

Accelerating the Dissemination and Translation of Clinical Research into Practice

The View from NHLBI

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Disclosures

*Accelerating the Dissemination and
Translation of Clinical Research into Practice*

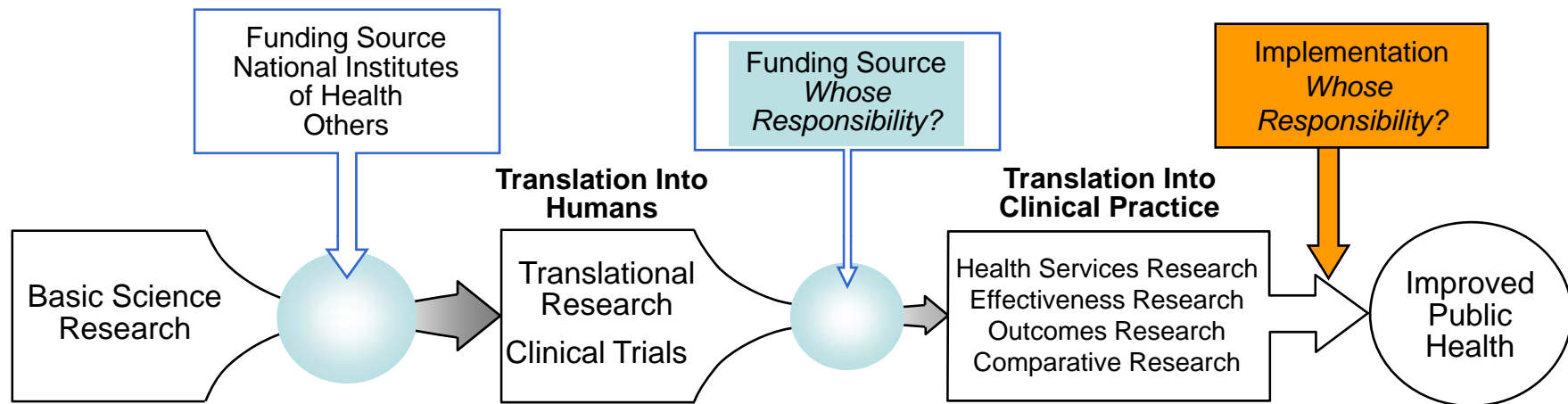
**The Following Faculty have No Relevant Financial Relationships
with Commercial Interests**

Dr. Susan Shurin

Podium Session



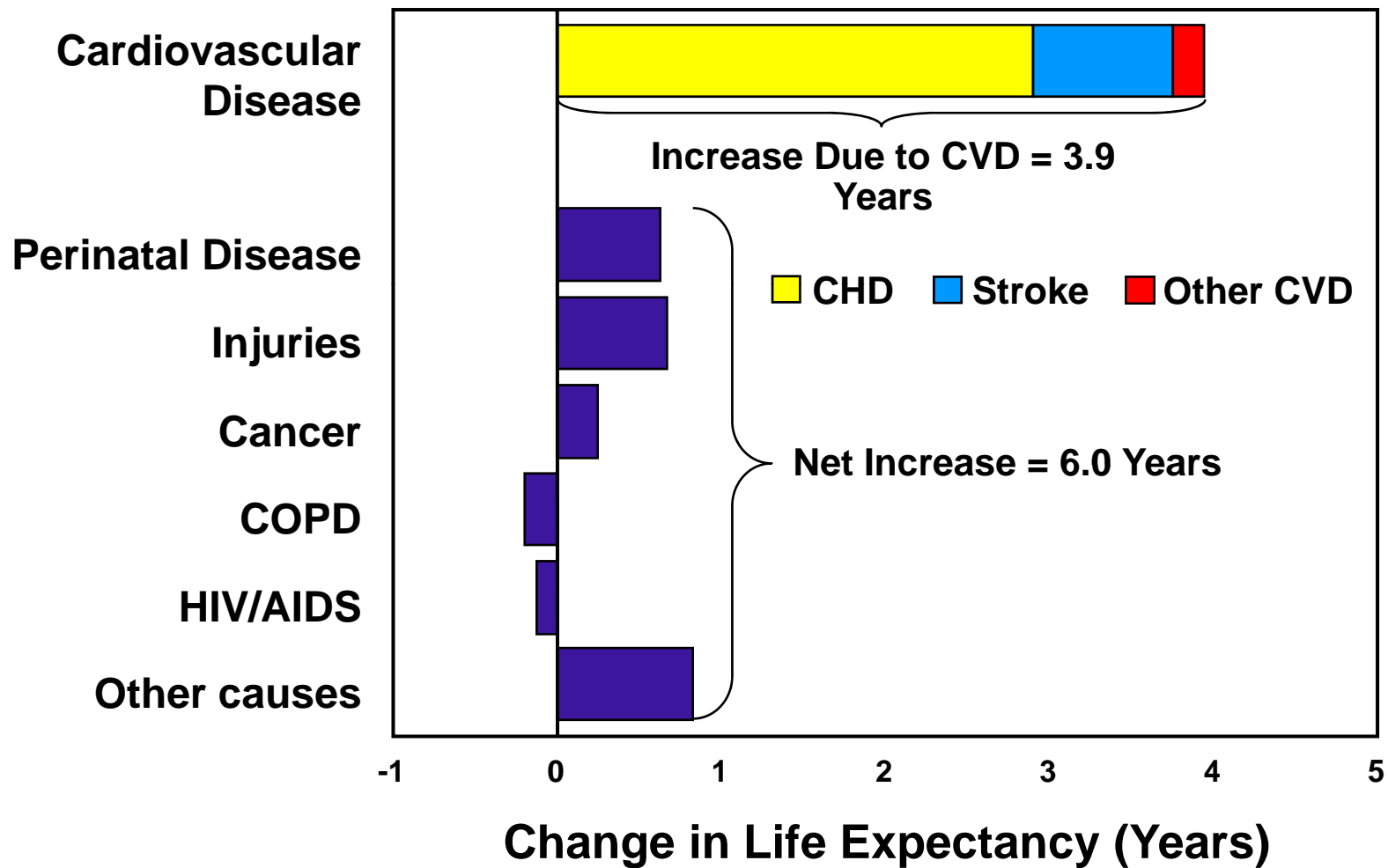
Three Translational Roadblocks on the Way Toward Improved Public Health



2nd block is integrally tied into
Funding of health care delivery

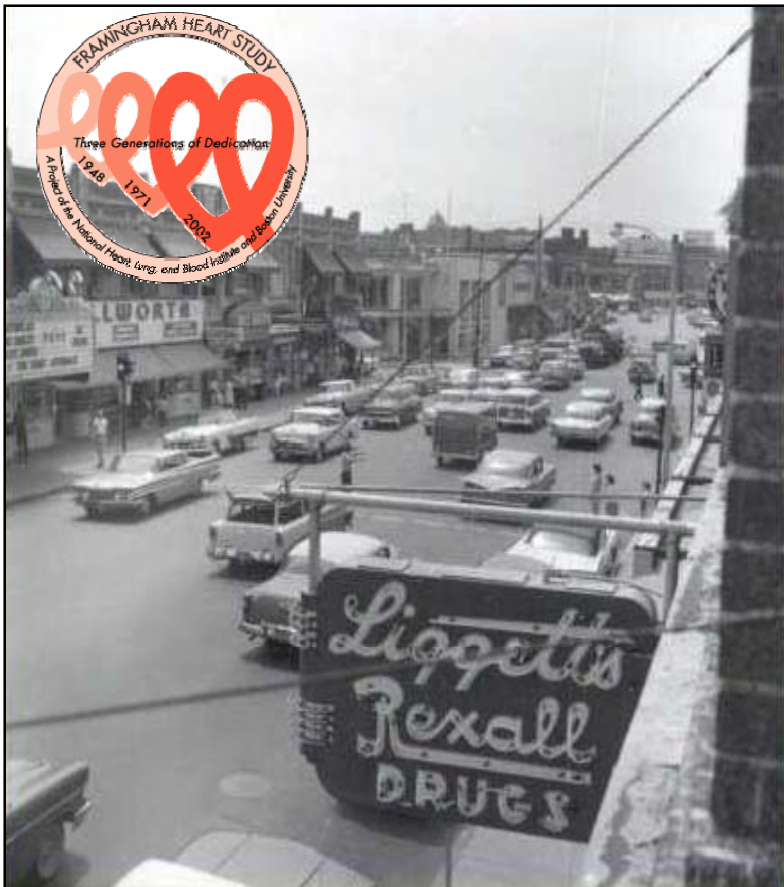
Modified from Crowley, W. F. et al. *JAMA* 2004;291:1120-1126.

Contributions to Change in Life Expectancy, U.S., 1970-2000



Framingham Heart Study

Downtown Framingham, MA
(circa 1960)

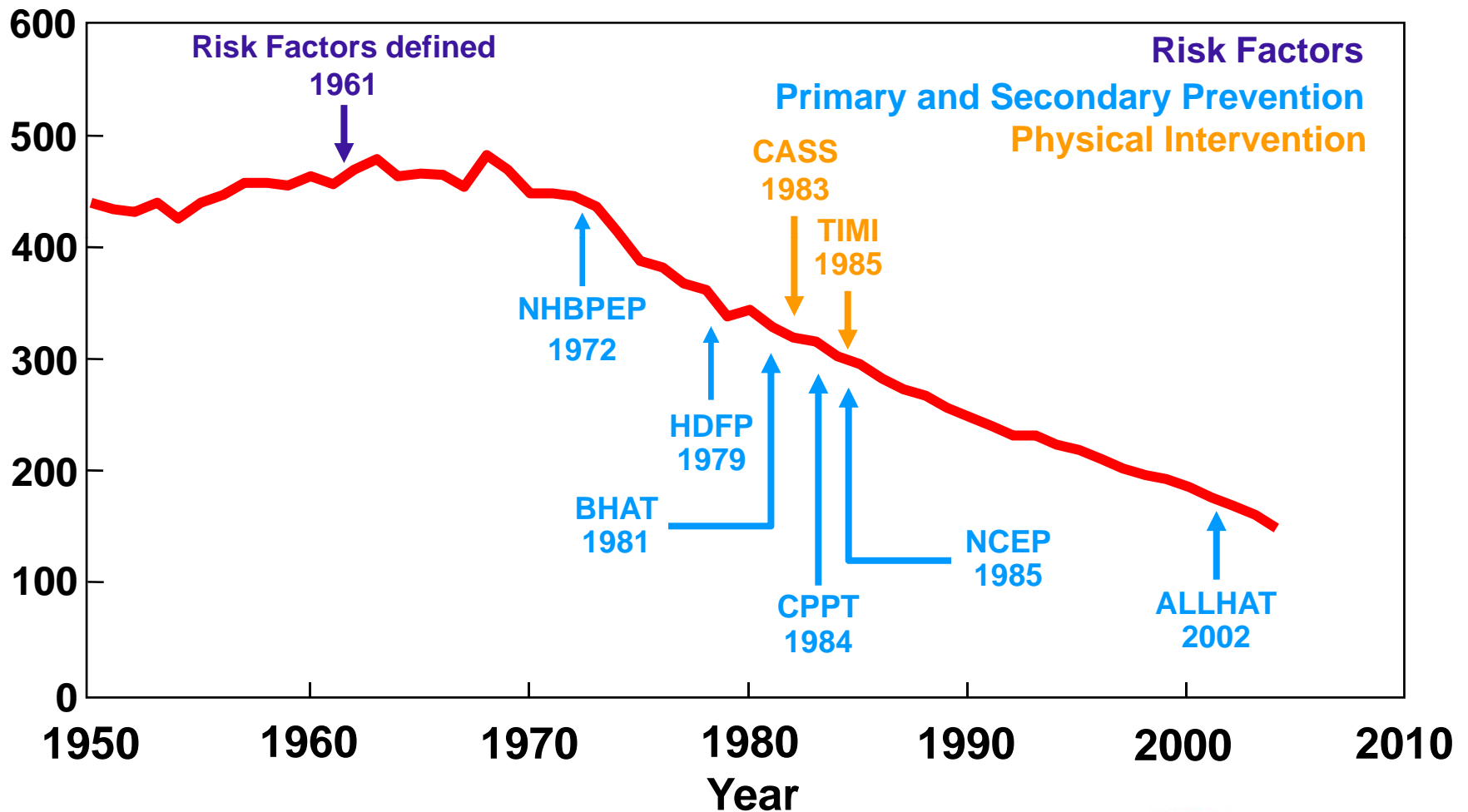


Risk Factors for Heart Attack and Stroke

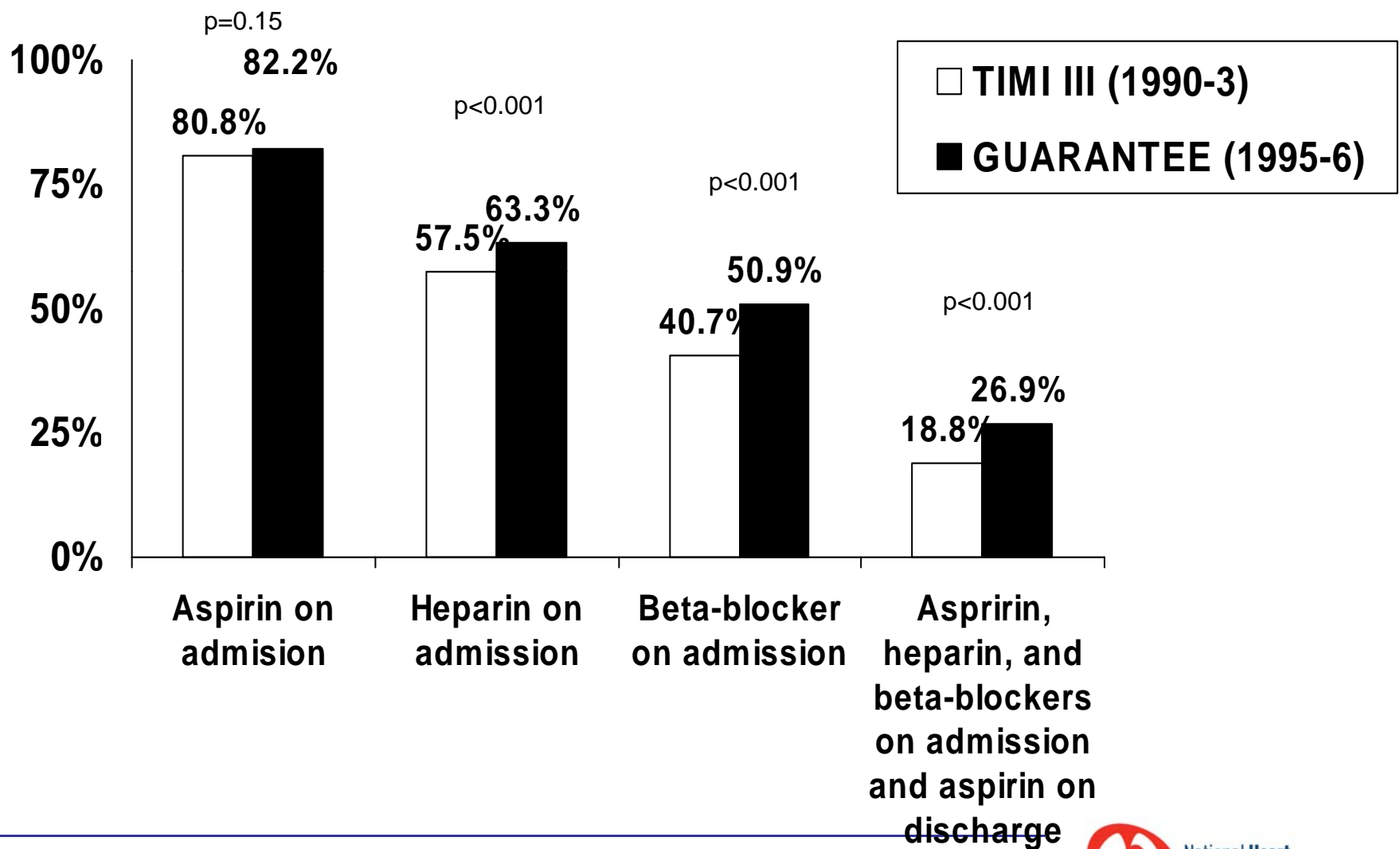
- High blood pressure
- High cholesterol
- Cigarette smoking
- Diabetes mellitus
- Parental or sibling history
- Obesity

Age-Adjusted Death Rates for Coronary Heart Disease, U.S., 1950-2004

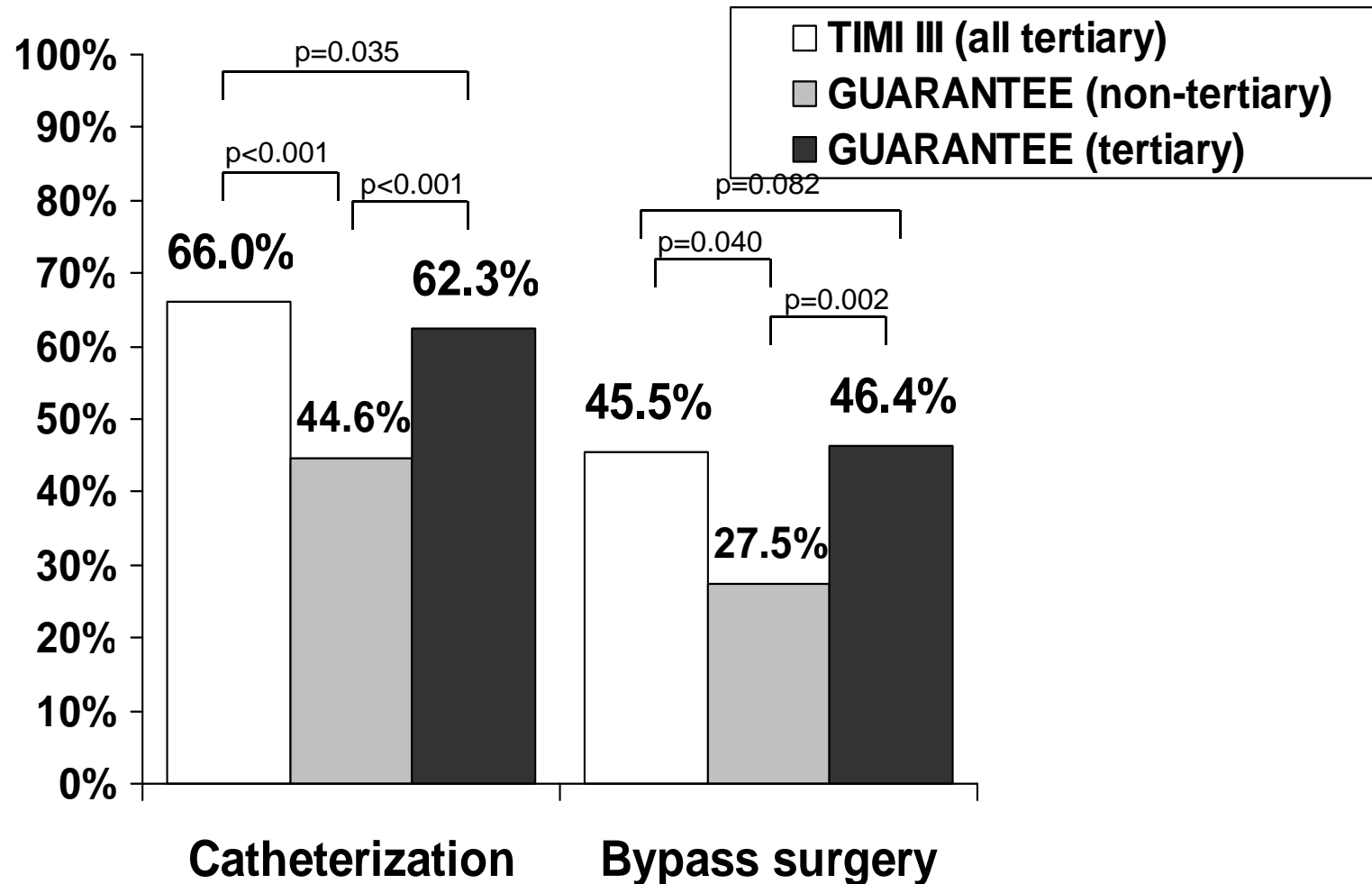
Deaths/100,000 Population

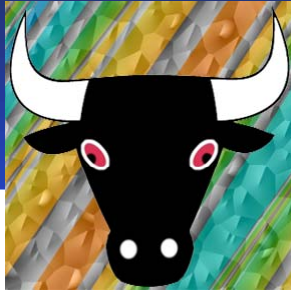


Rates of pharmacologic therapy at admission and discharge.



Rates of procedures in patients who fulfilled AHCPR Guidelines for cath and CABG

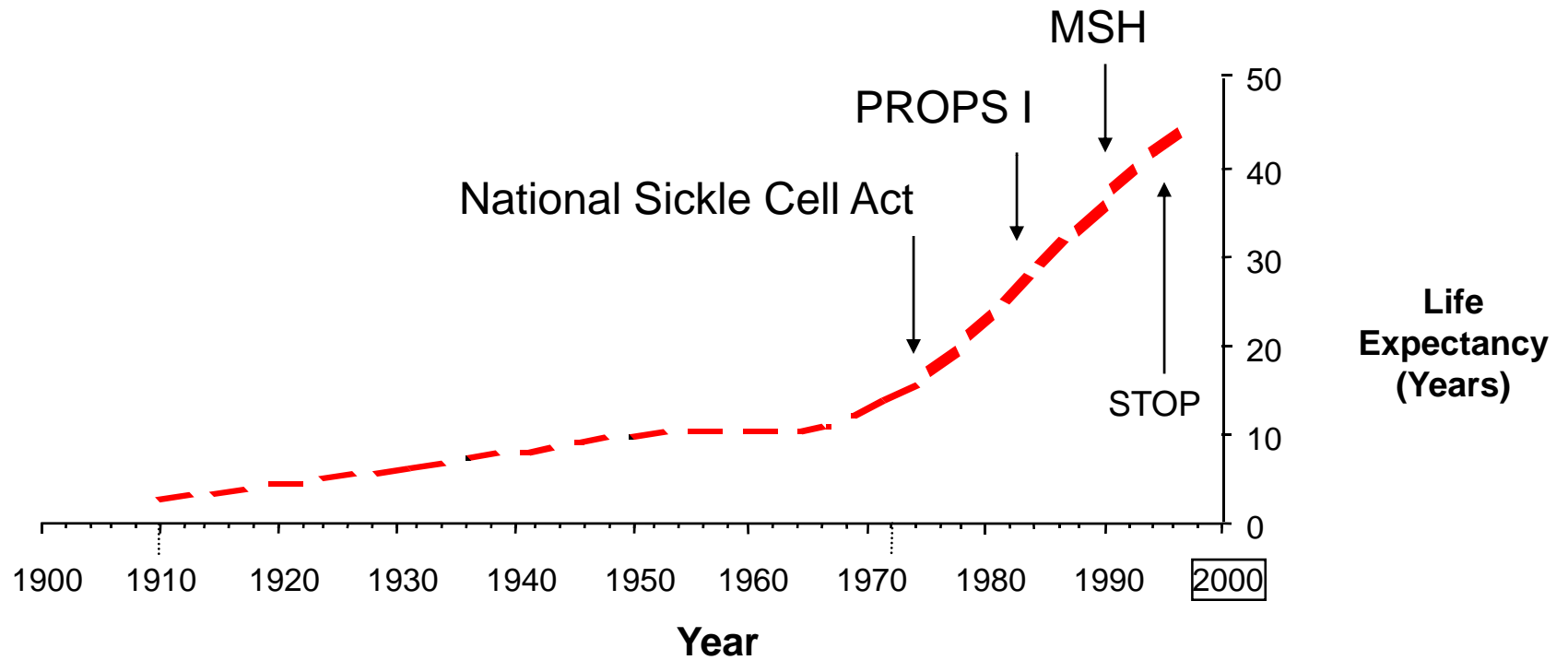




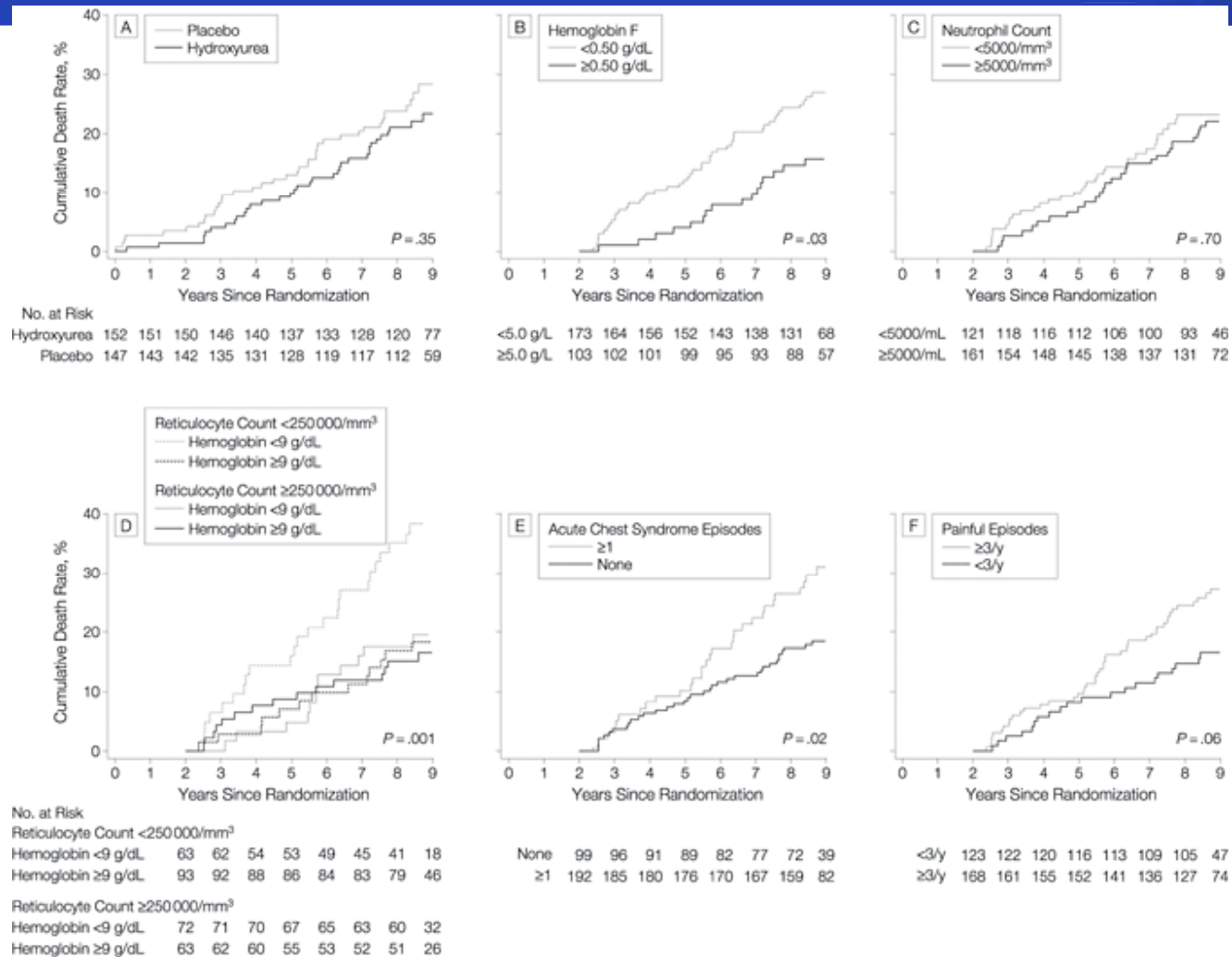
The Dilemma of Sickle Cell Disease

1. The first (>60 years), and possibly the best understood, molecular disease
2. Several billion \$US invested in research
3. Vastly improved survival rates
4. Now a chronic disease, debilitating to many patients
5. Poor access to care, implementation of research discoveries to alleviate burdens

Increases in Life Expectancy of Patients with Sickle Cell Anemia

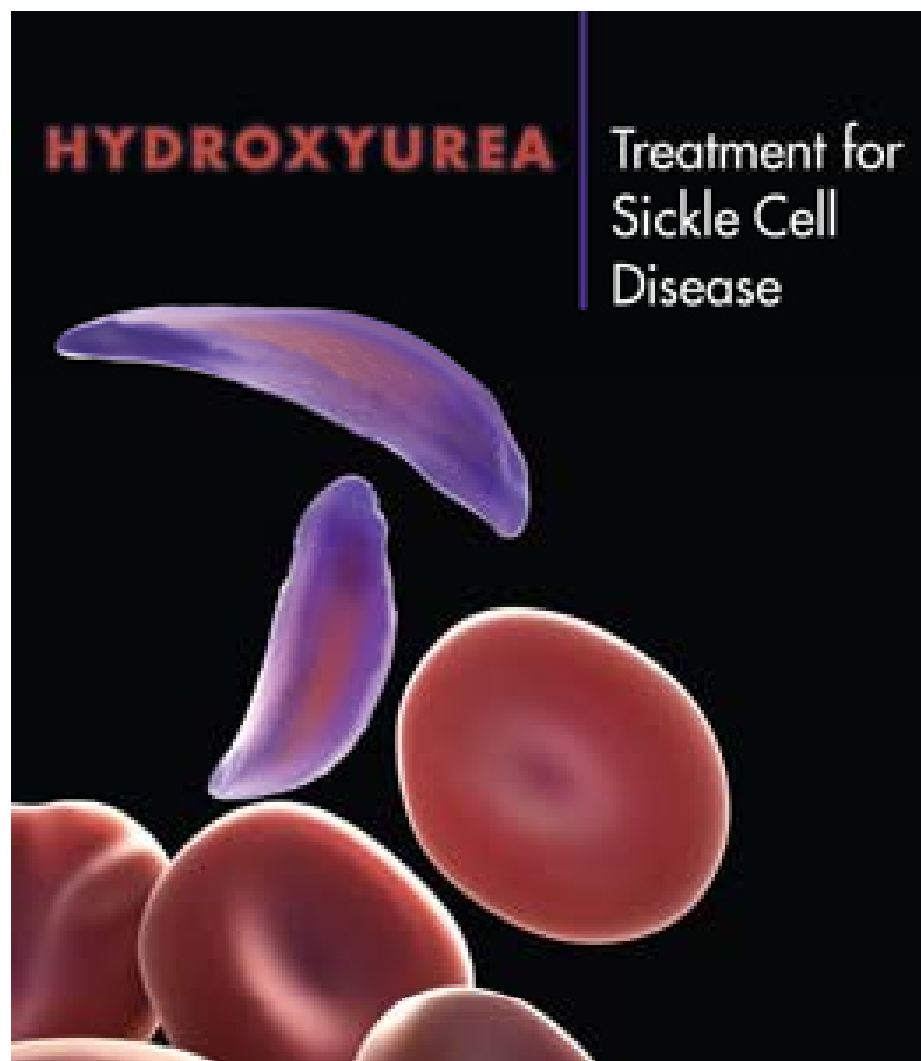


Cumulative Mortality in Patients With Sickle Cell Anemia in the MSH and in Follow-up



Steinberg, M. H. et al. JAMA 2003;289:1645-1651.

NIH Consensus Conference Feb 25-26,



Efficacy of hydroxyurea

- (1) Strong evidence is found in support of the efficacy of hydroxyurea use in adults.
- (2) Variable evidence is available in the preadolescent population.
- (3) No well-designed clinical trial evidence in infants is available.
- (4) Although the evidence for efficacy of hydroxyurea treatment for children is not as strong, the emerging data are supportive.

Effectiveness of hydroxyurea

- (1) One problem in determining effectiveness is the lack of a precise estimate of the number of people who have sickle cell disease in the United States and the number of people actually receiving hydroxyurea.
- (2) Most published studies have strict entry criteria, meaning some patients with co-morbidities who might benefit have not been assessed.
- (3) Overall, data regarding effectiveness are very limited.

Harms of hydroxyurea

1. Short-term, dose-related, usually temporary, and reversible effects
 1. decrease in white blood cell count, decrease in platelet count,
 2. decreased sperm counts or increased sperm abnormalities in men
 3. dryness and darkening of the skin and nails.
2. No high-quality evidence supports increased incidence of cancer or birth defects
3. Moderate evidence shows that hydroxyurea does not affect growth rate in patients who have sickle cell disease.
4. The data currently available are reassuring re: risks of both short- and long-term harms of hydroxyurea treatment.
5. The risks of hydroxyurea in adults are acceptable compared to the risks of untreated sickle cell disease.

Barriers to hydroxyurea treatment

1. Only three studies specifically address barriers, and none addresses hydroxyurea interventions.
2. Patient and parent/family/caregiver barriers include:
 1. Fears about cancer, birth defects, infertility, and uncertainty of other potential long-term risks;
 2. Lack of knowledge of hydroxyurea as a therapeutic option for sickle cell disease

Provider barriers

1. Limited number of physicians who have expertise in the use of hydroxyurea for sickle cell disease;
2. Provider bias and negative attitudes toward patients who have sickle cell disease and their treatment;
3. Lack of clarity in hydroxyurea treatment regimens and
4. Undertreatment.

System barriers

1. Financing: lack of insurance and coverage;
2. Geographic isolation,
3. Limited access to comprehensive care models;
4. Problems in transitioning from pediatric to adult care.

Future research needs

1. A comprehensive registry of all patients who have sickle cell disease that will be followed prospectively.
2. Studies to better define the mechanism of action of hydroxyurea, as well as optimal dosing, titration, and monitoring.
3. Studies that identify factors that predict clinical hydroxyurea response or nonresponse.
4. Effectiveness studies considering when to begin use of hydroxyurea to prevent or treat complications of sickle cell disease and how long to continue the therapy.
5. Evaluation of the utility and cost-effectiveness of the comprehensive care and medical home models for the delivery of hydroxyurea treatment

Major barriers for improving care: SCD

1. No one makes money
2. Commitment to ensuring quality of care is individual, not societal
3. Access to care is often difficult, and quality variable
4. To primary care providers, this is a rare genetic disease
5. Survival is vastly improved
6. Burden of disease is vastly increased

Added Barriers for Sickle Cell Patients

1. The disease affects primarily persons many of whom are struggling with other challenges, including
 1. Lower socioeconomic status
 2. Historically disadvantaged racial and ethnic group
 3. Educational disadvantage
2. The chronic disease affects physical energy, and may cause neurocognitive damage

Needed

1. Both care provision and research need to extend into the community
2. Lessons from other settings: patient advocacy groups must be part of the process
3. Results of research need to be clear to patients, families and primary care providers
4. Patients should be able to access both primary and tertiary care providers, with provision of a medical home