

GAPS IN RESEARCH NEEDED TO IMPROVE TREATMENT OF HEART, LUNG AND BLOOD DISEASES AMONG OLDER AMERICANS

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PRACTICAL STUDIES NEEDED: WHAT HAPPENS IN THE REAL WORLD?

- 1. WHAT DO TRADITIONAL CLINICAL TRIALS TELL US?
CAUSE, EFFICACY “OPTIMAL IMPACT” OF THERAPY,
LIMITED ADVERSE EVENT INFORMATION**
- 2. CLINICAL CARE ENVIRONMENT OFTEN DIFFERENT:
MULTIPLE DISEASES, MULTIPLE DRUGS, LESS INTENSE RX**
- 3. WIDE VARIATION IN PT RESPONSE
HEALTH CARE SYSTEM, PATIENT COMPLIANCE,
ENVIRONMENT
UNEXPECTED ADVERSE EVENTS**
- 4. PRACTICAL STUDIES NEEDED:
SYSTEMATIC OBSERVATION TO MONITOR FOR BENEFIT AND
HARM, RANDOMIZED CLINICAL TRIALS**
- 5. SYSTEM NEEDS TO BE AGILE (QUICK RESPONSE)**

PREVENTION: HYPERTENSION CONTROL

BACKGROUND:

- 1. MAJOR CAUSE OF CVD WORLDWIDE**
- 2. EXTENSIVE CLINICAL TRIAL EVIDENCE**
- 3. MAJOR BENEFITS ACHIEVED - BUT**
- 4. MINORITY ACHIEVE OPTIMAL CONTROL**
- 5. MULTIPLE CAUSES**
 - PATIENTS**
 - SYSTEM**
 - ENVIRONMENT**
- 6. PROGRESS LAGGING IN US SUBGROUPS**
- 7. NEED: DATA FROM TRIALS AND ONGOING SURVEILLANCE FOR (DELIVERY, ADHERENCE, ETC.)**

PREVENTION: HYPERTENSION CONTROL

STUDIES TO FILL DATA GAPS:

- 1. TRACKING OF SURVEILANCE DATA – MONITOR TRENDS**
NCHS Data Brief (App. 1 year delay)
CLINICAL MONITORING
- 2. EVALUATE INTERVENTIONS FOR HTN TREATMENT IN MULTIPLE CLINICAL SETTINGS**
GOAL: ACHIEVE CONTROL RATES SEEN IN BEST HEALTH SYSTEMS
- 3. CLINICAL TRIAL: BP TREATMENT TO LOWER TARGETS IN HIGH RISK PATIENTS**
PROPOSED NIH SPRINT TRIAL

PREVENTION: HEART FAILURE

BACKGROUND:

- 1. PARTLY RESULT OF OUR PRIOR SUCCESS**
- 2. MAJOR CAUSE OF MORBIDITY, MORTALITY**
- 3. PREVENTION CRITICAL**
- 4. MAJOR CAUSES OF CHF**
 - HYPERTENSION**
 - CORONARY ARTERY DISEASE - MI**
- 5. DISPROPORTIONATE IMPACT: MINORITIES**
- 6. NEED: TRIALS AND ONGOING SURVEILLANCE FOR (PREVENTION, Rx DELIVERY, ADHERENCE, ETC.)**

PREVENTION: HEART FAILURE

INTERVENTIONS:

1. PREVENTION:

INCREASE EFFORTS TO CONTROL KNOWN CHF RISK FACTORS

2. TREATMENT TRIAL: DIASTOLIC HEART FAILURE

CURRENT RECOMMENDATIONS – BP CONTROL
VALUE OF ROUTINE HEART FAILURE TREATMENT
UNCERTAIN

ONGOING NIH TRIAL: TOPCAT

TEST VALUE OF BETA BLOCKERS AND ACE INHIBITION IN
DIASTOLIC HEART FAILURE,
TEST ROLE OF MINERALOCORTICOID RECEPTOR ANTAGONISM

DIAGNOSIS: VASCULAR DISEASE IMAGING

QUESTIONS THAT MUST BE ADDRESSED

- **WHAT IS CLINICAL USEFULNESS OF NEW TEST?**
- **WHAT DOES THE TEST ADD?**
- **WHAT ARE ITS ADVANTAGES?**
- **WHAT ARE ITS COMPLICATIONS?**
- **WHAT ARE ITS COSTS?**
- **DOES IT REPLACE CURRENT ASSESSMENT?**
- **WHAT ARE CRITERIA FOR ACCEPTANCE?**

- **IS TECHNOLOGY DRIVING PRACTICE?**

DIAGNOSIS: CT ANGIOGRAPHY

1. TRIAL(S) NEEDED TO LOOK AT ITS UTILITY IN DIAGNOSIS AND/OR PROGNOSIS
 - A. ADVANAGES FOR DISEASE ASSESSMENT?
 - B. IS TRADITIONAL ANGIOGRAPHY STILL NEEDED?
 - C. NEG: SUBSTANTIAL DOSE OF RADIATION
 - D. UTILITY FOR SCREENING UNCERTAIN
NOT OPTIMAL FOR REPEATED EXAMS

3. TRIAL(S) NEEDED TO LOOK AT ITS UTILITY FOR PREVENTION AND/OR TREATMENT
 - A. WHAT IS THE OPTIMAL STUDY GROUP?
PROBABLY INTEREDIMATE RISK PATIENTS
 - B. CALCULATE BENEFITS/RISK OF NEW INFORMATION

* SEE EXAMPLE OF NCI's LUNG CANCER SCREENING TRIAL

TREATMENT: DRUG ELUTING STENTS

AN OPPORTUNITY MISSED!

- 1. ADDRESSED MAJOR STENT PROBLEM**
- 2. RAPID CLINICAL ADOPTION FORESEEN**
- 3. INADEQUATE CLINICAL TRIAL RESULTS**
LONG TERM SAF/EFF DATA NEEDED
- 4. CONCERN ABOUT LATE EVENTS**
- 5. COST PROJECTIONS OPTIMISTIC**
- 6. CLINICAL QUESTIONS UNANSWERED**
LONG TERM COMPLICATIONS?
APPROPRIATE FOR SEVERE DISEASE?
- 7. EVOLVING TECHNOLOGY- CHANGING RISK?**
- 8. PROSPECTIVE TRIAL or REGISTRY NEEDED**
- 9. RAISES NEED FOR AGILE RESPONSE**

TREATMENT: COPD

INVESTIGATIONS

1. CONTINUOUS O2 SUPPLEMENTATION

NHLBI contracts for the Long-term Oxygen Treatment Trial (LOTT) in October 2006.

A. CMS WILL COVER OXYGEN COSTS FOR MEDICARE PATIENTS

B. OUTCOME MEASURES ARE MORTALITY AND QUALITY OF LIFE

2. VALUE OF PHYSICAL THERAPY

MEDICARE COVERS PULMONARY REHABILITATION IN THE CONTEXT OF LVRS

WOULD COVERAGE BE APPROPRIATE IN OTHER SITUATIONS?

A. ALL WITH MODERATE-SEVERE COPD?

B. FOLLOWING ACUTE EXACERBATION WITH HOSPITALIZATION?

TREATMENT: BLOOD TRANSFUSIONS IN THE US

- MORE THAN 5 MILLION PEOPLE ARE TRANSFUSED EVERY YEAR
- THE MAJOR CONDITIONS FOR WHICH ONE MAY RECEIVE BLOOD ARE MORE LIKELY TO OCCUR IN OLDER PERSONS:
 - SURGERY
 - ANEMIA (WHICH IS VERY COMMON IN CRITICALLY ILL PATIENTS)
 - CANCER
 - TRAUMA
- WHAT KIND OF BLOOD IS TRANSFUSED EVERY YEAR?
 - 14 MILLION ALLOGENEIC RED BLOOD CELL TRANSFUSIONS
 - 4 MILLION FRESH-FROZEN PLASMA TRANSFUSIONS
 - 1.7 MILLION PLATELET TRANSFUSIONS

Optimizing Transfusion Therapies

- **PRACTICAL RESEARCH QUESTIONS OF INCLUDE:**
 - WHAT ARE THE IMMUNOMODULATORY, INFLAMMATORY, AND VASOREGULATORY PROPERTIES OF BLOOD PRODUCTS AS A FUNCTION OF STORAGE TIME?
 - WHAT ARE THE OPTIMAL TRANSFUSION TRIGGERS (E.G., AT WHAT HEMOGLOBIN LEVEL SHOULD ONE BE TRANSFUSED)?
 - HOW MANY BLOOD TRANSFUSIONS SHOULD BE GIVEN (E.G., WHAT TARGET HEMOGLOBIN LEVEL SHOULD BE REACHED)?
 - WHAT ARE THE CLINICAL OUTCOMES IN TRANSFUSION-RECIPIENTS COMPARED TO PATIENTS WHO DO NOT RECEIVE BLOOD?
 - WHAT IS THE COST EFFECTIVENESS OF VARIOUS PRACTICES?

CONCLUSIONS:

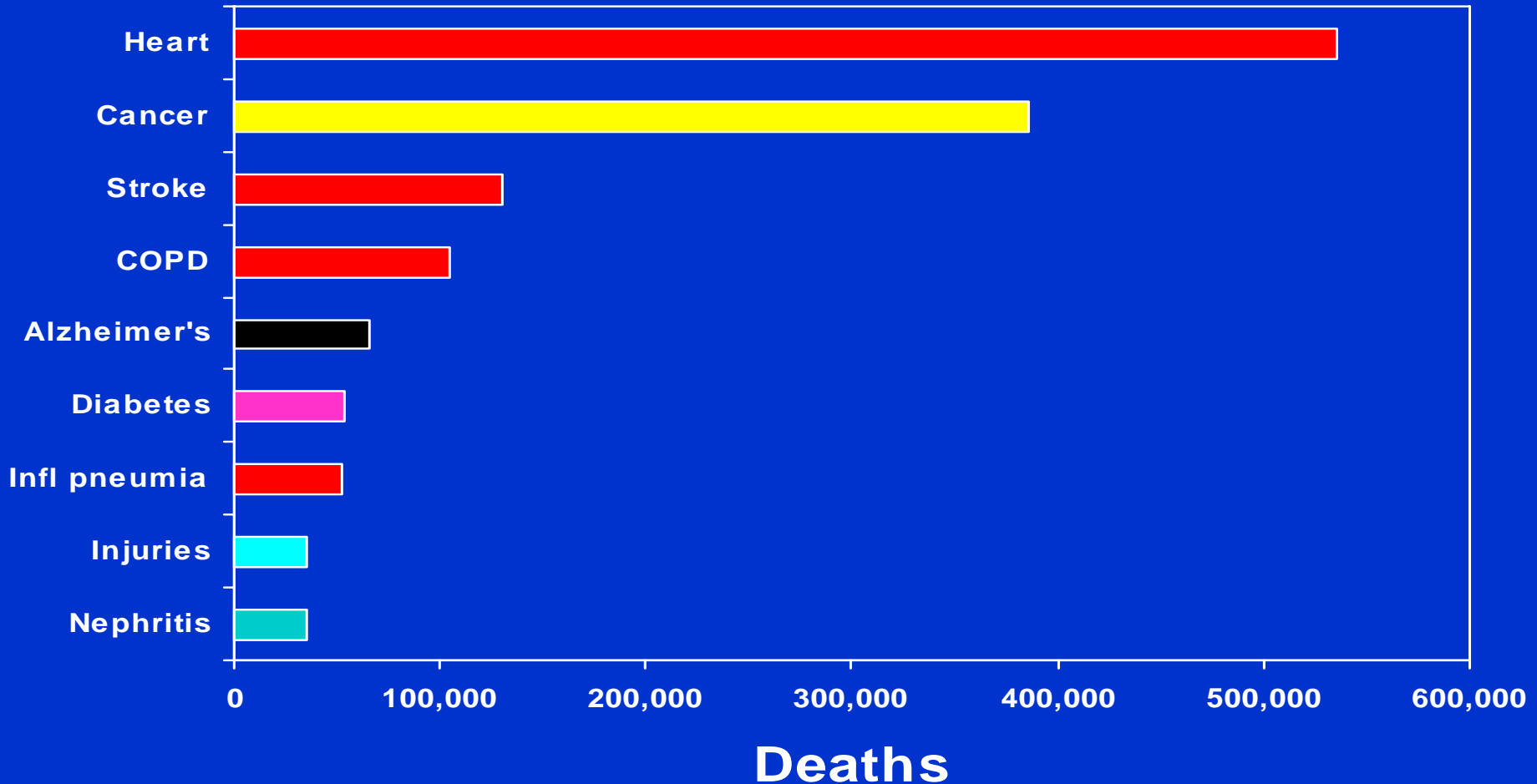
1. MAJOR PROGRESS IN SEVERAL CHRONIC DISEASES
CVD IS BEST EXAMPLE – ALSO SHOWS COMPLEXITY
2. COST OF BENEFITS ACHIEVED VERY HIGH
3. BETTER UNDERSTANDING NEEDED TO OPTIMIZE
PREVENTION
4. NEED BETTER WAYS TO APPLY and ASSESS CLINICAL
TRIAL VALIDATED TREATMENTS IN “REAL WORLD”
5. NEED MORE RESEARCH IN CLINICAL ENVIRONMENT

OPPORTUNITIES MISSED:

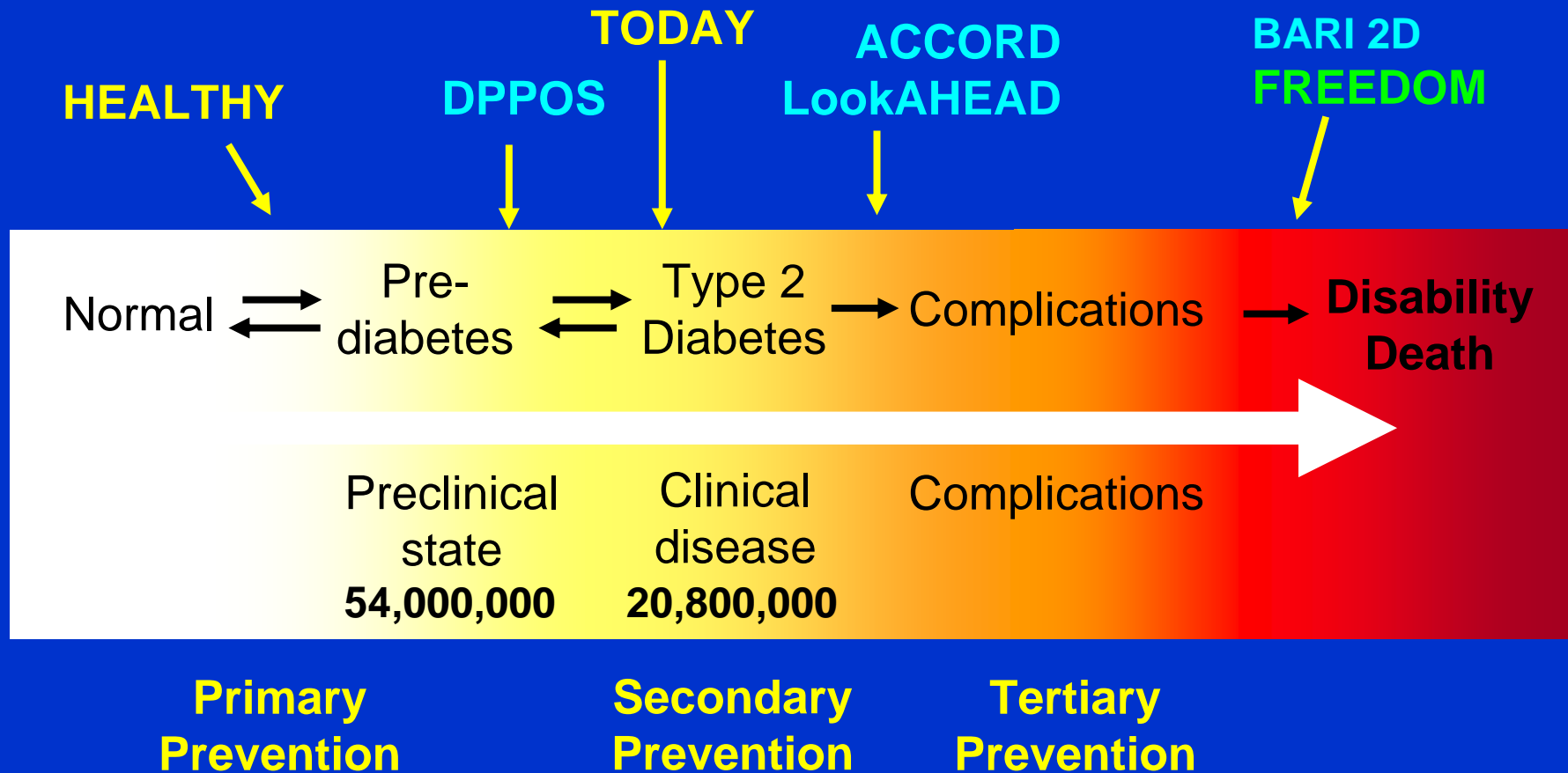
- 1. DRUG ELUTING STENTS**
- 2. TZD's and CVD RISK (i.e. rosiglitazone)**
- 3. NSAID's and CVD (VIOX)**
- 4. NON-INVASIVE IMAGING**
- 5. COORDINATED PREVENTION PROGRAMS**

LEADING CAUSES OF DEATH AGES 65+

U.S., 2004



Stages in the History of Type 2 Diabetes



TREATMENT: COPD

BACKGROUND

- **24 MILLION AFFECTED IN THE U.S.**
- **>120,000 DEATHS/YEAR (4TH LEADING CAUSE)**
- **~900,000 DISABLED, WORKING AGE ADULTS**
- **TOTAL COST OF \$37 BILLION / YEAR**