The Changing Practice of Anesthesia
Important Articles in the Past Two Years: A personal perspective

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Disclosure

I have no conflicts of interest to disclose

Some That Didn’t Make The Cut

Coffee helps prevent Alzheimer’s disease

The BIS monitor does “not” decrease awareness

FDA approves Sugammadex

Issues That Affect Everyone

- Fatigue
- The Health Care “System”
- Computers in Medicine
Outline

- A few scientific articles
- One book
- One TV show

Sleep Matters

JAMA 2009: Risks of Complications by Attending Physicians After Performing Nighttime Procedures: Rothschild et al,

Studied 1876 post-nighttime and 7497 matched control procedures

"there was an increased rate of complications among post-nighttime surgical procedures performed by physicians with sleep opportunities of less than 6 hours"

Fatigue and Sleep Deprivation

Liver Transplantation 2009: The Impact of Consecutive Operations on Survival After Liver Transplantation: Halldorson et al, Studied 390 liver transplants over 3 years

One year patient/graft survival greater if surgeon had more than 2 day interval between transplants.

"Call schedules should recognize the potential impact of workload on liver transplant outcome"
An Opposing View

Archives of Surgery 2011: Prospective Evaluation of Consultant Surgeon Sleep Deprivation and Outcomes in More Than 4000 Consecutive Cardiac Surgical Procedures: Chu et al, Well-powered prospective study

Examined surgeon age, hours of sleep before procedures and incidence of adverse outcomes

"no evidence that consultant surgeon sleep hours had an effect on postoperative outcomes"

Should we tell the patients?

The NEW ENGLAND JOURNAL of MEDICINE

Sleep Deprivation, Elective Surgical Procedures, and Informed Consent

Michael S. Narkiewicz, M.D., Charles A. Cordier, Ph.D., M.D., and Lisa Sobeyman Leitman, M.D., Ph.D.

“Chronic sleep deprivation degrades one’s ability to recognize the impairments induced by sleep loss”

“Patients awaiting a scheduled elective surgery should be explicitly informed about possible impairments induced by sleep deprivation”

Anesthesia Recommendations

“Are we sleepy people keeping people asleep?” by Udani and Howard, ASA Newsletter July 2011

“The half-awake looking after the half-asleep”

• Get eight hours sleep per night
• Be aware of your well-being and arrange work and life balance to avoid fatigue
• Caffeine helps, particularly at the low times of 3-6 PM and 3-6 AM.
• Naps can help
• Avoid scheduling long work hours

Summary

• This issue isn’t going to go away
• Work hour restrictions for all staff?
• Need to redesign organization of care
• Will restrictions just apply to work in the hospital, or to any activity that causes sleep deprivation?
Our Health Care “System”

Deconstructing Health Care Systems

Models of Health Care

The Bismarck Model

The Beveridge Model

The National Health Insurance Model

The Out of Pocket Model

Cost of Health Care

<table>
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<tr>
<th>Country</th>
<th>Spending as % of GDP</th>
<th>Annual cost per capita in $</th>
<th>WHO ranking for quality</th>
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</table>
**The Bismarck Model**
- Worker and employer share premiums
- Providers and payers are private entities
- Patient may contribute small copayment or percentage
- All rates are uniform and all claims are paid rapidly i.e. within days of submission
- Includes "Best Health Care System in the World", and heaviest users of health care in the world
- Costs 8.1 to 11% of GDP

**The Beveridge Model**
- Health care financed entirely by government via taxes
- Some providers are employees, some are private contractors.
- Patient may make small copayment for meds
- All rates for services are uniform
- Fiercely defended by patients who participate
- Costs 8.4 to 9.1% of GDP

**The National Health Insurance Model**
- Health care financed entirely by government plan
- Patients pay into government insurance plan
- All providers are private
- All rates for services are uniform
- Administratively simple
- Costs and services can be controlled

**The Out-of-Pocket Model**
- Health care paid entirely by individual
- All providers are private
- Rich and well-connected get health care; the rest?
- Most diverse medical system in terms of quality
- The "system" in most countries of the world
The United States Model(s)

The United States has a fragmented array of different systems, significant administrative overhead, variable quality and poor ability to control costs. If you are:

- Under 65 with good insurance
  - we are a very inefficient Germany or Japan
- Military, Veteran, Native American:
  - we are Britain or Norway
- For those over 65:
  - we are Canada or Australia
- For the 45 million uninsured:
  - we are Cambodia, rural India, Burkino Faso

Summary

- All other rich countries have adopted the moral principle that all their people deserve health care
- All have single, more efficient, and higher quality systems
- Countries such as Switzerland and Taiwan have recently overcome political obstacles and created single national systems successfully
- I doubt that the we in the United States will do anything significant until the money runs out

Computers in Medicine

I Can’t Keep Up

The Growth of Knowledge

Volume of Published Knowledge

Years Since Graduation

0  7  14  21  28  35
0  4  8  12  16  20  24  28  32
Elementary My Dear Watson
IBM's Watson supercomputer defeats humans in final Jeopardy match

What Dr. Watson Might Do
- Read all the world’s medical literature in his/her spare time
- Analyze, summarize and facilitate interpretation of a patient's complex medical record
- Identify and draw attention to trends
- Increase diagnostic efficiency and decrease medical errors
- Support, not replace the physician

What About Anesthesiology Watson?
- Highlight anesthesia-relevant issues in patient’s history
- Predict possible problems/interactions etc.
- Assist in deciding optimal disposition
- Answer provider questions in “real” time
- Automatically check for warning signs on monitor
- Make the Coffee

Summary
Get plenty of sleep
Don’t be afraid of the “single” system approach to health care finance
Get ready to work work with Watson
Thank You