

The Impact of the Social Determinants of Health



A PRESCRIPTION FOR HEALTH

Child Health Advances Measured in Practice (CHAMP) Learning Session

Prescription for Whole Health

Social Determinants of Health: Family Well-Being and Food Security

Disclosures

We have no relevant financial relationships to disclose or conflicts of interest to resolve

Roadmap



The prescription for whole health

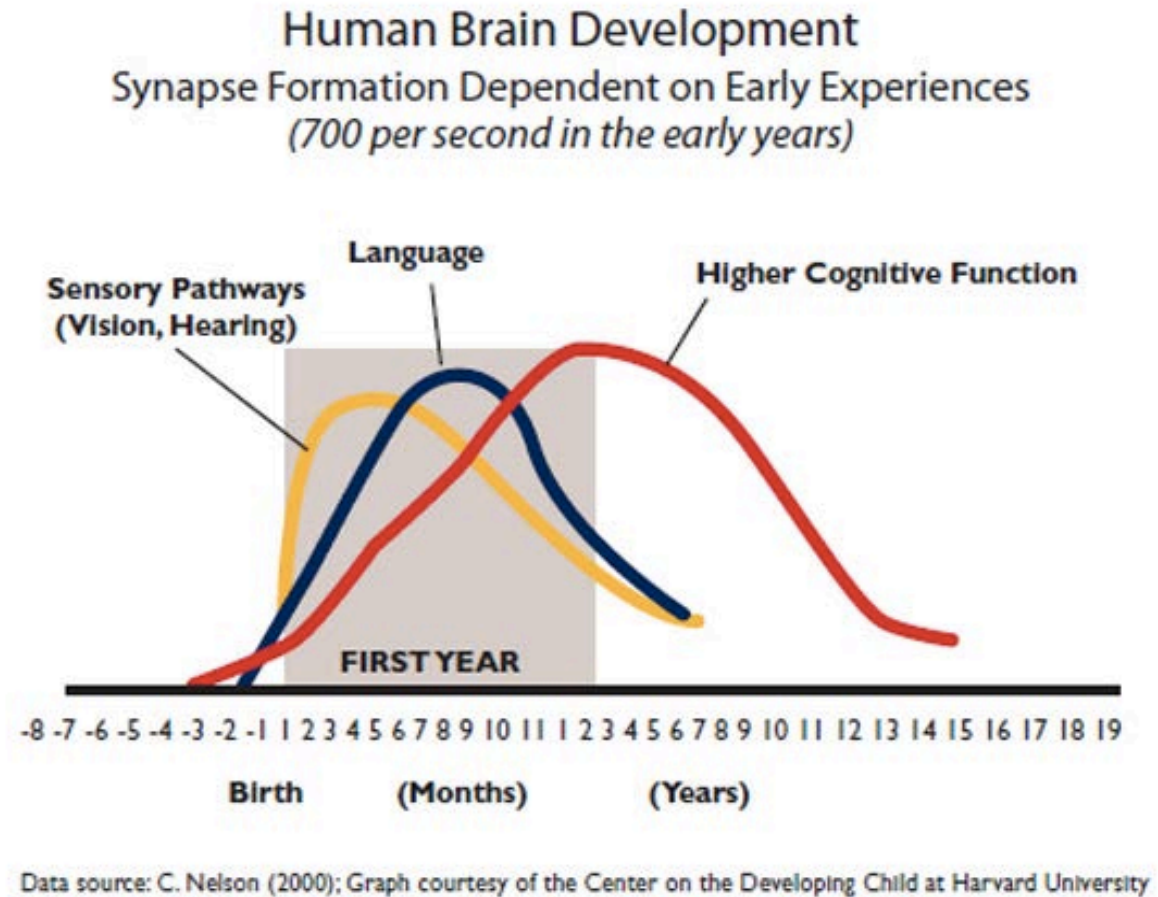
- ▶ Why this matters
- ▶ Social Determinants of Health 101
- ▶ How food insecurity and parental depression affects our patients
- ▶ What we can do about it

Why this matters

Human Brain Development

Most Vulnerable Period: Birth – Age 4yrs

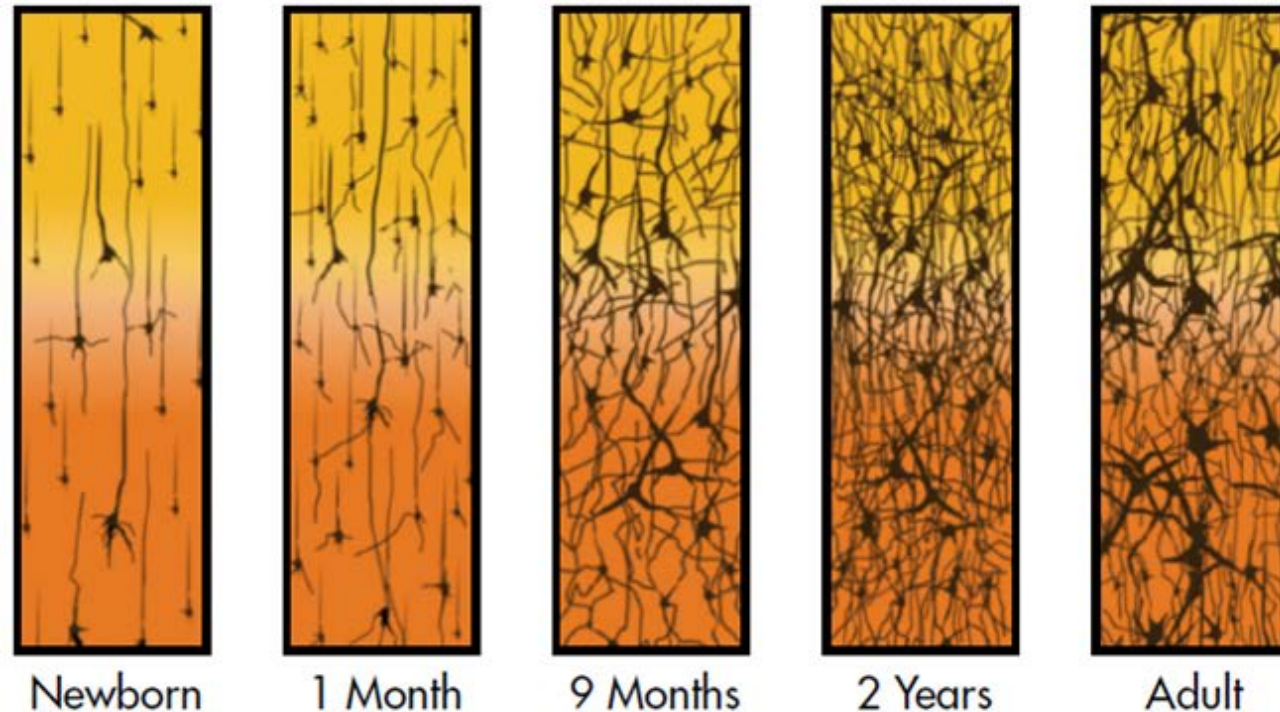
*Synapse formation,
neural networks –
“brain architecture”*



Brain architecture

physical structure, interconnections, & neural networks

Synapse Density



“Blooming and Pruning”

First 3 years, child's brain will have twice as many synapses as it will in adulthood

Years 0-3 largely set trajectory:

- cognitive/socio-emotional development
- school readiness
- academic achievement
- educational attainment

Toxic stress and why it matters

POSITIVE

Brief increases in heart rate, mild elevations in stress hormone levels.

TOLERABLE

Serious, temporary stress responses, buffered by supportive relationships.

TOXIC

Prolonged activation of stress response systems in the absence of protective relationships.

Source: Center on the Developing Child at Harvard University

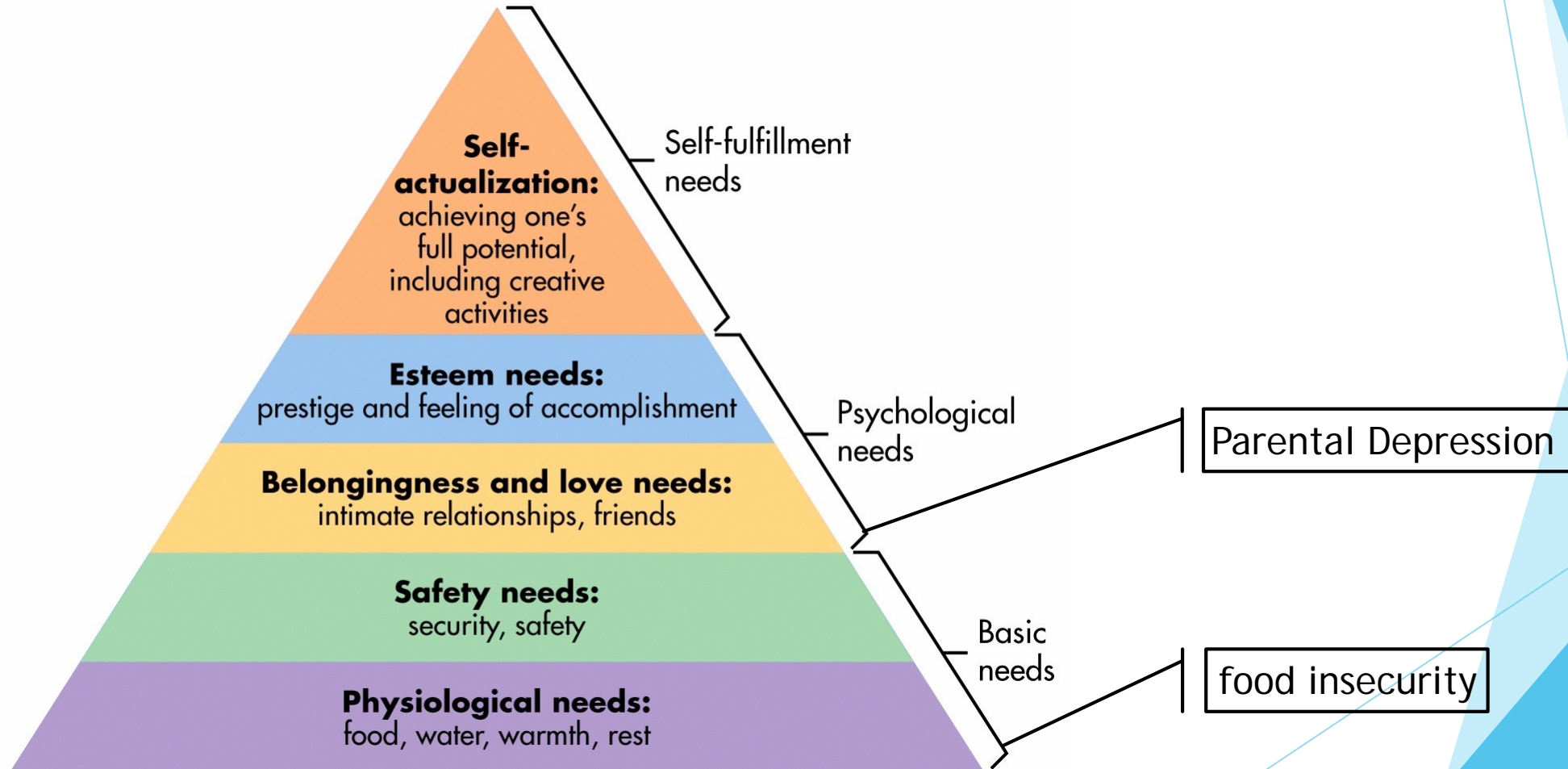


Toxic stress and why it matters



Source: American Academy of Pediatrics

Toxic stress and why it matters



An interpretation of Maslow's Hierarchy of Needs

“Children thrive when we respond to their realities”



Dr. Deborah Frank with Duvon Haughton, then around three or four years old



Dr. Deborah Frank with Duvon Haughton, now an eighteen year old college freshman

Social Determinants of Health 101

Social determinants of health are conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

Examples of social determinants include:

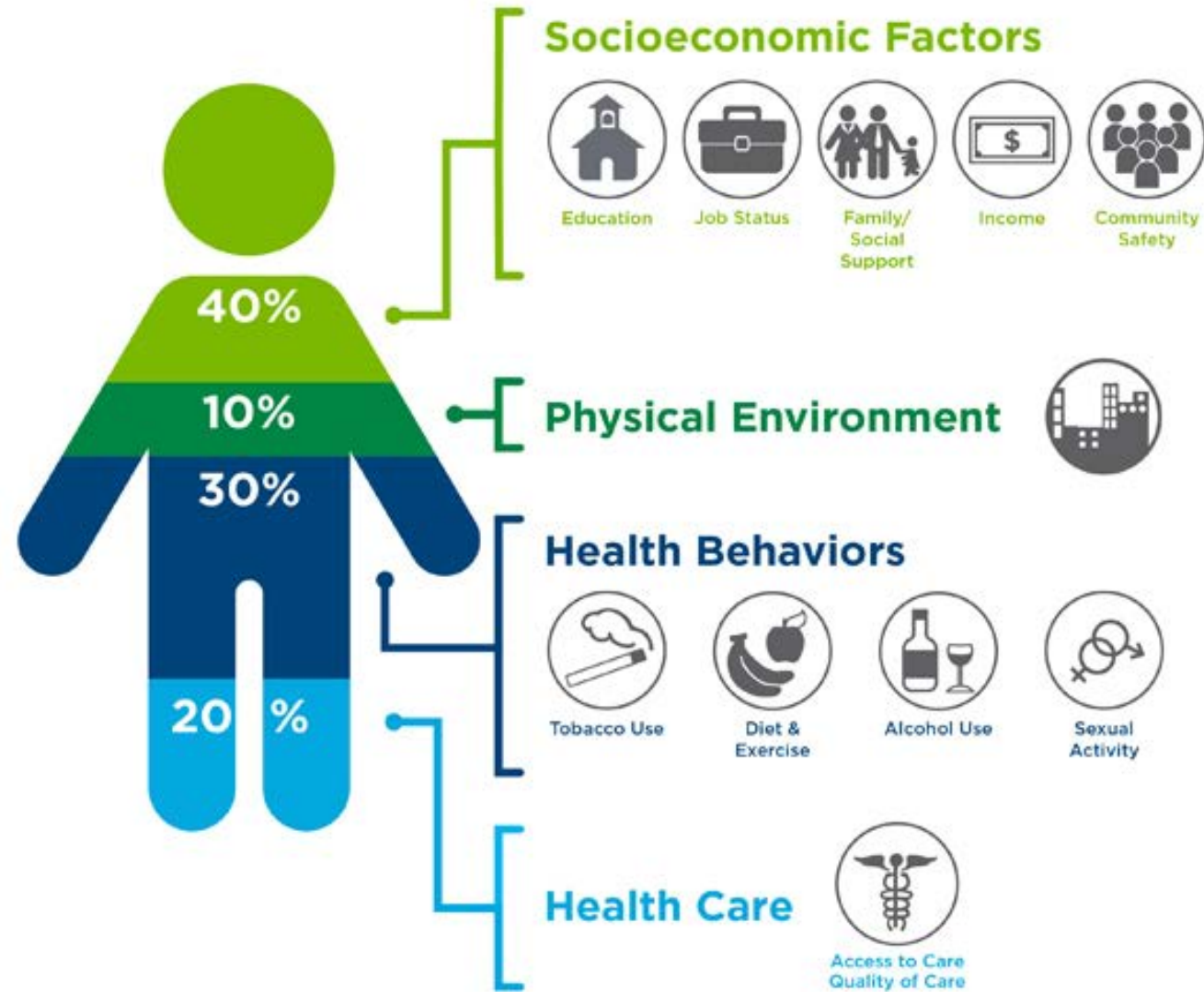
- Availability of resources to meet daily needs (e.g., safe housing and local food markets)
- Socioeconomic conditions (e.g., concentrated poverty and the stressful conditions that accompany it)
- Quality of education and job training
- Transportation options
- Access to health care services



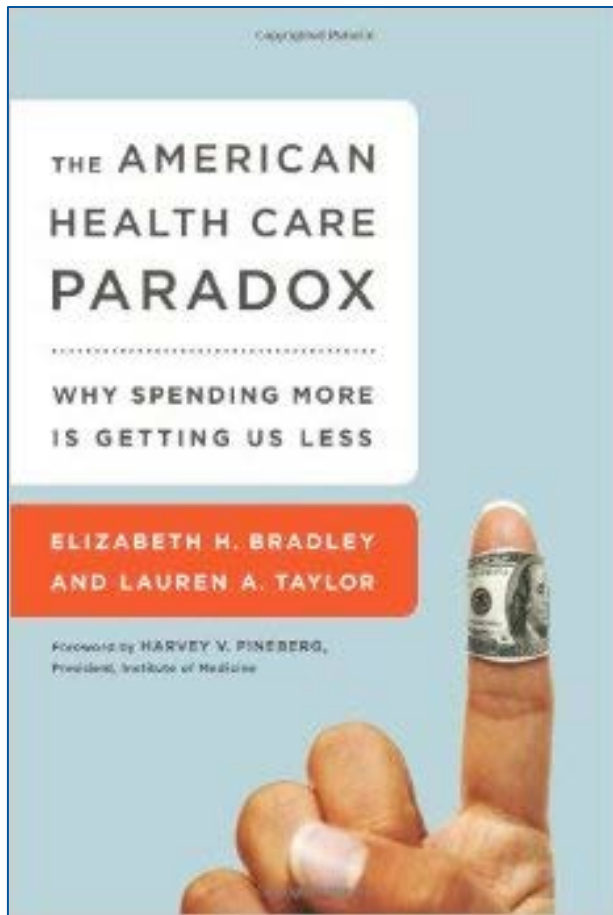
Source: Healthy People 2020

Social Determinants of Health 101

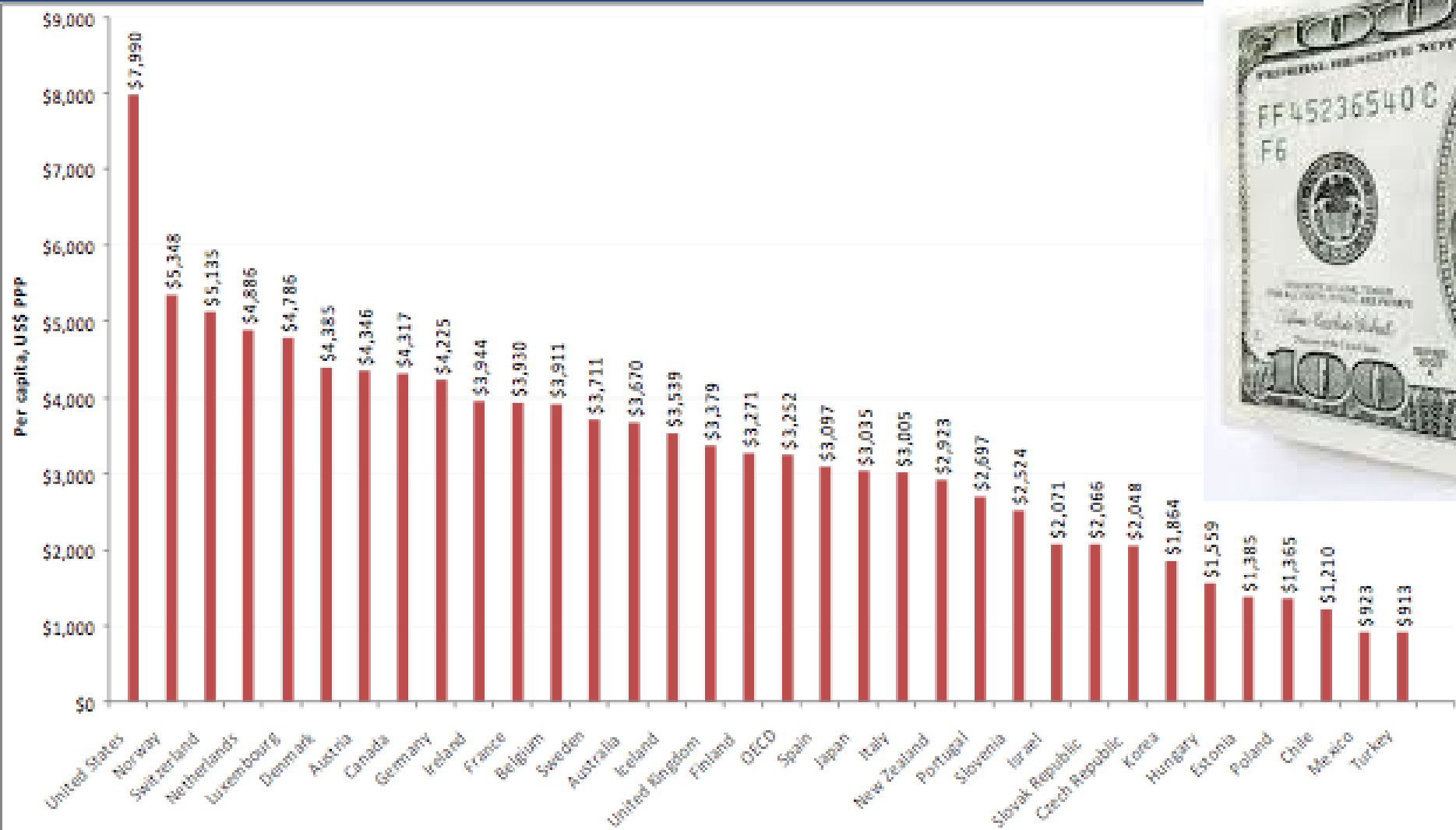
What Goes Into Your Health?



Policy implications of the Social Determinants of Health



Spending on health care



Data downloaded from OECD.StatExtracts. Available at stats.oecd.org



Health outcomes

US Ranking out of 34 OECD countries

Maternal Mortality: 25th

Life expectancy: 26th

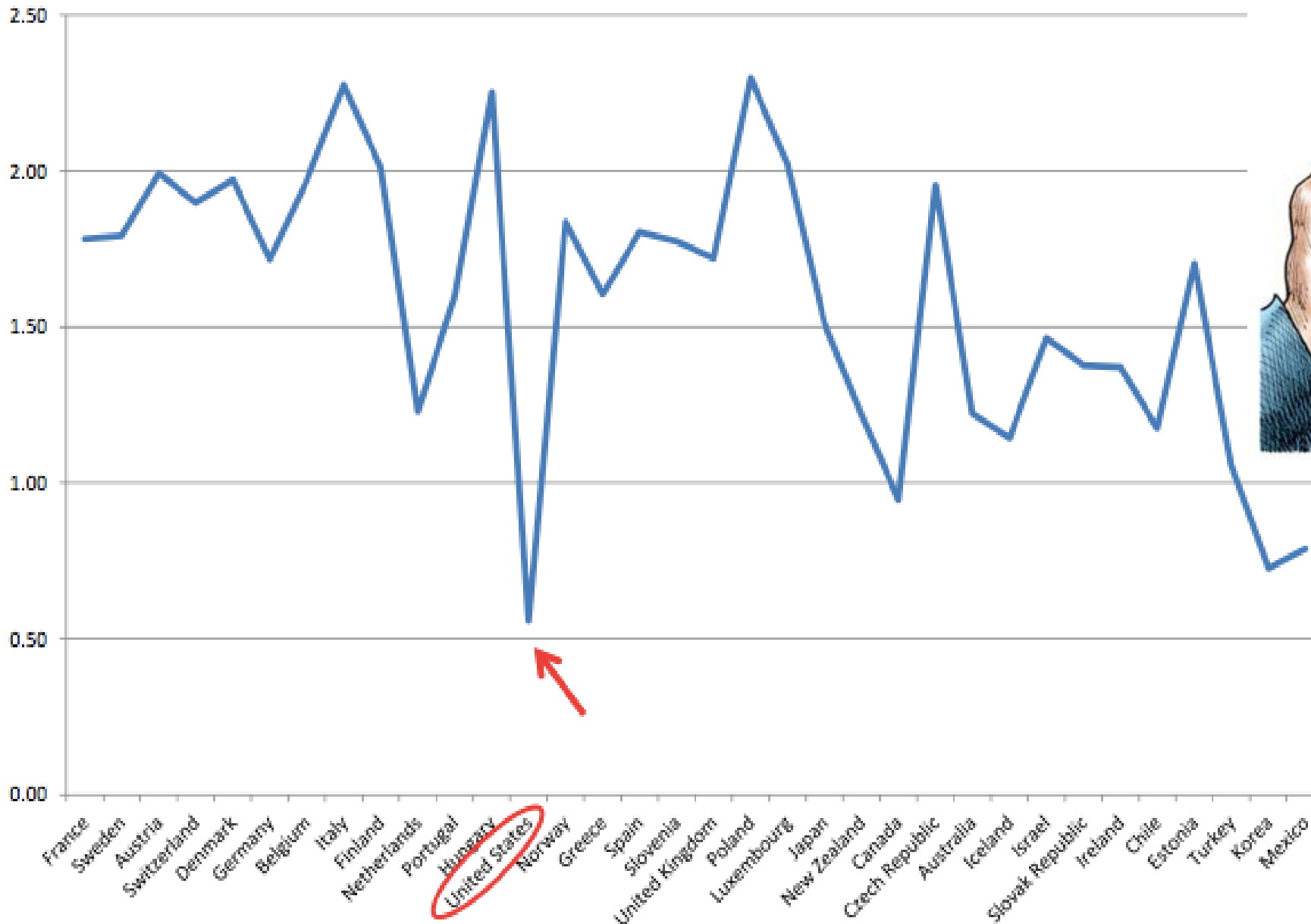
Low birth weight: 28th

Infant mortality: 31st

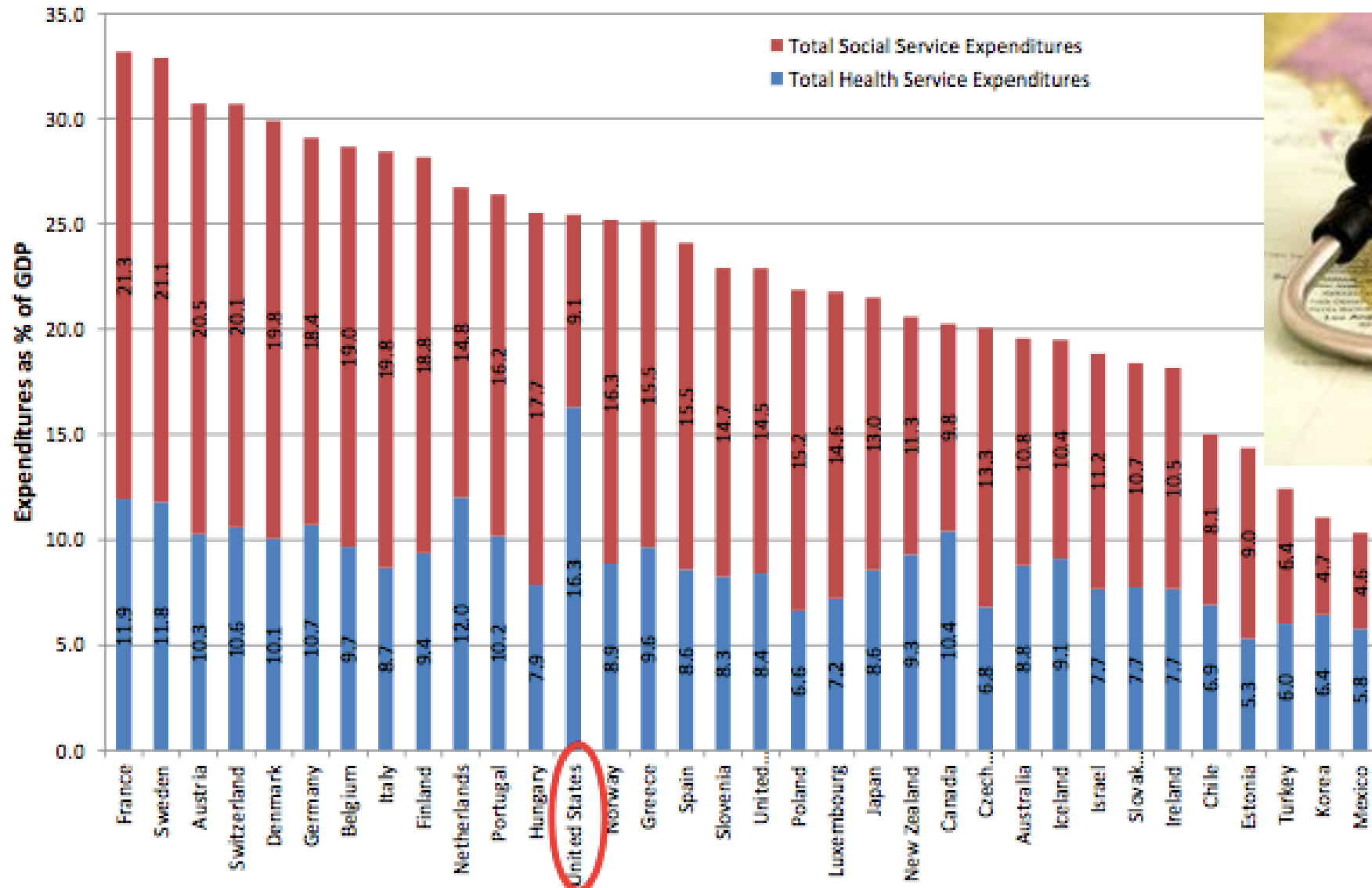


Source: OECD, *Health at a Glance 2009*: OECD Publishing

Ratio of social to health spending is different



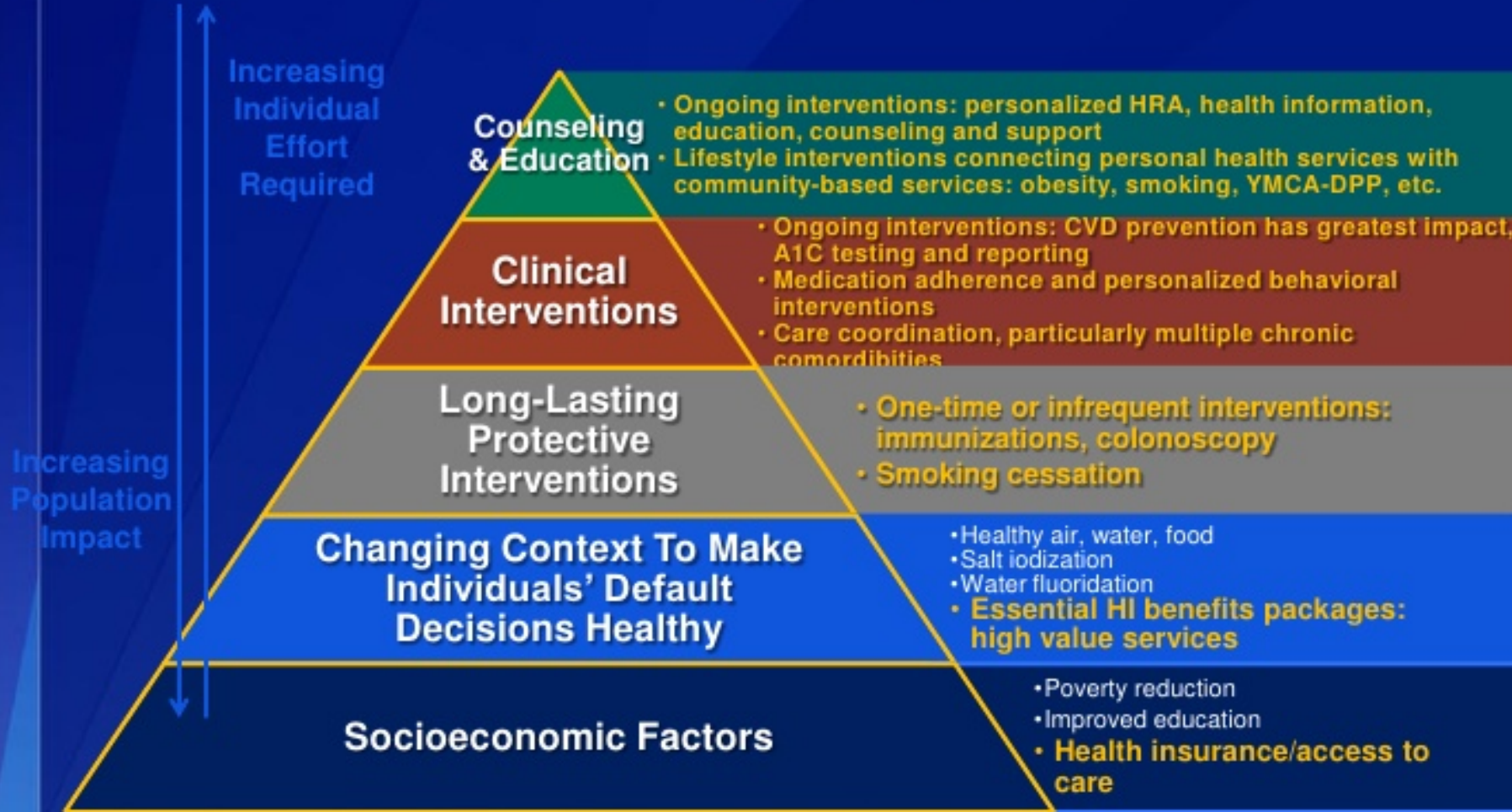
Total health care investment in US is *less*



In OECD, for every \$1 spent on health care, about \$2 is spent on social services
 In the US, for \$1 spent on health care, about 55 cents is spent on social services

Key: Text in white indicates OPTH target

Health Impact Pyramid

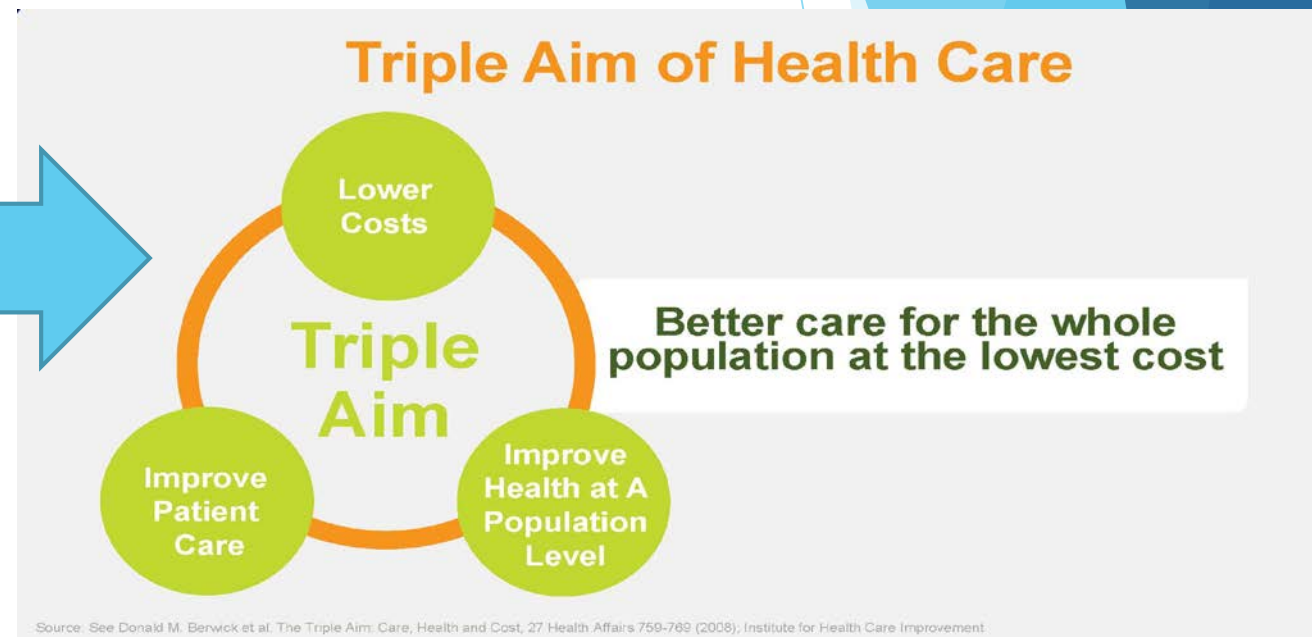


Source: Adapted from Frieden TR. A Framework for Public Health Action: The Health Impact Pyramid. Am J Public Health. 2010;100(4):590-5.

Improving health *and* reducing cost



Source: Institute for Clinical Systems Improvement, Going Beyond Clinical Walls: Solving Complex Problems (October 2014)

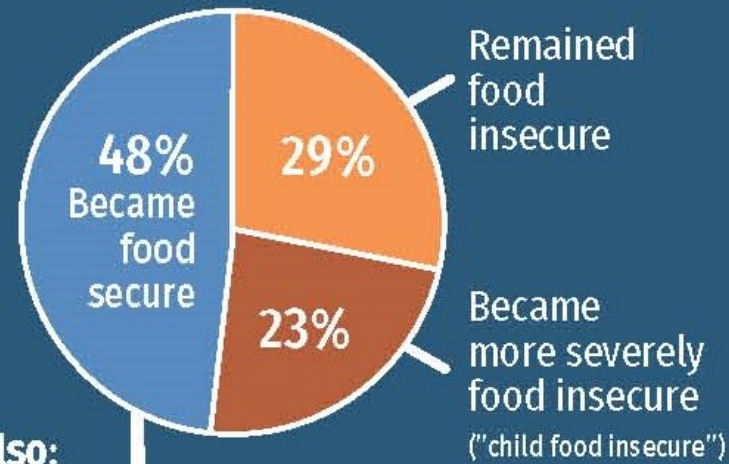


Child Health Advances Measured in Practice (CHAMP)

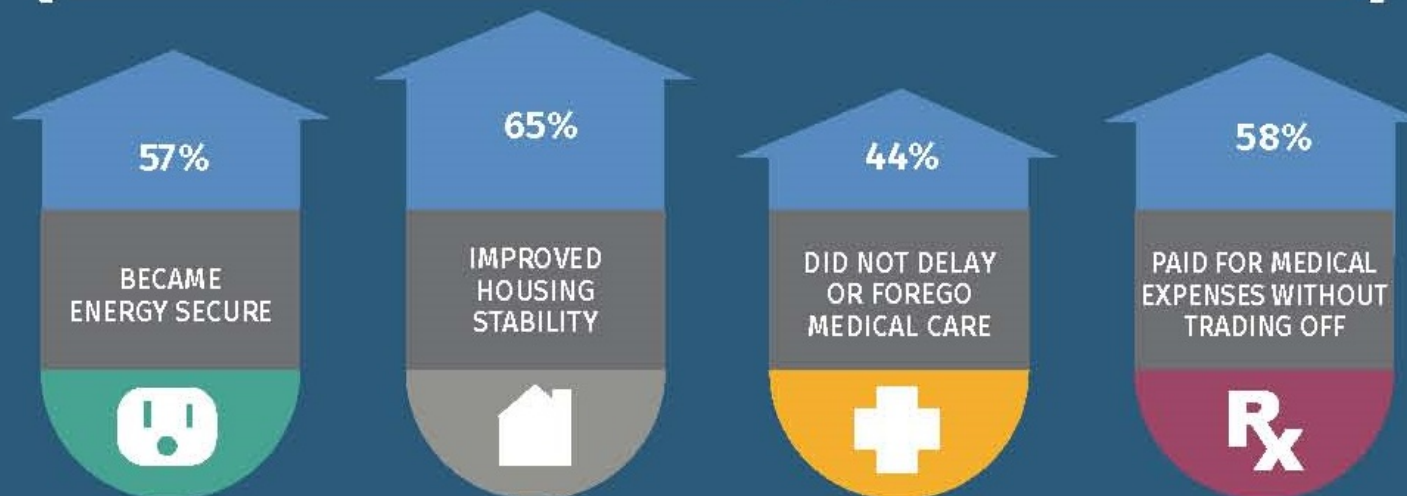
► Social Determinants of Health:

- Why choose food insecurity and parental depression?
 1. Household hardships do not occur in isolation - they are a constellation
 2. Food insecurity and parental depression cost the health care system billions of dollars each year
 3. Food insecurity and parental depression are devastating to children's health and wellbeing

OVER **900 FAMILIES**
INTERVIEWED AT LEAST TWICE,
AT LEAST SIX MONTHS APART



Those who became food secure also:



Food Insecurity: When families lack access to enough food for all members to lead active, healthy lives because of insufficient family resources.



Housing Instability: When families experience at least one of the following: moved twice or more in the past year, were behind on rent in the past year, or were ever homeless.



Energy Insecurity: When families have limited or uncertain access to enough home energy to sustain a healthy and safe life.



Foregone care: When families delay or forgo receiving medical care or filling prescriptions because of cost.



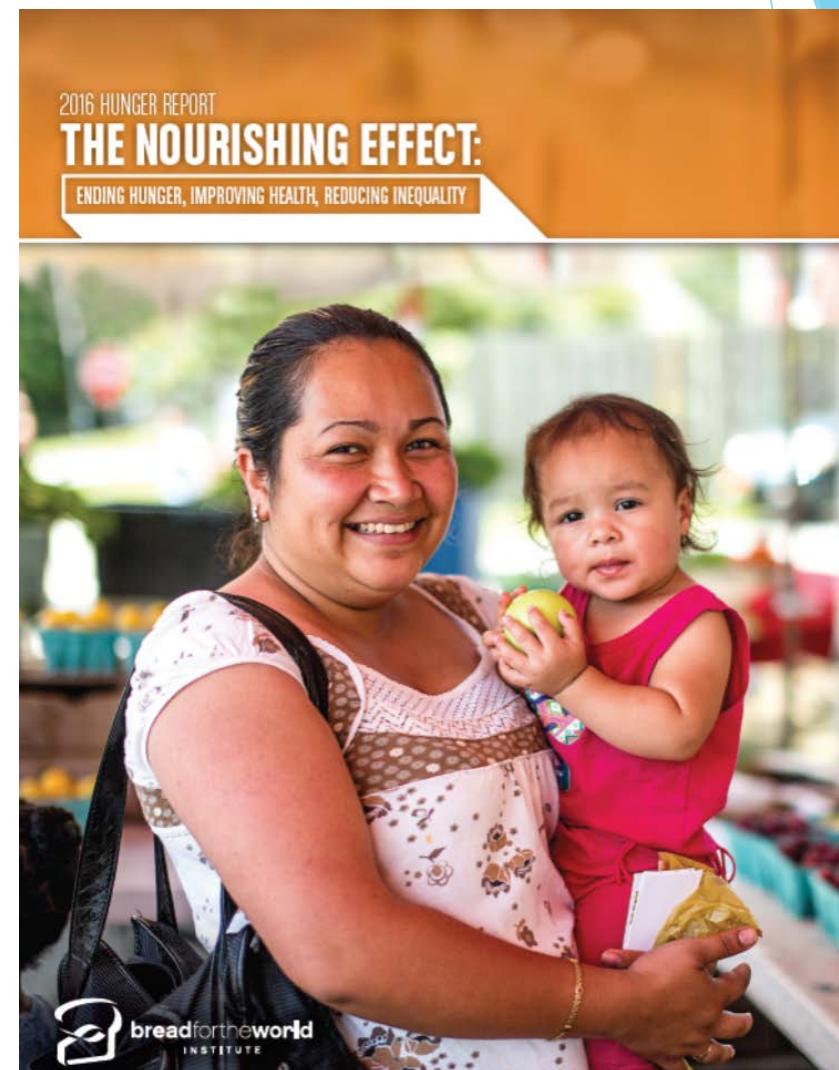
Basic needs trade-offs for health care: When families are unable to pay for basic needs because of the cost of medical care or prescription medicines.

Economic impact

Exhibit 2 Estimated Costs Attributable to Food Insecurity and Hunger in the US, 2014

Source of Cost	Costs (\$Billion 2014 Dollars)
Direct health-related costs in 2014 based on new research evidence	\$29.68
Non-overlapping direct health-related costs reported by Brandeis researchers in 2011, continued in 2014 and expressed in 2014 dollars	\$124.92
Indirect costs of lost work time due to workers' illnesses or workers providing care for sick family members based on new research evidence	\$5.48
Total direct and indirect 2014 health-related costs	\$160.07
Indirect costs of special education in public primary and secondary schools, based on new research evidence	\$5.91
Total costs of dropouts reported by Brandeis researchers in 2011, continued in 2014 and expressed in 2014 dollars	\$12.94
TOTAL ESTIMATED COSTS	\$178.93

Sources described in document text.



Cook and Poblacion, 2015

LONG-TERM COSTS OF UNSTABLE HOMES TO THE HEALTH SYSTEM ARE \$111 BILLION*

Maternal health conditions

FOR WOMEN AGES 18 - 44

**\$76.8 Billion
OVER TEN YEARS**

Includes increased costs for hospitalizations, ambulatory visits, dental procedures, mental health care, and medications

Child health conditions

FOR CHILDREN UNDER 18

**\$34.3 Billion
OVER TEN YEARS**

Includes increased costs for hospitalizations, ambulatory visits, dental procedures, medications, and special education services

Total cost: \$111 Billion over ten years

Avoidable Costs in Health Care and Education for Mothers and Children

- Mental health costs linked to maternal depression largest contributor to cost
- Other costs associated with increased:
 - Hospitalizations
 - Ambulatory visits
 - Dental procedures
 - Medications
 - Special education services

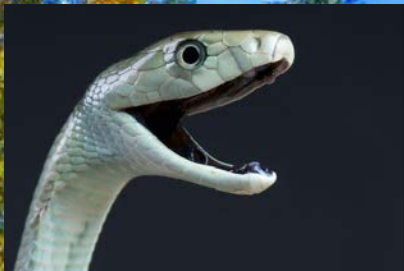


Pediatric Provider's Perspective



Black Mamba

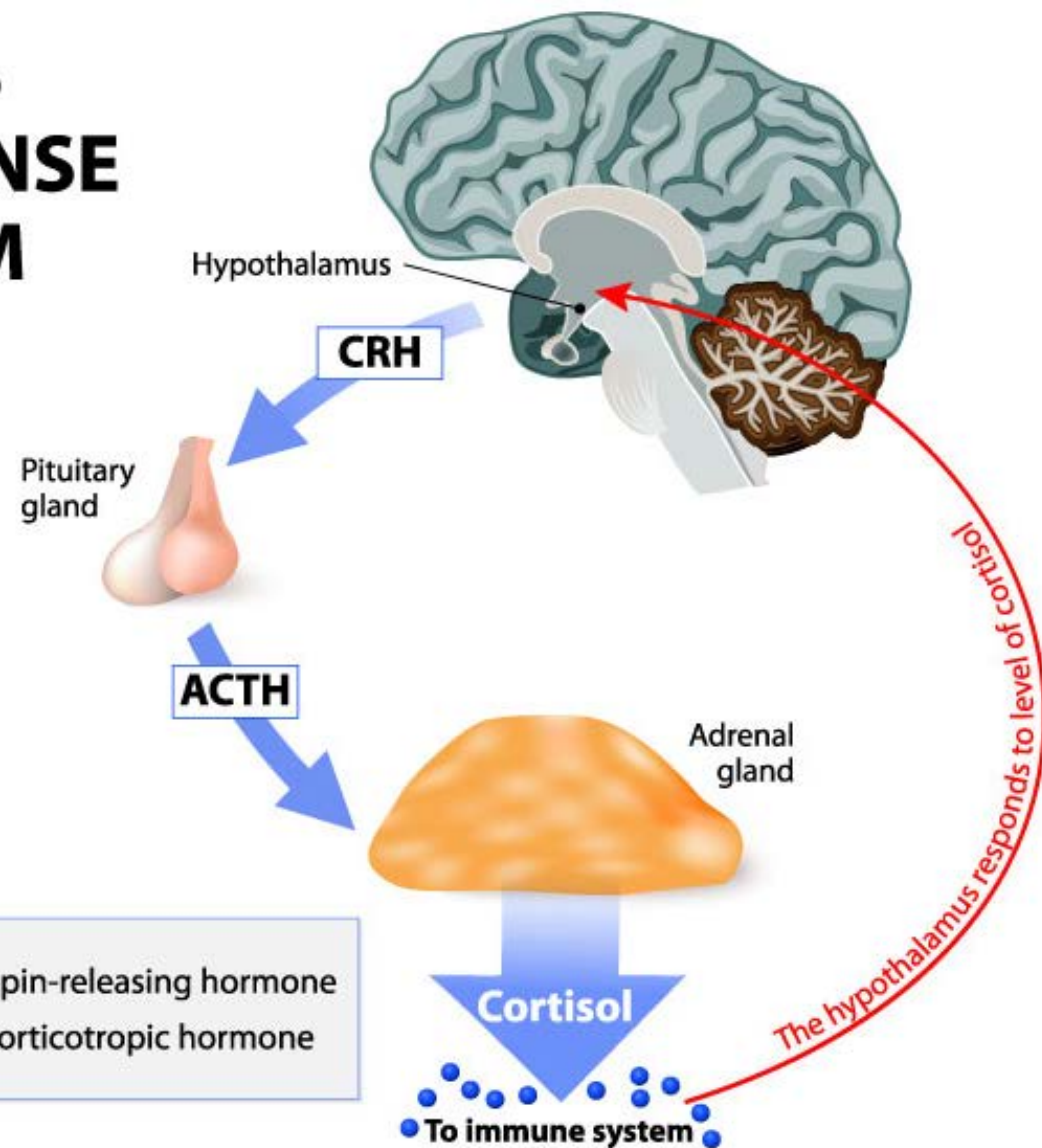
- **Location:** Not Vermont
- **Speed:** Very Fast
- **Length:** Huge
- **Deadly:** Yes!
- **Method:** Very aggressive
- Raises up 1/3 of its body
- Strikes up to 12x in a row
- 1 bite may kill 10-25 men.





Plasticity of the
child's brain makes
it sensitive to
chemical influences

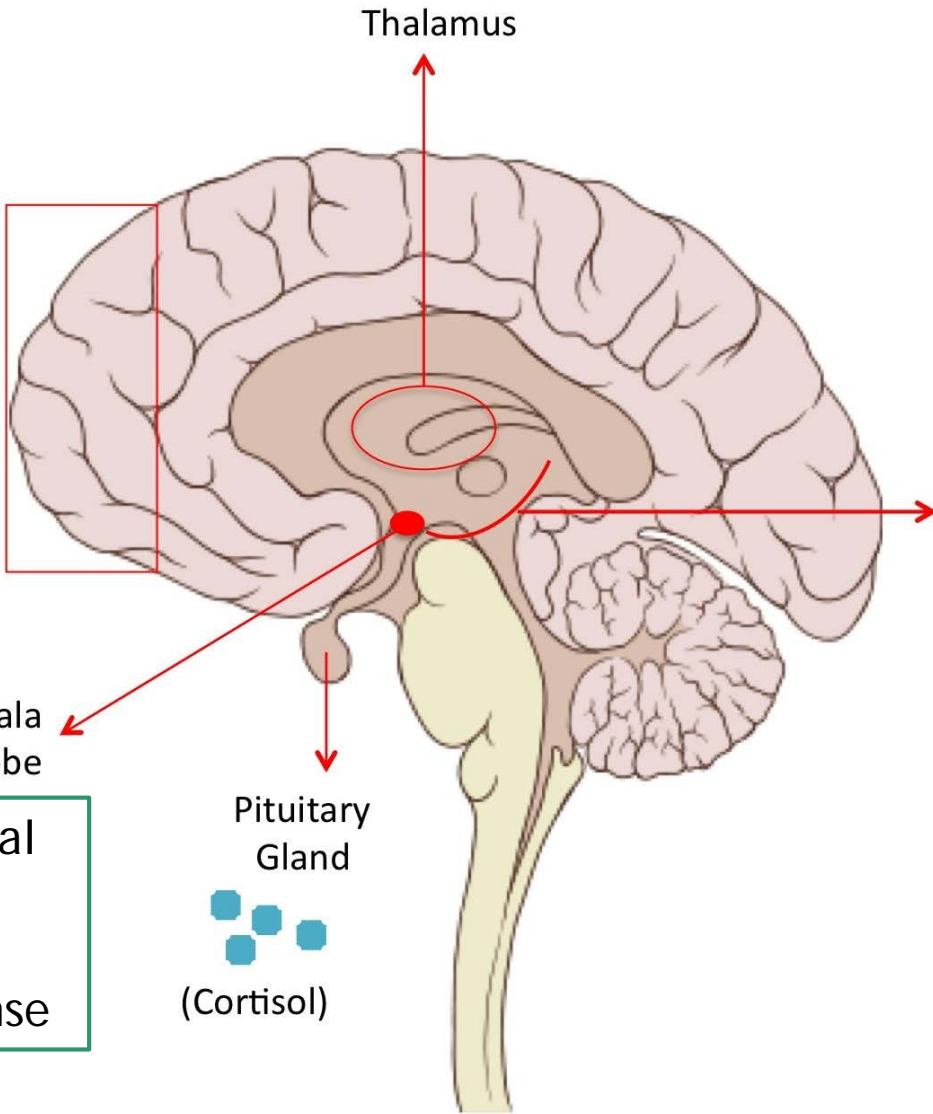
STRESS RESPONSE SYSTEM



Fxn: Top down
regulation,
executive
function,
impulse control
-Inhibits stress
response



Prefrontal
Cortex



Thalamus

Position of
Hippocampus



Fxn: Regulates
Memories/Emo
tions
-Inhibits stress
response

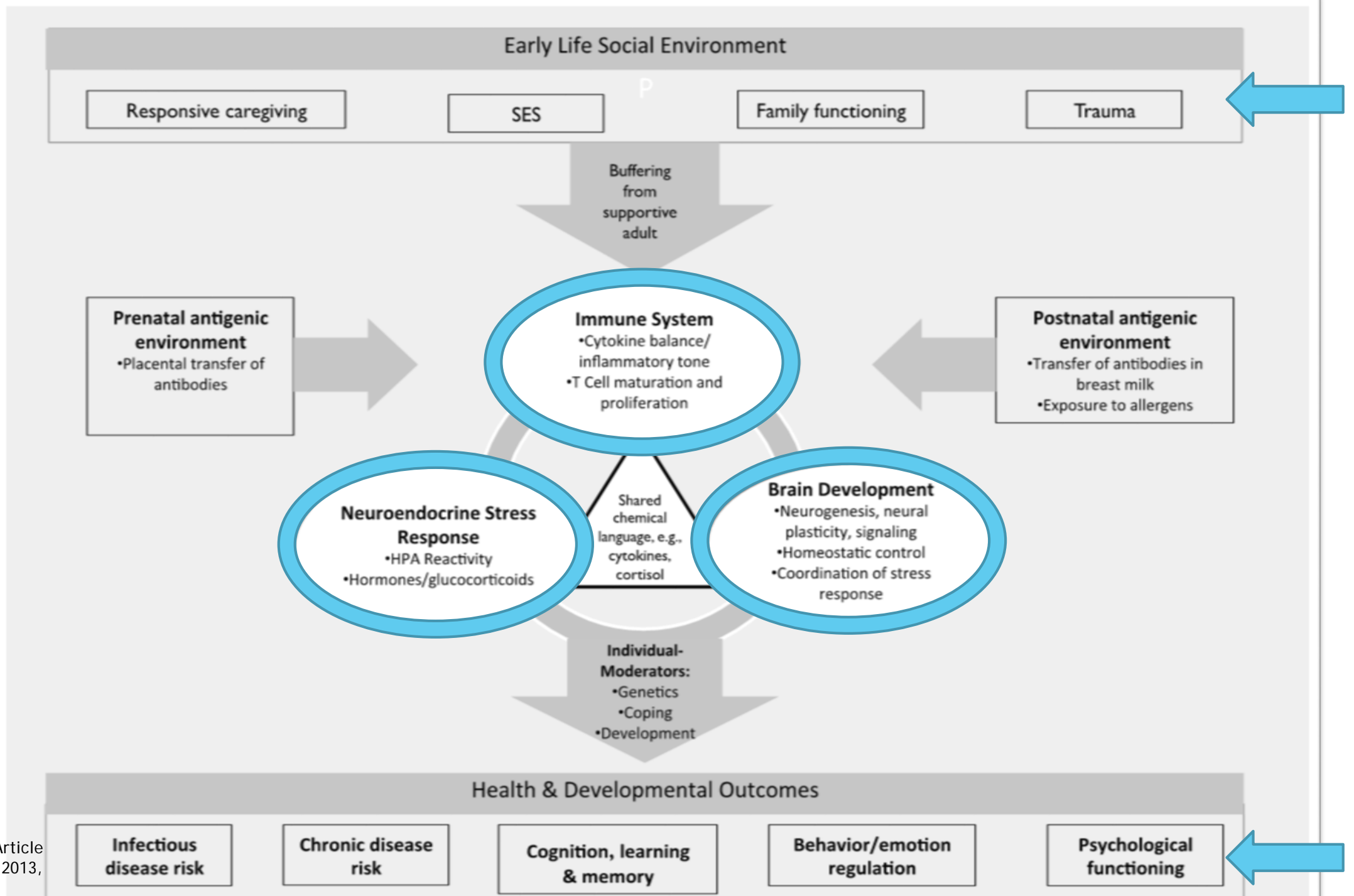
Position of Amygdala
within the temporal lobe


Fxn: Emotional
Center
-Activates
Stress Response

Pituitary
Gland
(Cortisol)

Consequences

1. Children more reactive to mild adverse experiences(PTSD)
2. Poor coping with future stress
3. Functional changes in ability to learn, use memory, and perform executive functions



A close-up photograph of a young green plant seedling with four leaves, growing out of a dark, rich soil mound. The seedling is centered in the frame, and the background is a soft-focus white, possibly snow or a light-colored substrate. The lighting is bright, highlighting the vibrant green of the leaves.

*“Nature dancing with
Nurture over time”*

Shonkoff, et. al,
2011, Pediatrics



Pediatrician DNA







“Healthy Homes, Healthy Futures”

*An obesity-centered
home visitation
curriculum for pediatric
residents at Children's
National Health System*

Essel et. al,
MedEdPortal, 2016

- ▶ *It changed how I thought about the resources that they have, and even the space,...my model home in my head always has some type of space outside. Um, whether that is like a fenced in back yard or just green space. So, its...I don't know if it is my house, but like the one I create when I counsel a patient. Even if they say they live in an apartment. Oh, like there has got be like a sidewalk or a green space near it. So, its...I was wrong.*

- ▶ *I think knowing a family's circumstances and personal barriers I think helps you understand how they live. I think it's easy to give a family tips in clinic that may not actually pertain to their home life, they might not be able to tell you that. Like one example I can think of is in this apartment they didn't really have the space for a large dining table where the family could eat together, around a dining table. There was one very small table and it was used for storage, stuff was on top of it, so there was no table they could sit around and eat a meal together. So I can recommend that they turn off the TV and sit around the table together for family time, **but in their apartment it's actually not feasible.***

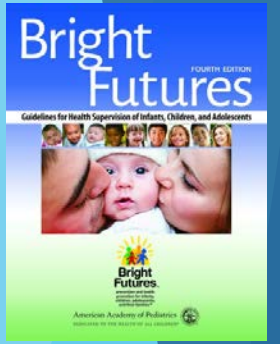
- ▶ *“...[I]nevitably you reflect on your own life a little bit and I end up always **feeling guilty** about what I complain about...Because if you go and look in someone's fridge and there are six people in the house and they have less food than I have and it's just me.”*

STEP #1

- ▶ Developing an increased awareness of Social Determinants of Health



5 Anticipatory Guidance Priorities of Well Child Visits



Newborn Visit

- **Social Determinants of Health**
- Parent & Family Health & Well-Being
- Newborn behavior & Care
- Nutrition & Feeding
- Safety

5 & 6 yo Visit

- **Social Determinants of Health**
- Development & Mental Health
- School
- Physical Growth & Development
- Safety

15-17 yo Visit

- **Social Determinants of Health**
- Physical Growth & Development
- Emotional Well Being
- Risk Reduction
- Safety



Bright Futures™

prevention and health promotion for infants,
children, adolescents, and their families™

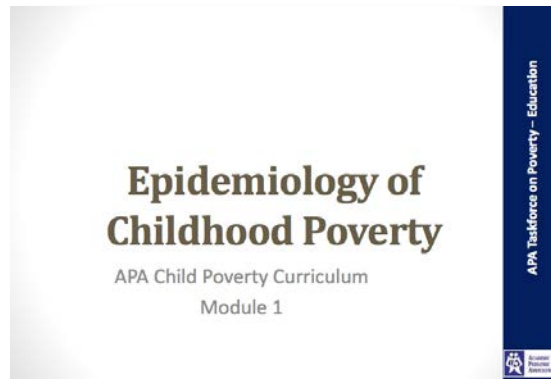


Screening Technical Assistance & Resource Center

★ CHILD DEVELOPMENT ★ MATERNAL DEPRESSION ★ SOCIAL DETERMINANTS OF HEALTH ★

American Academy of Pediatrics STAR Center Initiative:

<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Screening/Pages/default.aspx>



Academic Pediatric Association(APA) Poverty Curriculum:

<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/CPTI/Pages/U-S-Child-Poverty-Curriculum.aspx>



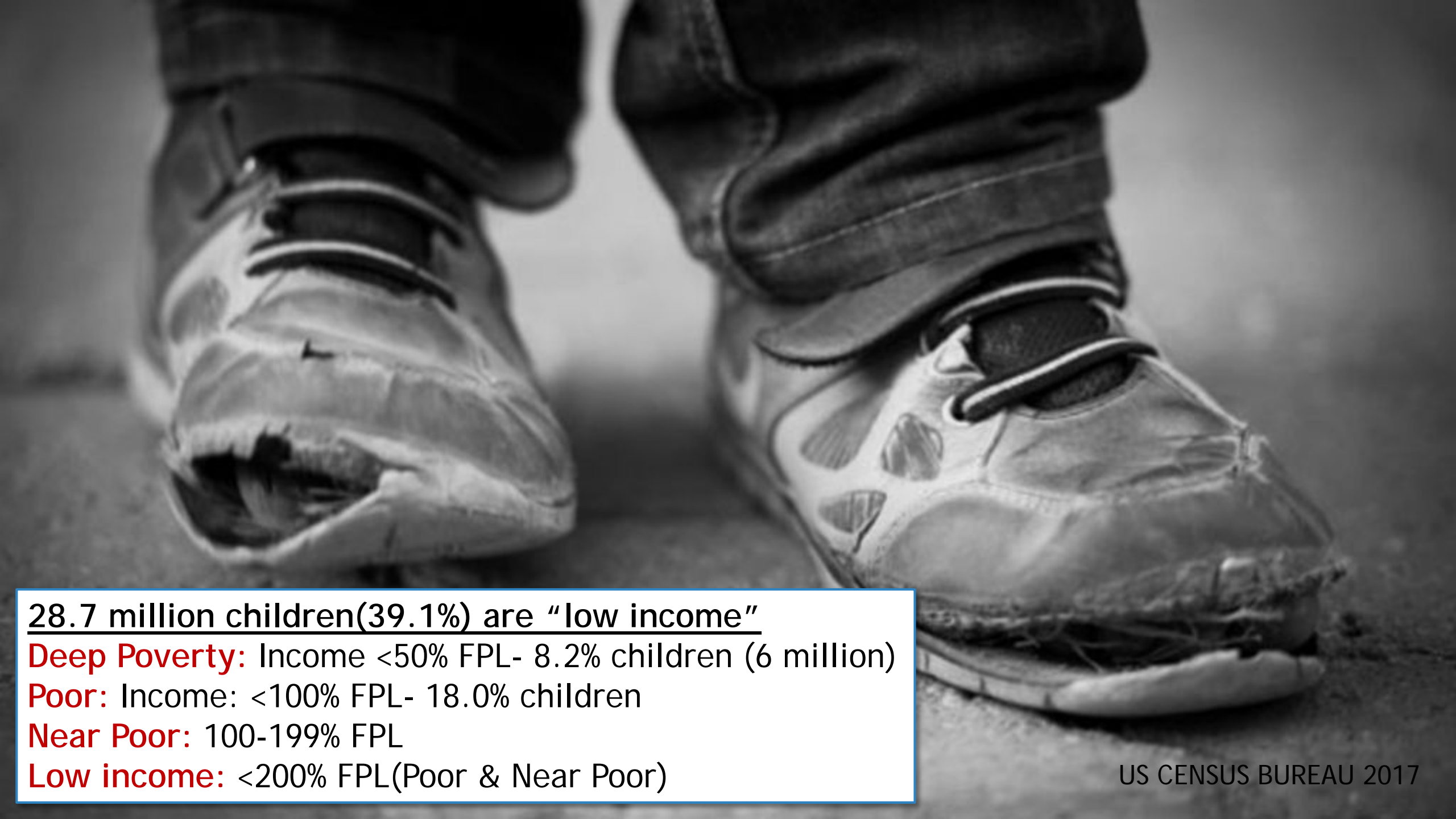
Bright Futures Website:

<https://brightfutures.aap.org>

STEP #2

- ▶ Recognizing that intervening is not always easy





28.7 million children(39.1%) are “low income”

Deep Poverty: Income <50% FPL- 8.2% children (6 million)

Poor: Income: <100% FPL- 18.0% children

Near Poor: 100-199% FPL

Low income: <200% FPL(Poor & Near Poor)

US CENSUS BUREAU 2017

Socioeconomic Discordance

- ▶ Median Income for Pediatricians: \$189,000
- ▶ Median Income for US Populations: \$51,939



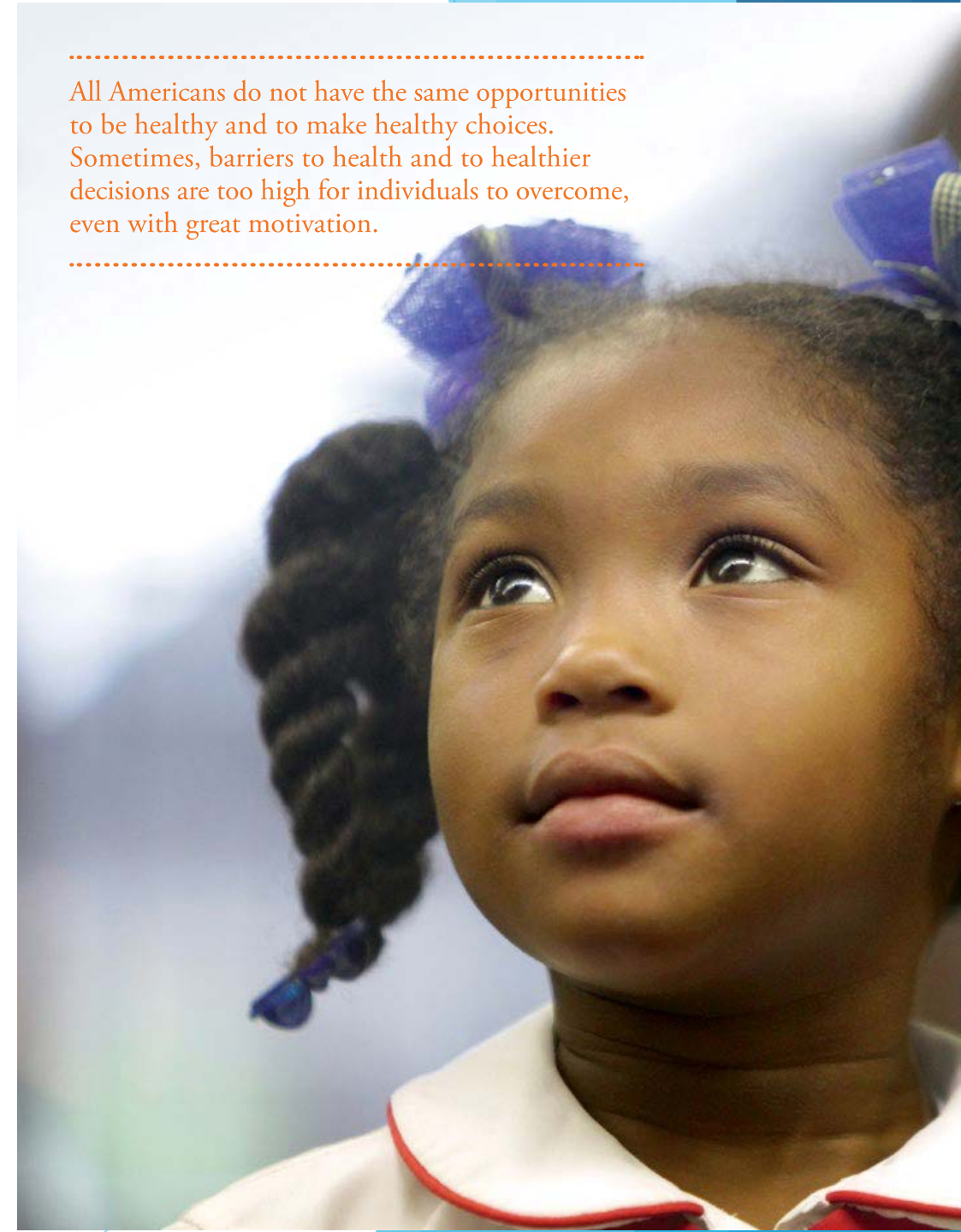
Providers often describe:

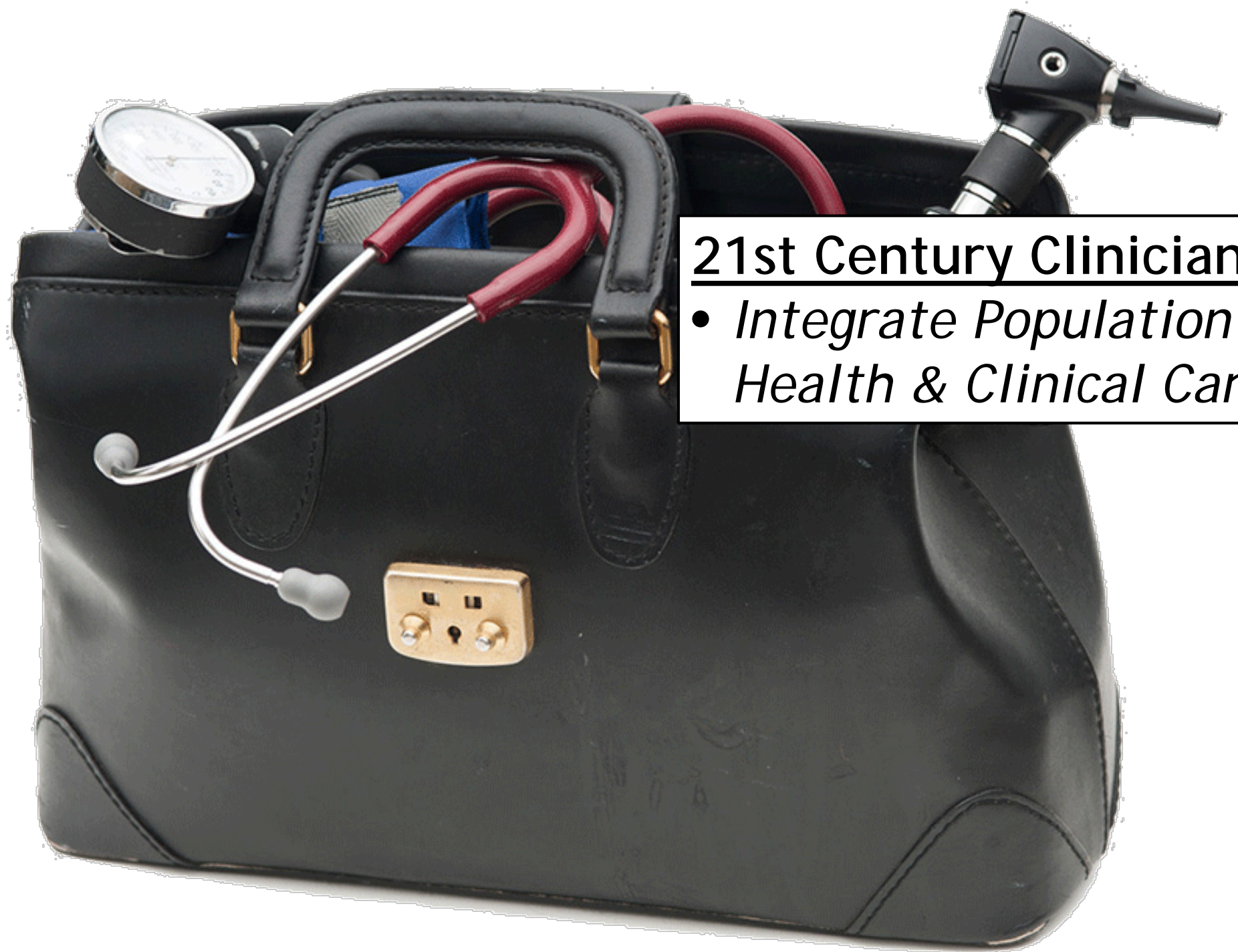
- ▶ Lack of recognized impact or measurable outcomes
- ▶ Lack of time
- ▶ Lack of professional training
- ▶ Lack of familiarity with relevant assessment tools
- ▶ Lack of knowledge of relevant community resources

STEP #3

- ▶ Recognizing that children are **resilient** and there is **hope** along with **effective interventions**

.....
All Americans do not have the same opportunities to be healthy and to make healthy choices. Sometimes, barriers to health and to healthier decisions are too high for individuals to overcome, even with great motivation.
.....



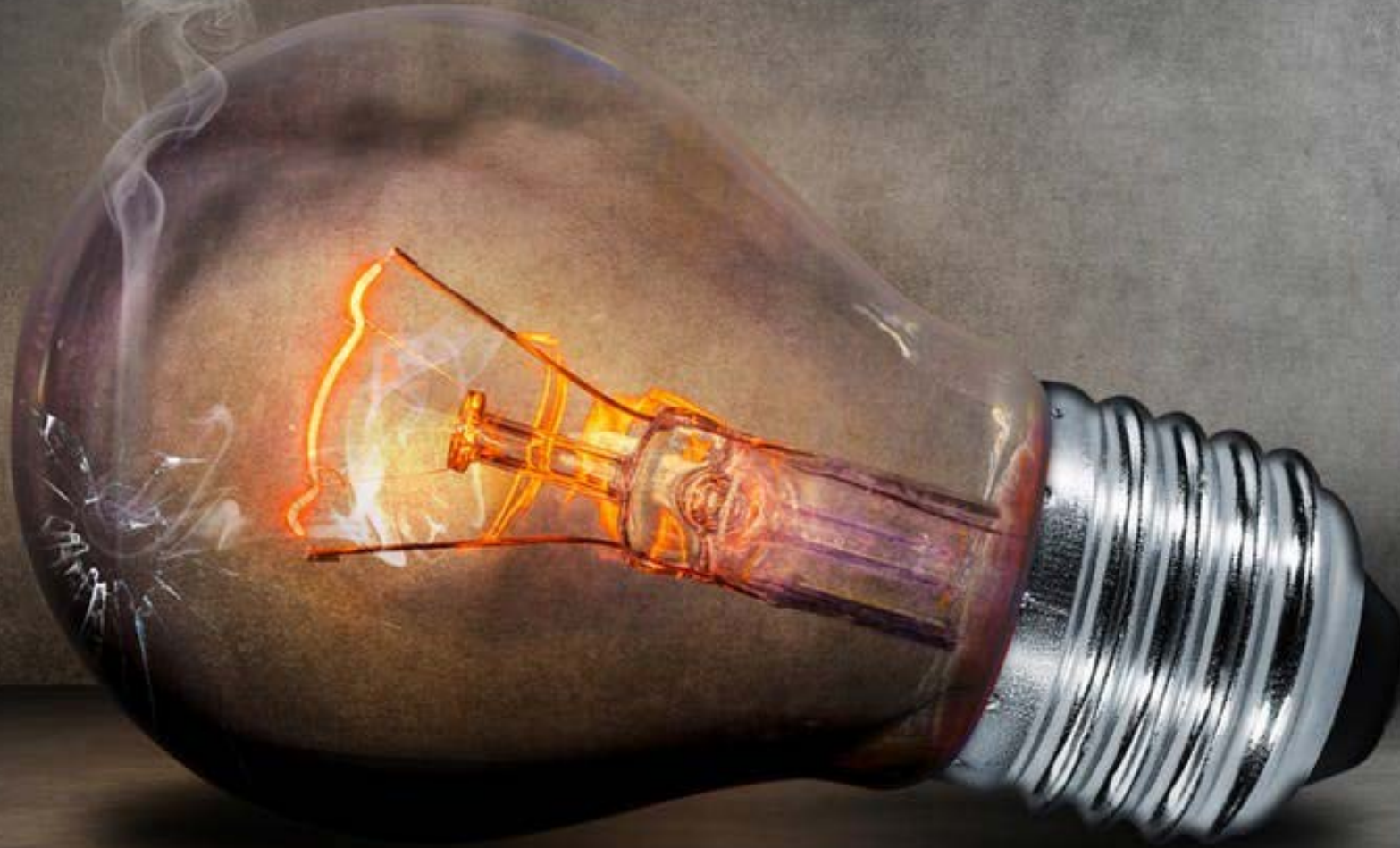


21st Century Clinician

- *Integrate Population Health & Clinical Care*

***Health inequalities and the social determinants of health
are not a footnote to the determinants of health. They
are the main issue.***

-Michael Marmot



Thank You



Equality

doesn't mean

Equity