The Business and Social Case for Nursing

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Context for presentation

- Bending the cost curve/searching for value
 - About to enter new period of cost containment in health care
 - 1980s-1990s: Hunterization of cost containment
 - Nursing as cost center, rather than service line
- New era perhaps more sophisticated
 - Ambulatory: Accountable care organizations, medical homes
 - Inpatient: Pay for performance, nonpayment for never events
 - Nursing sensitive conditions as never events
 - Readmissions

Implications

- Need for nursing to establish
 - Service line
 - Contribution to value for organization (business case)
 - Need to change policy/payment to value what patients value

Context for Presentation

- Value to whom? Whose perspective?
 - Social perspective
 - Value to patients and society, ignoring costs
 - Broader perspective
 - Value to patients and society that exceed costs
 - The perspective of the institution providing care, implementing initiative and bearing its costs
 - Business case
 - Gains, direct or indirect, must exceed costs

The Business Case for Quality

- Discussions of the business case key off Leatherman, Berwick et al, Health Affairs, 2003
- "A business case for a health care improvement intervention exists if the entity that invests in the intervention realizes a financial return on its investment in a reasonable time frame, using a reasonable rate of discounting. This may be realized as "bankable dollars" (profit), a reduction in losses for a given program or population, or avoided costs. In addition, a business case may exist if the investing entity believes that a positive indirect effect on organizational function and sustainability will accrue within a reasonable time frame."

Some reflections on this definition

Business case can be based on:

- Net cost savings
- Increased revenues
 - Direct
 - Halo effect of being viewed as quality institution
- If there is net economic value, in principle economic and business case can be brought into alignment
 - Extending this, if there is net value to patients, patients should be willing to pay for initiative either directly or via increased premiums

Leatherman and colleagues found alignment was not automatic

- Indeed, rare in the four case studies they examined
- Selected cases where value had been previously demonstrated
 - In all four cases, case for service was favorable for patient and society
 - In 3 of 4, business case for provider unfavorable, and mixed for employers and insurers

Balance of presentation

- Evidence of value of nursing to patients and patient care
- Business case analyses of the value of nursing <u>in current</u> <u>environment</u>
 - Inpatient
- Changing the business case environment
 - Payment and regulatory/accreditation incentives
 - Active engagement in improving performance

NURSING MATTERS Nurses Impacts on Patient Outcomes

- Nurses' work is core function of hospital care
 - Have outpatient surgery, imaging, labs, therapy
 - Only reason patient is hospitalized is they need nursing care
- Range of outcomes influenced by nurse staffing reflect range of nurses' work
 - Delivering ordered care
 - Assessment and monitoring
 - Timely and appropriate intervention
 - Coordination and patient management
 - Patient education
- Because nurses involved in all aspects of care, interacting with other care givers, identifying the contribution of nursing to care, safety, quality, efficiency is difficult to parse out

Outcomes Associated with Nursing Research studies looking at specific outcomes (c.2007)

	RN Proportion of Nursing		RN hours per patient day		Other Nursing Variables	
Outcome or complication	Find assoc	Do not find assoc	Find assoc	Do not find assoc	Find assoc	Do not find assoc
Mortality	1	1	9	6		
Failure to rescue	1	1	2	1		
Pneumonia	4	1	7	1	1	2
Urinary tract infection	4	1	4	2	2	2
Post-op infection	2		2			1
Sepsis		2	4	3	1	1
Nosocomial infection			3			
Deep vein thrombosis		1	1	1		
Shock or cardiac arrest	1	1		1		
Upper gastrointestinal bleeding	1	1	1	1		
Pressure ulcers	4	2	3	3		

	RN Proporti	on of Nursing	RN hours per	r patient day	Other Nurs	ing Variables
Outcome or complication studied	Find assoc	Do not find assoc	Find assoc	Do not find assoc	Find assoc	Do not find assoc
Pulmonary failure		1	2	1		
Pain management	1		1		1	
Medication errors	2	2	2	1	1	3
Falls	3	1	2	1	2	2
Restraint use			3			
Length of stay	2	1	8	1	1	1
Functional independence	1					
Patient satisfaction	3	1	1		1	1
Patient complaints	1		1			
Readmission			1			

Characteristics of these studies

- Limited definition of what aspects of nursing are studied
 - Choice of measures and models has been opportunistic
 - Based on data availability
 - Few studies of staffing other than levels and RN/LPN mix
 - Other dimensions not analyzed:
 - Organization, management, work environment or specific characteristics of nurses

Finding an effect of nursing not straightforward

- Negative findings can reflect heterogeneity of patients or settings, and small sample sizes
 - E.g., no observed effect in medical patients, but observed in surgical
 - no effect in ICU, but effect in med-surg
 - Unit level analyses in NDNQI and CalNOC data sets

Conclusions of these studies

- From these studies, conclude that nurse staffing is associated with wide range of outcomes
 - Some with serious implications for long term health, e.g.
 - Mortality
 - Mixed results
 - Stronger for failure to rescue in surgical patients
 - Cardiac arrest, falls
 - Some with implications for costs
 - Length of stay, pneumonia
 - Others may reflect indirect costs to hospital
 - Patient dissatisfaction leading to lower volume?

From the business case perspective

- Research shows having adequate nurse staffing can reduce lengths of stay, complications and costs -- social case ignoring costs
- Hospital managers at low staffed hospitals might ask:
 - How much would it cost to increase nurse staffing?
 - Would these costs be offset by cost savings?
 - Would the hospital realize these cost savings or, because of how the hospital is paid, would these savings be captured by payers?
 - Can the hospital attract additional profitable patients on the basis of its nurse staffing?
 - Are there other cost savings than those via better patient care that might also be realized if nurse staffing is increased?
- Several partial models address these questions, using some but not all outcomes influenced by nursing

Needleman, Buerhaus, Business Case for Nursing

- Needleman, Buerhaus, NEJM, 2002 examined two dimensions of staffing
 - Hours/patient day
 - RN/LPN mix
- Wide variation across hospitals
- Robust association of staffing variables and outcomes for:
 - Medical patients: length of stay, urinary tract infection, pneumonia, upper GI bleeding
 - Surgical patients: failure to rescue
- Incorporated results into business case analysis in Health Affairs, 2006
- Updated in Needleman, PPNP, 2008, "Is What's Good For The Patient Good For The Hospital? Aligning Incentives And The Business Case For Nursing"

Avoided Days and Adverse Outcomes Associated with Raising Nurse Staffing to 75th Percentile

Estimates from Needleman/Buerhaus, Health Affairs, 2006

	Raise RN Proportion	Raise Licensed Hours	Do Both
Avoided Days	1,507,493	2,598,339	4,106,315
Avoided Adverse Outcomes Cardiac arrest and shock, pneumonia, upper gastrointestinal bleeding, deep v ein thrombosis, urinary tract infection	59,938	10,813	70,416
Avoided Deaths	4,997	1,801	6,754

A note on cost offsets

- Would hospitals save full (average) costs of reduced length of stay and complications?
 - If not, save only marginal or variable costs, estimated at 40%
- Over long term, might expect hospitals to recover or redirect fixed costs to:
 - Scaling back to reflect change in volume
 - Increasing volume in other or replacement services
- Therefore look at net savings two ways, assuming
 - Only variable costs saved
 - Fixed costs also saved

SOCIAL AND BUSINESS CASE FOR NURSING

		Raise	
	Raise RN	Licensed	
	Proportion	Hours	Both
Cost of higher nursing	\$811 Million	\$7.5 Billion	\$8.5 Billion
Avoided costs (full cost)	\$2.6 Billion	\$4.3 Billion	\$6.9 Billion
Long term cost increase	(\$ 1.8 Billion)	\$3.2 Billion	\$1.6 Billion
As % of hospital costs	-0.5%	0.8%	0.4%
Short term cost increase			
(save 40% of average)	(\$ 2.4 Billion)	\$5.8 Billion	\$5.7 Billion
As % of hospital costs	-0.1%	1.5%	1.4%

- Principal source of avoided costs is avoided days
 - LOS changes averaged over all patients, while complications rare
 - LOS change approximately ¼ day of a 5 day admission
 - Some due to reduced complications, both measured and unmeasured
 - Also likely associated with improved ability of nurses to deliver care efficiently
 - Complete admission/discharge process & reduce delays
- Given relative magnitude of savings, it is unlikely that increasing complications included in analysis would substantially add to cost savings
 - Dall, et al., Medical Care adds more adverse events, alternative modeling, similar conclusion

- Level of net cost or savings is sensitive to judgment of how to deal with fixed costs
 - Considering only variable costs, moving hospitals to 75th percentile of both staffing measures adds net of 1.5%
 - Considering fixed costs, adds net 0.4%
- Estimate also based on current nursing models

- Increasing proportion of RNs without increasing hours recovers its costs, even considering only variable costs
 - Economic case
 - Whether business case depends on whether hospital retains savings
- For other two options, net costs are not recovered via direct patient care savings
 - But cost increases are relatively small, 1.5% if only variable costs recovered, 0.4-0.8% if fixed costs recovered
 - Context: MedPAC suggested 1-2% of Medicare payments be set aside for performance incentives

- From social value perspective, increased costs of this magnitude may be justified
- If one simply divides costs by avoided deaths:
 - Recovering only variable costs:
 - \$846,000 3.2 million
 - Recovering fixed costs
 - \$231,000 1.8 million
- Within guidelines federal agencies use in rulemaking for value of statistical death avoided
- This computation ignores nonhospital cost savings, value to patients of shorter stays, avoided complications

Turnover as an avoided cost

- Analysis above focuses on cost offsets associated with direct patient care savings
- Most significant other offset discussed is avoided turnover due to better working conditions
 - Aiken, et al, 2002 found:
 - Increase in one patient/nurse associated with 23% increased burnout & 15% increased job dissatisfaction
 - 43.2% nurses report high emotional exhaustion & 41.5% dissatisfied with job, translating to intent to leave rate of 25%
 - If patient/nurse ratio declines, job dissatisfaction and emotional burnout would decline and intent to leave would decline.

Turnover as an avoided cost

Impact on turnover

- Interquartile range in Aiken PA sample ~1.25 patients
 - Applying this change to impact on burnout and dissatisfaction, estimate 13% decline in intent to leave
- National turnover rate lower than intent to leave, 13.9%
 - 13% reduction would be imply 1.8% of nurses would not leave who otherwise might
 - For HA sample, reduced turnover of 17,500 nurses
- Cost savings of reduced turnover
 - Cost of turnover 50%-100% of annual salary
 - At \$60,000/avoided loss, \$1 billion avoided costs
 - Do not fully offset cost increases, but lower net cost of patient benefits and enhance social and economic case

Hospital payment systems and the business case

- How much hospitals realize of cost offsets associated with improved patient care depends on payment systems
- Three broad systems of payment:
 - Charges or percent of charges
 - Per diem, average or by type of bed
 - Per admission
- Cost savings associated with reduced LOS would be retained by hospitals paid per admission, given back to payer under other systems

Hospital payment systems and the business case

- Mix of payment systems for hospitals unknown
- Mix of sources of revenue, 2004:
 - Medicare 28.6% Per admission
 - Medicaid 17.4% Mix per admission and other
 - Private insurance 35.6% Mix per admission and other
 - Other public 10.3% Mix
 - Other private
 8.1% Mix
- Reasonable estimate: one quarter or more of hospital payment per diem or charge based
 - Substantially reduces incentive to implement additional staffing
- One-third reduction in savings, even assuming full cost recovery:
 - Net cost of implementing both rises from \$1.6 to 3.9 billion

Other weaknesses of current payment systems

- Even resource based (DRG) or charges do not adjust for patient nursing acuity
 - Use average for classes of units
 - DRG weights poorly correlated with nursing acuity
 - High RN mix hospitals penalized by PPS adjustments
- Many hospitals have implemented nursing specific acuity systems and adjust shift-to-shift unit staffing to reflect nursing needs of patients
 - Payment systems in place don't make similar adjustments
 - Don't capture long term trends in increasing cost of "routine nursing" as less acute patients discharged earlier or shifted to outpatient

Will "pay for performance" align incentives for improvements in nursing care?

- Still evolving, with issue open on whether to be based on process or outcomes
- But current P4Reporting systems do poor job of targeting improvements in core work of nursing
 - P4P usually looks at process, with focus on whether specific processes completed
 - But nursing processes hard to measure
 - Nurses are everywhere, doing everything
 - Multitasking
 - Tailoring care to needs of specific patients
 - Documenting requires looking over whole stay
- CMS "never event" payment policy better but small impact
 - Narrow basis for nonpayment
 - Hospitals fail to recognize currently not being paid for many never events

Implications for nursing

- Make more use of data to demonstrate nursing contribution to care
 - Efficiency as well as safety/reliability
 - E.g., Readmissions as complement to LOS
 - How does NDNQI system need to evolve?
- Actively press for performance-related payment associated with nurses work
 - Revenue stream has to match and support how we want the delivery system to behave
- Nurses must be active in performance improvement
 - Shape evolution of care in face of cost control and nursing shortage
 - Need to integrate changes in care, not just add on
 - Will require institutions to commit time & attention
 - Will require nurses to build tool kit, especially re design and use of measurement