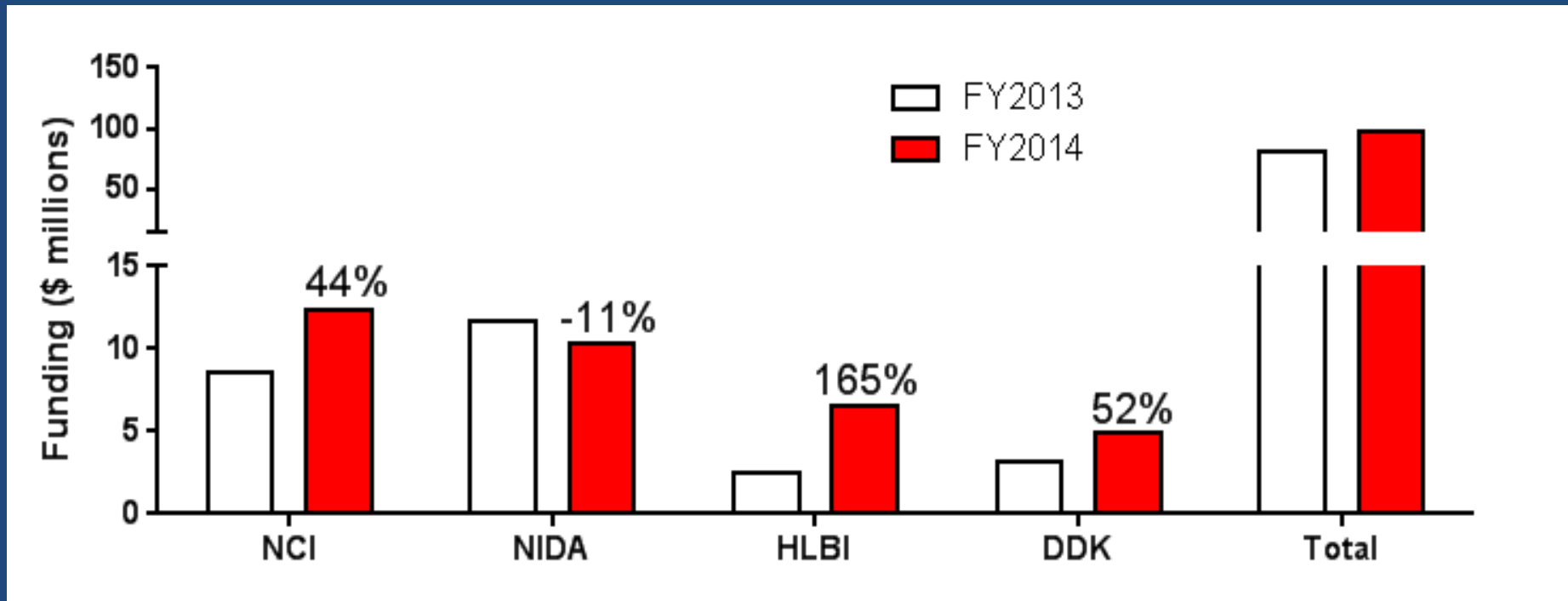


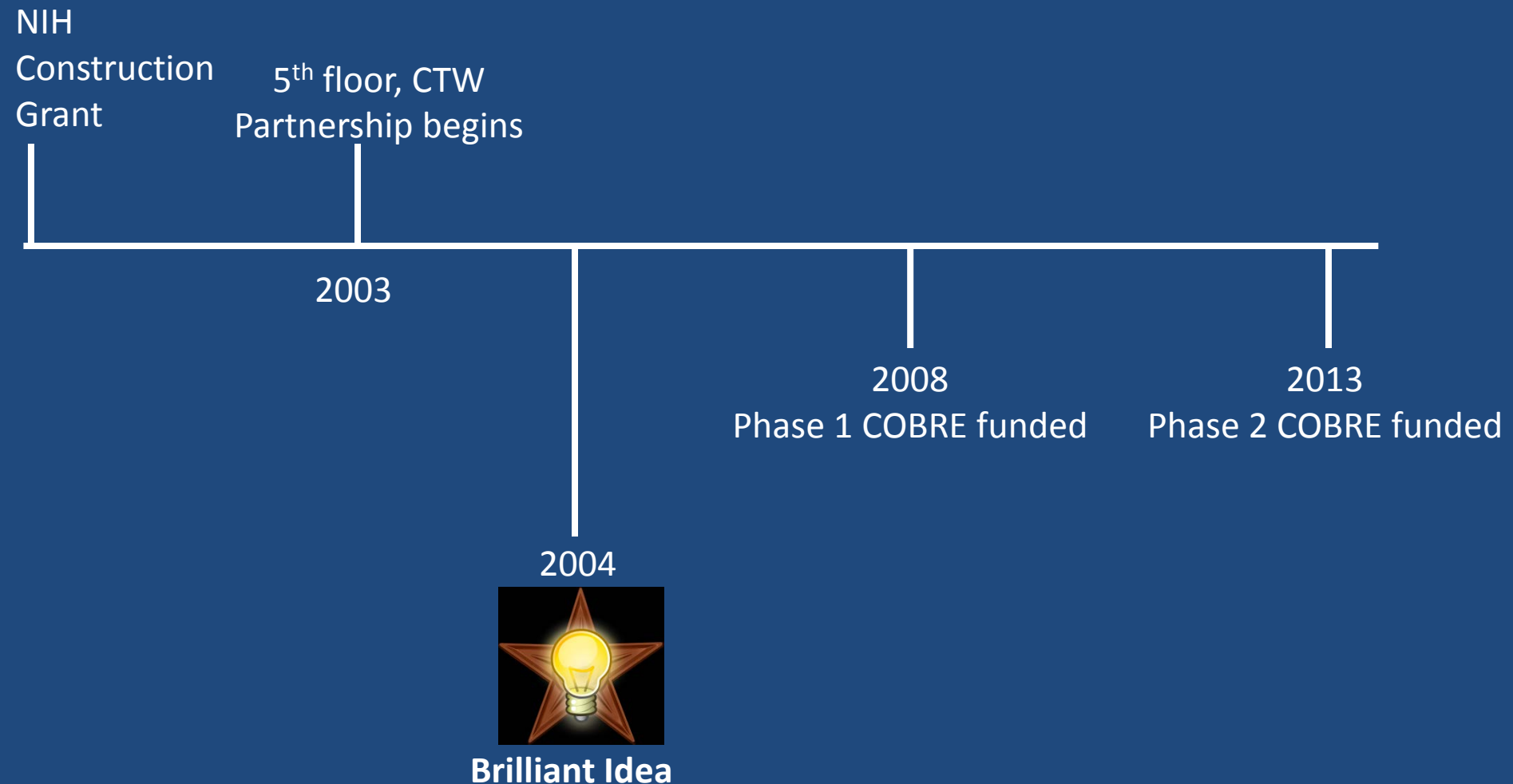
Health Disparities in the
Commonwealth:
Obesity and Cardiovascular Diseases
A Compelling Example

UK NIH Funding Aligns with Health Disparities in the Commonwealth



NCI = National Cancer Institute; NIDA = National Institute for Drug Abuse; HLBI = Heart, Lung and Blood Institute; DDK = Diabetes, Digestive Diseases and Kidney

NIH COBRE on Obesity and Cardiovascular Diseases: Historical Perspective of Center Development





Lisa Cassis
Pharm Sci



Alan Daugherty
CVRC



Ming Gong



Zhen Guo



Bernie Hennig



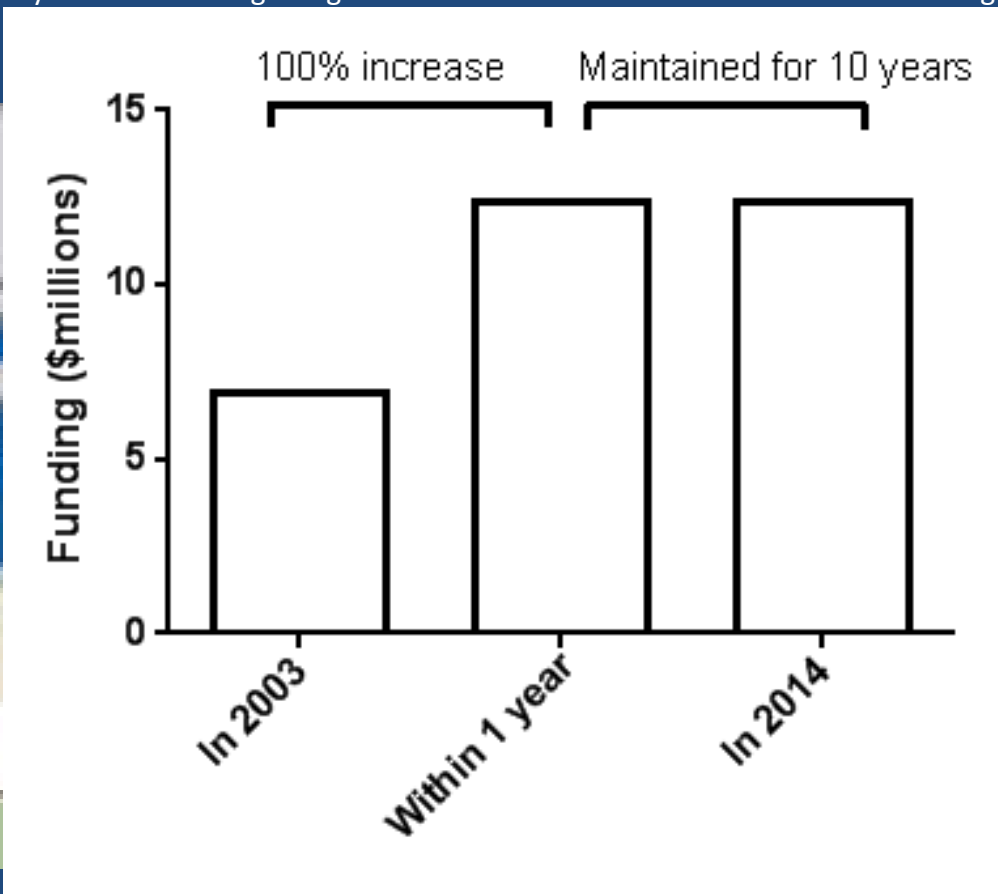
Nancy Webb
Endocrinology



Phil Kern
Endocrinology



Lisa Tannock
Endocrinology



Erik Eckhardt
Gastroenterology



Vicky King
Cardiology



Deneys van der Westhuyzen
Endocrinology

Dennis Bruemmer
Endocrinology



Fred de Beer
Internal Medicine



NIH Center of Biomedical Research Excellence (COBRE) on Obesity and Cardiovascular Diseases

- Objectives

- Identify mechanisms linking obesity to CV disease, two health disparities that are rampant in the Commonwealth
- Develop a multidisciplinary research Center around this theme
- Use this as a platform to develop promising junior investigators to compete for NIH grant support (“graduates”)

- Plan

- Mentoring,
- Develop core facilities to optimize research enterprise,
- Strategic hiring,
- Pilot Projects

Progress during Phase 1

Junior PI	Graduate	Grants Funded	Funding (millions)	Publications
Dennis Bruemmer	√	3 (2 R01s, 1 ADA)	\$4.1	17
Greg Graf	√	2 (R01s)	\$3.7	9
Lisa Tannock	√	4 (3 R01s, 1 VA Merit)	\$6.8	13
Zhenheng Guo	√	2 (R01s)	\$3.7	8
Sean Stocker	√	1 (R01)	\$1.9	9
Jianhua Shao	√	4 (2 R01s, 1 R21, 1 ADA)	\$4.5	10
Shuxia Wang	√	2 (R01, VA Merit)	\$3.1	11
Victoria King	√	2 (R01, CCTS)	\$3.7	11
Kevin Pearson	√	2 (R01, R03)	\$2.0	12
Eric Eckhardt	√	1 (R21)	\$0.41	6
Zhenyu Li	√	3 (R01, ASH, Astra Zeneca)	\$0.5	16
Changcheng Zhou	√	2 (R01, SDG)	\$1.43	4
TOTALS	12	28	\$36	125

- Have now graduated 12 out of 12 at a rate of 100%, or 2.4 investigators/year
- Graduates have multiple grants (2.25/investigator)
- 2.5 publications/investigator/year

Cost Effective Investment of Research

**NIH Phase I
COBRE Award
\$10.5 million**

UK Investment
\$400,000 (VPR)



**Junior
Investigator
and Mentor
Funding:
\$72 million**



**NIH Phase 2
COBRE Award
\$11.3 million**

UK Investment
\$250,000 (VPR)

= \$94 million

Funding is impressive, but it is the research and its impact that matters...

- **An Example of our research:**

**Childhood obesity and its
impact on cardiac function**

Project 2: Brandon Fornwalt, MD/PhD



Susan Smyth, MD/PhD
Professor and Division Chief
Cardiology, Dept Internal Med
COM

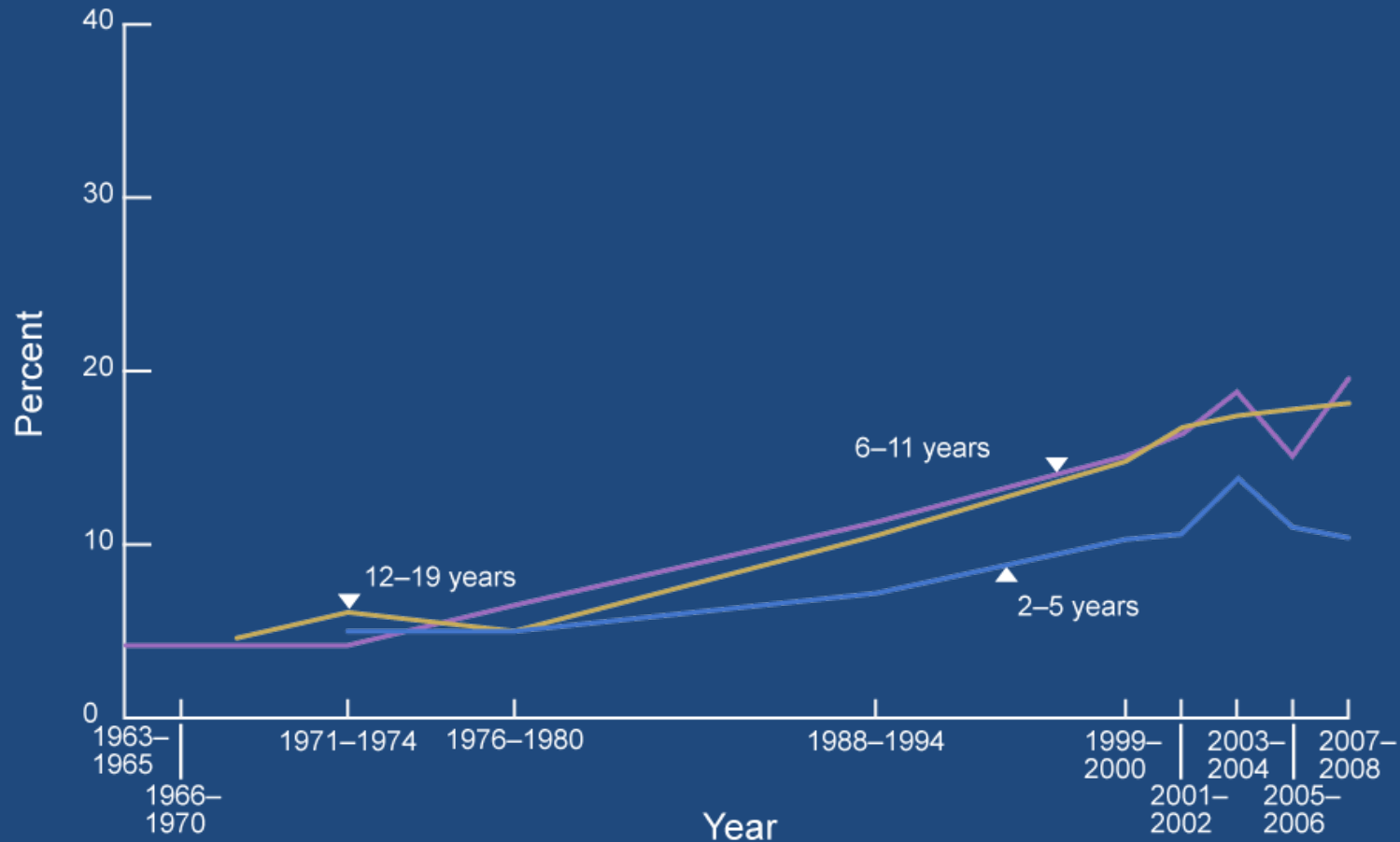


Brandon Fornwalt, MD/PhD
Assistant Professor
Dept Pediatrics,
COM



David Randall, PhD
Professor
Dept Physiology
COM

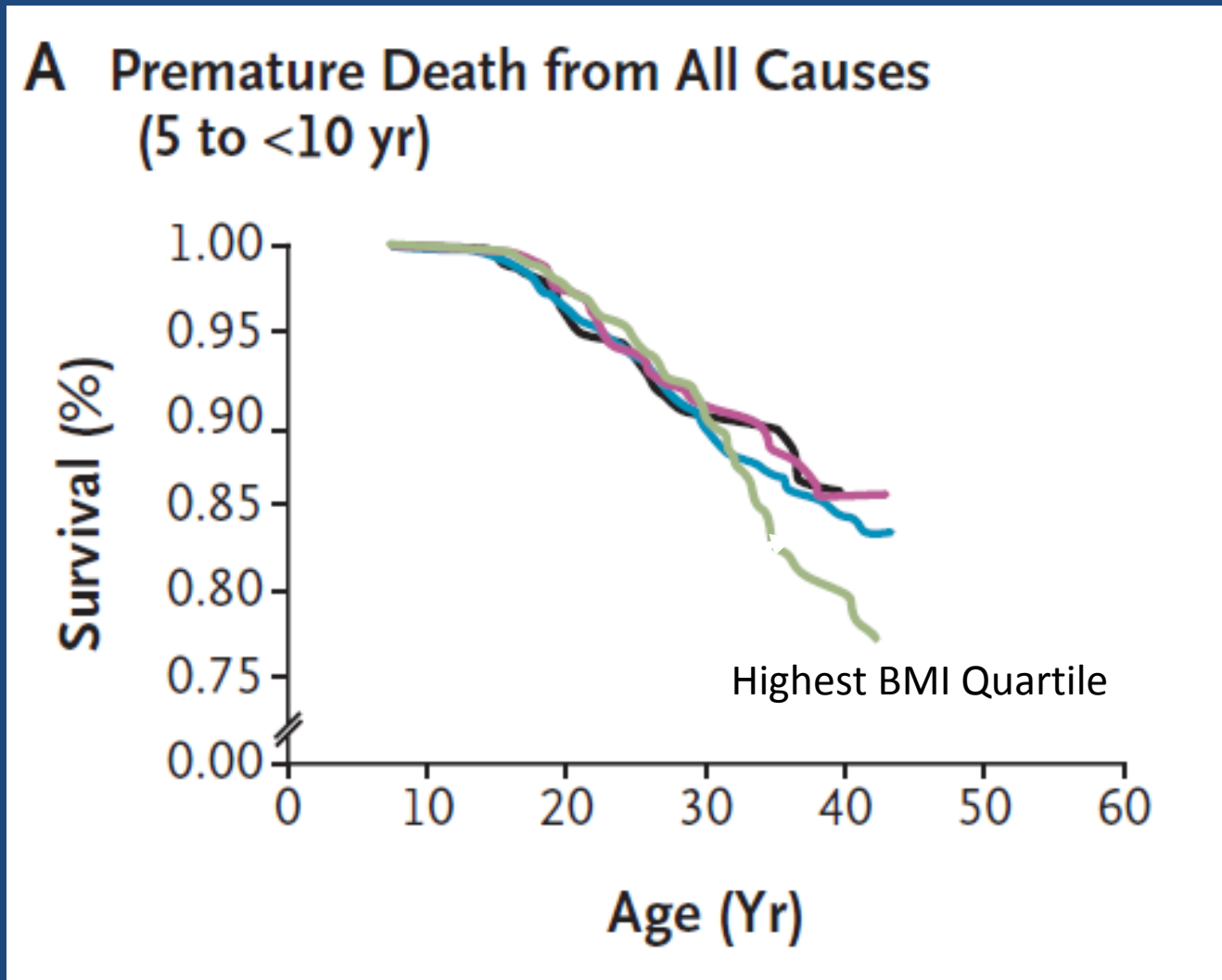
Pediatric Obesity is Prevalent



NOTE: Obesity is defined as body mass index (BMI) greater than or equal to sex- and age-specific 95th percentile from the 2000 CDC Growth Charts.

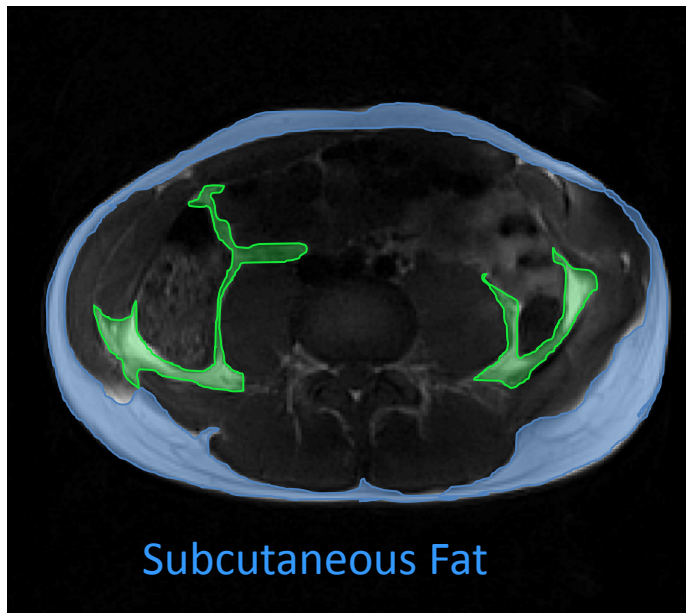
SOURCES: CDC/NCHS, National Health Examination Surveys II (ages 6-11), III (ages 12-17), and National Health and Nutrition Examination Surveys (NHANES) I-III, and NHANES 1999-2000, 2001-2002, 2003-2004, 2005-2006, and 2007-2008.

Pediatric Obesity is Associated with Early Mortality



MRI Techniques: Increased Subcutaneous and Visceral Adiposity in Obese Children in the Commonwealth

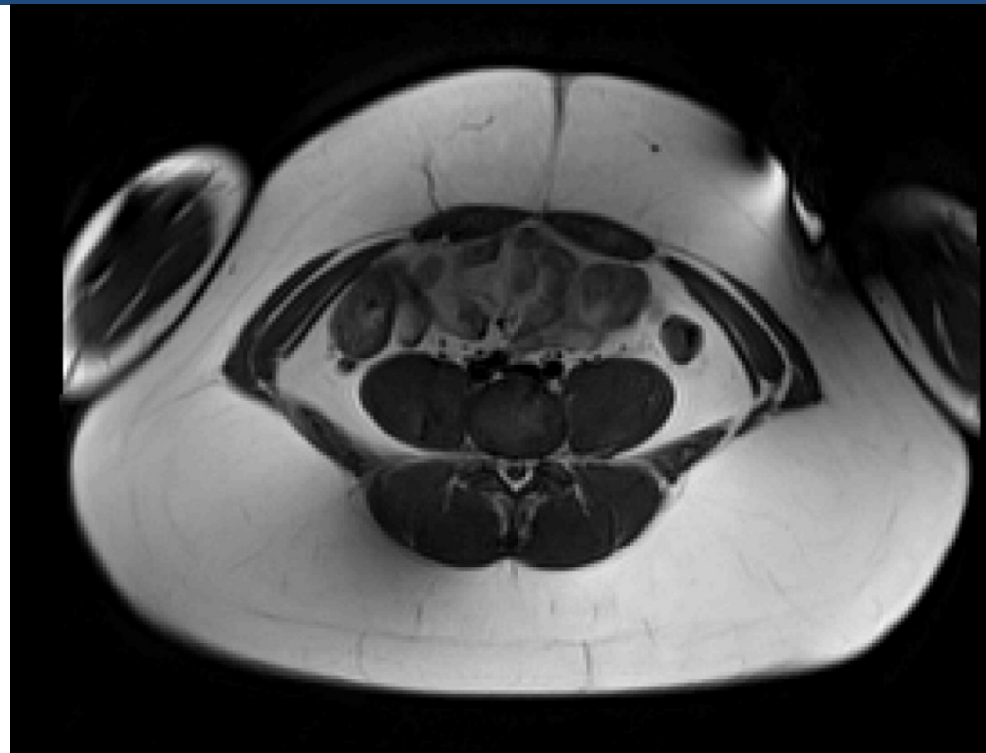
16 yr, Healthy



Subcutaneous Fat

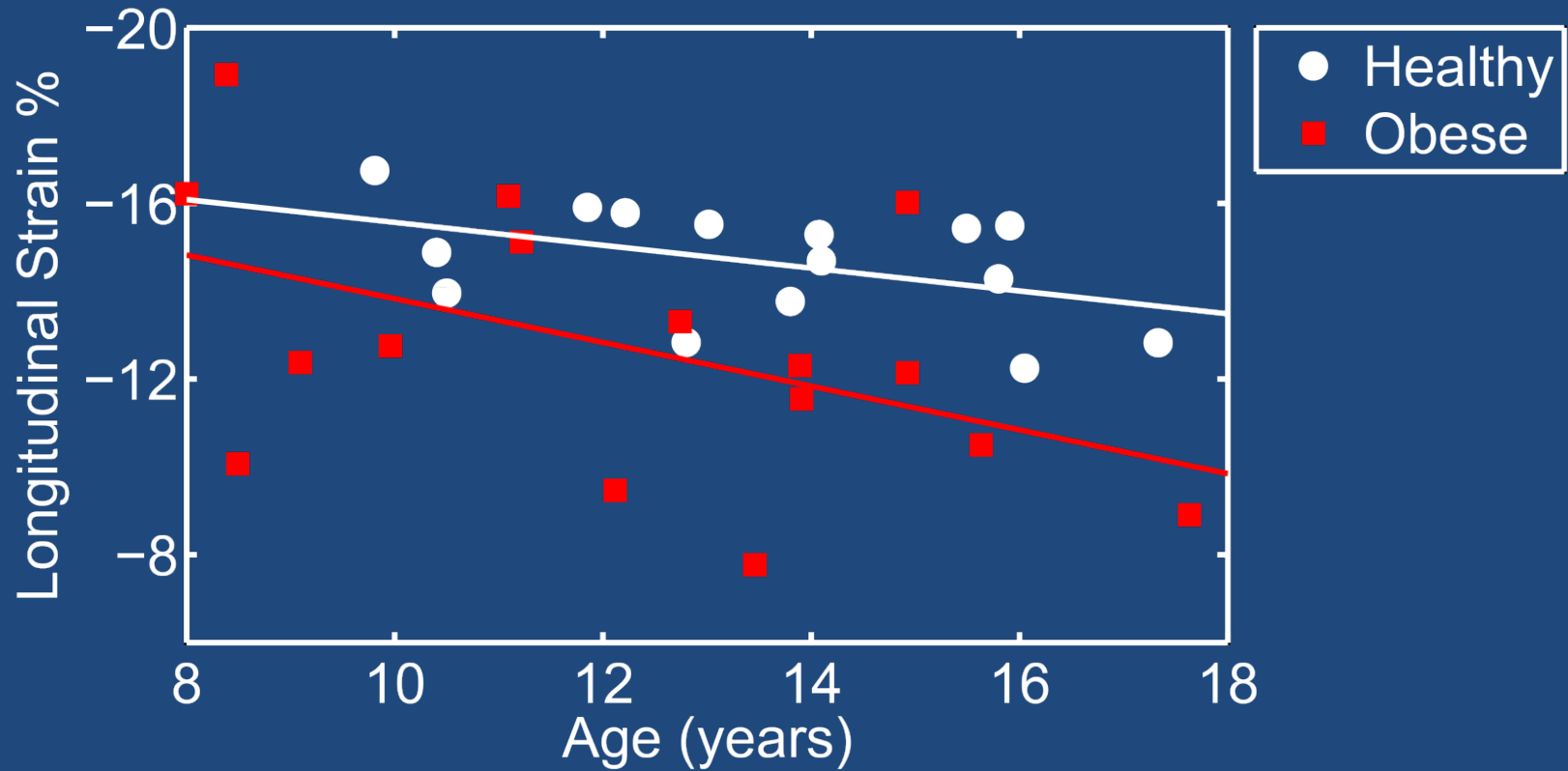
Visceral Fat

16 yr, Obese



Note: these are on the same scale

Obese Children Have Impaired Cardiac Strain



Challenge

Impact on Health

Disparities

- Prevention/life style changes
- Clinical practice evolution
- Therapeutics

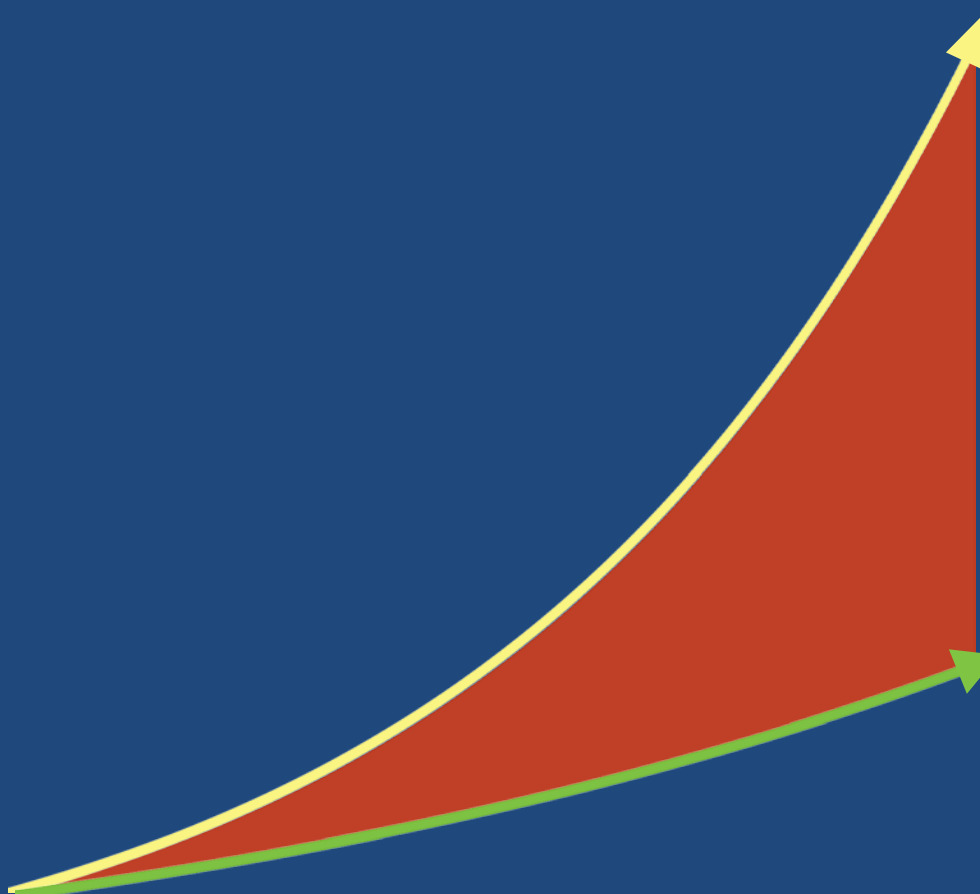
Opportunity

- Focused application of knowledge
- Translational, interdisciplinary “team” research

Knowledge

- Potential to improve human health

Time





Lisa Cassis
Pharm/NS



Linda Dwoskin
Pharm Sci



Olivier Thibault
Pharm/NS



Paul Murphy
Sanders Brown



Stefan Stamm
Biochem



Greg Graf
Pharm Sci



Charlotte Peterson
Health Sci



Nancy Webb
Pharm/NS



Mike Bardo
Psych

Basic scientists: appetite control, obesity-induced diabetes, cardiovascular disease, liver dysfunction, dementia, cognition decline, behavioral aspects of obesity



Phil Kern
Endocrine



Lisa Tannock
Endocrine

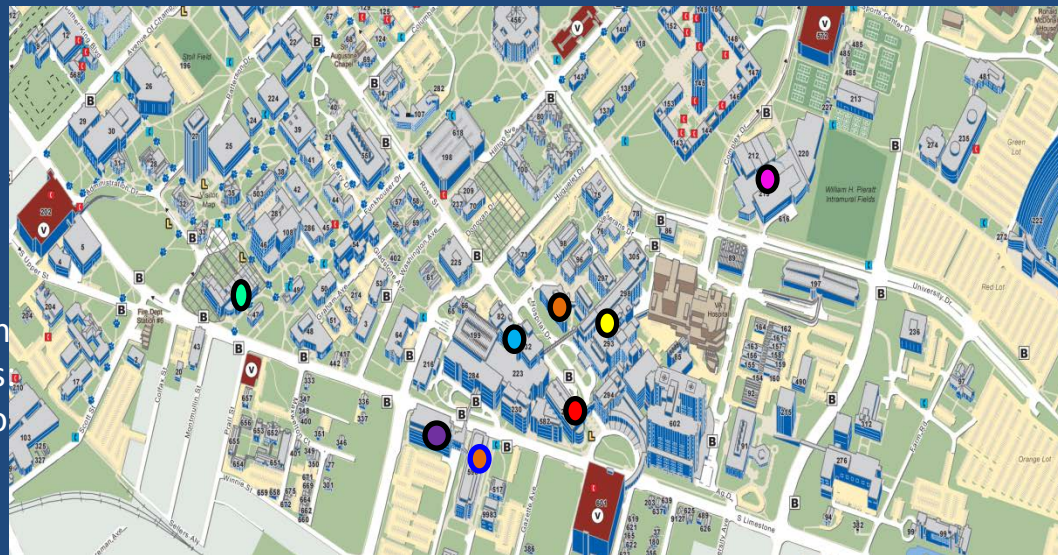


Terrie Lennie
Nursing



Kevin Pearce
Family Medicine

Physician
scientists
bench to
bedside



New Faculty Recruits

● = location



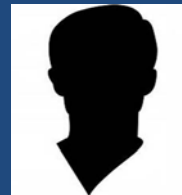
Epidemiologist



Health Economist



Biostatistician



Diabetes expert



Basic scientist



Anthropologist



Pediatrician



Ann Vail
Agriculture



Alison Gustafon
Agriculture



Nancy Schoenberg
Behavioral Sci



Jim Zilliak
Business/Economics

Population
scientists:
behavioral
aspects of
obesity