Careers in Anesthesiology

- Cerebral, fast-paced, technologically oriented specialty
- Substantial procedure base
- Off-time is your own
- Average work time 50 – 60 hours/ week
- Flexibility in time worked is a lifestyle draw
- High stress environment (right now!)
Outline

- National trends in Anesthesiology Compensation
- Factors driving changes in compensation
- Duke Anesthesiology Clinical Faculty #’s
- Types of practice
- Research
- Controversies
<table>
<thead>
<tr>
<th>Specialty</th>
<th>1998</th>
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<th>98-99 change</th>
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<th>2002</th>
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</table>

*Represents specialties with sub-specialty breakouts that were combined in 2002 data.
Issues for Ongoing Shortage

- Marked reduction in trainees
- Lag time from training to market
- Disproportionate reduction in revenue
Continued Supply/Demand Imbalance

- Continued manpower issues
- Continued financial pressure
Duke University Health System

Enhanced Patient Care

Public Relations

Development

Patient Education

Public Education

Improved Prevention Patient Awareness

Improved Early Intervention

Evidence-Based Best Practice

Improved Education

Enhanced Patient Care Information

Scientific Output

Database Management

Operations

Research Knowledge Development

Evidence-Based Best Practice

Education

Enhanced Patient Care Information

Improved Education

Public Education
Hearts and Minds

HOW BYPASS SURGERY IS PERFORMED...

1. The chest is opened and plastic tubes, or cannulae, are inserted linking the soon-to-be-stilled heart to the heart-lung machine. The aorta is clamped, to protect the heart during the operation.

2. Blood vessels harvested from the chest wall or leg, usually both, are grafted around the blockages in the coronary arteries.

3. The clamps are released, the heart usually resumes beating on its own, and then patients are weaned off bypass.

... AND WHERE PROBLEMS COULD ARISE

Aortic cannula carries red (reoxygenated) blood from heart-lung machine.

Air bubbles not filtered.

Dislodged plaque deposits.

Loose debris.

AORTIC CANNULA

Insertion of the cannula into the aorta may dislodge fatty deposits into the bloodstream.

HEART-LUNG MACHINE

Filter systems may not remove all air bubbles introduced during oxygenation.

CROSS CLAMP

Clamping and unclamping the aorta may unleash microscopic showers of debris.

DECLINING TEST SCORES

Percentage of 261 patients whose mental acuity diminished after bypass surgery:

- 53% At discharge
- 36% After six weeks
- 24% After six months
- 42% After five years

Source: New England Journal of Medicine, New York Presbyterian/Weill Cornell

TIME Graphic by Ed Gobeli
LONGITUDINAL ASSESSMENT OF NEUROCOGNITIVE FUNCTION AFTER CORONARY-ARTERY BYPASS SURGERY

MARK F. NEWMAN, M.D., JERRY L. KIRCHNER, B.S., BARBARA PHILLIPS-BUTE, PH.D., VINCENT GAYER, B.S.,
HILARY GROCOTT, M.D., ROBERT H. JONES, M.D., DANIEL B. MARK, M.D., JOSEPH G. REVES, M.D.,
AND JAMES A. BLUMENTHAL, PH.D., FOR THE NEUROLOGICAL OUTCOME RESEARCH GROUP
AND THE CARDIOTHORACIC ANESTHESIOLOGY RESEARCH ENDEAVORS INVESTIGATORS*
Stroke by SRI and DOS

Enhanced patient care!!!
Vessel of Hope
Laura Niklason, MD, PhD, is out to win the race to grow a bioengineered vessel
Types of Practice

- Private – mostly OR
- Hybrid
- Academic
  - OR based/ Teaching/Research
  - ICU
  - Pain
  - Research/ Physician Scientist
OR Practice

- Supervision of CRNA’s
- Personal provision of care
- Service specialty
Types of Research

- Anesthetic mechanisms (molecular)
- Outcomes and Quality of Life
- Organ protection
  - Cardiac
  - Neuro
  - Renal
- Coagulation
- Human factors engineering
- Tissue engineering
Types of Research

- Intensive care (infection, MODS, ventilatory management)
- Pain management (chronic, acute, regional anesthesia)
- Risk assessment and management of high risk patients
- Aging and cognition (long-term effects of anesthetics and surgery on cognition and quality of life)
- Genetics of organ injury (OR as laboratory)
Degrees of renal dysfunction and adverse outcomes

# Peak Cr ≥ 2.0 mg/dL AND increase in Cr ≥ 0.7 mg/dL

- no RD (n=2051)
- #RD (n=141)
- dialysis (n=30)

2222 CABG +/- valve


* excluding in-hospital deaths
Acute Perioperative Nephropathy and Projected Progression of Chronic Renal Failure after Heart Transplant Surgery

High acute renal injury (n=35) (%ΔCr > 60%)

Low acute renal injury (n=64) (%ΔCr ≤ 60%)

Cognitive Change Over Five Years

Change from Baseline

Time of Evaluation

Not Impaired at Discharge
Impaired at Discharge

Postoperative Cognition and Perception of Health

General Health Self-Rating

Excellent: 1.11
Very Good: 0.46
Good: -0.10
Fair / Poor: -0.59

5 Year Cognitive Function Score

Postoperative Cognition and Work Status

- Full Time: 1.54
- Part Time: 1.07
- Homemaker: -0.37
- Retired: -0.49
- Unemployed / Disabled: -1.02

5 Year Cognitive Function Score

Recurring memory problem found after bypass surgery

States feel pinch as tax revenues fall

Governors in South, Midwest face 1st cuts in a decade

By DAVID FIRESTONE
New York Times

ATLANTA—With a swiftness that has taken many governors by surprise, the sinking economy has sharply reduced state tax revenues in the last few weeks, forcing states around the South and Midwest to cut their budgets for the first time in a decade.

As many as 15 states that depend on sales and manufacturing taxes are suddenly facing spending cuts of up to 15 percent, producing the first reductions in education and health-care programs in years.

Coming at the same time as a steep increase in Medicaid costs, the budget reversals mean the days of bold new programs and tax cuts are over in many states.

“‘We had a couple hundred,’” one South Carolina official said, “‘and now we’re just fighting for survival.’”

Easley will protect key N.C. priorities, lawmakers believe

By MARK JOHNSON
Raleigh Bureau

RALEIGH—Gov. Mike Easley is expected to deliver his budget hit list today, inflicting as little pain as possible on schools and universities and a handful of other services, but otherwise slicing state spending to cover a projected shortfall as large as $740 million.

Easley huddled with legislative leaders—Democrats first, then Republicans—in private sessions at the governor’s mansion Wednesday afternoon, asking for suggestions on what pieces of the budget are expendable and which they consider inviolate.

In his announcement this morning, Easley is expected to declare an emergency under the
Thanks for the memories

Even though major complications have been greatly reduced, the use of heart-lung machines is still suspected of producing subtle changes, such as memory loss, in some patients. For some patients, this memory loss, also called cognitive dysfunction, is only temporary and may only involve relatively recent memories. But for others, possibly older people already experiencing some dementia, the post-surgical memory decline can be more striking.

Mark Newman, an anesthesiology professor at Duke University Medical Center, is conducting a series of studies into these possible complications associated with the use of perfusion, or heart-lung machinery, during cardiac surgery.

Ever the curious reporter, I enrolled in one of Newman’s research protocols when I put my heart into the hands of Duke cardiac surgeon Donald Glover last year.

In fact, more than 100 people have joined in this research project. That’s about half the total Newman hopes to include in the study, sponsored by the American Heart Association.

This year, Newman’s study is examining, among other things, the possibility that lidocaine may help prevent surgical memory loss in patients put on heart machines during their operations. It’s simply a liquid form of topical cream or ointment for treating a skin irritation. It’s also commonly used in dental procedures and “epidural,” or nerve block, anesthesia.

We don’t know if I got lidocaine or placebo during surgery. The fact that I’m alive to write this article...
Controversies

- CRNA’s (two edged sword)
- Disproportionately low Medicare and Medicaid reimbursement
- RESPECT based on professionalism
How can we begin to prepare for a residency in Anesthesiology?

- Strong academic base with good Board Scores! (increasing competition)
- Critical care experience
- Early rotations
- Letters from individuals that know you
- Letters from the chair