

# Global Innovations in Patient-Centered Kidney Care



School of Medicine  
& Health Sciences  

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THE GEORGE WASHINGTON UNIVERSITY

*Disrupting Disease Progress:*  
**Mobilizing the People to  
Prevent Kidney Disease  
Progress**

Barry H. Smith MD, PhD  
*The Rogosin Institute*

May 22, 2019

# Disclosures:

Barry H. Smith MD, PhD

*President/CEO*

*The Rogosin Institute*

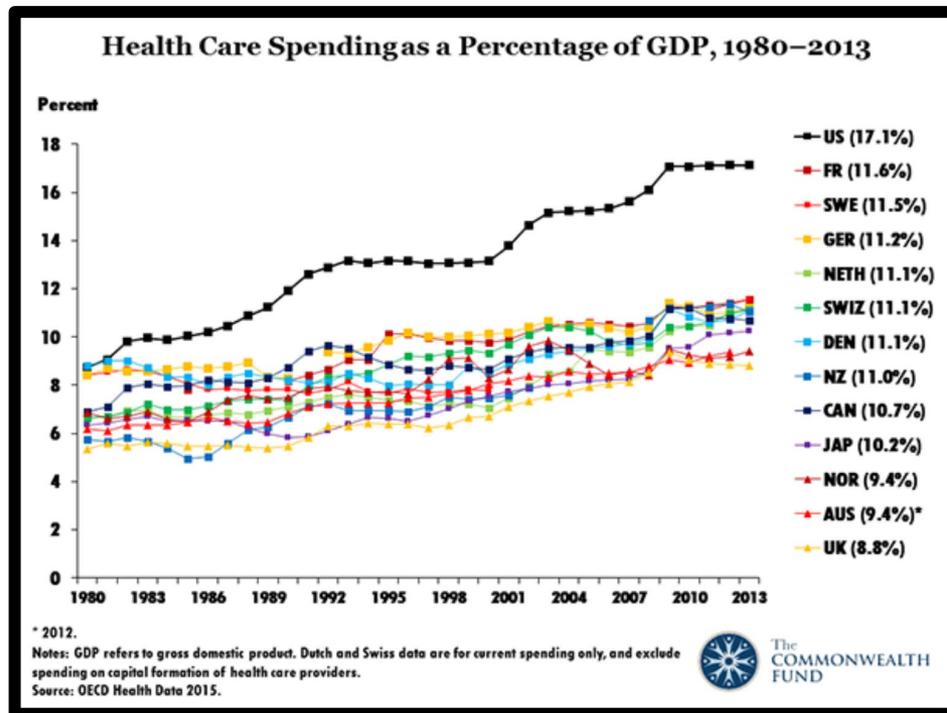
**NONE**

# Background:

## **Current State of the U.S. Healthcare System**

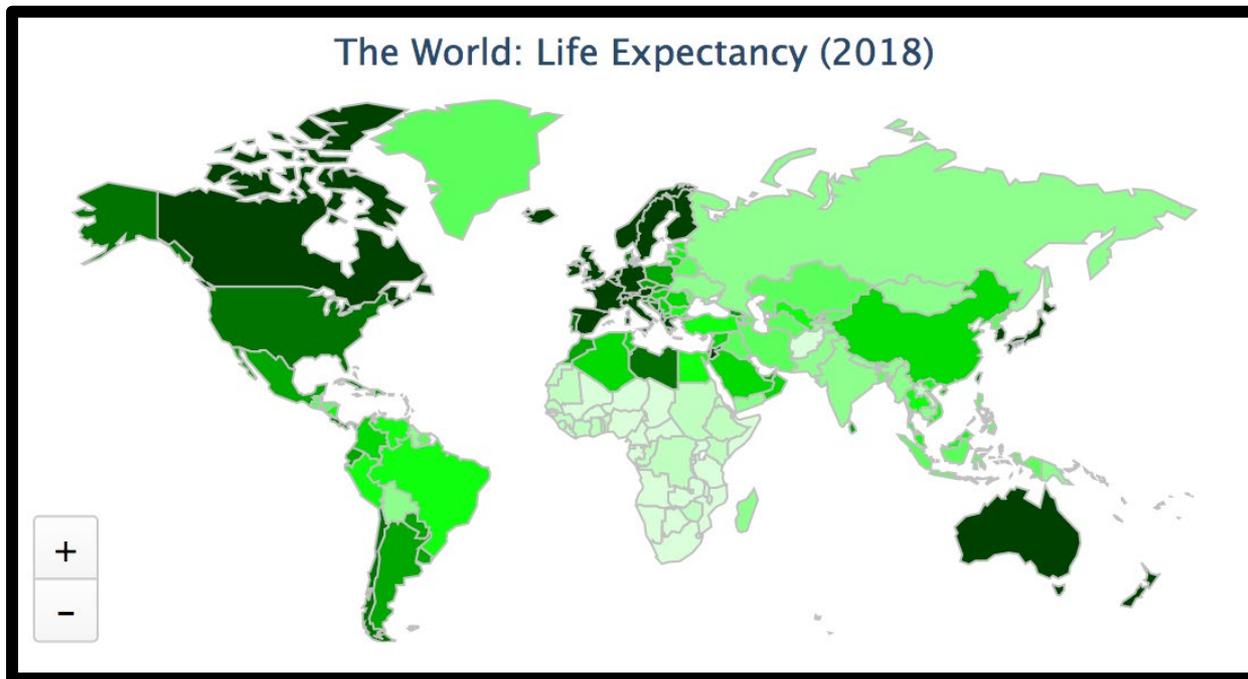
# The Cost of U.S. Health Care

The U.S. Example:  
U.S. spent 17.8% of GDP on its healthcare  
in 2015; 19.9% in 2025



# Suboptimal Outcomes

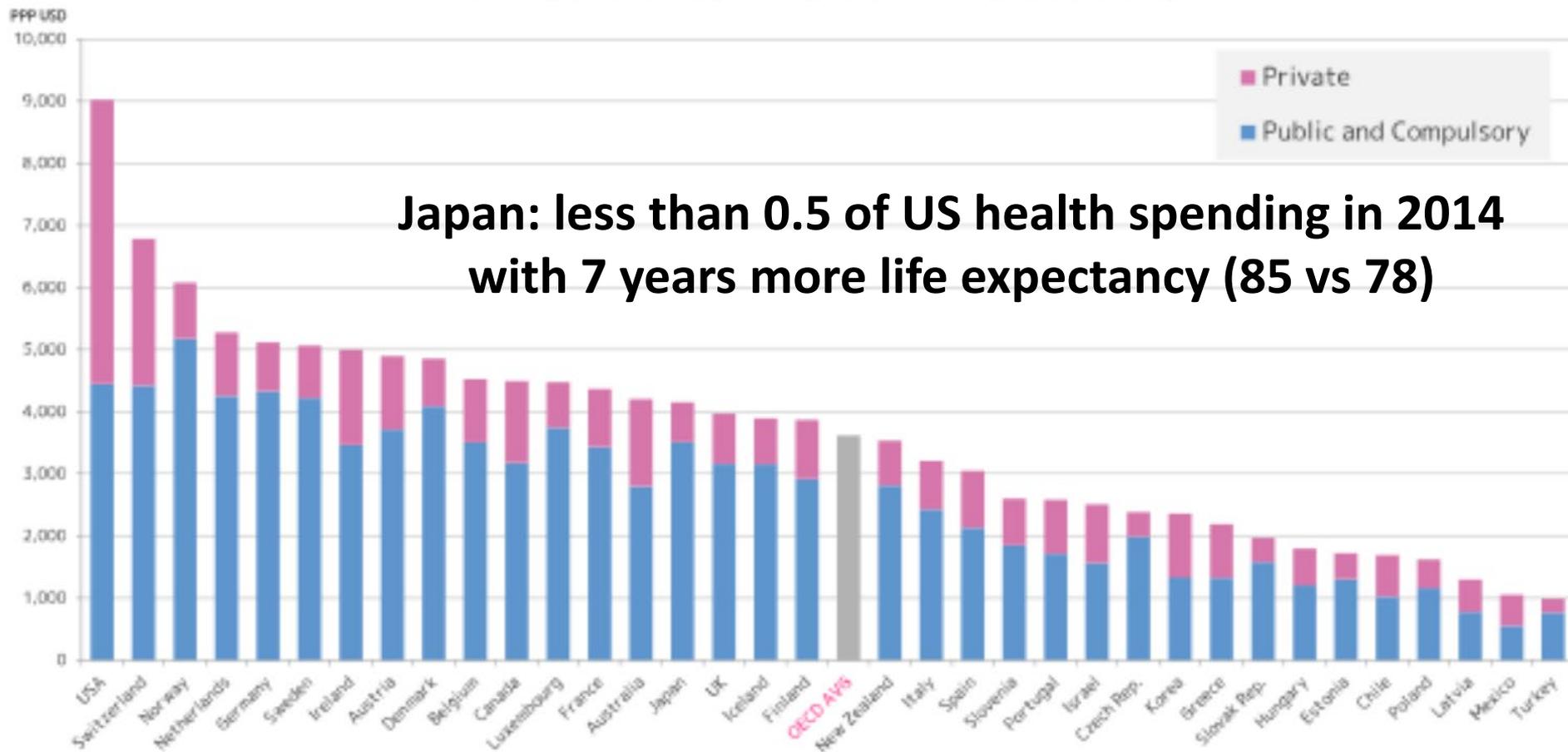
## Shorter and Decreasing Life Expectancy



U.S. #53 @79.25 (now 78.6) yrs; 68 yrs. in Brownsville, Brooklyn  
Monaco [#1@89.37](#); Japan #2@85.52

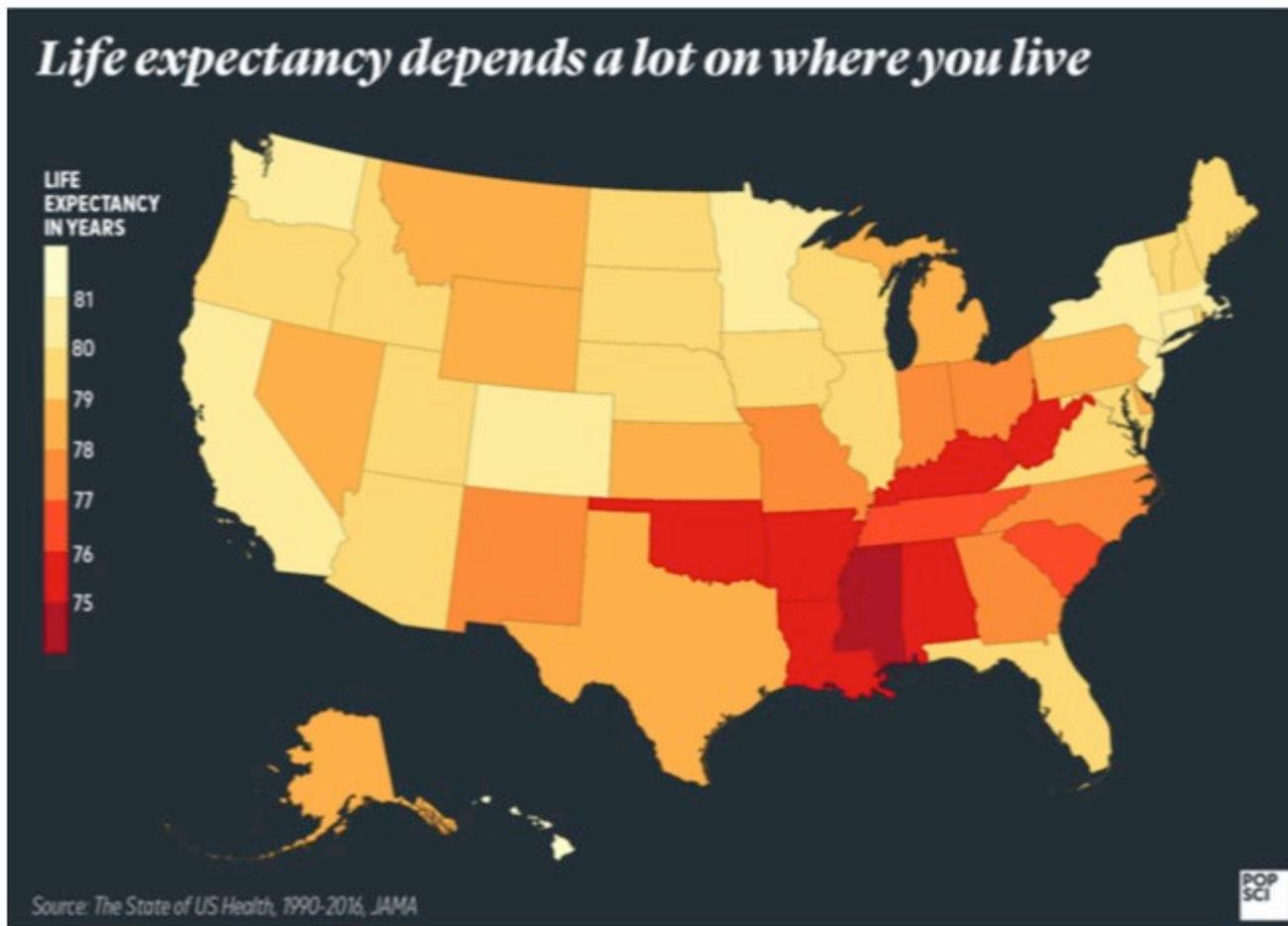
# Healthcare Spending as % GDP Worldwide

Health expenditure per capita, 2014 (OECD stat)



**Japan: less than 0.5 of US health spending in 2014  
with 7 years more life expectancy (85 vs 78)**

# U.S. Life Expectancy



# Healthcare System Failure!!!!

Medicare “bankruptcy” by 2024?

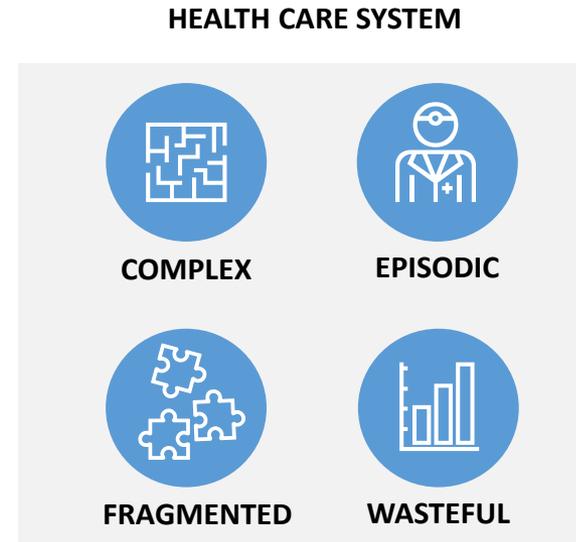
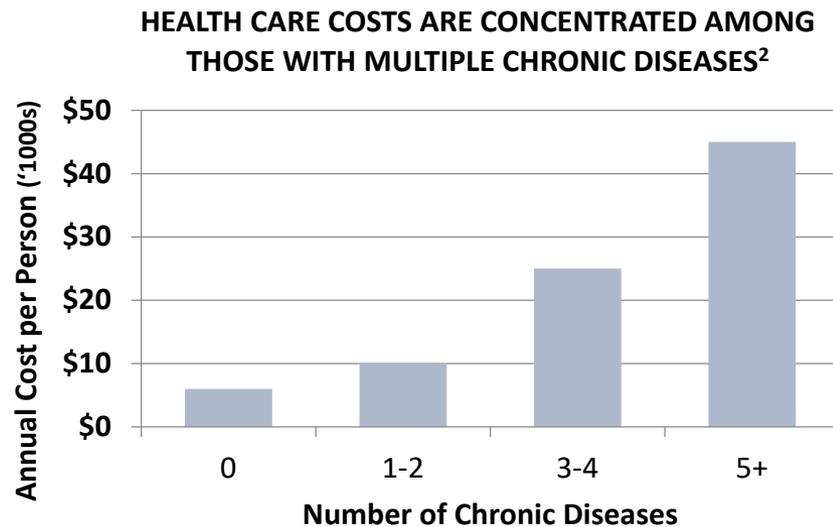
Social Security failure by 2033?

(75% of today's' benefits to be paid by 2033)

**Chronic illness as  
a big  
and growing  
problem.**

# The Impetus for Healthcare System Change

SPENDING ON HEALTH CARE ACCOUNTS FOR ~ 18% OF GDP IN THE U.S.<sup>1</sup>



**Obesity, diabetes, hypertension, chronic kidney disease**

1. Mitchell E. and Machlin S. Concentration of Health Expenditures and Selected Characteristics of High Spenders, U.S. Civilian Noninstitutionalized Population, 2015. Statistical Brief #506. AHRQ, 2017.  
2. Cohen, SB. The concentration and Persistence in the Level of Health Expenditures for the U.S. Population, 2012-2013. Statistical Brief #481. AHRQ, 2015.

# CKD and ESRD

**Chronic and End-Stage Kidney  
Disease**

**as**

**Prime Model of the Burden of  
Chronic Illness:**

**Cost:**

*Quality of Life*

*Economic*

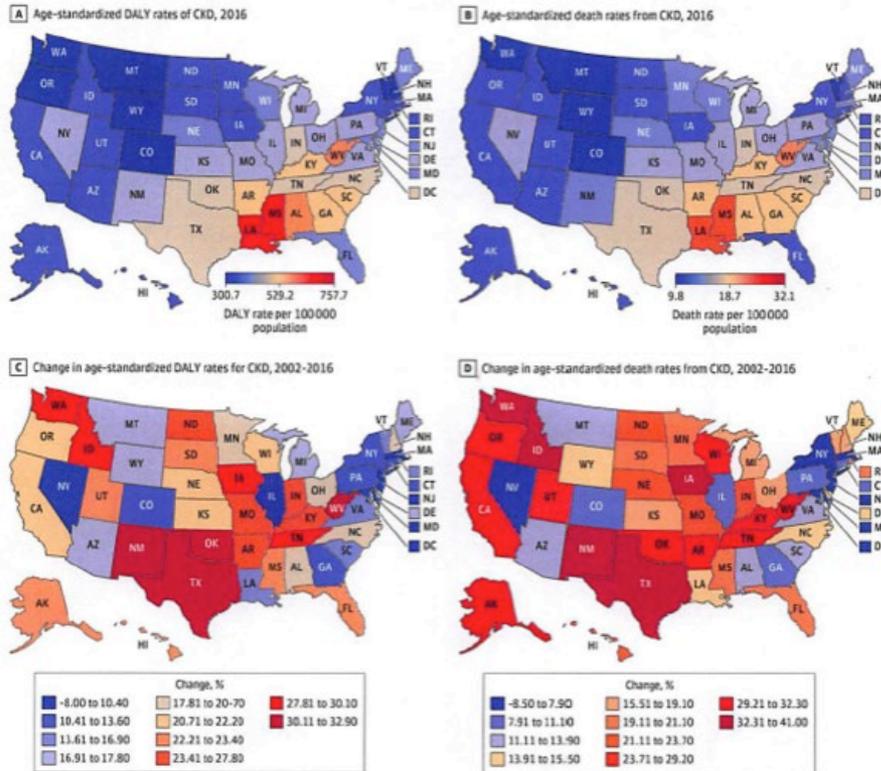
**23% of Medicare budget  
(>\$113 billion)**

# The Burden of U.S. Kidney Disease

## 2002-2016

40,000,000 Americans – 96% not aware of their CKD

Figure 1. Maps of Age-Standardized Disability-Adjusted Life Years (DALYs) and Death Rates Due to Chronic Kidney Disease (CKD) in 2016, and Percentage Change From 2002 to 2016



Age-Std  
CKD DALYs:  
Vermont: 321  
Mississippi: 697  
(per 100,000)  
Overall: +18.6%  
Death: +58.3%  
(Ages 20-54:  
25.6% - CKD DM

DALY increase  
risk factors:  
Metabolic (DM):  
93.8%  
Dietary: 5.3%

Maps of percentage change are colored by deciles of their respective values.



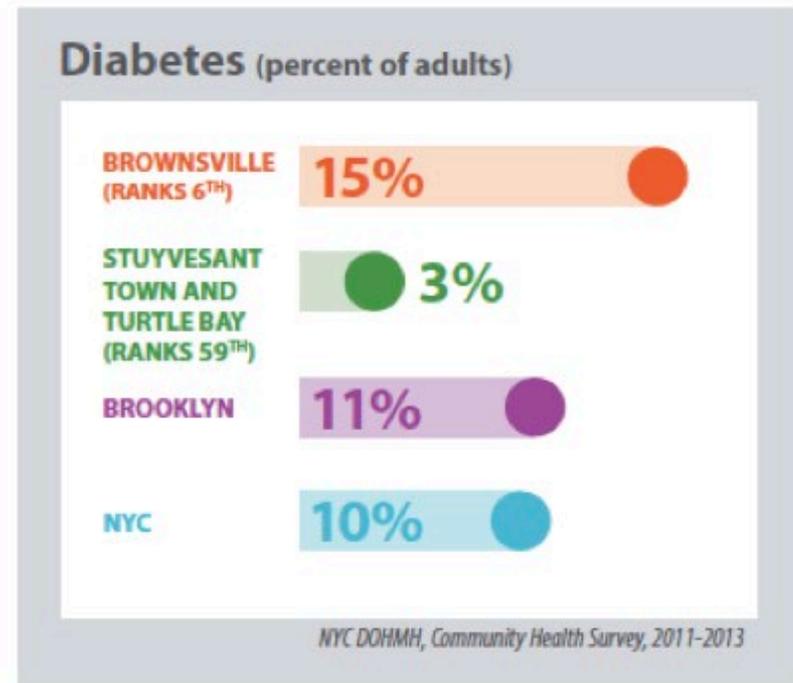
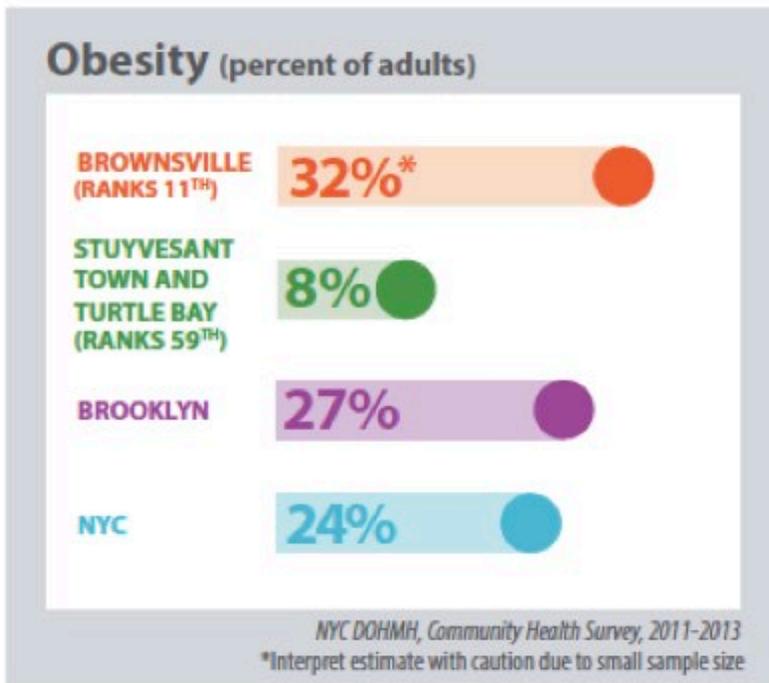
# The Rogosin Institute

Diabetes and/or Hypertension  
are responsible for 60% of our  
end-stage renal patients  
requiring either dialysis or  
kidney transplantation to  
continue to live:

**Obesity is linked to both**

# Central Brooklyn Health Disparities

Significant differences in health outcomes between Brownsville and other parts of NYC



# Obesity

- More than 60% of Americans are overweight (including “obese”):
  - Of all the developed economies, US has highest rate of obesity – 75% predicted by 2020
    - Up to 400,000 U.S. deaths per year
    - Annual societal cost: \$117 billion (\$2.5

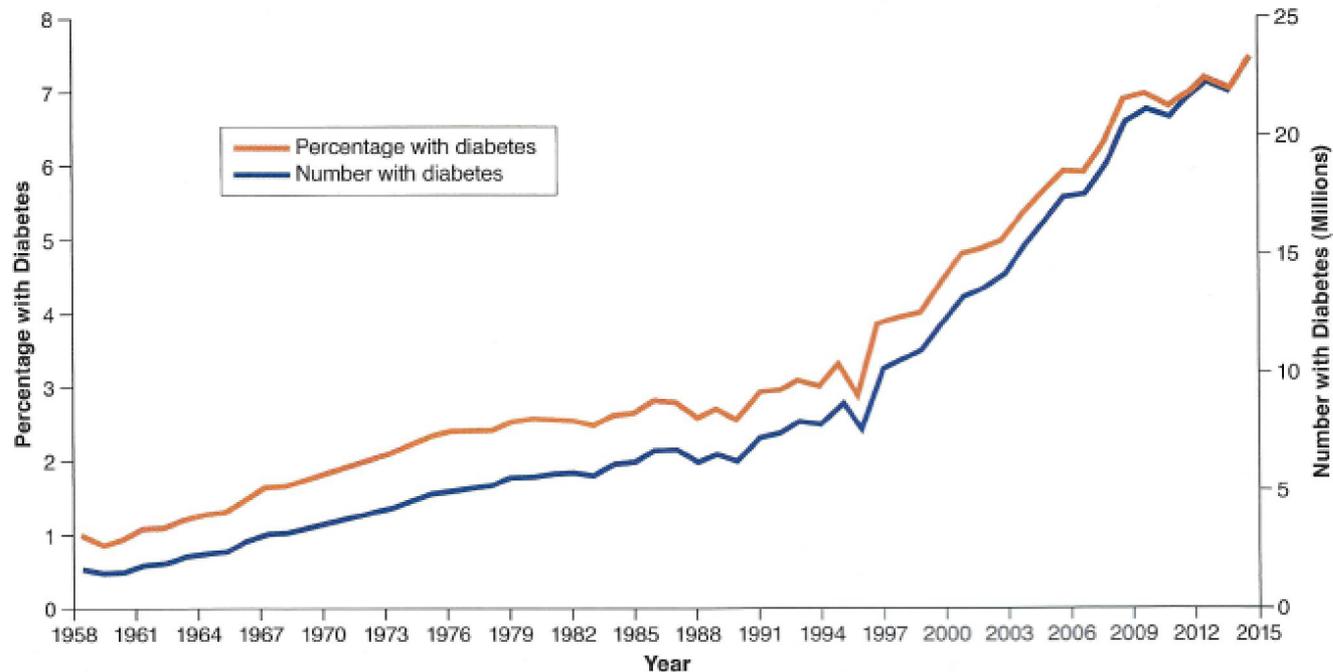
Prevalence of obesity highest in Americas and lowest in SE Asia

# Diabetes Facts:

- Worldwide, no. of diabetics has risen from 108 million in 1980 to 422 million in 2014.
- Prevalence of diabetes among adults >18 over 18 has risen from 4.7% in 1980 to 8.5% in 2014.
- Rising more rapidly in middle- and low-income countries.
- Diabetes: major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation.

# Type 2 Diabetes in the U.S.A.

**FIGURE 1** Number and Percentage of U.S. Population with Diagnosed Diabetes, 1958-2015<sup>2</sup>



From Centers for Disease Control and Prevention, Division of Diabetes Translation. United States Diabetes Surveillance System, available at: <http://www.cdc.gov/diabetes/data>.

# Some Facts About Chronic Illness: Hypertension and Diabetes as Examples

## Hypertension:

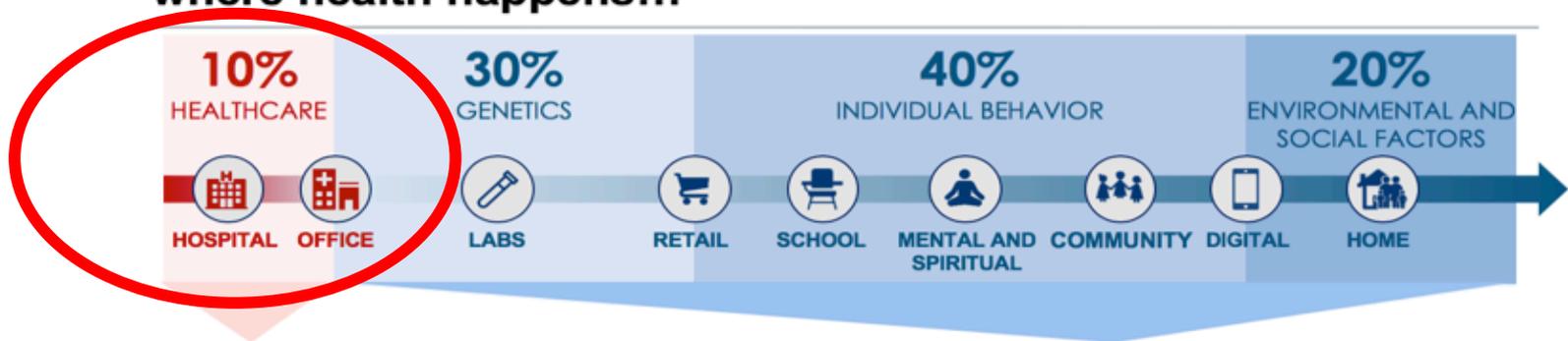
- Enormous global problem: 972 million in 2000; 1.56 billion by 2025
- China: Prevalence 27.8% of Chinese people (increases steeply with age); overall control 9.7% (Yichong et al, Intl J Cardiol, 2017)
- U.S. 23.4% or 76.2 million people
- 18% of global deaths; 162 million years of life lost



**What,  
if anything,  
can we do about it?**

# Where does health care happen?

Disruption requires new models based on delivering services where health happens...



## CLINICAL SETTING

- Where majority of complex services are delivered and **costs are realized**
- Focus on **managing healthcare spend** in most appropriate way
- **Episodic / Transactional**, where consumer spends ~ <10% or time
- Value = quality of the **Outcome** delivered (*measuring defect rates*)
- **Specialization** critical to high quality

## COMMUNITY SETTING

- Where health is **determined, improved, and maintained**
- **Requires near-term investments** to improve health and reduce longer-term, costly complications
- **Continuous**, where consumer spends ~ >90% or time (*and would prefer to spend 100%*)
- Value = **Progress** towards consumer's goals
- **Familiarity and connectedness** with the consumer is critical to ensure high quality

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# The Rogosin Institute

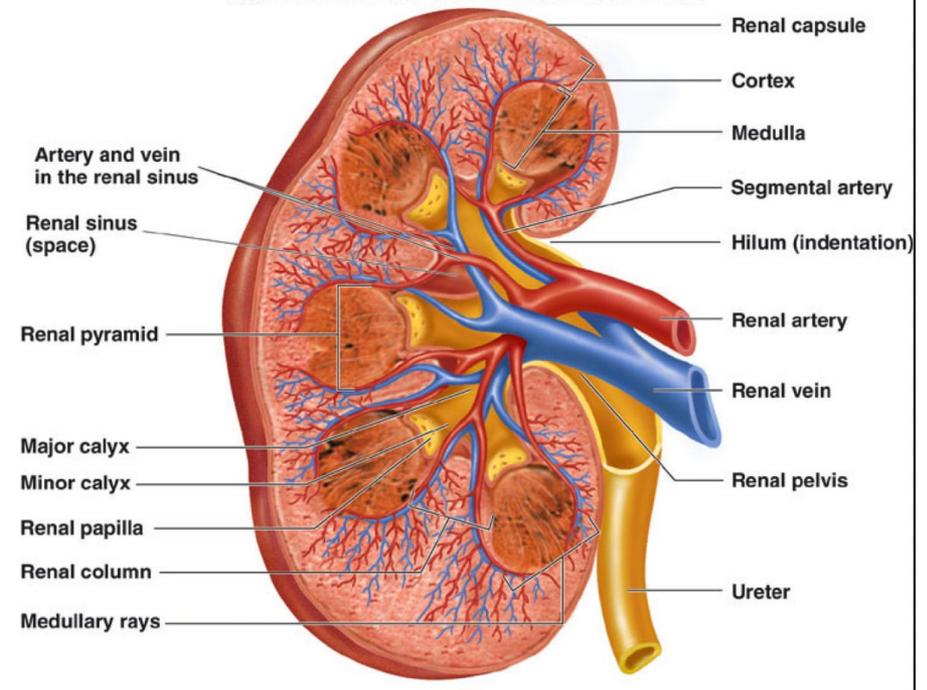
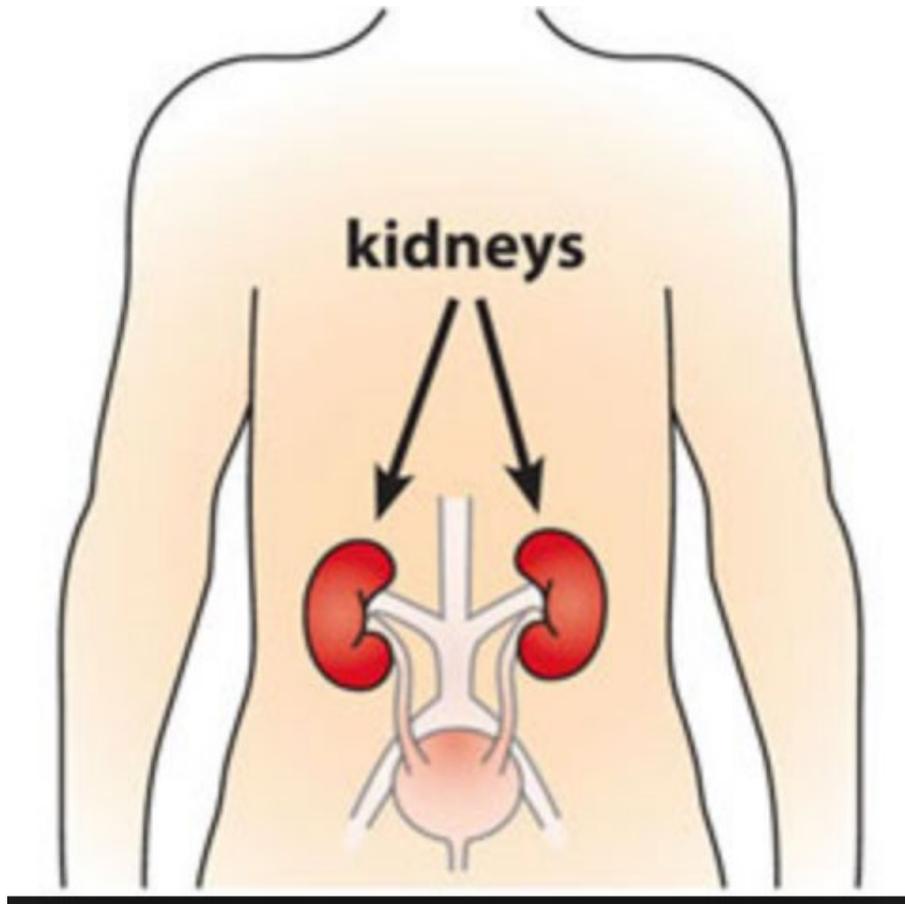
Independent, Non-Profit (501c3)  
Clinical Care and Research Institute closely  
affiliated with

— **New York-Presbyterian**  
— **Regional Hospital Network**



# The Kidney

Waste removal system; blood pressure control; red blood cell control

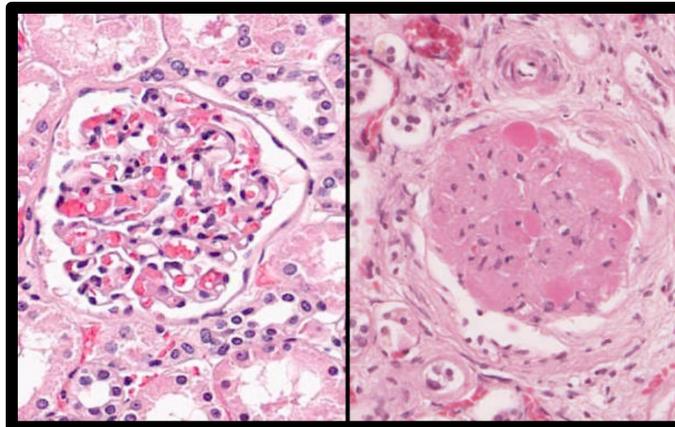




# The Rogosi Institute



Normal  
Glomerulus



End-Stage Diabetic  
Glomerulus



# The Rogosin Institute: 510 people serving NYC (110 Nurses)

- 11 dialysis units in NYC (2,000 ESRD patients)
- Chronic Kidney Care
- Clinical research
- Kidney transplant program
- Center for Health Action and Policy
- Focus on prevention and wellness



# Achieving Better Health

The Centers for Disease Control and Prevention estimates that 80% of chronic illness could be eliminated with attention to these four basic health factors:

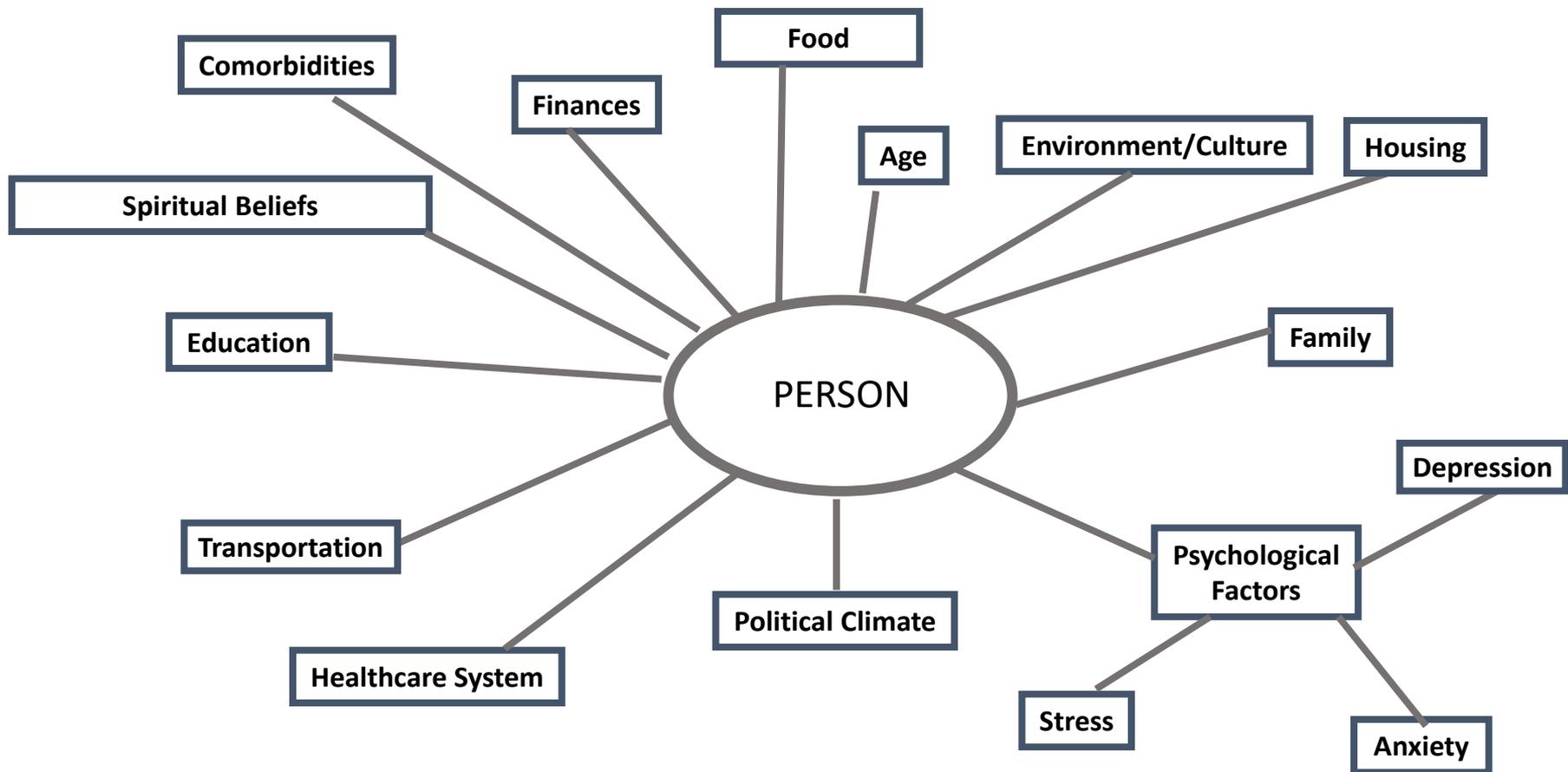
**Better nutrition**

**More physical activity**

**Moderate to no alcohol use**

**No tobacco**

# A Too-Narrow View of Health: A multiplicity of factors – biological to societal: Making people **WHOLE!!**



# U.S. Centers for Disease Control (CDC) National Diabetes Prevention Program

It brings together:



to achieve a greater impact on reducing type 2 diabetes

What's  
missing  
here?

**The PEOPLE**

# Who Can Fix the US Healthcare System?

Who can make us all healthier?

**YOU!!**

**The current statistics are unacceptable! We won't  
take it anymore!**

**You can be the ones to change the way things are  
and turn America around!!!**

# Some Challenges

- Disparities – in health, SES, educational attainment, health “literacy”
- Diverse health audiences to reach or accommodate
- Stress – toxic stress, expenses (rent), dealing with dialysis
- Transportation – rural vs. urban; few personal cars, subway inaccessibility
- Housing – home dialysis limitations, non-functional elevators in city housing interferes with access to care
- Food - healthy choices expensive, not always available



We are going to do this right here in Central Brooklyn

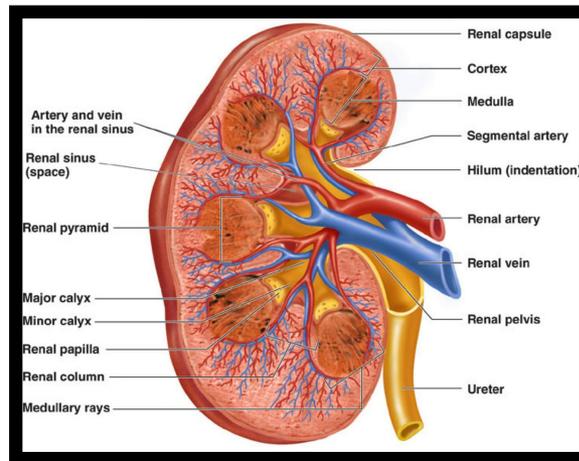
**NO EXCUSES**

**!!!!**

## Nutrition:

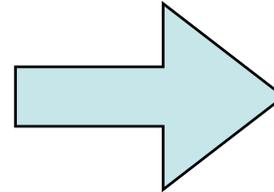
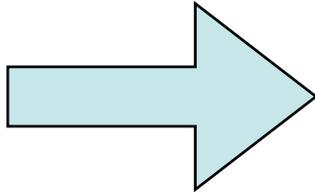
Just how important is it?

How should we be thinking about it?



# The human body as a finely-tuned machine

**INPUT**



**OUTPUT**

**Food**  
**Physical activity**  
**Medication**  
**Environment**  
**(stress, etc)**

**Feeling good!**  
**Optimal mental**  
**and physical**  
**function**  
**Positive emotional**  
**state**

# Matching the fuel to the engine requirements



# Mixing the Fuels

## RECOMMENDED FUEL PORTIONS

### Carbohydrates

**Starches:** breads, cereals, grains, rice, pasta

Dried **beans**, peas, lentils

**Fruits**

**Vegetables** - corn, peas, winter squash, lettuce, leafy greens

**Milk**, yogurt

**Sugar**, sweets, desserts

**about 50%**

### Protein

**Meats** - beef, pork, lamb, poultry, fish, shellfish

**Eggs**

**Cheese**

**Tofu**

**25%**

### Fats

**Oils**

**Margarine**

**Animal fats** - dairy, poultry fish, shellfish

**Nuts**

**25%**



# Read the Label

## NEW LABEL / WHAT'S DIFFERENT

Servings:  
larger,  
bolder type

### Nutrition Facts

8 servings per container  
**Serving size** 2/3 cup (55g)

**Amount per serving**  
**Calories** 230

% Daily Value\*

**Total Fat** 8g 10%

Saturated Fat 1g 5%

*Trans Fat* 0g

**Cholesterol** 0mg 0%

**Sodium** 160mg 7%

**Total Carbohydrate** 37g 13%

Dietary Fiber 4g 14%

Total Sugars 12g

includes 10g Added Sugars 20%

**Protein** 3g

Vitamin D 2mcg 10%

Calcium 260mg 20%

Iron 8mg 45%

Potassium 235mg 6%

\* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Serving sizes updated

Calories:  
larger type

Updated  
daily  
values

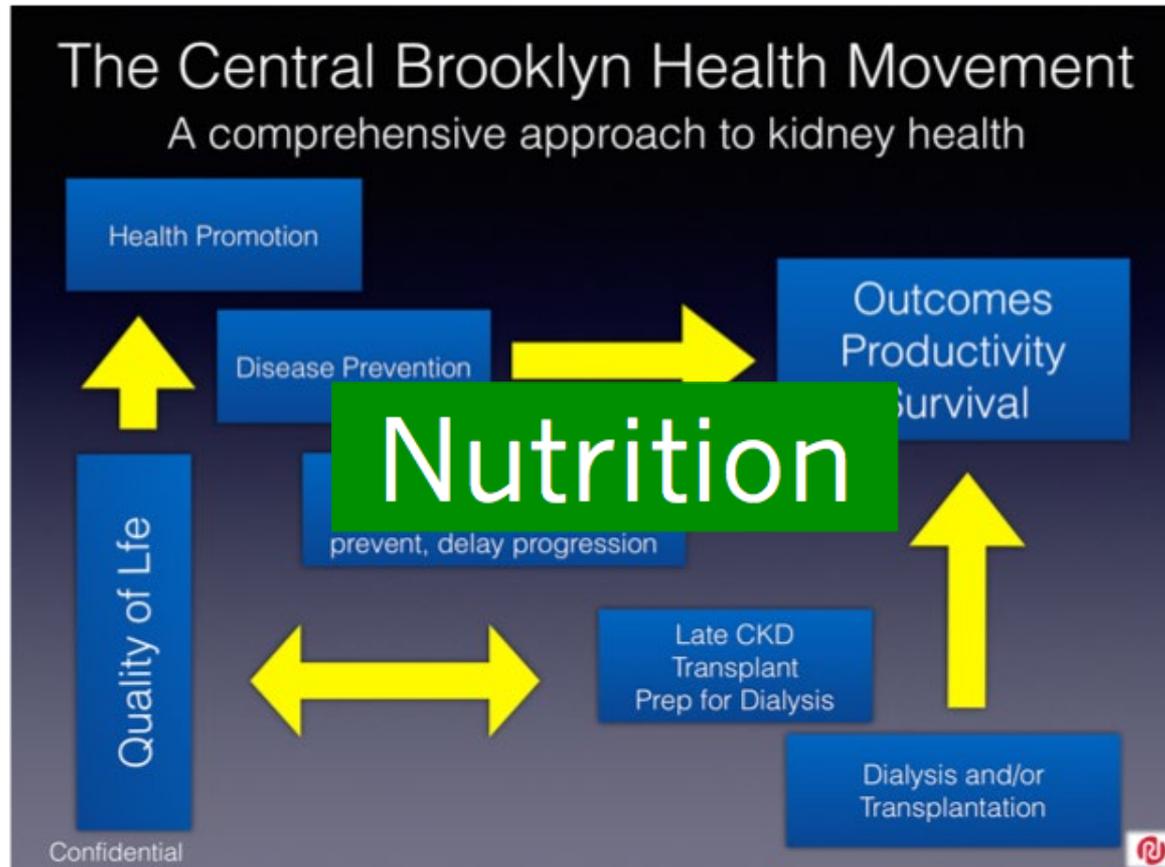
Actual  
amounts  
declared

New  
footnote

New:  
added sugars

Change  
in nutrients  
required

# The Importance of Nutrition



## FOOD as MEDICINE

Health effects of dietary risks in 195 countries, 1990–2017:  
a systematic analysis for the Global Burden of Disease  
Study 2017 *Lancet*, April 3, 2019

In 2017, 11 million deaths and 255 DALYs were due to dietary risk factors:

Key factors:

- **too much sodium (salt)**
- **Low intake of whole grains**
- **Low intake of fruits**

# Physical Activity



 **Physical Activity  
Guidelines for Americans**  
2<sup>nd</sup> edition



# Physical Activity Recommendations



Adults need a mix of physical activity to stay healthy.

## Moderate-intensity aerobic activity\*

Anything that gets your heart beating faster counts.

at least  
**150**  
minutes  
a week

AND

## Muscle-strengthening activity

Do activities that make your muscles work harder than usual.

at least  
**2**  
days  
a week



\* If you prefer vigorous-intensity aerobic activity (like running), aim for at least 75 minutes a week.

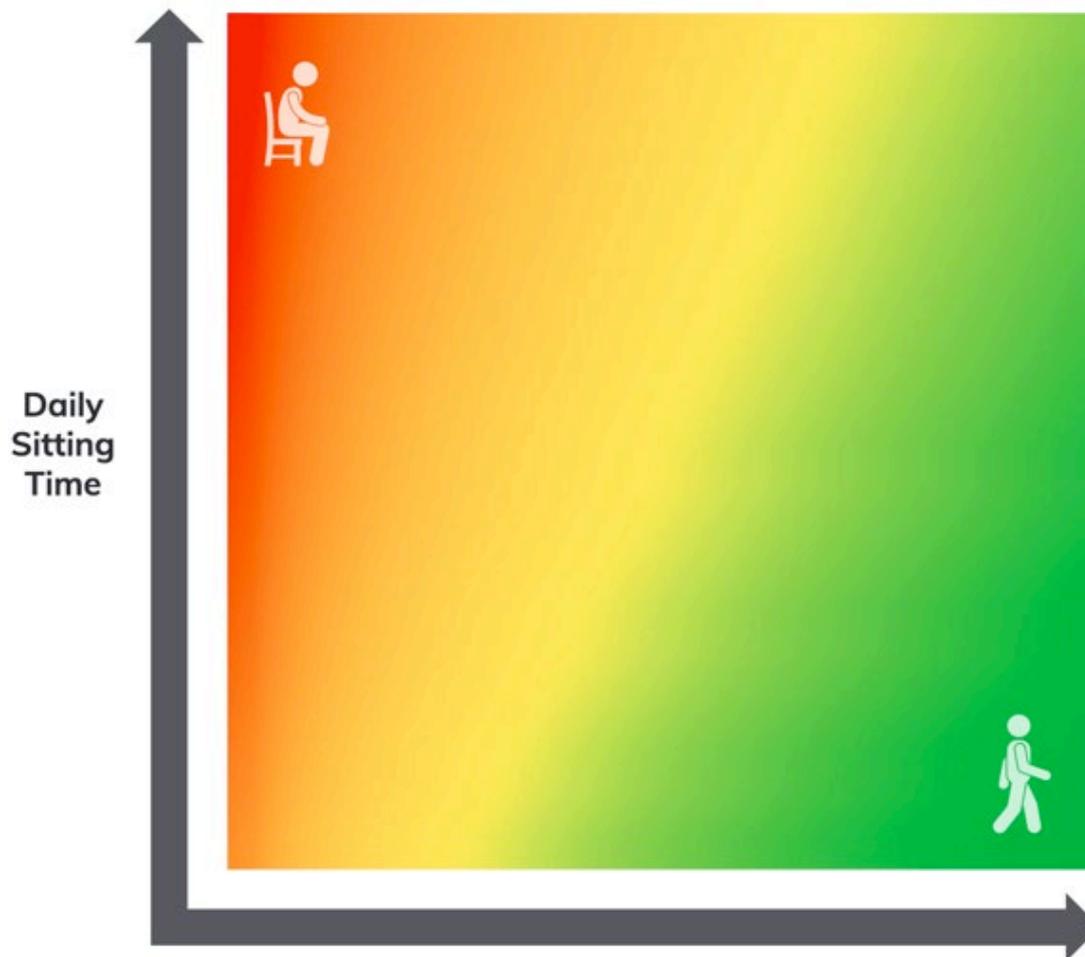
If that's more than you can do right now, **do what you can.** Even 5 minutes of physical activity has real health benefits.

Walk. Run. Dance. Play. **What's your move?**

# Some examples



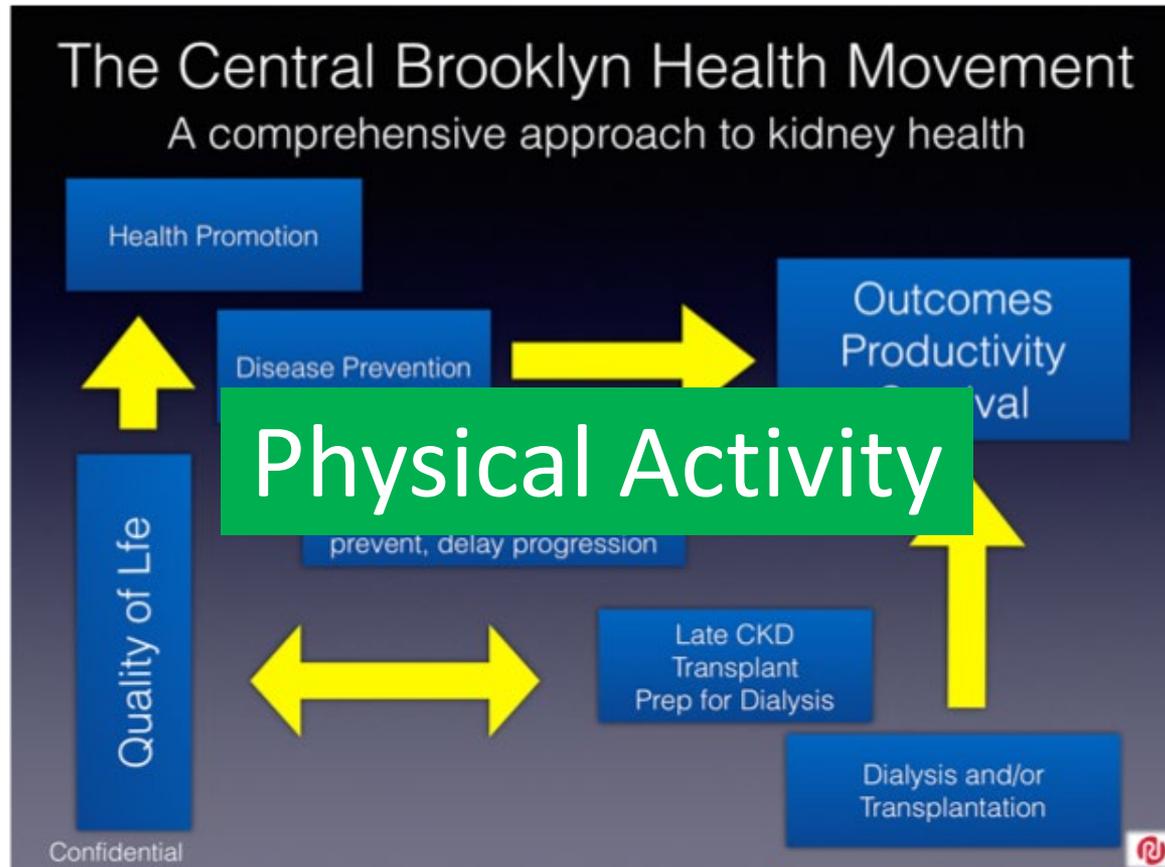
# Activity and Mortality



**Moderate-to-Vigorous Physical Activity**

Risk of all-cause mortality decreases as one moves from red to green.

# The Importance of Physical Activity



# No-to-light alcohol use



# No Smoking



# Rethinking Our Approach to “Health”

## Shifting from Medical/Nursing Care to Wellness Promotion

- The failure of our present approach – medically and technology oriented; overly disease-focused;
- Neglect of “public” health
- Specific disease focus as opposed to wholistic, integrated approach to the human being

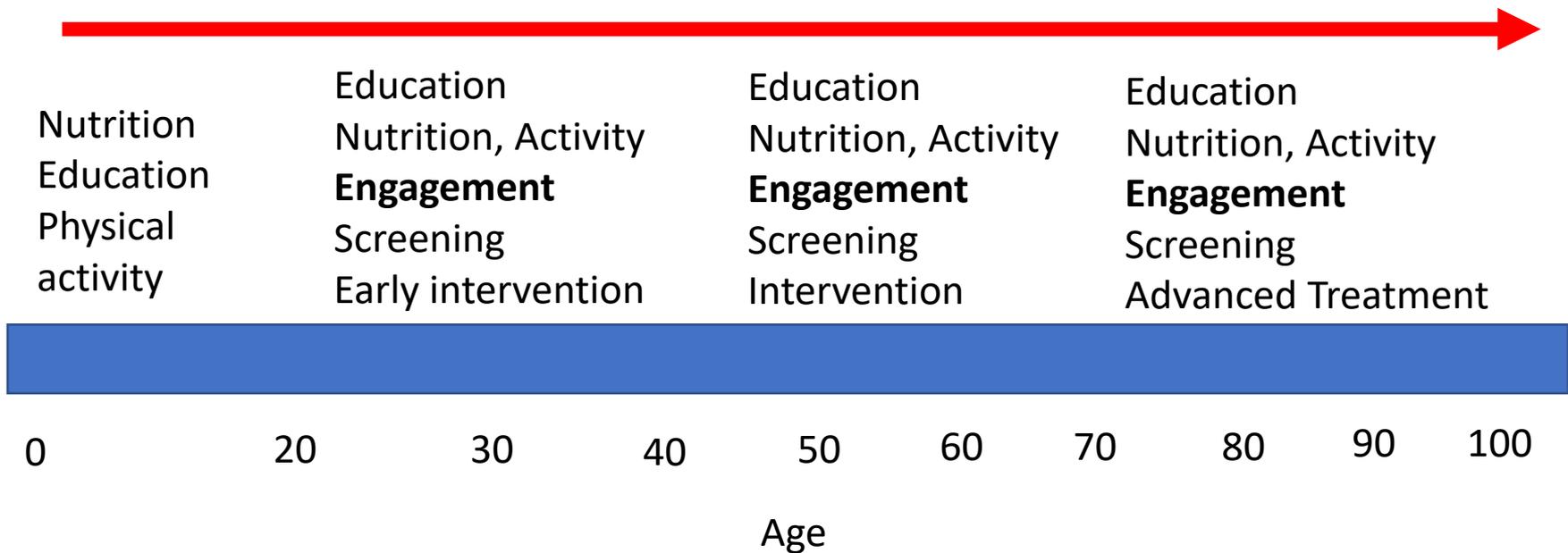
# A New Model

## Integrated

- education(school); good nutrition; activity
- public health prevention
- screening and early detection/intervention
- treatment and prevention of progression
- advanced compassionate care when necessary
- Personal engagement at all times

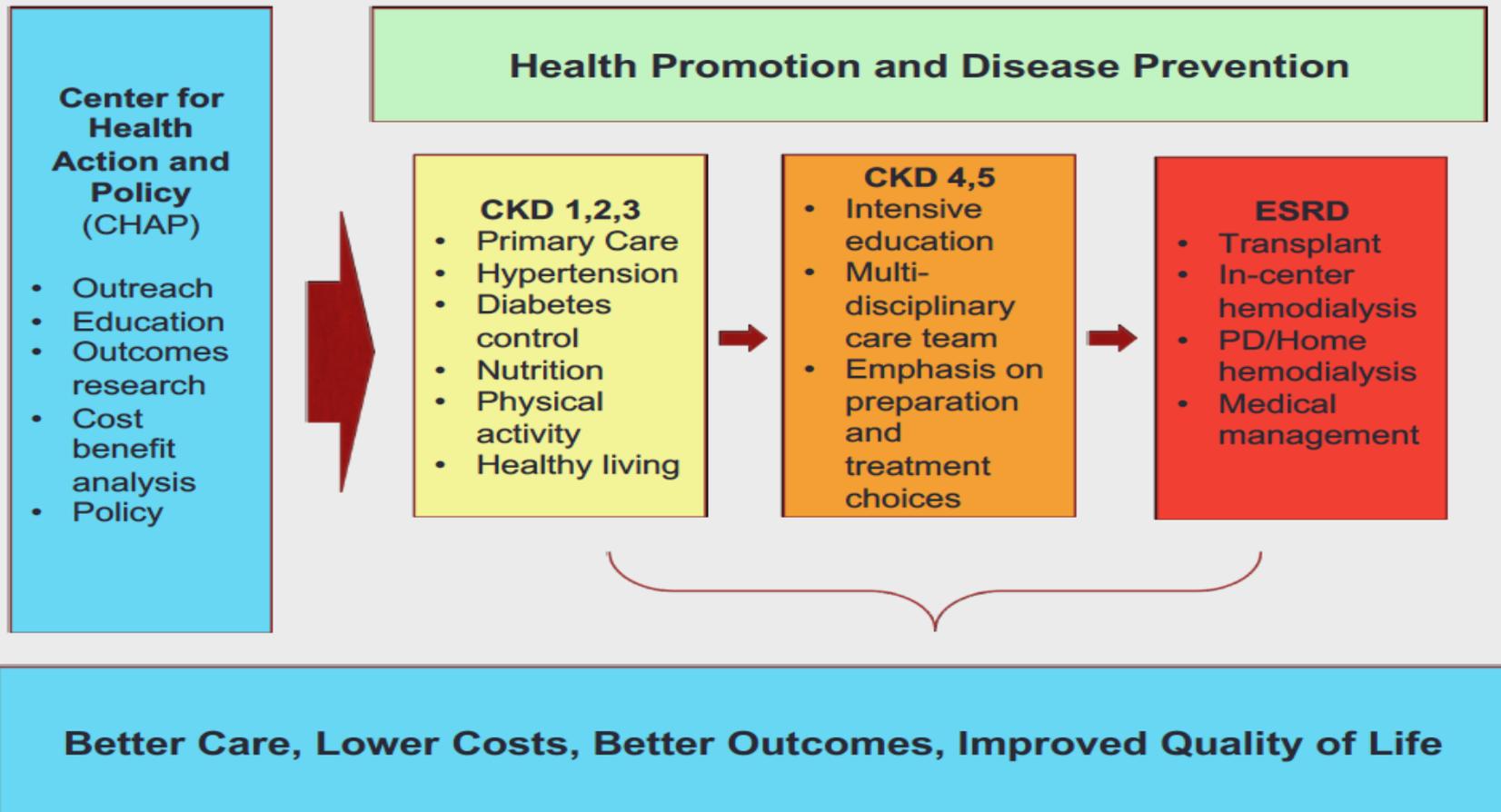
# The Model

## Wellness and QOL Continuity Across the Lifetime of Individuals and Families





# The Rogosin Kidney Care Model



**It is never too late  
to make a  
difference!!!**

# Central Brooklyn Health Movement

## The Place: Central Brooklyn

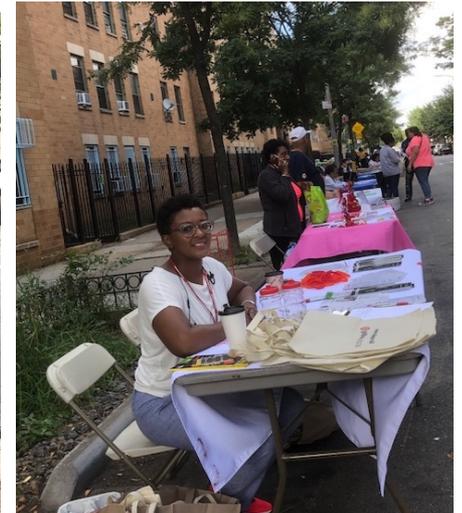


**A movement of, by, and for the people!!**

# A Proposed Solution: Central Brooklyn Health Movement (CBHM)

## CBHM Fundamental Principle:

The people with the problems are not the problem, rather they must be an **ACTIVE** part of the solution



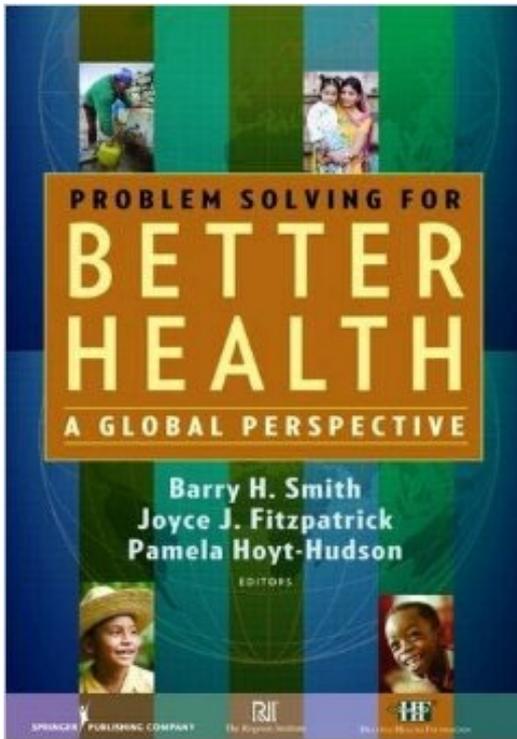


# The People as Partners

Rogosin has over 25 years of experience in community outreach and mobilization utilizing the *Problem Solving for Better Health*<sup>®</sup> (*PSBH*<sup>®</sup>) methodology

- Implemented in 32 countries
- Over 60,000 participants, and 40,000 health promotion projects

# Problem Solving for Better Health®



## PSBH® Methodology

1. Defining the problem
2. Prioritizing the problem
3. Defining a solution/  
Asking the “Good Question”
4. Creating an action plan
5. Taking action

→ Participants **apply** PSBH® to solve local public and individual/family health problems

# Thank You!

## Contact Information:

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