Preoperative: Reducing Nonadministrative Causes of Cancellations
   - *Anesthesiologists' roles potentially not only as managers but also as clinicians*
   - Facilities can *have typical or low cancellation rates using traditional systems*
   - *Decreasing typical cancellation rates to low rates does not decrease costs*
     - Such unexpected findings highlight the value of anesthesiology research
4. Intraoperative: Reducing Operating Room Time (i.e., Increased "Throughput")
   - *Anesthesiologists' substantive roles are while functioning as managers:*
     - Operating Room Medical Director
     - Director of Anesthesia Informatics
   - *Facilities have had financial incentives (profit) for rapid throughput for decades*
   - *Interventions require investment of increased resources (e.g., extra housekeepers)*
   - *Potential for cost reduction at some (few) facilities:*
     - Same surgeon filling OR for > 8 hours
     - Application of Section 2 staff scheduling, case scheduling, and staff assignment
5. Postoperative: Reducing Length of Stay ("Enhanced Recovery")
   - *Anesthesiologists' roles heavily clinical*
   - *Hospitals have had financial incentives (profit) for reducing length of stay for decades*
   - *Efficacy of Enhanced Recovery programs not in question, cost reduction is critical*
   - *Potential for cost reduction at some (few) facilities:*
     - Intervention can be applied to large percentage of patients on a ward
     - Potential for decreasing number of ward nurses

Strategies for Net Cost Reductions with the Expanded Role and Expertise of Anesthesiologist in the Perioperative Surgical Home

Dexter F et al Anesth Analg 2014; 118:1062-1071

The Need

- Design an approach to benefit both hospital <u>and </u>anesthesiology groups
- Create mutual incentives for increased volume, efficiency and productivity
- Provide adequate compensation to recruit and retain talent
  - Tie to benchmarks, safeguard department compensation decisions
- Preserve autonomy around decisions important to each
  - e.g. staffing ratios, resident training assignments, OR capacity, remote sites

Calculating Institutional Support That Benefits Both the Anesthesia Group and Hospital

Dexter F et al Anesth Analg 2008: 106:544-53

Table 1. Known Compensation for Operating Room (OR) Anesthesia

The anesthesia group receives institutional support from a hospital equaling

(total annual scheduled hours on workdays + total annual scheduled hours on weekends and holidays)
× (reasonable compensation per scheduled hour based on survey data)
− (net collections of the anesthesia group)

For example,

([250 workdays] × [8 ORs × 8 h + 4 ORs × 11 h + 1 OR × 24 h] + [(365 − 250) other days] × [1 OR × 24 h])
× ([50th percentile for compensation and expenses of a CRNA and ½ time of an anesthesiologist, using regional value from 2005 group survey and 3% inflation rate] ÷ [2000 scheduled clinical hours per year])
− (2005 net collections of the anesthesia group for the 13 ORs)

- Minimum compensation is predictable and "reasonable"
- Advantageous when reimbursement is low

- No department incentive to produce more
- Influenced by billing practices/efficiencies…no incentive to collect more
- Based on *scheduled* hours….*worked* hours and expenses may be greater

Calculating Institutional Support That Benefits Both the Anesthesia Group and Hospital

Dexter F et al Anesth Analg 2008: 106:544-53

Table 2. Compensation for Inefficient Use of Operating Rooms

The anesthesia group receives institutional support from a hospital equaling[2]

(expected annual incremental hours of inefficiently used OR time on workdays from staffing and case scheduling
+ expected annual incremental inefficient hours on weekends and holidays)
× (reasonable compensation per scheduled hour based on survey data)

For example,

([250 workdays] × [26 incremental inefficient hours sustained daily by the anesthesia group]
+ [(365 − 250) other days] × [14 incremental inefficient hours sustained daily by the group])
× (50th percentile for compensation and expenses of a CRNA and ½ time of an anesthesiologist, using regional value from 2005 group survey and 3% inflation rate) ÷ 2000 scheduled clinical hours per year).

- Allows hospital to provide capacity for surgical growth and flexibility
- Incents hospital to minimize overutilization which is more costly
- Incents departments to drive efficiency which will yield greater profit

- Based on *projected* inefficiency rather than *actual*
- Excessive schedule overruns not addressed

A Conceptual Framework Needed

- Identify key drivers of financial performance for hospital and department
- Identify motivational forces that govern behavior and align incentives
- Preserve department autonomy and hospital programmatic control
- Apply principle of shared costs and partnership for sustainability
- Use data to inform better decision-making
- Shift from focus on utilization…..what is *consumed* → what is *produced*?

The Case for Productivity vs Utilization

- Assume 8 hr block and 30 minute TOT and 80% utilization target
  - Pvt T: 80% utilization= 3 cases (6hrs =case + TOT) x 8.31 tASA/case = 24.93 tASA
  - Acd G: 80% utilization = 2 cases ((5.7 hrs =case + TOT) x 6.62 tASA/case = 13.28 tASA

Anesthesiology 2002; 97:608–15 © 2002 American Society of Anesthesiologists, Inc. Lippincott Williams & Wilkins, Inc.

Comparing Clinical Productivity of Anesthesiology Groups

Amr E. Abouleish, M.D., M.B.A., Donald S. Prough, M.D.,† Charles W. Whitten, M.D.,‡ Mark H. Zornow, M.D.,§ Asa Lockhart, M.D., M.B.A.,‖ Lydia A. Conlay, M.D., Ph.D., M.B.A.,# James J. Abate, M.A.***

Table 6. Specific Data on Four Selected Groups and Means for All Groups

	Median (n = 20)	Group T	Group O	Group F	Group G
Private or academic	All	Private	Academic	Private	Academic
OR sites	17.6	24.0	17.0	17.0	35.0
Concurrency	1.49	1.26	1.89	1.00	2.06
tASA/OR site	12,500	15,949	15,041	13,008	12,902
h/OR/d	7.2	7.7	9.1	5.9	7.8
Cases/OR site	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
h/case	2.1	1.5	3.2	1.4	2.6
tASA/h	7.21	8.31	6.64	8.87	6.62
Base/case	6.24	6.39	8.39	6.80	6.87

"Hypothetical" Academic Scenario

- Assumptions:
  - 8 hr block maximal utilization with no overtime
  - Turnover times are 30 minutes
  - Surgeon A performs procedure z in 3.1 hrs
  - Surgeon B performs procedure z in 7 hrs
- Calculations:
  - Surgeon A does 2 cases in 6.7 hrs including TOT = 83.7% utilization
  - Surgeon B does 1 case in 7 hrs = 87.5% utilization
- Conclusion:
  - Surgeon A has lower utilization but greater productivity – more desirable!!!!

Business Characteristics

A. "Availability" services……manpower intensive with inadequate revenue opportunities to cover costs
   - On-call teams
   - Pre-op / PACU
   - Directorships
   - OB (low volume setting)
   - CCM coverage

B. "Productivity" services……can be managed for high efficiency
   - Elective OR locations
   - High case-density sites (i.e. GI endoscopy)

C. "Remote" services……anesthetizing locations that may have low case density and are inherently inefficient but may be necessary
   - Interventional radiology, cath lab, EP lab, ± Obstetrics (high volume)

Financial Agreement Principles: A and C

- "A"
  - Hospital identifies/selects requested services
  - Department determines cost of services (salary + benefits)
  - Cost share arrangement determined based on reimbursable services and NPSR
- "C"
  - Department determines expense structure on a cost per location basis
  - Hospital selects sites and operating hrs for remote locations
  - Dollar transfer based on costs minus reimbursements….."make whole"

Table 2
Remote Services Costs Per Annum*

	8-hour option		10-hour option		12-hour option	
Number of teams†	Total costs	Cost per room	Total costs	Cost per room	Total costs	Cost per room
One team in one location	$471,011	$471,011	$572,211	$572,211	$673,411	$673,411
Two teams colocated at one site	$851,630	$425,815	$1,038,850	$519,425	$1,226,070	$613,035
Three teams colocated at one site	$1,041,940	$347,313	$1,272,170	$424,057	$1,502,400	$500,800

Developing Productivity-Based Metrics "B"

- Need a measure for both OR inputs and outputs
- Output must reflect *operative* work….(surg RVUs include non-operative work)
- True economic input includes resources *provided* not just those *consumed*
  - Salaried staff are largely fixed expenses
  - Published metrics exclude opportunity costs of idle hours (e.g. units/ case or units/site or units/billed hr)
- Metric should not be dependent on billing performance or staffing choices
- Easy to measure

Part B Metrics and Principles

- Input defined as "covered hours" as determined by hospital
- Output defined as total ASA units produced
- Productivity metric established ……**# Units / Covered Hour**
- Target metric set……what is achievable?
  - Historical department data
  - Published data (Abouleish et al. Anesth Analg 2003; 96)
- Dollar transfer = (target – actual units/covered hr) x (dollar / unit)
  - Set < NPSR as incentive …….idle time less profitable than productive time
  - Validated using department break even analysis

Reporting Tool Part "B"

Table 4
ABC Contract* Reporting: Actual Productivity (in Units per Covered Hour) Achieved and Percentage of Target† Productivity Achieved

		Actual productivity in relative value units per hour				Productivity achieved as percent of target†			
Date	Pod‡	Overall	7 AM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	Overall	7 AM to 3 PM	3 PM to 5 PM	5 PM to 7 PM
January to December 2008	1	3.77	4.10	2.49	2.93	62.8	68.3	41.5	48.8
	2	4.67	4.86	4.10	3.56	77.9	80.9	68.3	59.3
	3	4.84	4.99	4.43	3.72	80.7	83.2	73.9	61.9
	4	3.90	4.04	3.10	N/A	65.0	67.3	51.7	N/A
January to December 2007	1	3.99	4.29	2.79	3.41	66.5	71.5	46.5	56.8
	2	4.70	4.80	4.47	3.94	78.4	80.0	74.6	65.7
	3	4.71	4.87	4.34	3.46	78.5	81.2	72.4	57.6
	4	4.38	4.51	3.62	N/A	73.0	75.2	60.4	N/A

Outcomes

- Improved department finances → faculty satisfaction and retention
  - Contract generated 14.6% total clinical revenues in first three years
- Shifted focus from *utilization* to OR *productivity* and throughput
- New data tool informed and illuminated hospital capacity decisions
- Financial transfers linked to hospital administrative decisions (no charity)
- Department financially aligned with hospital strategic initiatives
- Independent negotiations for service eliminated (e.g. radiology, EP)

The Next Steps and Takeaways…….

- Need to account for over-utilized time which is more costly
  - Establish new target units based on premium costs outside contract hours
- Surgeons and proceduralists have no incentives under this contract
  - Enact cost transfer agreements based on productivity
  - Set target range of 95% - 105% of target units/covered hr
  - Below target costs and above target revenues passed-on to surgical groups
- Financial "signal" to hospital must be adequate to drive good decisions
- ASA units poorly understood and therefore potential barrier to overcome in negotiations……"OR work units" may be favorable terminology

Questions??

BIBLIOGRAPHY

1. Hill LL, Evers AS. Hospital support for anesthesiology departments: Aligning incentives and improving productivity. Acad Med. Mar 2012; 87(3):348-55

2. Dexter F, Epstein RH. Calculating institutional support that benefits both the anesthesia group and hospital. Anesth Analg. 2008 Feb;106(2):544-53

3. Dexter F, Wachtel RE. Strategies for net cost reductions with the expanded role and expertise of anesthesiologists in the perioperative surgical home. Anesth Analg. 2014 May;118(5):1062-71

4. Kheterpal S, Tremper KK et al. Workforce and finances of the United States anesthesiology training programs: 2009-2010. Anesth Analg. 2011 Jun;112(6):1480-6

5. Abouleish AE, Prough DS, et al. Comparing clinical productivity of anesthesiology groups. Anesthesiology. 2002; 97:608–615

6. Abouleish AE, Prough DS, et al. Designing meaningful industry metrics for clinical productivity for anesthesiology departments. Anesth Analg. 2001; 93:309 -312

7. Abouleish AE, Prough DS, et al. Organizational factors affect comparisons of the clinical productivity of academic anesthesiology departments. Anesth Analg. 2003; 96:802–812

8. Abouleish AE, Prough DS, et al. The impact of longer-than-average anesthesia times on the billing of academic anesthesiology departments. Anesth Analg. 2001; 93:1537-43