Cardiovascular Hazard Assessment in Environmental Toxicology
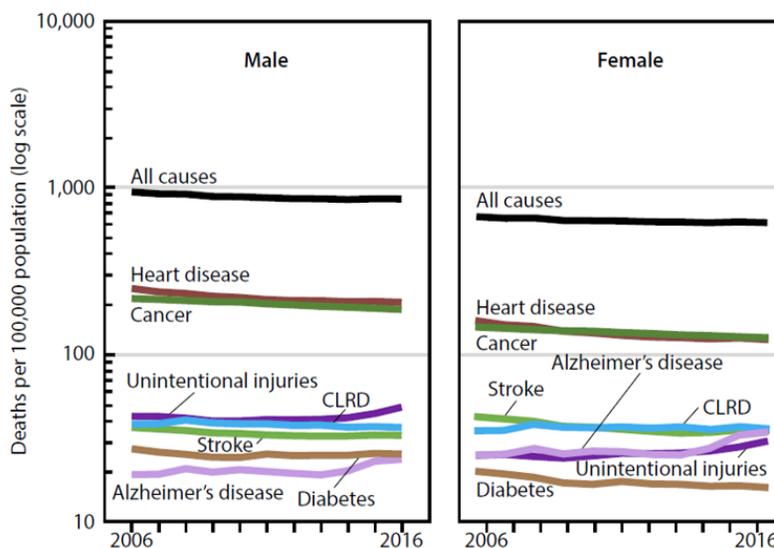
Presenter: Dr. Brian Berridge, NTP Associate Director and Scientific Director, Division of NTP, NIEHS

Overview

The Health Effect Innovations (HEI) have been initiated to enable NTP to enhance its capabilities in targeted areas of strategic focus, while allowing for improvements in sustainability and impact. Through these initiatives, we hope to address gaps in current capabilities, leverage opportunities for bridging with other NIH Institute biomedical research and ensure the continued contemporary value of NTP's work. We also intend to build capability to allow more disease-focused investigation.

Cardiovascular disease is a major cause of death and disability worldwide. In the United States, heart disease and stroke are leading causes of death in both men and women[1] and contribute significantly to direct health expenditures[2]. The goal of the Cardiovascular Hazard Assessment in Environmental Toxicology HEI is to create a program that fully leverages and applies NTP's capabilities in deliberate, integrated, and complementary ways along the toxicology translational pipeline–from data/knowledge mining to in silico/in vitro approaches to in vivo testing–and use that knowledge to improve our understanding about how environmental agents could affect the cardiovascular system in humans. This presentation will introduce the initiative and highlight an existing consortium partnership with FDA CDER that will support the effort. The DNTP Program Management Team members overseeing this initiative are Drs. Mark Cesta, Michelle Cora, Jennine Santos, and Brian Berridge.

Age-adjusted death rates for selected causes of death, by sex

NOTES: Stroke is cerebrovascular disease. CLRD is chronic lower respiratory diseases.

SOURCE: NCHS, *Health, United States, 2017*, Figure 2. Data from the National Vital Statistics System (NVSS), Mortality.
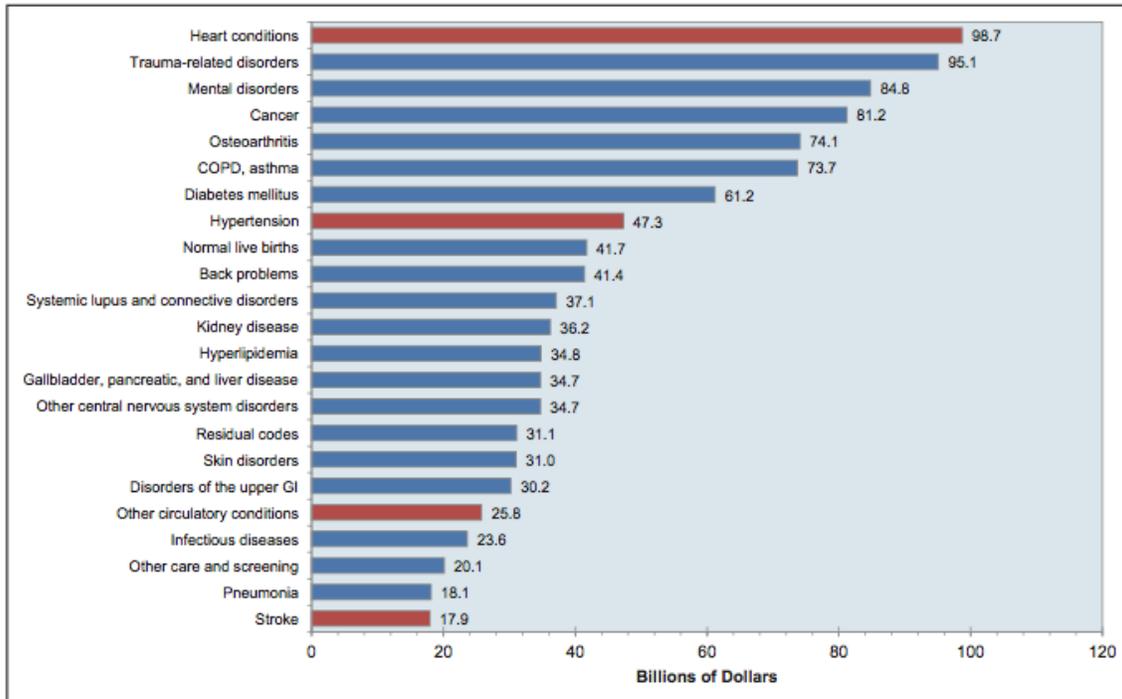
Chart 27-2. The 23 leading diagnoses for direct health expenditures, United States, average annual 2012 to 2013 (in billions of dollars).
COPD indicates chronic obstructive pulmonary disease; and GI, gastrointestinal (tract).
Source: National Heart, Lung, and Blood Institute; estimates are from the Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality, and exclude nursing home costs.

References

1. National Center for Health Statistics. Health, United States, 2017: With special feature on mortality. Hyattsville, MD. 2018. https://www.cdc.gov/nchs/data/hus/hus17.pdf
2. American Health Association. Heart Disease and Stroke Statistics—2017 Update. Circulation. 2017;135:e146–e603. https://doi.org/10.1161/CIR.0000000000000485