So Happy to be in “The Land Down Under”
From the “The Land Up and Over”
Greetings From: The University of Massachusetts Boston
Speaker Disclosure Information

Laura L. Hayman, PhD, MSN, FAAN, FAHA
Professor of Nursing
University of Massachusetts Boston

No Disclosures
Cardiovascular disease (CVD) as a global public health challenge
Importance of CVD prevention beginning early in life and extending across the life course
Health behaviors as critically important to cardiovascular health
Lessons learned from conducting clinical, community-based and translational research with diverse populations
Implications and future directions
Cardiovascular Disease & Obesity

- Cardiovascular disease (CVD) is a major cause of morbidity & mortality in women & men in US and globally (Benjamin et al., Circulation, 2018; Mensah et al., JAMA, 2017; WHO, 2017)

- Obesity is a recognized risk factor for CVD (Eckel & Krauss, Circulation, 1998)
The Case for Prevention in Early Life: Lines of Evidence


- Obesity & related co-morbidities are associated with substantial direct medical costs & QALYs lost (AHA, 2011; Weintraub et al., *Circ.*, 2011)
1. A positive linear trend for all definitions of overweight and obesity among children 2-19 years old, most prominently among adolescents.

2. Children aged 2 - 5 years: Sharp increase in obesity prevalence from 2015 to 2016 compared with the previous cycle.

3. No evidence of a decline in obesity prevalence at any age.

4. In contrast, a significant increase in severe obesity among children aged 2 to 5 years since the 2013-2014 cycle, a trend that continued upward for many subgroups.
Prevalence of obesity among youth aged 2–19 years, by sex, race, and Hispanic origin: US, 2015–2016

Hales et al. NCHS Data Brief No. 288; October 2017
https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#page=5
Age-standardized prevalence of overweight and obesity alone (based on IOTF cutoffs), ages 2–19 years, by sex, 1980–2013

The Evidence for “Starting Young”*

- Atherosclerotic processes begin early in life & are influenced over time by potentially modifiable behaviors, health factors, & environmental exposures

- Prevalence of adverse health factors & behaviors points to the need for interventions early in life and across the life course

- Individuals who maintain optimal levels of established risk factors for CVD through life have dramatically lower lifetime CVD risk & longer survival that their adults counterparts who developed one or more risk factors earlier in life

- Safety & Efficacy of CVD Risk Reduction interventions has been established

*AHA,2018; WHO, 2014; Berenson et al., NEJM, 1998; McGill et al., Circ., 2001; Li et al., JAMA, 2003; Raitakari et al., JAMA, 2003; Urbina et al., Circ., 2009; Webber et al., AJE, 1991; Hayman, JCN, 2011; Lloyd-Jones et al. Circ., 2006; Lloyd-Jones et al., Circ., 2010; Juonala et al., Circ., 2010; Laitinen, et al., Circ., 2012; Nupponen et al., Circ., 2015
Prevention of Cardiovascular Disease
AHA Policy Statement

Value of Primordial and Primary Prevention for Cardiovascular Disease

A Policy Statement From the American Heart Association

William S. Weintraub, MD, FAHA, Chair; Stephen R. Daniels, MD, PhD, FAHA, Co-Chair;
Lora E. Burke, PhD, MPH, FAHA; Barry A. Franklin, PhD, FAHA;
David C. Goff, Jr, MD, PhD, FAHA; Laura L. Hayman, PhD, RN, FAHA;
Donald Lloyd-Jones, MD, ScM, FAHA; Dilip K. Pandey, MBBS, PhD;
Eduardo J. Sanchez, MD, MPH; Andrea Parsons Schram, DNP, CRNP; Laurie P. Whitsel, PhD;
on behalf of the American Heart Association Advocacy Coordinating Committee, Council on
Cardiovascular Disease in the Young, Council on the Kidney in Cardiovascular Disease, Council on
Epidemiology and Prevention, Council on Cardiovascular Nursing, Council on Arteriosclerosis,
Thrombosis and Vascular Biology, Council on Clinical Cardiology, and Stroke Council

Abstract—The process of atherosclerosis may begin in youth and continue for decades, leading to both nonfatal and fatal cardiovascular events, including myocardial infarction, stroke, and sudden death. With primordial and primary prevention, cardiovascular disease is largely preventable. Clinical trial evidence has shown convincingly that pharmacological treatment of risk factors can prevent events. The data are less definitive but also highly suggestive that appropriate public policy and lifestyle interventions aimed at eliminating tobacco use, limiting salt consumption, encouraging physical exercise, and improving diet can prevent events. There has been concern about whether efforts aimed at primordial and primary prevention provide value (ie, whether such interventions are worth what we pay for them). Although questions about the value of therapeutics for acute disease may be addressed by cost-effectiveness analysis, the long time frames involved in evaluating preventive interventions make cost-effectiveness analysis difficult and necessarily flawed. Nonetheless, cost-effectiveness analyses reviewed in this policy statement largely suggest that public policy, community efforts, and pharmacological intervention are all likely to be cost-effective and often cost saving compared with common benchmarks. The high direct medical care and indirect costs of cardiovascular disease—approaching $450 billion a year in 2010 and projected to rise to over $1 trillion a year by 2030—make this a critical medical and societal issue. Prevention of cardiovascular disease will also provide great value in developing a healthier, more productive society. (Circulation. 2011;124:00:00.)

Key Words: AHA Scientific Statements • cardiovascular diseases • prevention
Prevention-to-treatment continuum

Daniels, Arnett, Eckel, Gidding, Hayman, Kumanyika et al., Circulation, 2005
AHA Scientific Statement
American Heart Association Guidelines for Primary Prevention of Atherosclerotic Cardiovascular Disease Beginning in Childhood

Rae-Ellen W. Kavey, MD; Stephen R. Daniels, MD, PhD; Ronald M. Lauer, MD; Dianne L. Atkins, MD; Laura L. Hayman, PhD, RN; Kathryn Taubert, PhD


AHA Scientific Statement
Primary Prevention of Cardiovascular Disease in Nursing Practice: Focus on Children and Youth

A Scientific Statement From the American Heart Association Committee on Atherosclerosis, Hypertension, and Obesity in Youth of the Council on Cardiovascular Disease in the Young, Council on Cardiovascular Nursing, Council on Epidemiology and Prevention, and Council on Nutrition, Physical Activity, and Metabolism

Laura L. Hayman, PhD, RN, FAAN; Janet C. Meininger, PhD, RN, FAAN; Stephen R. Daniels, MD, PhD, FAHA; Brian W. McCrindle, MD, MPH; Liz Helden, MEd, BSN, RN; Joyce Ross, MSN, RN; Barbara A. Dennison, MD, FAHA; Julia Steinberger, MD, MS; Christine L. Williams, MD, MPH, FAHA

Healthy Lifestyle Behaviors and Therapeutic Lifestyle Change

- Cornerstone of Cardiovascular Health Promotion and Risk Reduction

Kavey et al., Circ., 2003; Williams et al., Circ., 2002; Daniels et al., Circ., 2005; Daniels et al., Pediatr., 2008; McCrindle et al., Circ., 2007; Kavey et al., Circ., 2006; Hayman et al., Circ., 2007; Graham et al, European Heart Journal, 2007; Barlow et al., Pediatr., 2007; Daniels et al., Pediatr., 2011; Flynn et al., Pediatr., 2017
Health Behaviors Central to Cardiovascular Health

- Health behaviors impact cardiovascular health across the life course
- Patterns of physical activity & dietary intake develop early in life
- Track from childhood to adulthood
- Influenced by multi-level contexts/systems including family, school, community, media, policies

Ecological Systems Theory Model: Contexts/Settings for CVD Prevention

Adapted from: IOM publication; National Academies Press, 2004, Page 97
AHA Scientific Statement

Cardiovascular Health Promotion in the Schools
A Statement for Health and Education Professionals and Child Health Advocates From the Committee on Atherosclerosis, Hypertension, and Obesity in Youth (AHOY) of the Council on Cardiovascular Disease in the Young, American Heart Association

Laura L. Hayman, PhD, RN, Cochair; Christine L. Williams, MD, MPH, Cochair; Stephen R. Daniels, MD, PhD; Julia Steinberger, MD, MS; Steve Paridon, MD; Barbara A. Dennison, MD; Brian W. McCrindle, MD, MPH
My Story
Observations as charge nurse in coronary care unit
Observations as school nurse in middle school in diverse urban school district
Research experiences with the Delaware Valley Twin Family Study (“Biobehavioral risk factors for cardiovascular disease in twin-families”)
Nongenetic influences of obesity on risk factors for CVD (Delaware Valley Twin-Family Study)

- Matched-pair analyses of identical twins used to examine nongenetic influence of obesity (BMI) on CVD risk factors during school-age years, adolescence and the transition between these developmental phases.

- Intra-individual associations of obesity and atherogenic lipids emerged in school age years & persisted in adolescence.

- Collective results suggested substantial environmental influences on obesity-risk factor associations and pointed to importance of preventive interventions early in life.

Hayman, Meininger, Coates & Gallagher, Nurs Research, 1995
From Observation to Intervention
The EXCEL Study: An Academic-Community-Clinical Partnership

Children’s Hospital Boston

FOCUS On Children Boston Public Schools

GoKids Boston

University of Massachusetts Boston
Effect on Physical Activity of a Randomized Afterschool Intervention for Inner City Children in 3rd to 5th Grade

Scott E. Crouter¹, Sarah D. de Ferranti², Jessica Whiteley³, Sarah K. Steltz⁴, Stavroula K. Osganian⁵, Henry A. Feldman⁵, Laura L. Hayman⁶

¹ Department of Kinesiology, Recreation, and Sport Studies, The University of Tennessee, Knoxville, Tennessee, United States of America, ² Department of Cardiology, Division of Outpatient Cardiology, Boston Children's Hospital, Boston, Massachusetts, United States of America, ³ Department of Exercise and Health Sciences, University of Massachusetts, Boston, Massachusetts, United States of America, ⁴ New Balance Foundation Obesity Prevention Center, Boston Children's Hospital, Boston, Massachusetts, United States of America, ⁵ The Clinical Research Center, Boston Children's Hospital, Boston, Massachusetts, United States of America, ⁶ College of Nursing and Health Sciences, University of Massachusetts, Boston, Massachusetts
Effects of a multicomponent wellness intervention on dyslipidemia among overweight adolescents

Olga T. Hardy∗, Jean Wiecha2, Albert Kim2, Carlos Salas2, Rayna Briceno3, Kwesi Moody3, Joan Becker4, Greer Glazer2, Carol Ciccarelli1, Ling Shi and Laura L. Hayman2

1Department of Pediatrics, University of Massachusetts Medical School, Worcester, MA, 01605, USA
2College of Nursing and Health Sciences, University of Massachusetts, Boston, MA 02125, USA
3Dorchester Academy, Boston, MA 02124, USA
4Office of Academic Support Services and Undergraduate Studies, University of Massachusetts, Boston, MA 02125, USA

HS Public Access
Author manuscript
JPediatr Endocrinol Metab. Author manuscript; available in PMC 2015 April 22.
Published in final edited form as:
Objectives: We evaluated associations involving a combination of healthy lifestyle factors and adults’ long-term change in cardiometabolic disease (CMD) risk. Methods: We included 431 participants from the National Heart, Lung and Blood Institute Lipid Research Clinics (LRC) and Princeton Follow-up Studies (PFS). Results: Compared to those without healthy lifestyle practices, participants with one, 2, and 3 healthy lifestyle factors have 35%, 62% and 59% lower risk of CMD respectively. These health benefits were similar for both men and women. Conclusion: Combined healthy lifestyle factors were associated with a reduced likelihood of long-term CMD risk for both men and women. Maintaining or adopting healthy lifestyle behaviors, even later in life, may be beneficial for cardiometabolic health.
Exercise: Just do it!
From Local to Global
The Role of Nurses in Promoting Cardiovascular Health Worldwide

The Global Cardiovascular Nursing Leadership Forum

Laura L. Hayman, PhD, MSN,* Kathy Berra, MSN, NP-BC,† Barbara J. Fletcher, RN, MN,† Nancy Houston Miller, RN, BSN§
Lessons Learned

- Importance of:
  - Passion, persistence, focus, systems-perspective, leadership skills/competencies
  - Team Science
  - Relationships
  - Partnerships
  - Mentors and Mentoring
  - Dissemination and Implementation Science
  - Multi-level Policies and Advocacy
In Appreciation

- Mentors: Florence S. Downs, Claire Fagin
- Students and Post-Doctoral Fellows
- Sigma: Xi Chapter (University of Pennsylvania) and Theta Alpha Chapter (UMass Boston)
- Organizations: American Heart Association, Preventive Cardiovascular Nurses Association, Society of Behavioral Medicine
- My Family: Richard, David and Luna Hayman
OUR GOAL

Ideal Cardiovascular Health For All
A Salute to the Land Down Under
Thank You!

Contact:
Laura.hayman@umb.edu