

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



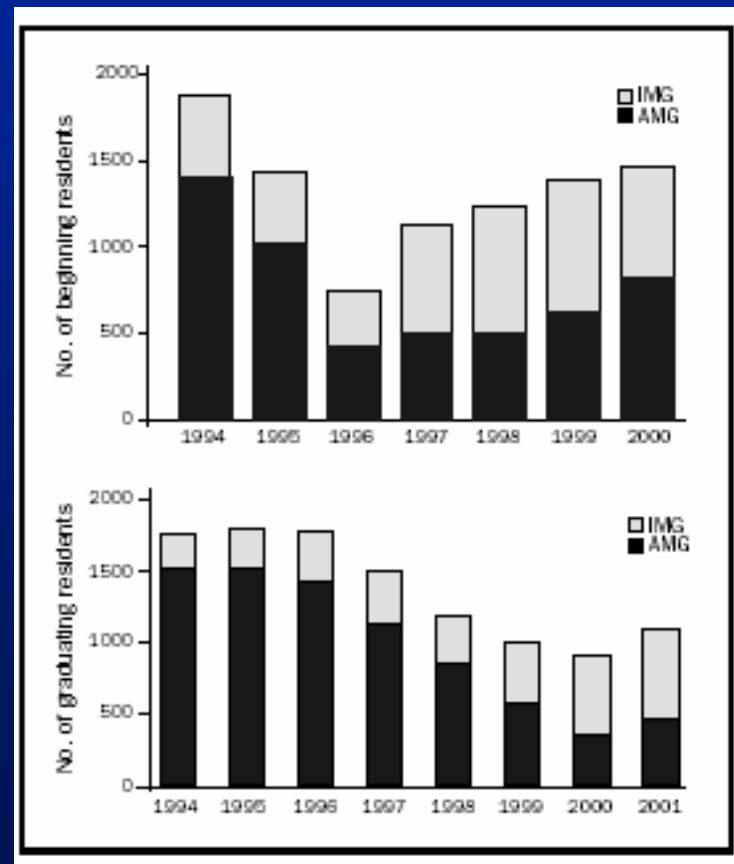
Table A: Total Compensation for Selected Specialties, 1998-2002

	1998	1999	98-99 change	2000	99-00 change	2001	00-01 change	2002	01-02 change	98-02 change
All primary care:	\$ 120,000	\$ 120,000	0.0%	\$ 124,859	4.0%	\$ 127,004	1.7%	\$ 131,926	3.9%	9.9%
Family Practice*	\$ 128,434	\$ 126,975	-1.1%	\$ 135,000	6.3%	\$ 139,040	3.0%	\$ 144,884	4.2%	12.8%
Internal Medicine*	\$ 118,529	\$ 120,000	1.2%	\$ 120,413	0.3%	\$ 123,600	2.6%	\$ 131,127	6.1%	10.6%
Pediatrics*	\$ 108,325	\$ 109,877	1.4%	\$ 113,940	3.7%	\$ 114,501	0.5%	\$ 117,151	2.3%	8.1%
All specialists:	\$ 155,000	\$ 157,269	1.5%	\$ 164,608	4.7%	\$ 170,899	3.8%	\$ 175,000	2.4%	12.9%
Anesthesiology*	\$ 171,774	\$ 177,161	3.1%	\$ 193,492	9.2%	\$ 198,861	2.8%	\$ 217,079	9.2%	26.4%
Cardiology: Invasive*	\$ 185,608	\$ 185,000	-0.3%	\$ 196,328	6.1%	\$ 197,000	0.3%	\$ 205,595	4.4%	10.8%
Cardiology: Noninvasive	\$ 156,419	\$ 161,243	3.1%	\$ 172,240	6.8%	\$ 175,174	1.7%	\$ 181,507	3.6%	16.0%
Emergency Medicine	\$ 157,855	\$ 164,202	4.0%	\$ 163,000	-0.7%	\$ 167,053	2.5%	\$ 178,814	7.0%	13.3%
Endocrinology/Metabolism	\$ 127,580	\$ 128,514	0.7%	\$ 128,468	0.0%	\$ 130,000	1.2%	\$ 134,771	3.7%	5.6%
Gastroenterology*	\$ 149,927	\$ 153,550	2.4%	\$ 158,829	3.4%	\$ 156,600	-1.4%	\$ 176,887	13.0%	18.0%
Hematology/Oncology*	\$ 134,932	\$ 139,910	3.7%	\$ 150,000	7.2%	\$ 155,000	3.3%	\$ 161,279	4.1%	19.5%
Infectious Disease	\$ 123,287	\$ 128,100	3.9%	\$ 121,535	-5.1%	\$ 121,603	0.1%	\$ 130,598	7.4%	5.9%
Maternal and Fetal Medicine	\$ 195,965	\$ 195,000	-0.5%	\$ 208,824	7.1%	\$ 212,569	1.8%	\$ 215,955	1.6%	10.2%
Neonatal Medicine	\$ 138,438	\$ 139,398	0.7%	\$ 153,150	9.9%	\$ 156,084	1.9%	\$ 163,281	4.6%	17.9%
Nephrology	\$ 135,250	\$ 137,034	1.3%	\$ 145,000	5.8%	\$ 153,000	5.5%	\$ 156,084	2.0%	15.4%
Neurology	\$ 129,765	\$ 126,155	-2.8%	\$ 125,000	-0.9%	\$ 133,264	6.6%	\$ 140,463	5.4%	8.2%
Obstetrics/Gynecology	\$ 172,319	\$ 160,176	-7.0%	\$ 172,859	7.8%	\$ 171,521	-0.7%	\$ 166,002	-3.2%	-3.7%
Ophthalmology*	\$ 170,000	\$ 175,981	3.5%	\$ 181,547	3.2%	\$ 189,150	4.2%	\$ 205,322	8.5%	20.8%
Otorhinolaryngology*	\$ 192,326	\$ 199,447	3.7%	\$ 220,450	10.5%	\$ 219,593	-0.4%	\$ 214,928	-2.1%	11.8%
Pathology: Anatomic	\$ 144,021	\$ 150,500	4.5%	\$ 150,770	0.2%	\$ 145,921	-3.2%	\$ 158,920	8.9%	10.3%
Psychiatry*	\$ 129,021	\$ 124,975	-3.1%	\$ 125,000	0.0%	\$ 129,000	3.2%	\$ 131,142	1.7%	1.6%
Pulmonary Medicine*	\$ 122,874	\$ 128,701	4.7%	\$ 143,654	11.6%	\$ 141,000	-1.8%	\$ 153,094	8.6%	24.6%
Radiology: Diagnostic*	\$ 194,160	\$ 189,600	-2.3%	\$ 205,313	8.3%	\$ 221,727	8.0%	\$ 239,499	8.0%	23.4%
Rheumatology	\$ 121,505	\$ 124,003	2.1%	\$ 125,860	1.5%	\$ 137,676	9.4%	\$ 138,529	0.6%	14.0%
Surgery: General	\$ 200,000	\$ 199,448	-0.3%	\$ 214,425	7.5%	\$ 214,690	0.1%	\$ 219,235	2.1%	9.6%
Surgery: Orthopedic*	\$ 254,457	\$ 254,915	0.2%	\$ 275,189	8.0%	\$ 286,895	4.3%	\$ 285,773	-0.4%	12.3%

*Represents specialties with sub-specialty breakouts that were combined in 2002 data.

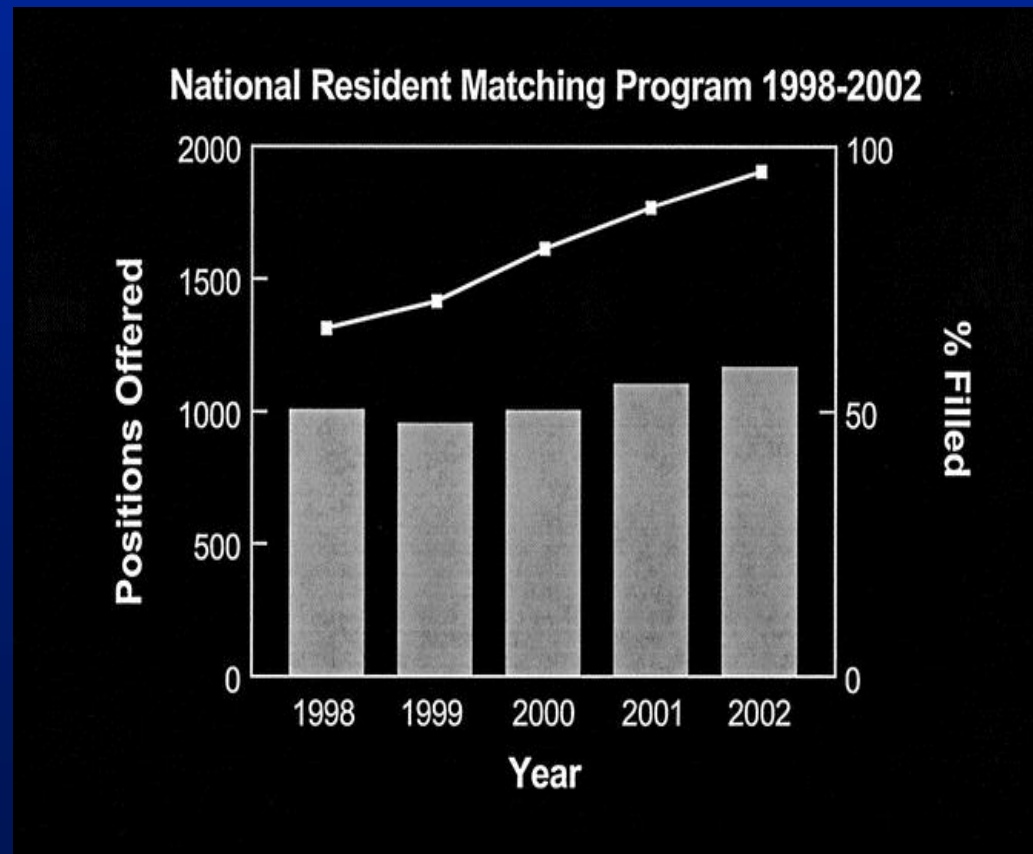
Issues for Ongoing Shortage

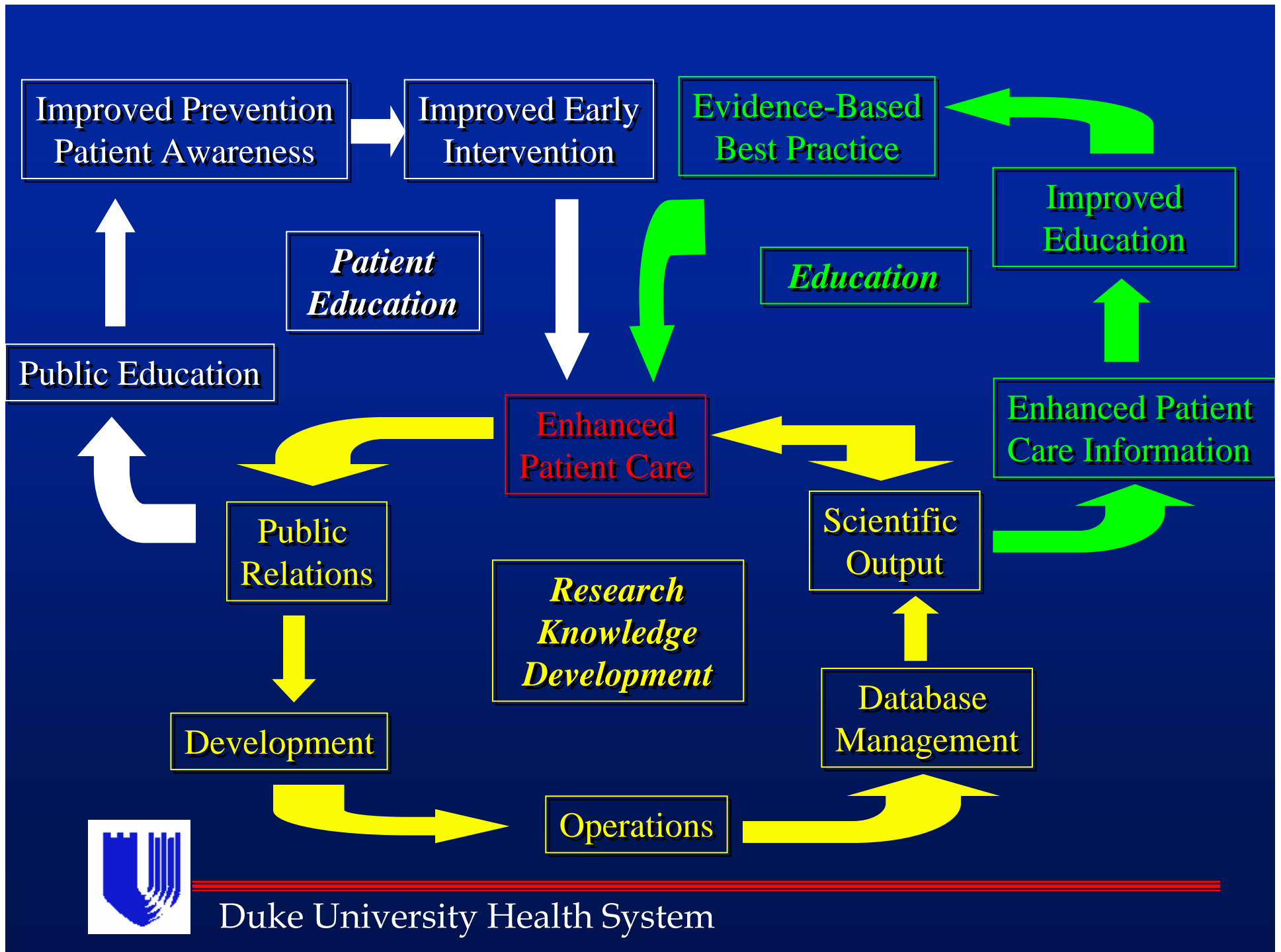
- Marked reduction in trainees
- Lag time from training to market
- Disproportionate reduction in revenue



Continued Supply/Demand Imbalance

- Continued manpower issues
- Continued financial pressure





Hearts and Minds

TIME

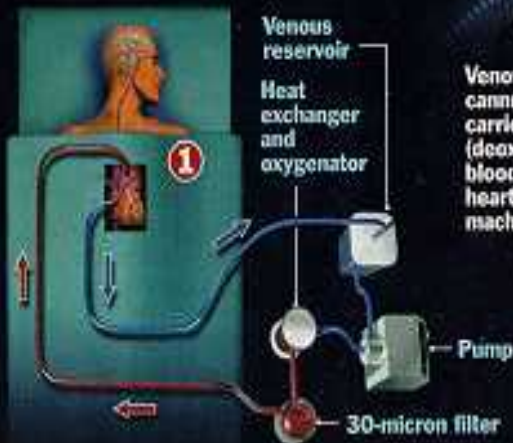
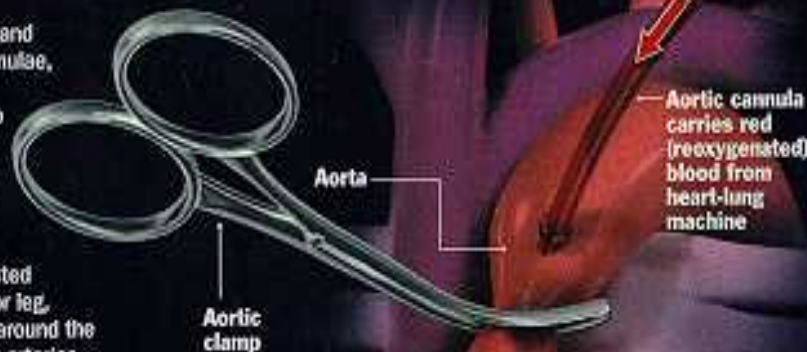
February 19, 2001

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

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

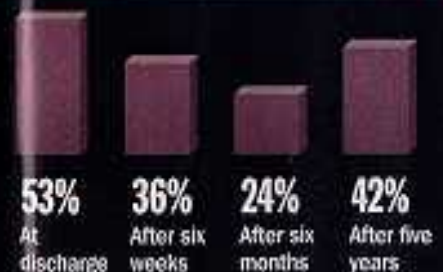
Public Relations

DECLINING TEST SCORES

Percentage of 261 patients whose mental acuity diminished after bypass surgery

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

TIME Graphic by Ed Gobel



Scientific Output

The New England Journal of Medicine

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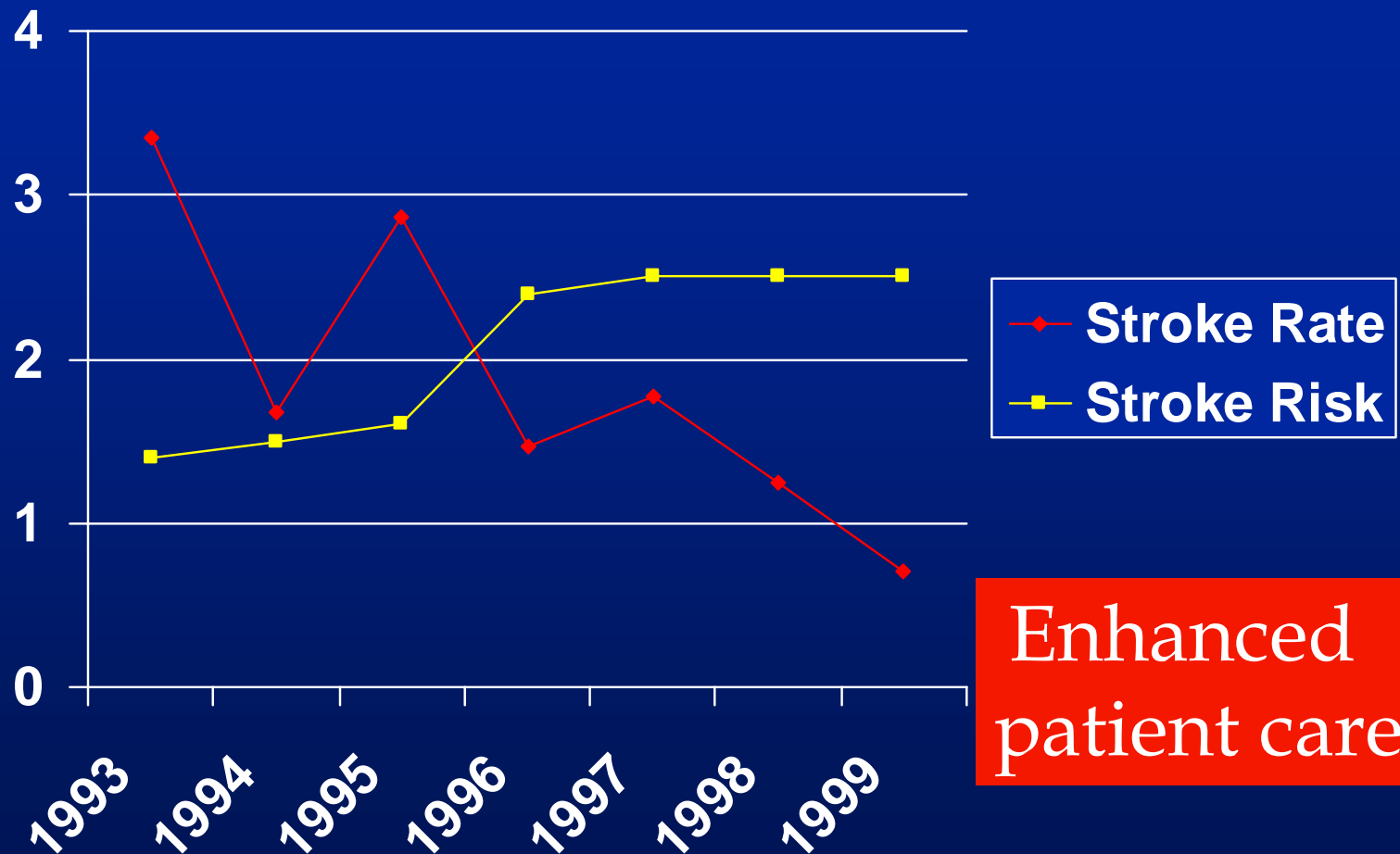
LONGITUDINAL ASSESSMENT OF NEUROCOGNITIVE FUNCTION AFTER CORONARY-ARTERY BYPASS SURGERY

MARK F. NEWMAN, M.D., JERRY L. KIRCHNER, B.S., BARBARA PHILLIPS-BUTE, PH.D., VINCENT GAVER, 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*



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Stroke by SRI and DOS



Enhanced
patient care!!!



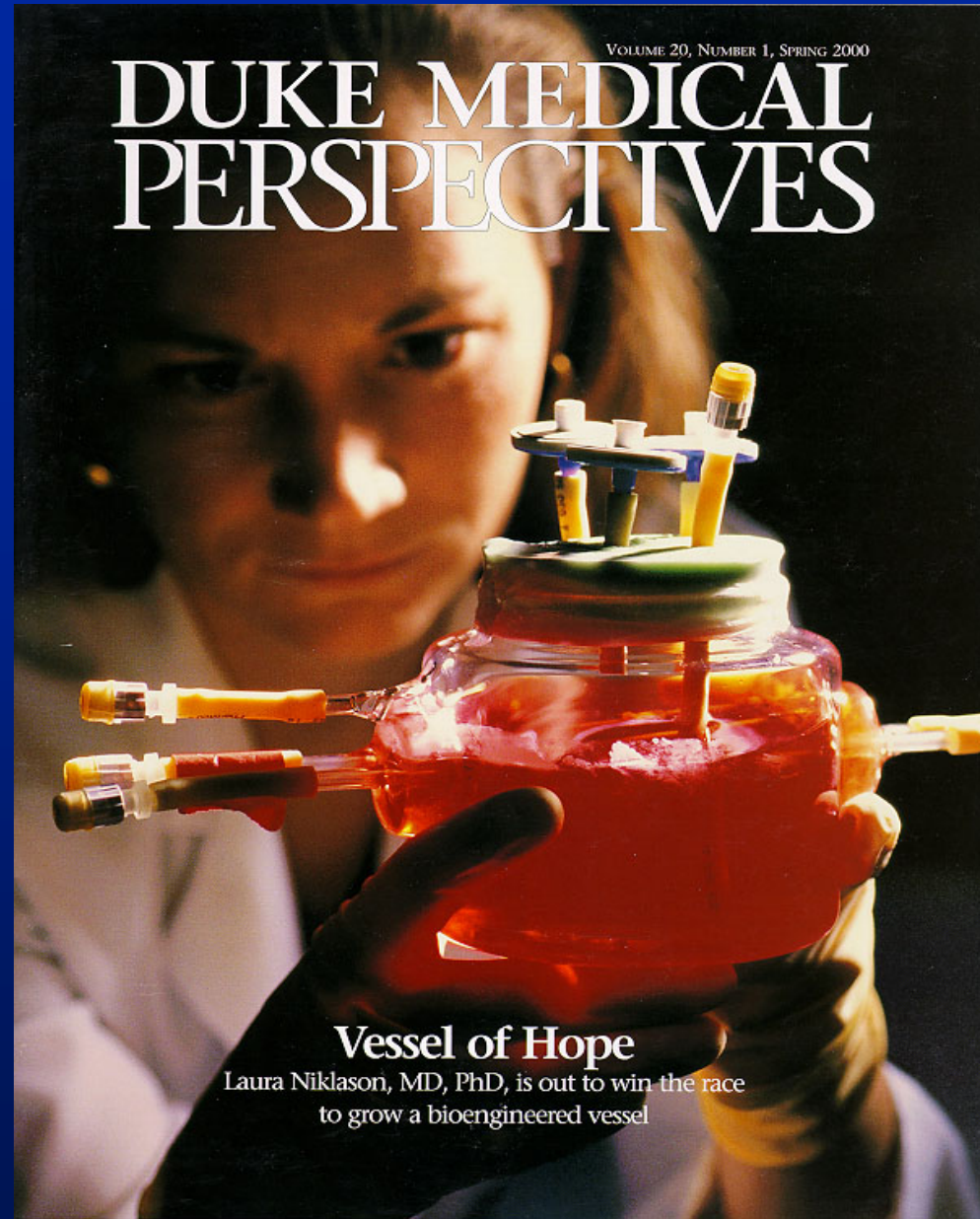
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Public
Relations

Duke
Relations



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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

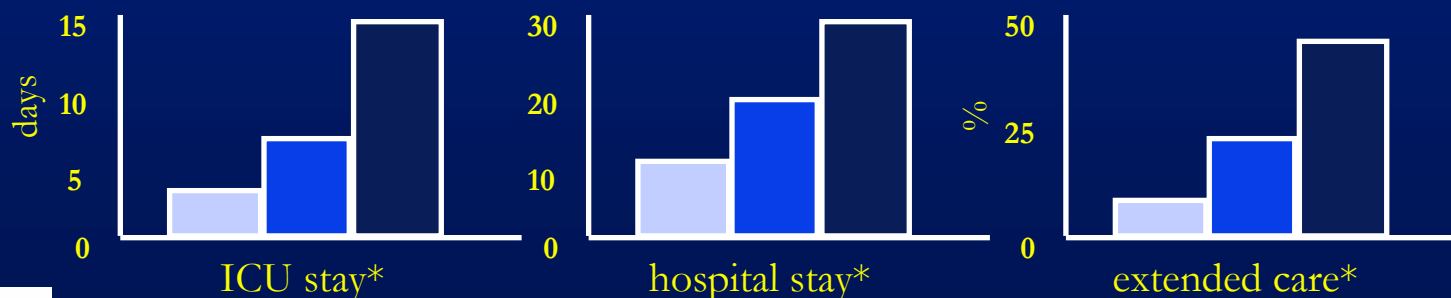
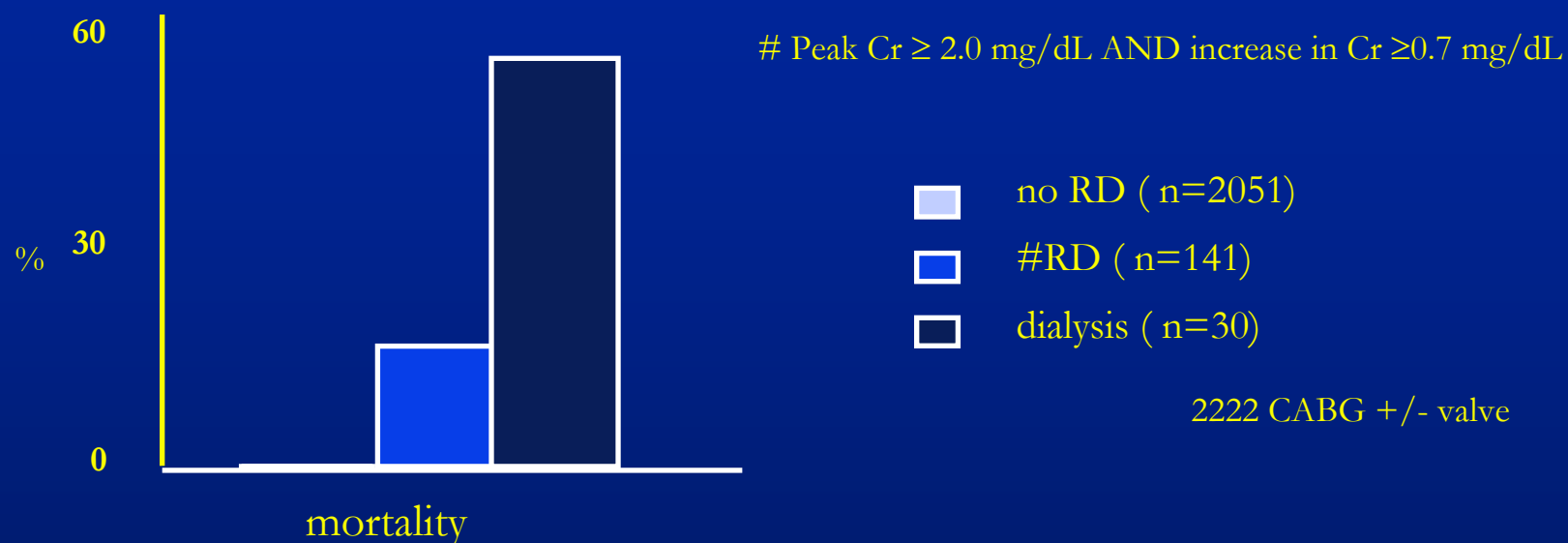


Types of Research

- 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



* excluding in-hospital deaths

Mora-Mangano et al. Ann Int Med 1998;128:194-203

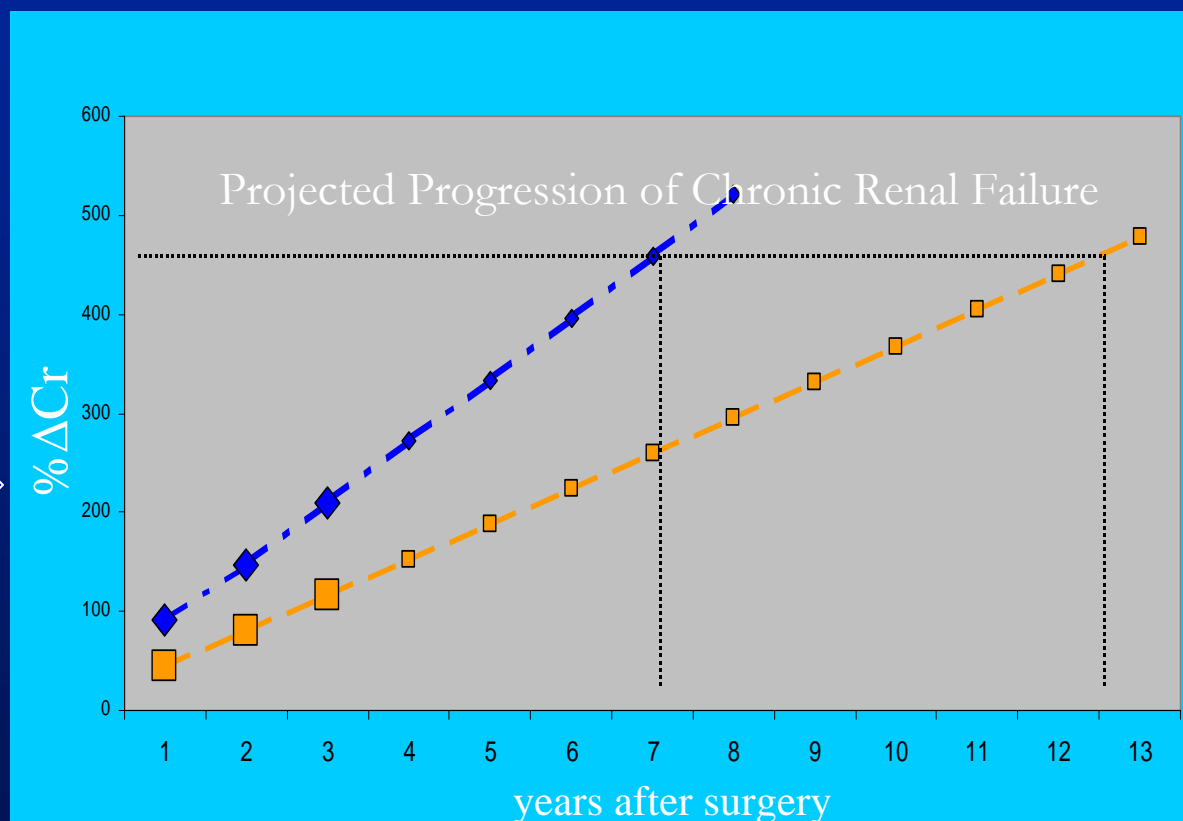
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Acute Perioperative Nephropathy and Projected Progression of Chronic Renal Failure after Heart Transplant Surgery

High acute renal injury (n=35)
($\% \Delta \text{Cr} > 60\%$)



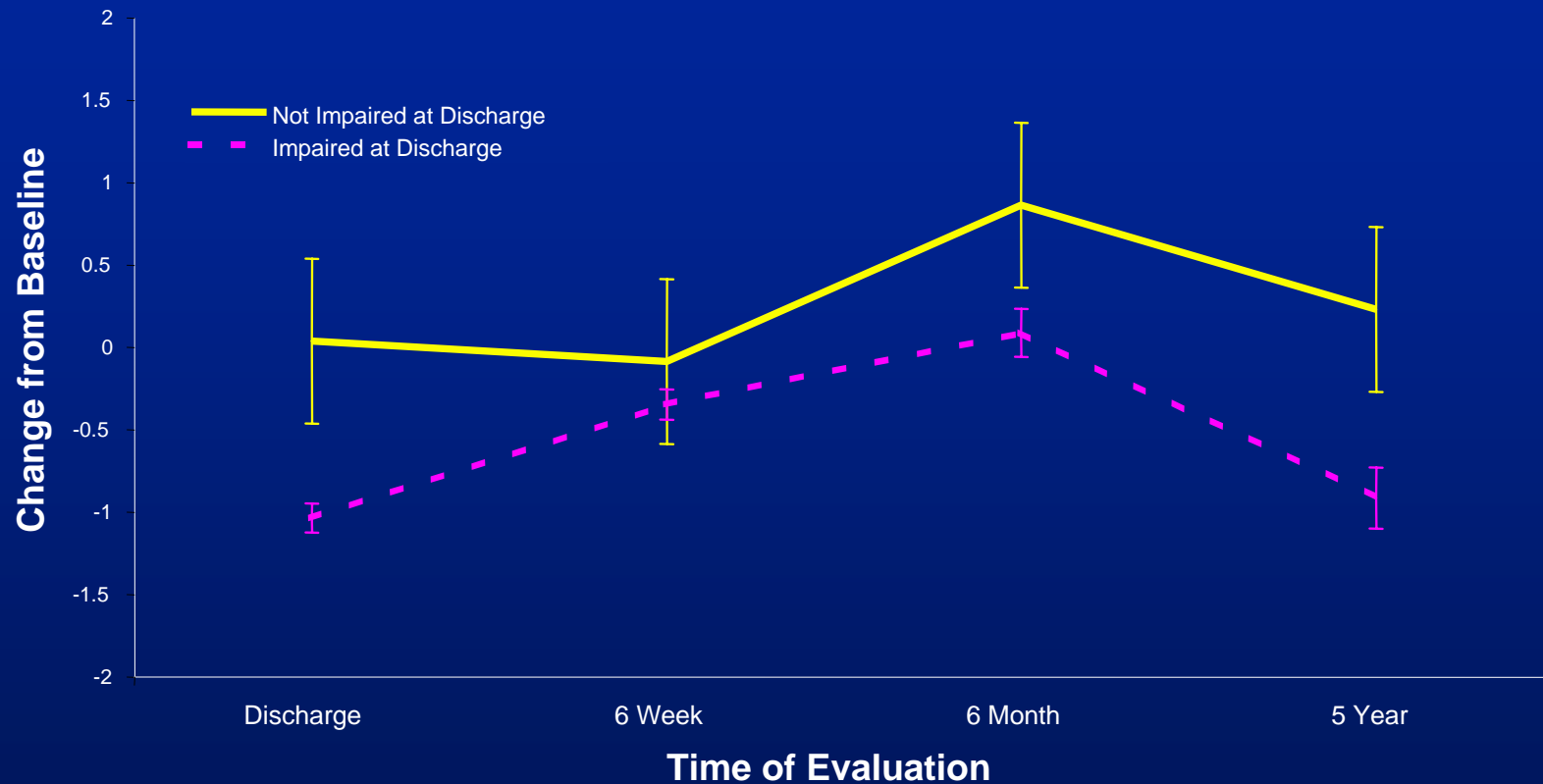
Low acute renal injury (n=64)
($\% \Delta \text{Cr} \leq 60\%$)



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Swaminathan et al. Anesth Analg 2002;94:SCA23

Cognitive Change Over Five Years

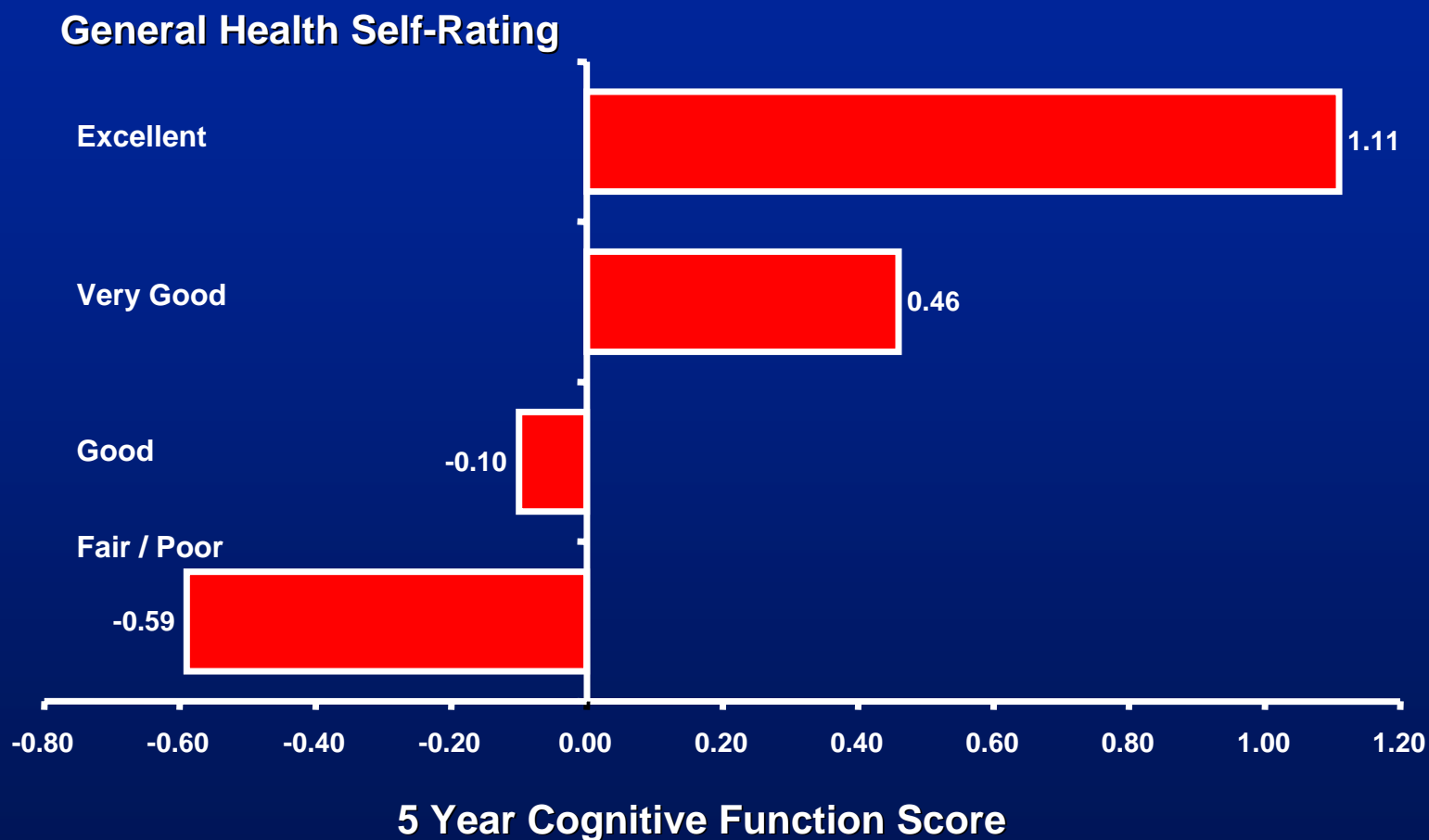


Newman. NEJM, 2001.



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Postoperative Cognition and Perception of Health

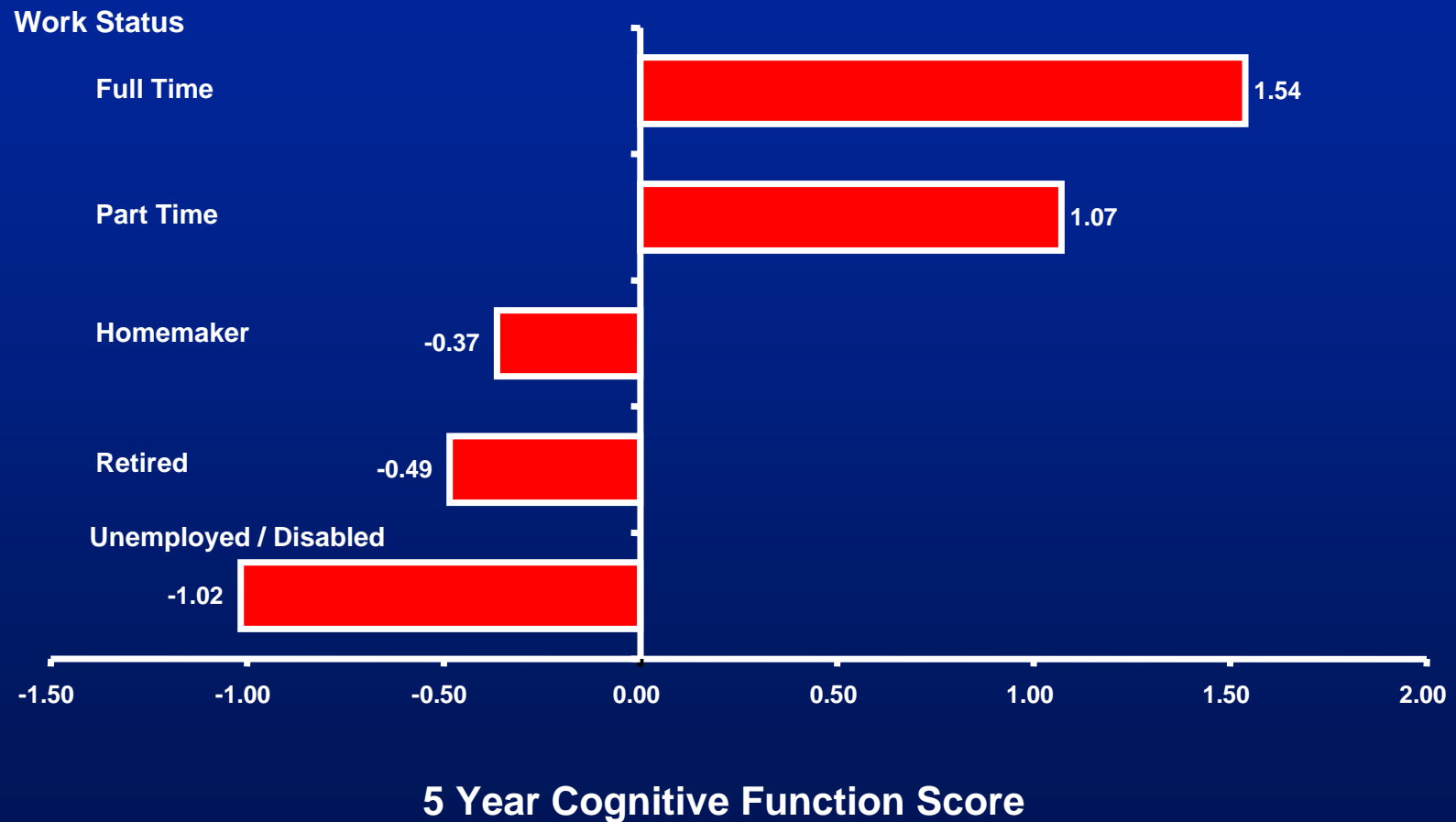


Newman. Stroke, 2001; 32:2874.



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Postoperative Cognition and Work Status



Newman. Stroke, 2001; 32:2874.



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The Charlotte Observer

www.charlotte.com

THURSDAY, FEBRUARY 8, 2001

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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-

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

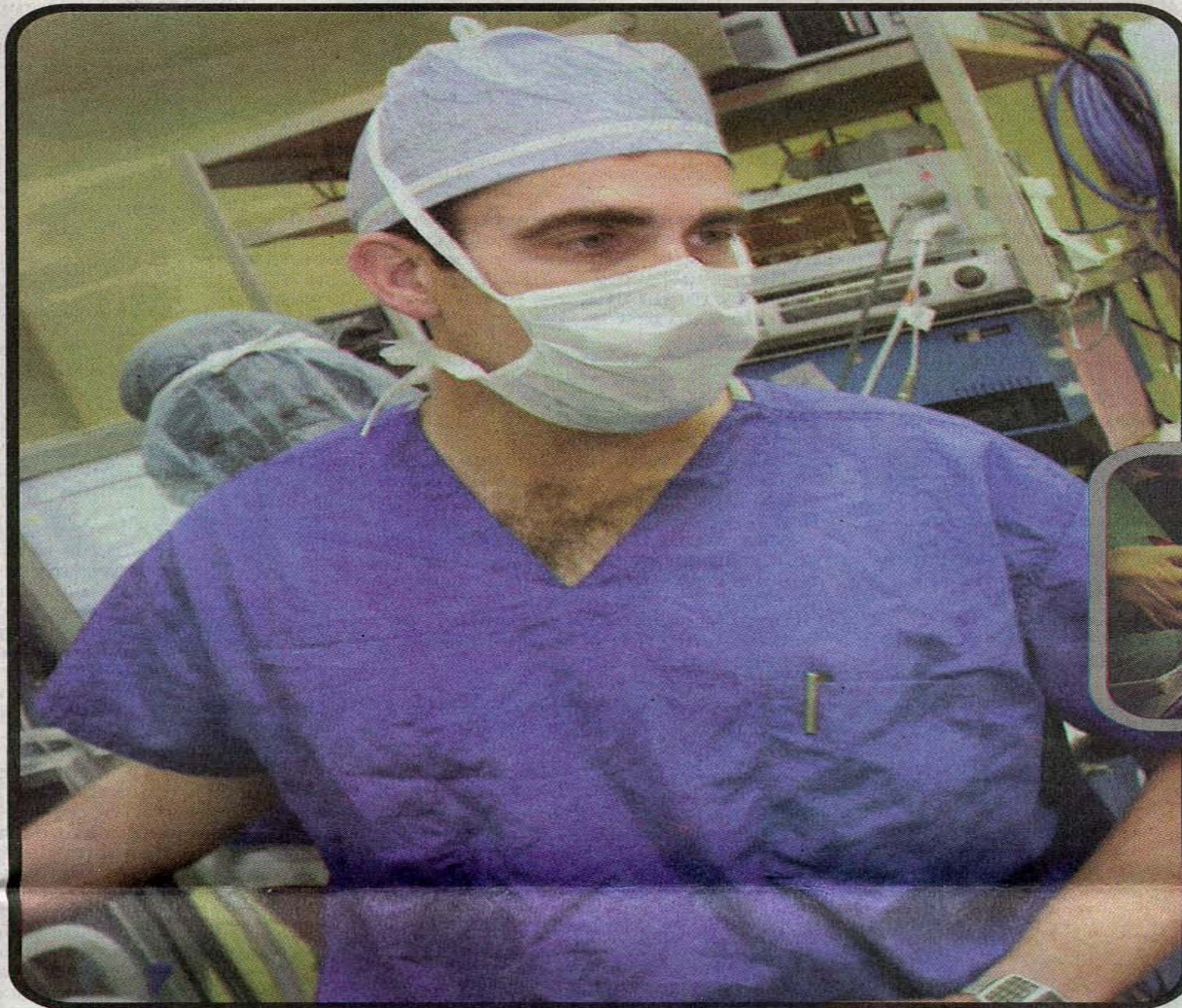
By MARK JOHNSON
Raleigh Bureau

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.

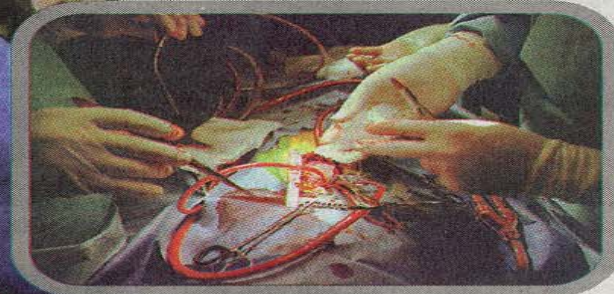
Ever the curious reporter, I enrolled in one of Newman's research protocols when I put my heart in the hands of Duke cardiac surgeon Donald Glowacki last year.

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.

The study, sponsored by the American Heart Association, is scheduled to begin this time next year.

Newman's study is examining, among other things, the possibility that the drug lidocaine may help prevent surgical memory loss in patients put on heart machines during their operation. It's simply a liquid form of pain relief you've probably encountered.

Duke anesthesiologist Mark Newman (left) studies memory loss associated with open-heart surgery (above) when blood is bypassed through mechanical pumps to keep the patient's brain and other tissues alive.



topical cream or ointment for treating a skin irritant. It's also commonly used in dental procedures and for "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

