

**The great thing in the world is not so much where we stand,  
as in what direction we are moving.**

*Oliver Wendell Holmes*

*A man walking along a road comes across three bricklayers. When asked what he is doing, the first bricklayer replies, “I am laying bricks”. When asked the same question, the second bricklayer answers, “I am making my living”. When asked what he is doing, the third bricklayer steps back, looks around and responds “I am building a cathedral”.*



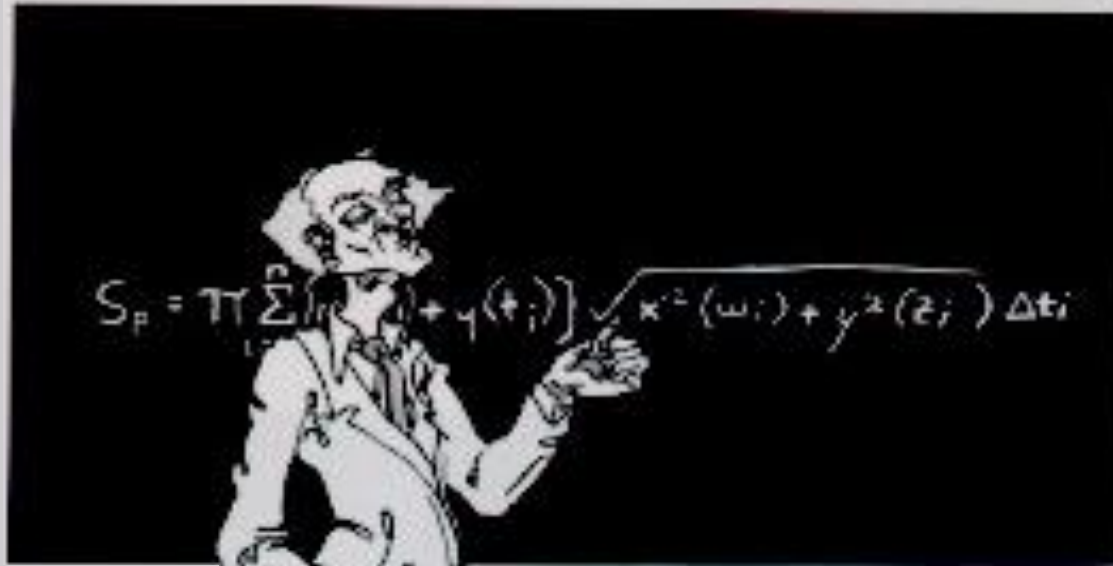
Academic Medicine ca. 2010

SUNY Stony Brook - Rising

A Vision for the East Campus



# Academic Medicine - Rising or Falling?



# Challenges for Academic Medicine

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- 1. Advancing the Science of Medicine*
- 2. Educating Health Care Professionals*
- 3. Delivering Outstanding Patient Care*
- 4. Recruitment and Retention of the Very Best*
- 5. Informing Policymakers and Politicians*
- 6. Mentoring the Public***

# Challenge for Stony Brook Medicine

## *Recruitment and Retention of the Very Best*

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Q #	Question	SBU Mean	Cohort Mean	Cohort Rank
21A	The workplace culture at this medical school cultivates: Collegiality	3.27	3.66	23
39A	My medical school is successful in hiring high quality faculty members	2.95	3.54	22
39D	My medical school is successful in retaining high quality faculty members	2.27	3.09	23
46	Your medical school as a place to work	3.23	3.64	23
49	If I had it to do all over, I would again choose to work at this medical school.	3.53	3.79	23

# Challenge for Stony Brook Medicine

## *Recruitment and Retention of the Very Best*

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**Gov. Paterson orders \$90M SUNY budget cut**

**SUNY budget to face still more cuts**

The governor's proposed budget for 2010-11 would cut SUNY's operating budget by \$118 million. Combined with \$410 million in budget reductions during the past two years, SUNY would be losing more than half a billion dollars in state support.

**concerned that cuts to SUNY will cause a "brain drain" in New York.**

Over the past two years, SUNY has been disproportionately impacted by state funding cuts more than any other state agency.

# Challenges for Academic Medicine

## *Recruitment and Retention of the Very Best*

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# Faculty Development

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# Faculty Development



# The Graduate School

## *Creating Bilingual PhD Graduates*

### AT THE CROSSROADS: SCIENCE MEETS THE MEDICAL PATIENT

#### AT THE CROSSROADS: Science Meets the Medical Patient

**Course Directors:** Jess Mandel, M.D.; Kenneth Kaushansky, M.D.; Jason Yuan, M.D., Ph.D.

**Course Objectives:** To provide a comprehensive course on patient- and disease-oriented pathogenic and therapeutic mechanisms for graduate students who are enrolled in the HHMI Med-Into-Grad program (and other programs), and for medical students who are interested in translational research.

**Required Readings:** 2-3 key journal articles will be distributed prior to each seminar.

Date	Location	Topic	Speaker
Sept 9th Week 1	MTF168 I.	<b>Introduction</b> Part 1 : Human Diseases: An Overview (30 min.) Part 2 : Clinical Diagnostic and therapeutic approaches (30 min.)	Ken Kaushansky, M.D. Jess Mandel, M.D.
Sept. 16th Week 2	MTF168 II.	<b>Gastrointestinal Disease</b> Diarrhea: ion transporters and signaling pathways in the pathogenesis	Kim Barrett, Ph.D
Sept. 23rd Week 3	MTF168 III.	<b>Respiratory Disease</b> Idiopathic and chronic thromboembolic pulmonary hypertension: Receptor signaling and transcription factors in pathogenesis	Jason Yuan, M.D., Ph.D. Jess Mandel, M.D.
Sept. 30th Week 4	MTF168 IV.	<b>Cardiovascular Disease</b> Coronary artery and atherosclerosis: Role of nuclear receptors	Christopher Glass, M.D./Ph.D.
Oct. 7th Week 5	MTF168 V.	<b>Neurological Disease</b> Alzheimer's disease	Douglas Galasko, M.D.
Oct. 14th Week 6	MTF168 VI.	<b>Endocrine Disease</b> Thyroid hormones and the heart	Wolfgang Dillmann, M.D.
Oct. 21st Week 7	MTF168 VII.	<b>Infectious Disease</b> Malaria	Joe Vinetz, M.D.
Oct. 28th Week 8	MTF168 VIII.	<b>Hematological Diseases</b> Myeloproliferative diseases	Ken Kaushansky, M.D.
Nov. 4th Week 9	MTF168 IX.	<b>Cancer</b> Lung cancer glycobiology	Mark Fuster, M.D.

# The Graduate School

## *Creating Bilingual PhD Graduates*

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AT THE CROSSROADS: SCIENCE MEETS THE MEDICAL PATIENT

Course Directors: Jess Mandel, M.D.; Kenneth Kaushansky, M.D.; Jason Yuan, M.D., Ph.D.

### CLINICAL EXPERIENCE MENTORS

Cancer and blood cell malignancies (Kaushansky)

Cardiovascular diseases (Knowlton)

CNS injury and disease, neuro-oncology (Carter)

Cutaneous biology (Gallo)

Diabetes (Mudaliar)

Genetic diseases (Jones)

Infectious disease (Vinetz)

Inflammatory, autoimmune disease (Firestein)

Lung biology and diseases (Fuster)

Neurodegenerative diseases (Moblely)

Tropical infectious disease, (Vinetz)

Viral infectious disease (Richman)

# Challenge for Academic Medicine

## *Advancing the Science of Medicine*

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# Challenge for Stony Brook Medicine

## *Research Productivity ca. August 2010*

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Over 20 departments

634 research grants  
Over \$75M total funding

Over 200 unique scholarly  
publications

# Challenge for Stony Brook Medicine

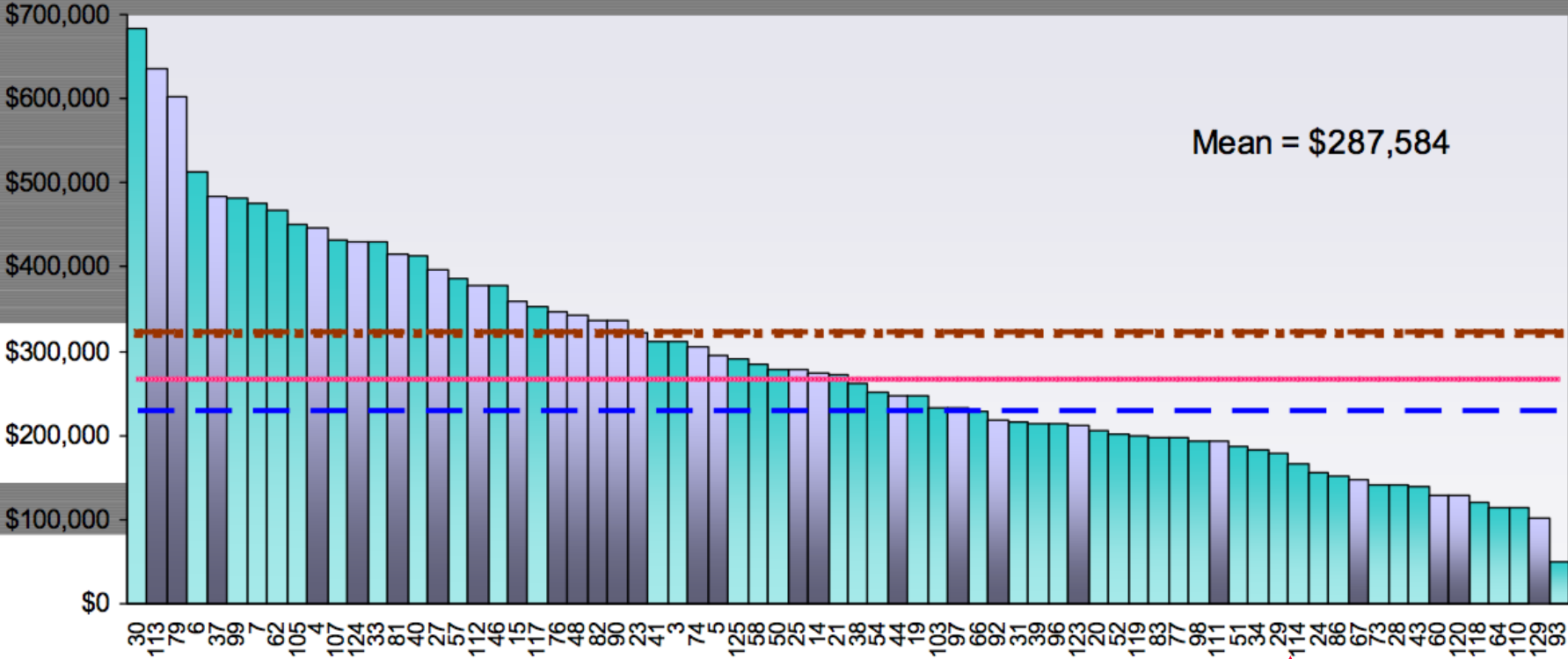
## *Research Productivity ca. July 2010*

### Direct Expenditures per Principal Investigator

Purpose: Assesses research productivity of faculty engaged in research

Higher Number is Favorable

Formula:  $\frac{\text{Sponsored Programs Direct Expenditures}}{\text{\# PIs Associated with Sponsored Programs Expenditures}}$



# Challenges for Stony Brook Medicine

## *Enhancing Biomedical Research*

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Research space development

Starting up state-of-the-art laboratories

Assessing new core technologies

What should occupy our attention?



# Solutions for Stony Brook Medicine

## *Biomedical Research Facelift*

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# Solutions for Stony Brook Medicine

## *Topics and Tools*

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Topics

Tools

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Cancer

Imaging

Infections/Immunity

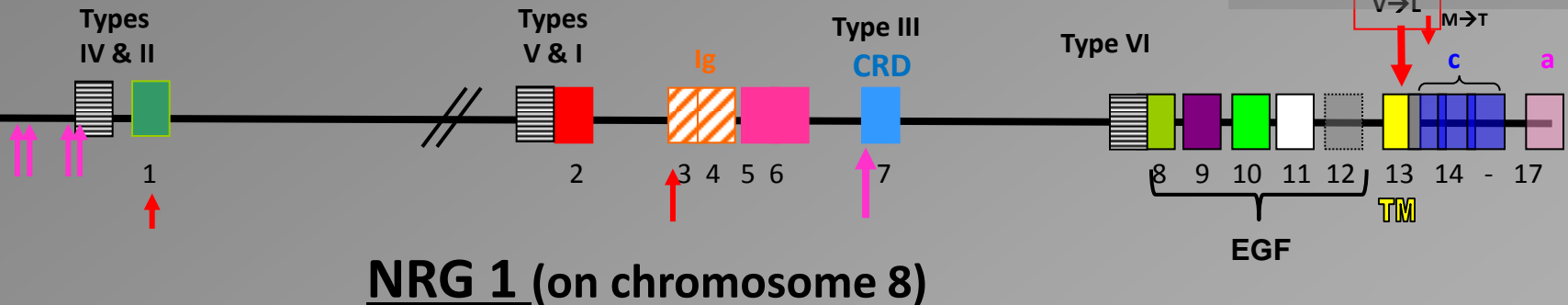
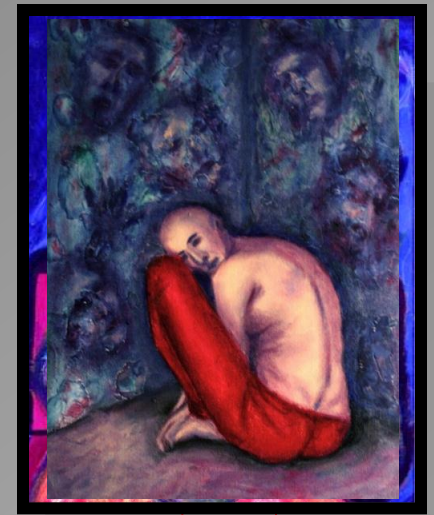
Genetics

Neurobiology

Informatics

# Neuregulin 1 and Schizophrenia:

Neuregulin 1 is strongly implicated as a susceptibility gene for Schizophrenia



## Neuregulin and Cholinergic signaling:

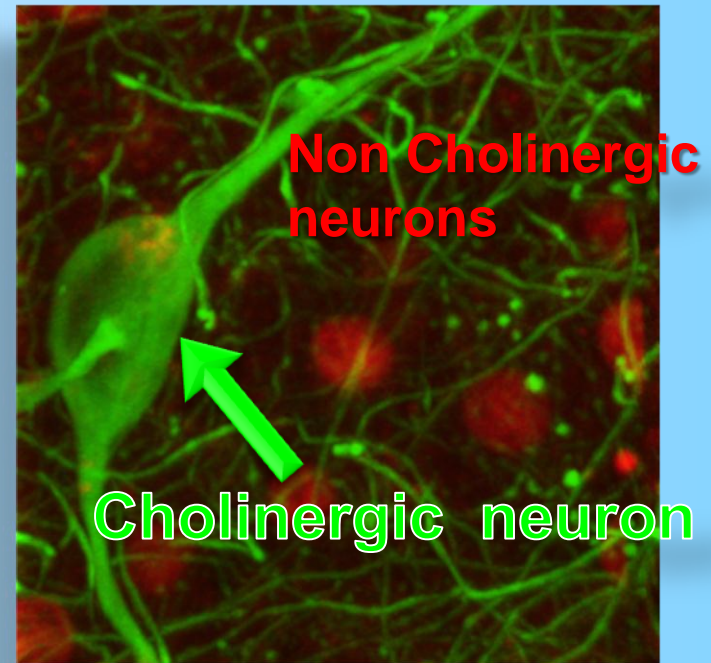
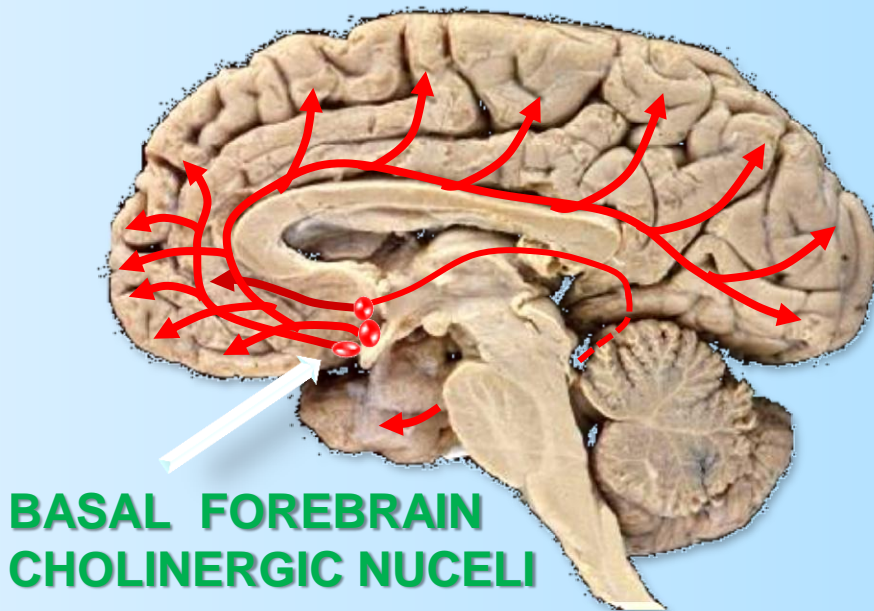
Nrg1 isoforms were originally identified based on regulatory role in cholinergic (nicotinic) neurons

*Courtesy Dr. Lorna Role*

**CHOLINERGIC CIRCUITS** involved in **MEMORY & COGNITION**  
**ARE COMPROMISED** in **NEUROPSYCHIATRIC** and **NEURODEGENERATIVE**  
**DISORDERS** (e.g. SZ, AD)

**PHARMACOLOGICAL APPROACHES TO MANIPULATING**  
**CHOLINERGIC CIRCUITS HAVE LARGELY FAILED...**

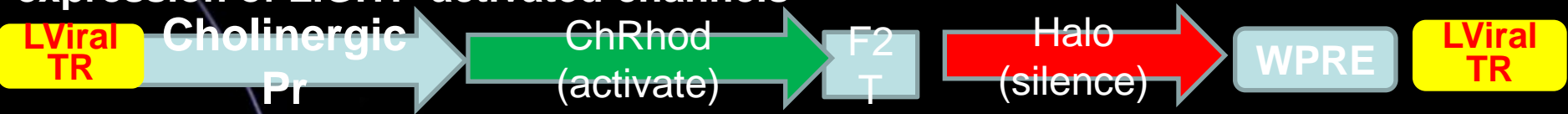
Mostly because these neurons are rare, only certain ones are involved in these diseases, and drugs are not very specific for just the right neurons



*Courtesy Dr. Lorna Role*

# THE APPROACH: ENGINEERING of OPTO-GENETIC PROBES FOR SELECTIVE ACTIVATION OF CHOLINERGIC NEURONS

Infect with viral construct that: (a) targets cholinergic neurons (b) drives expression of LIGHT- activated channels



light → activate cholinergic neurons → ameliorate cognitive deficits.



- develop optogenetic –based DBS approaches for “tuning” cholinergic neurons
- controlling cholinergic modulation of attention and memory-related circuits

*Courtesy Dr. Lorna Role*





**SUNY**  
**REACH**

A Research Vision  
To Meet a Public Mission

# Educating Physicians

## *100 Years of Modern Medical Education*

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Abraham Flexner

*Commitment to scientific foundations and to high standards*

# Educating Health Care Professionals

## *Teaching at Stony Brook ca. July 2010*

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496 undergraduate medical students  
166 biomedical graduate students  
481 resident physicians  
99 post-doc medical fellows



# Educating Health Care Professionals

## *Teaching at Stony Brook ca. July 2010*

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# Educating Health Care Professionals

## *Academy of Educational Scholars*

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New program to promote educational excellence

Funded by the Dean's Offices, Departments and the OP

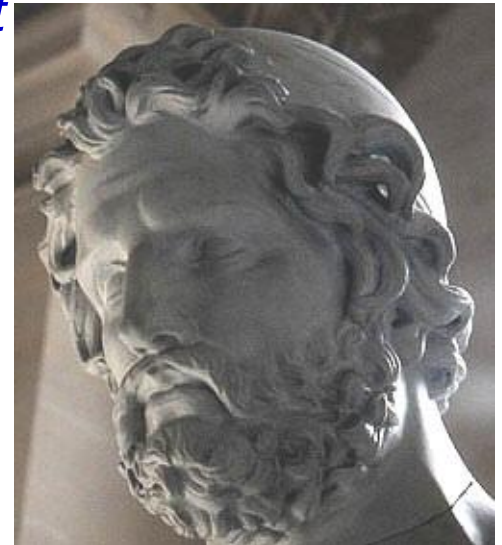
Tackle educational challenges at SBU HSC

*Effective teaching of residents under regulatory agency rules*

*Optimizing undergraduate prerequisites for professional school*

*Making pre-clinical curriculum clinically relevant*

*Implement Med-into-Grad or other programs*



# Educating Health Care Professionals

## *Life Changing Experiences - Global Health*

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One month rotation UCSD to Maputo

IM, Peds, EM residents

ID, Card, Pulm fellows

Neph, ID, HO, Neurosurg faculty

Three month rotation Maputo Central

Hospital to UCSD

Clinical research project

Daily morning teaching conference

Weekly UCSD/MCH case conference

Devoted UCSD and UCH faculty

# SB Clinical Practice ca. September 2010

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~31,000 inpatient stays  
~4000 births  
~84,000 ED visits  
~500,000 outpatient visits  
O/E mortality = 0.86

# Solutions for Stony Brook Health Sciences

## *Patient Care*

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*Creating a primary care model for the future*

Create a culture that promotes patient satisfaction

Welcome patients as partners in care

Move beyond intermittent, facility-based contact

*Wisely facilitating specialized care*

Facilitate internal and external referrals

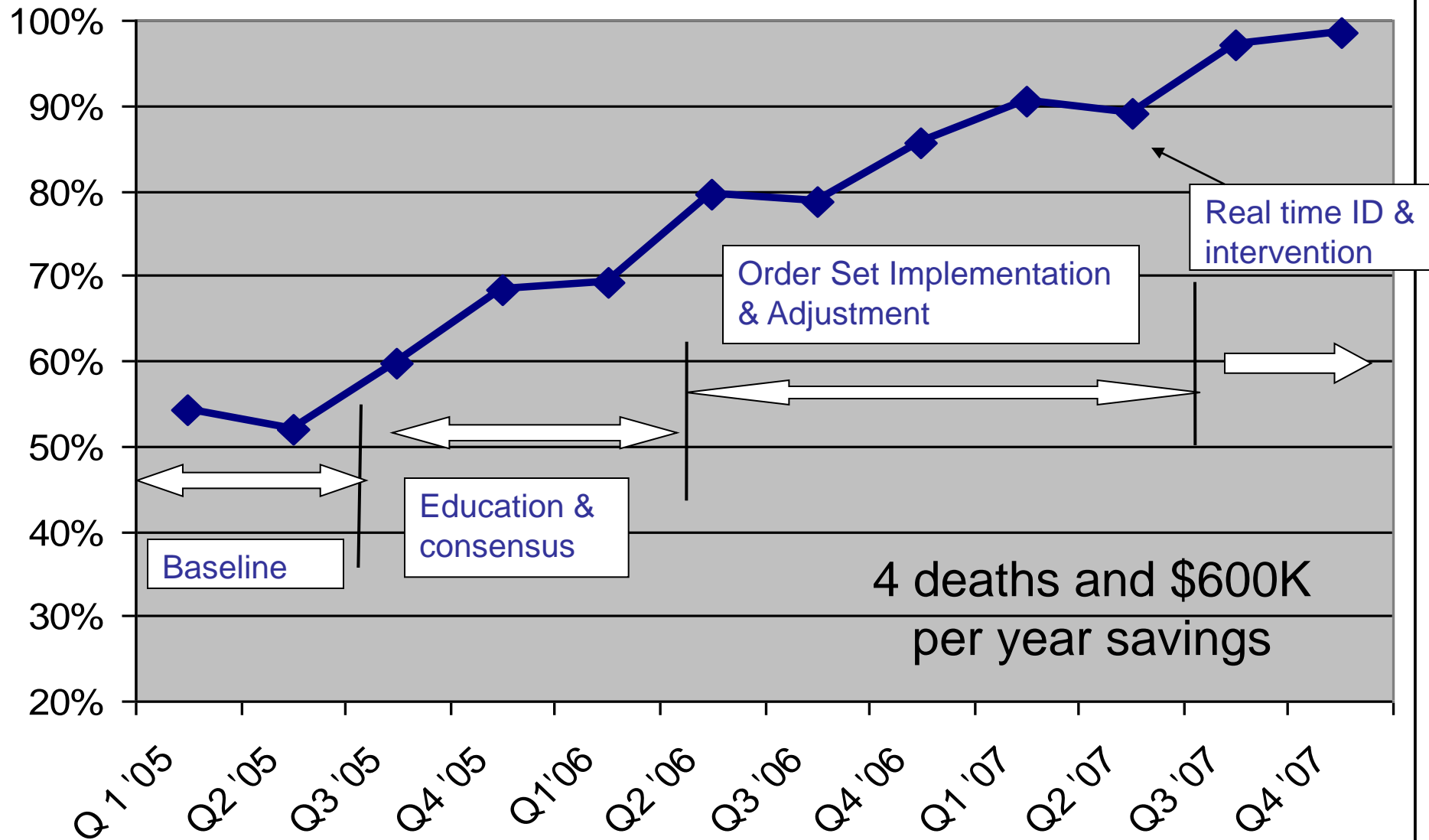
Develop multi-disciplinary clinics

Build networks with the community - “captive PC”

Hard wire a science of health care quality

# Percent of Randomly Sampled Inpatients with Adequate VTE Prophylaxis

N = 2,944    mean 82 audits / month



# The Health Sciences at Stony Brook University

## *Growing Clinical Programs*

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Strategic Goals

Educational

Scholarship

Fiscal





# Building Bridges

## *Community Practitioners*

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Continuing Medical Education  
Open-up patient care conferences  
Free, real-time expert consultation  
Timely referral follow-up  
Accountable Care Organization



# Building Bridges

## *Faculty and Staff*

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Academic leadership training

Professional development fund

Celebrate superior patient and learner satisfaction

Pilot grants for translational research and clinical innovation

Coordinate faculty recruitment to grow nascent critical masses

Provide scholarly opportunities in the science of clinical quality  
measurement and intervention





# Building Bridges

## *Within the East Campus*

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Develop stronger ties amongst the 5 HSC Schools

Build our cancer, infection and neurosciences programs

Invest in our tools, genetics, informatics and imaging

Develop a clinical investigation infrastructure

Facilitate productive, non-contentious interactions  
within our clinical practices

# Building Bridges

## *With the West Campus*

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Physical sciences with biomedical applications  
Prerequisite competencies for premedical students  
Enhance global health programs



# Building Bridges

## *With Our Other Partners*

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BiImaging with Brookhaven National Laboratory  
Cancer and Neurobiology with Cold Spring Harbor  
Clinical and bench research, especially outcomes with NVAMC

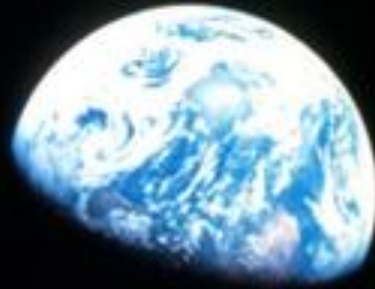




# The Health Sciences at Stony Brook University

## *Non-Metaphorical Building*





**So many of our dreams at first seem impossible,  
then they seem improbable, and then, when we summon the  
will, they soon become inevitable.**

*Christopher Reeve*