Did you Know
(YouTube video)

https://www.youtube.com/watch?v=u06BXgWbGvA

Did you Know (YouTube video)

- If you are one in a million in China, there are 1,300 people just like you

- 25% of India's population with the highest IQ's is greater than the total population of the U.S.

- India has more honors kids than America has kids

- Top 10 in demand jobs in 2010 did not exist in 2004

- We are currently preparing students for jobs that don't yet exist, using technologies that haven't been invented, in order to solve problems we don't' even know are problems yet

- U.S. Dept. of Labor estimates that today's learner will have 10-14 jobs by the age of 38.

- 1 in 4 workers has been with their current employer for less than a year; 1 in 2 less than 5 years

Did you Know (YouTube video)

- 1 out of 8 couples married in the U.S. in 2009 met online

- We are living in exponential times

- There are 31 billion searches on Google every month, in 2006 this number 2.7 billion

- Years it took to reach a market audience of 50 million: Radio – 38 years; TV – 13 years; Internet - 4 years; iPod – 3 years; Facebook – 2 years

- It is estimated that a week's worth of NYTimes contains more information than a person was likely to come across in a lifetime in the 18th century

- It is estimated that 4 exabytes of unique information will be generated this year – more than the previous 5,000 previous years

- The amount of new technical information is doubling every 2 years

:

Society 2030 Demographics

Partnerships for the Future

Toni C. Antonucci, Ph.D.

SMART CITIES:

A CONNECTED WAY FORWARD

….THE FUTURE IS HERE. ARE YOU READY?

WASHTENAW COMMUNITY COLLEGE

APRIL 6, 2018

Overview

- Planning for a New Age
- The New Demographics
- The need for partnerships
- Society 2030 Consortium
- Society 2030: Experiences
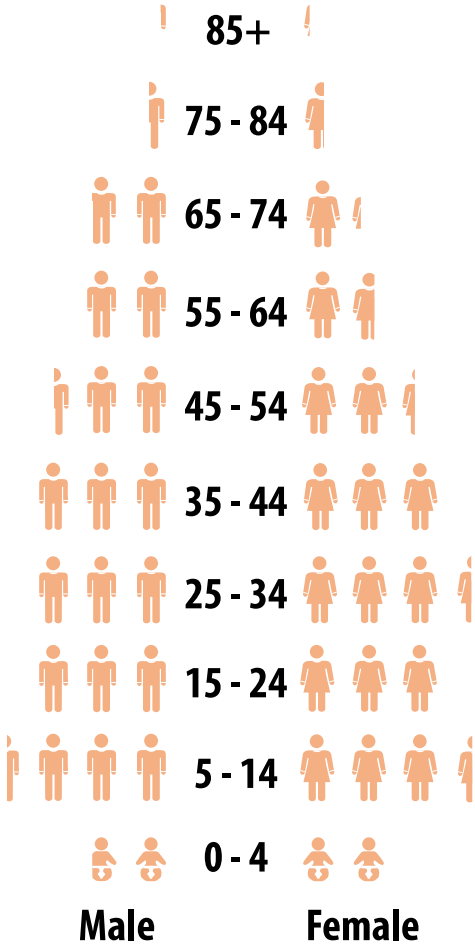- Roadmap to the future

Planning for a New Age

- SHIFTS IN THE POPULATION AGE AND NUMBERS

- DEMOGRAPHIC REVOLUTION

  1900   average life expectancy 47 years

  2000   average life expectancy 79 years

- Due to:
  - decreased fertility
  - fewer deaths in childbirth, childhood
  - improved public health, sanitation
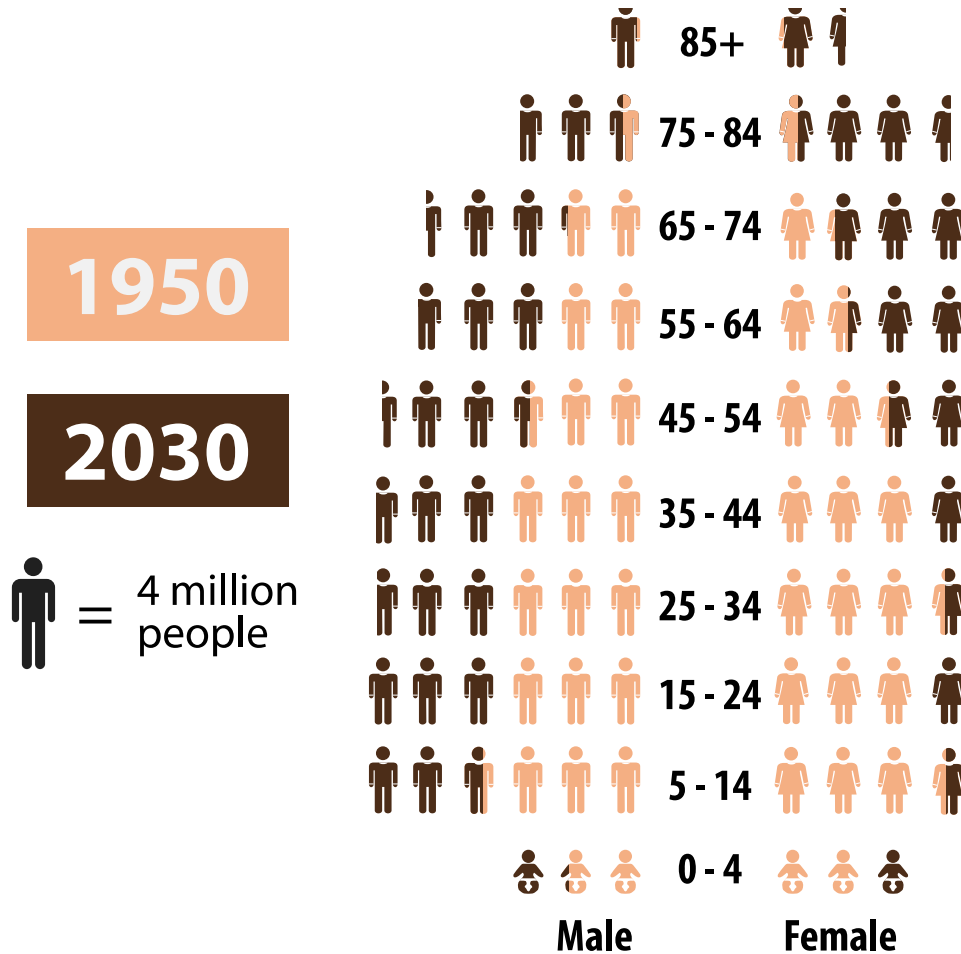 - medical advances, e.g. antibiotics

U.S. population by age (1950)

1950

👤 = 4 million people

	Male		Female	
85+				
75 - 84				
65 - 74				
55 - 64				
45 - 54				
35 - 44				
25 - 34				
15 - 24				
5 - 14				
0 - 4				

Male   **Female**

U.S. population by age (1950 and 2030)

1950

2030

👤 = 4 million people

	85+	
75 - 84	
65 - 74	
55 - 64	
45 - 54	
35 - 44	
25 - 34	
15 - 24	
5 - 14	
0 - 4	

Male   **Female**

By 2030:
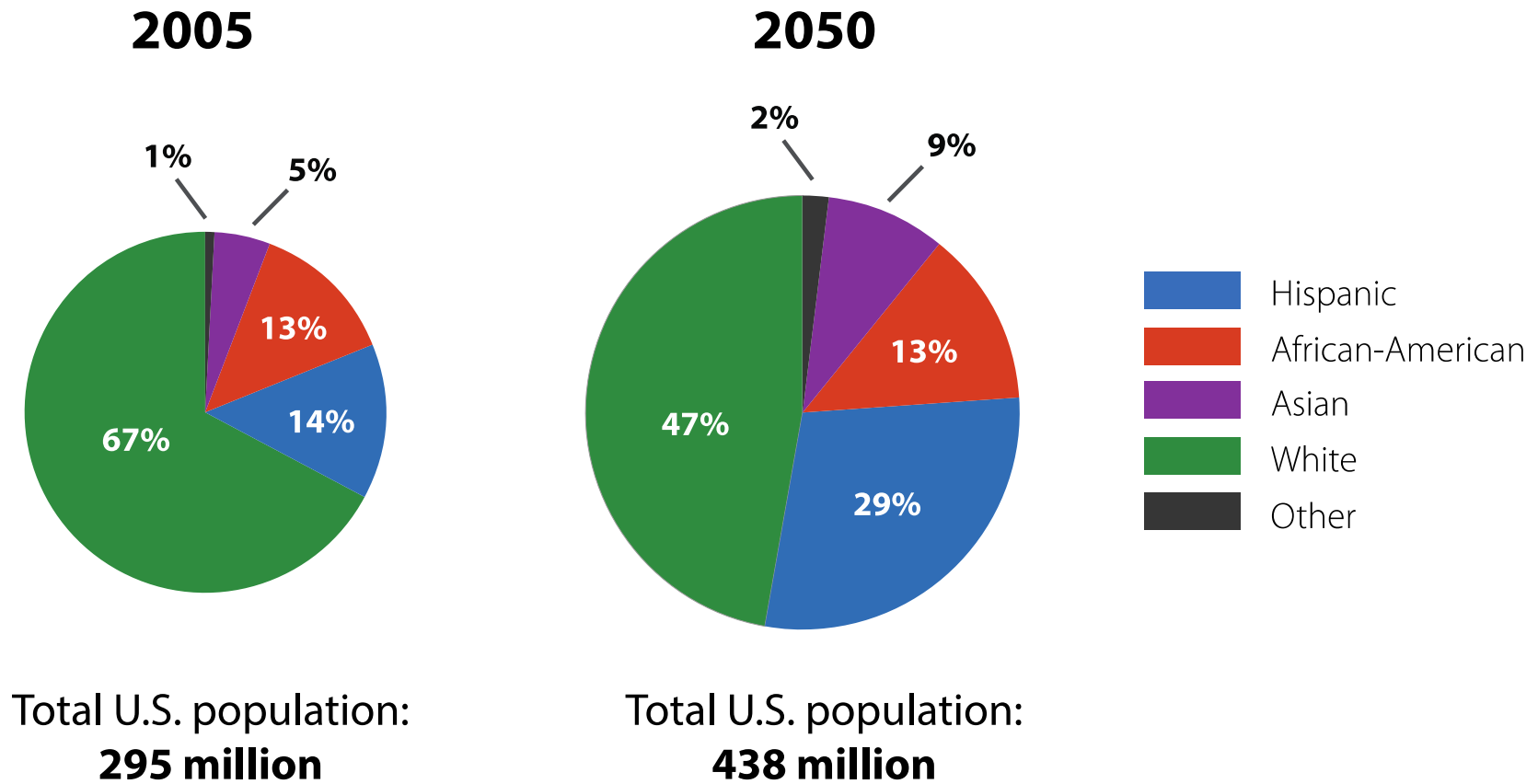**The U.S. will have more equal numbers of all age groups**

Number of people aged 65+ and 85+ (1950 - 2030)
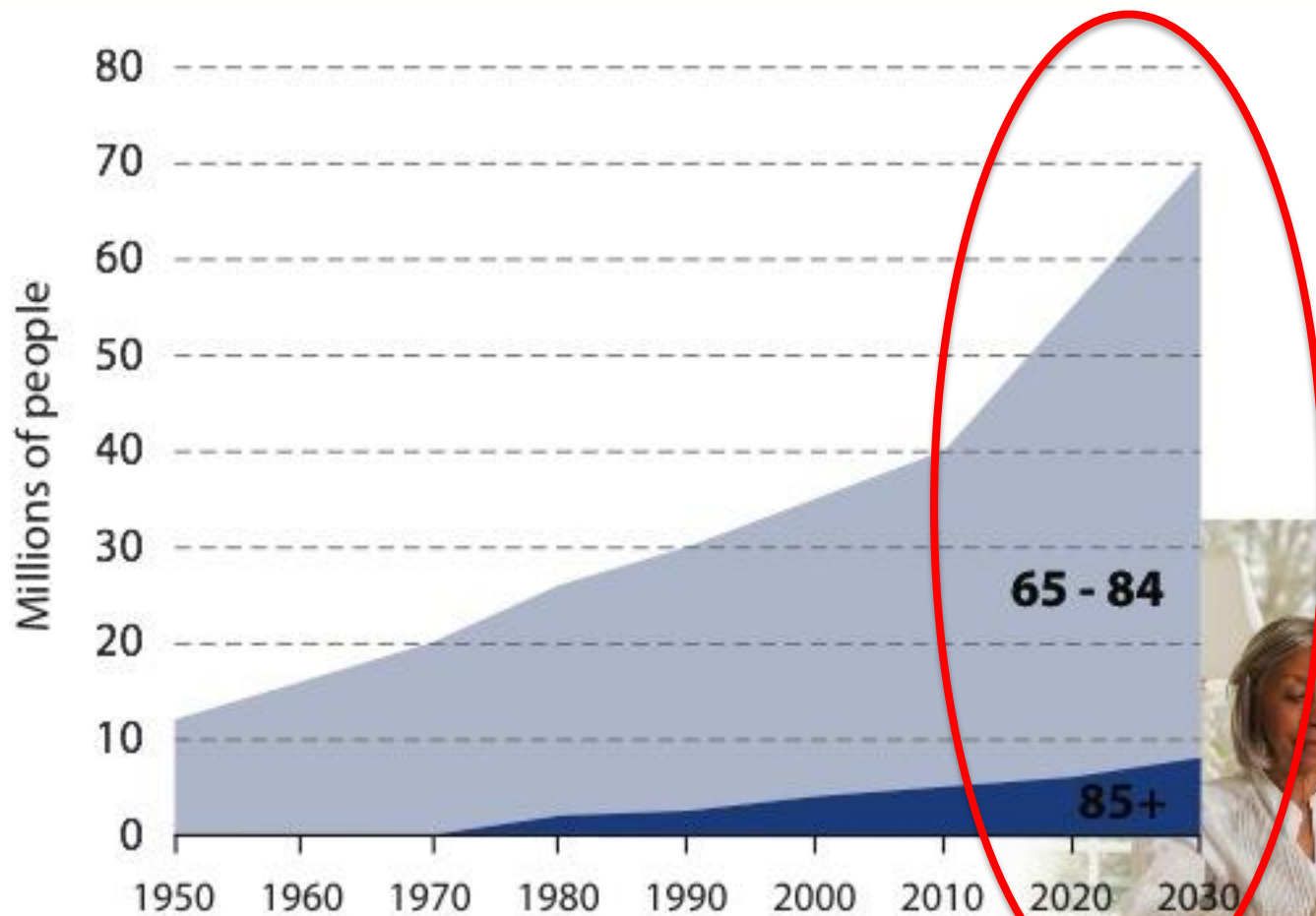
By 2030:
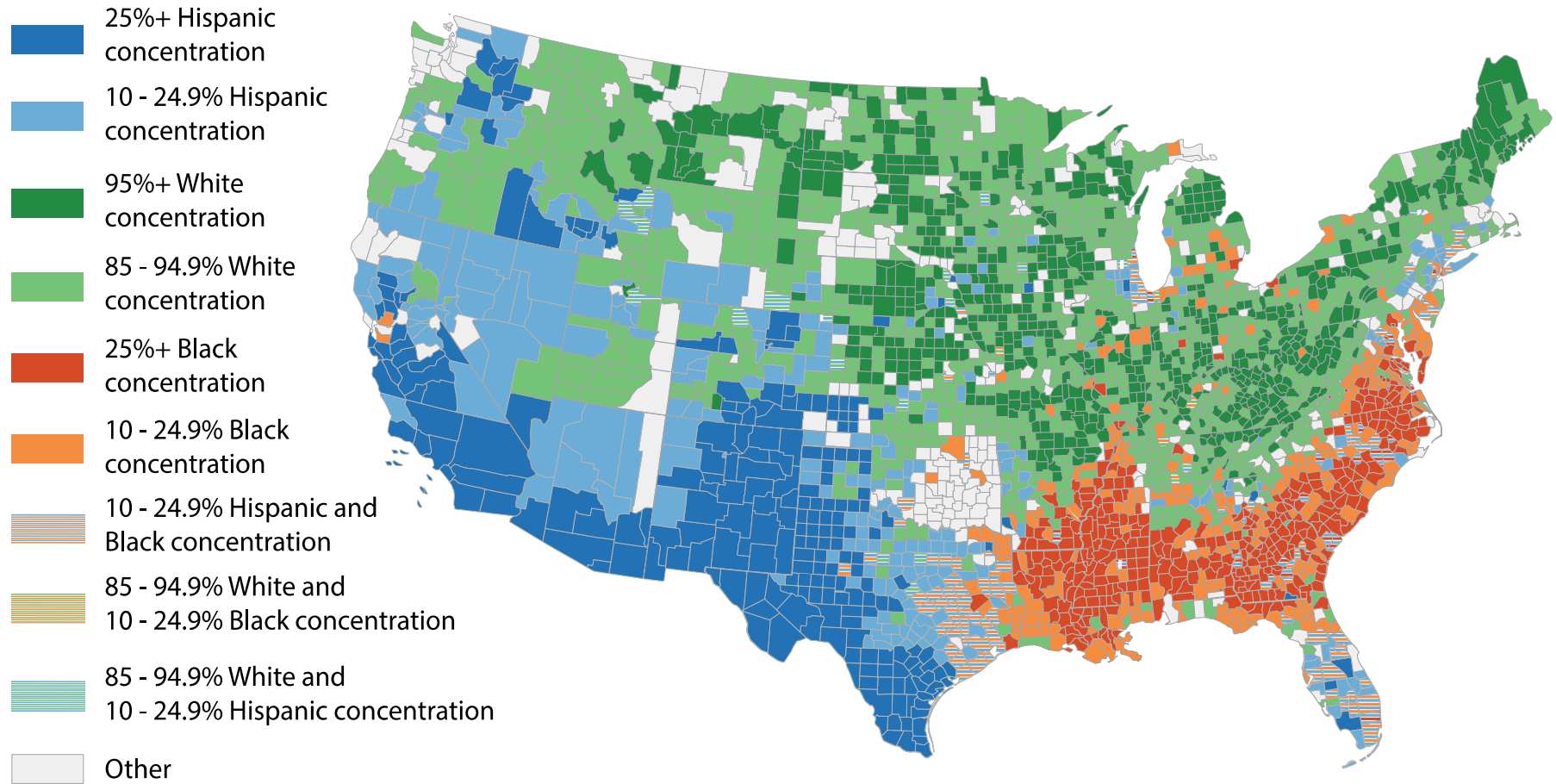## The elderly population of the U.S. will grow dramatically

Total U.S. population by ethnicity (2005 and 2050)

2005

1%
5%
13%
14%
67%

**Total U.S. population:
295 million**

2050

2%
9%
13%
29%
47%

**Total U.S. population:
438 million**

Hispanic
African-American
Asian
White
Other

By 2030:
Minority groups, especially Hispanics, will grow significantly

Population concentrations by ethnicity and county (2010)

Legend:

- 25%+ Hispanic concentration
- 10 - 24.9% Hispanic concentration
- 95%+ White concentration
- 85 - 94.9% White concentration
- 25%+ Black concentration
- 10 - 24.9% Black concentration
- 10 - 24.9% Hispanic and Black concentration
- 85 - 94.9% White and 10 - 24.9% Black concentration
- 85 - 94.9% White and 10 - 24.9% Hispanic concentration
- Other

By 2030:
Ethnic diversity will be more geographically stratified

Share of income of bottom 99% and top 1% by year (1970 - 2030)

Total income

Share of income earned by top 1%

Share of income earned by bottom 99%

91%
80%
60%
40%
20%
0%

0%
20%
39%

1970 1975 1980 1985 1990 1995 2000 2005 2010 2030
2012
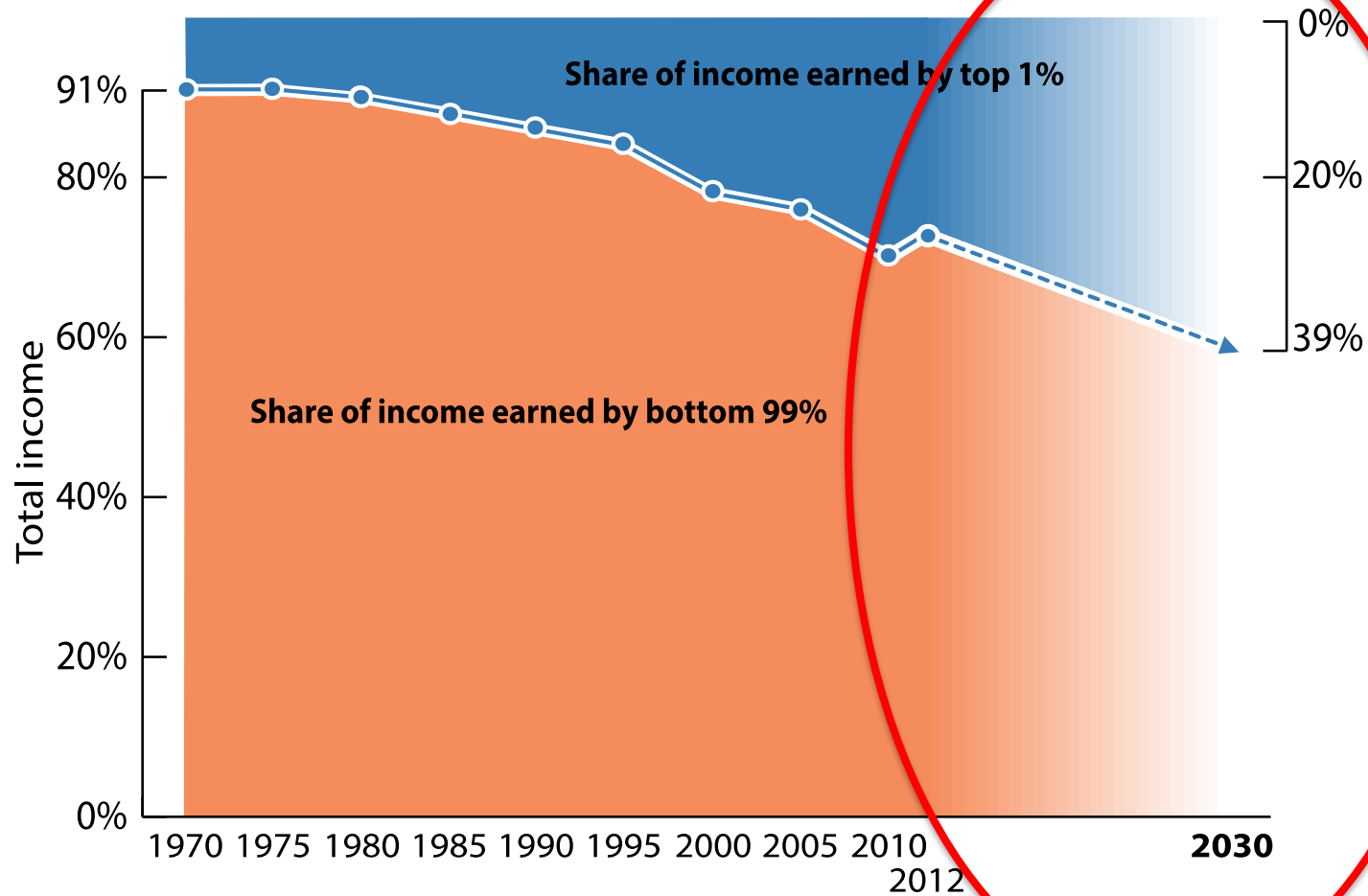
By 2030:
Socioeconomic disparities will increase

Source: **Center on Budget and Policy Priorities**

Impact of disparities on healthcare costs (2003 - 2006)

$1.23 trillion

Combined cost of disparities and premature death

$1.01 trillion

Indirect medical cost and premature death component

Indirect medical costs include:
- lost productivity
- lost wages
- absenteeism
- family leave
- lower quality of life

$229.4 billion

Direct medical cost component
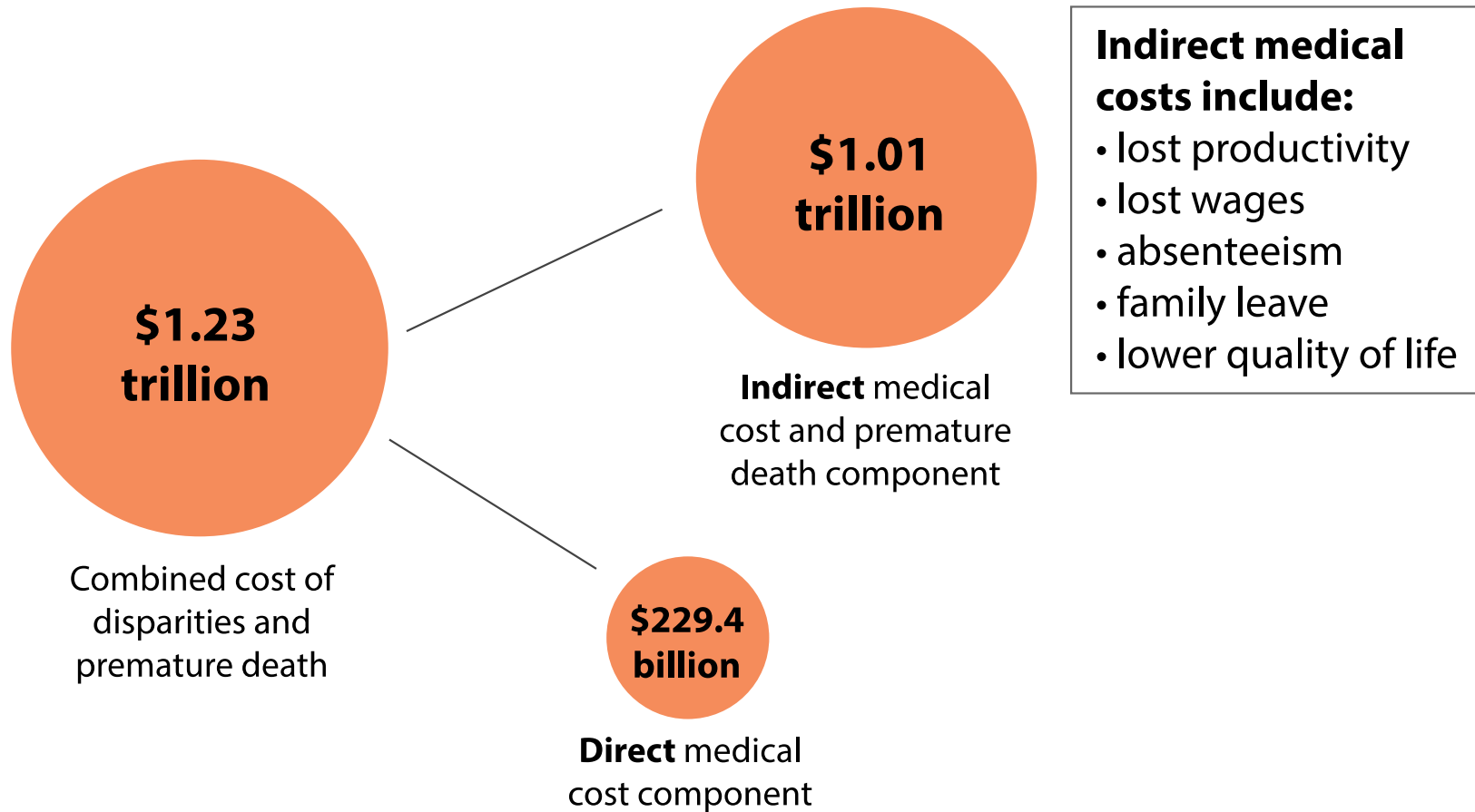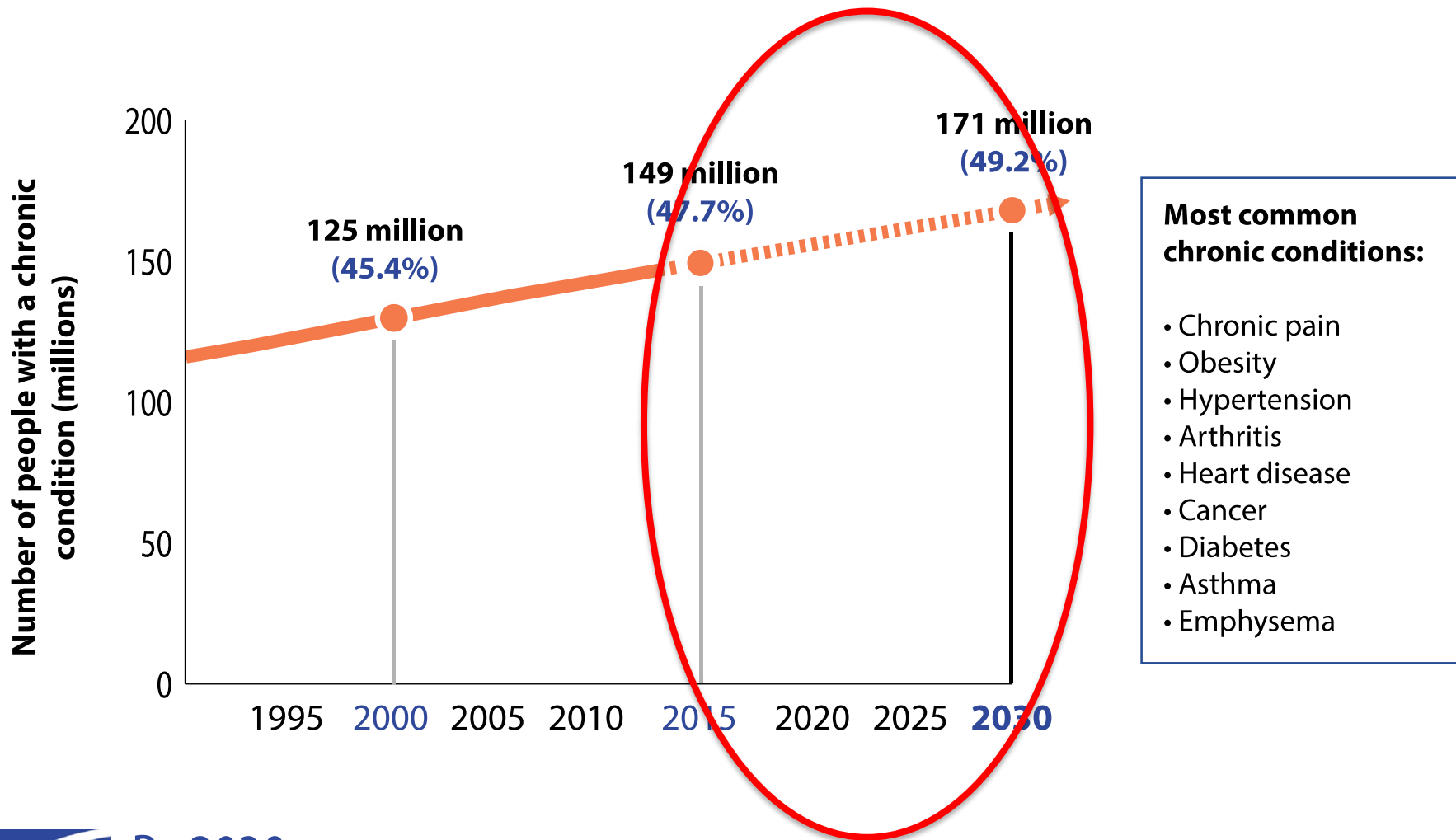
By 2030:
Addressing disparities can lead to lower healthcare costs

U.S. adult and childhood obesity rates (1970 - 2030)
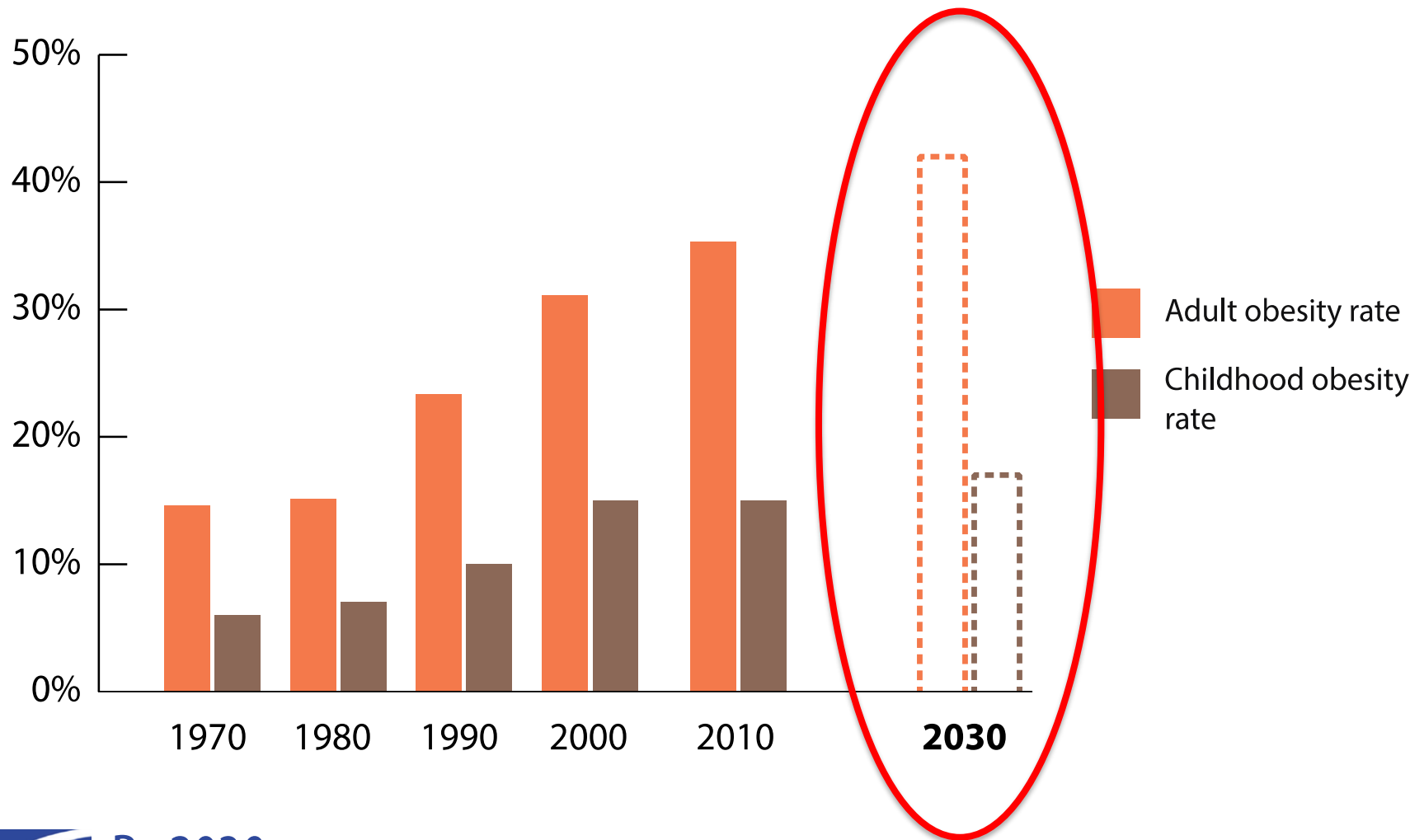
By 2030:
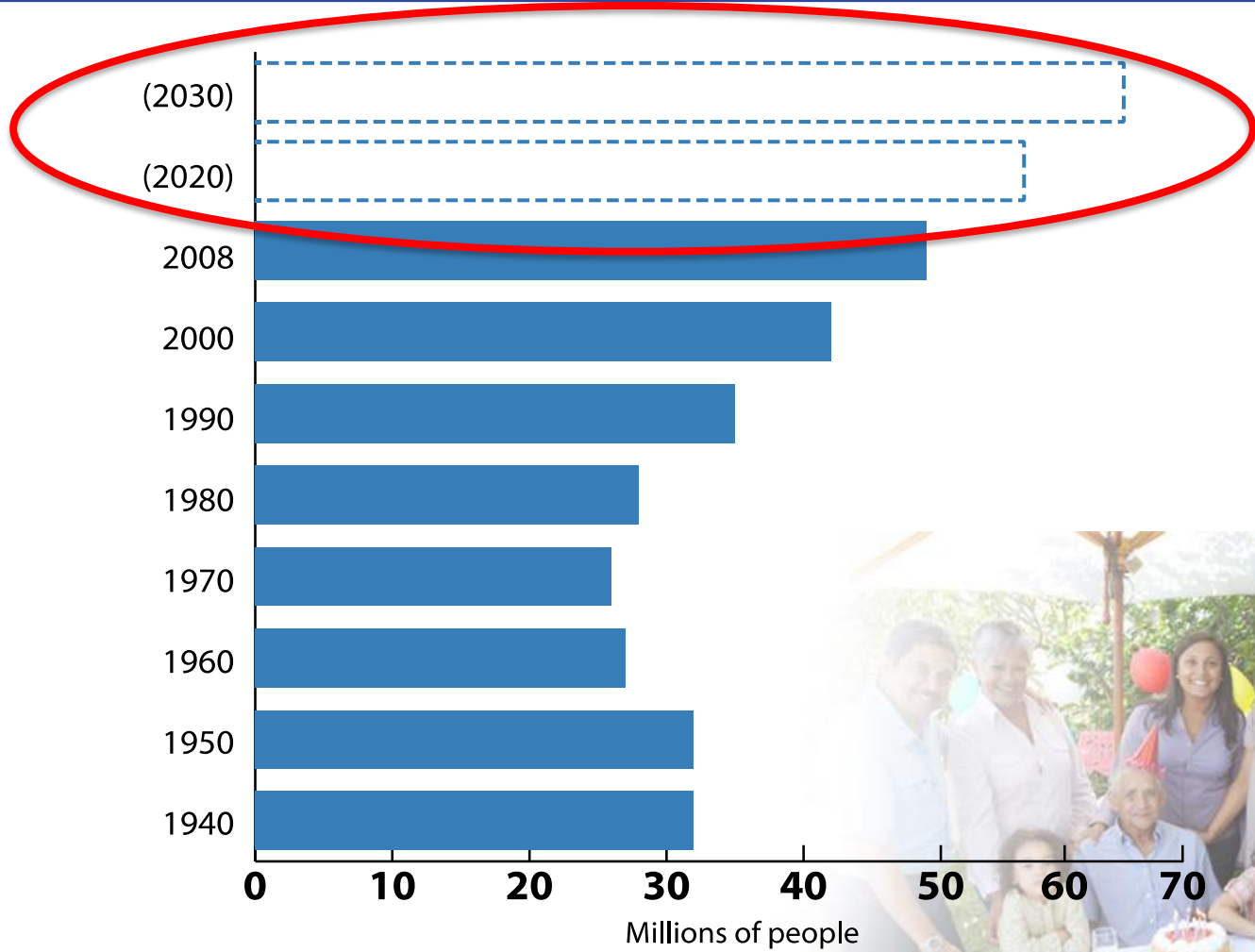**Obesity will affect more people and at younger ages**

U.S. population living in multi-generational households (1940 - 2008)

Millions of people

Source: **Pew Research Center**

By 2030:
More Americans will live in multi-generational households

Share of disabled households by age (2000 - 2030)

Bar chart data:

Year	Oldest member 65 - 84	Oldest member 85+
2000	30.8%	8.8%
2010	30.2%	11.6%
2020	35.4%	11.5%
2030	41.2%	13.2%
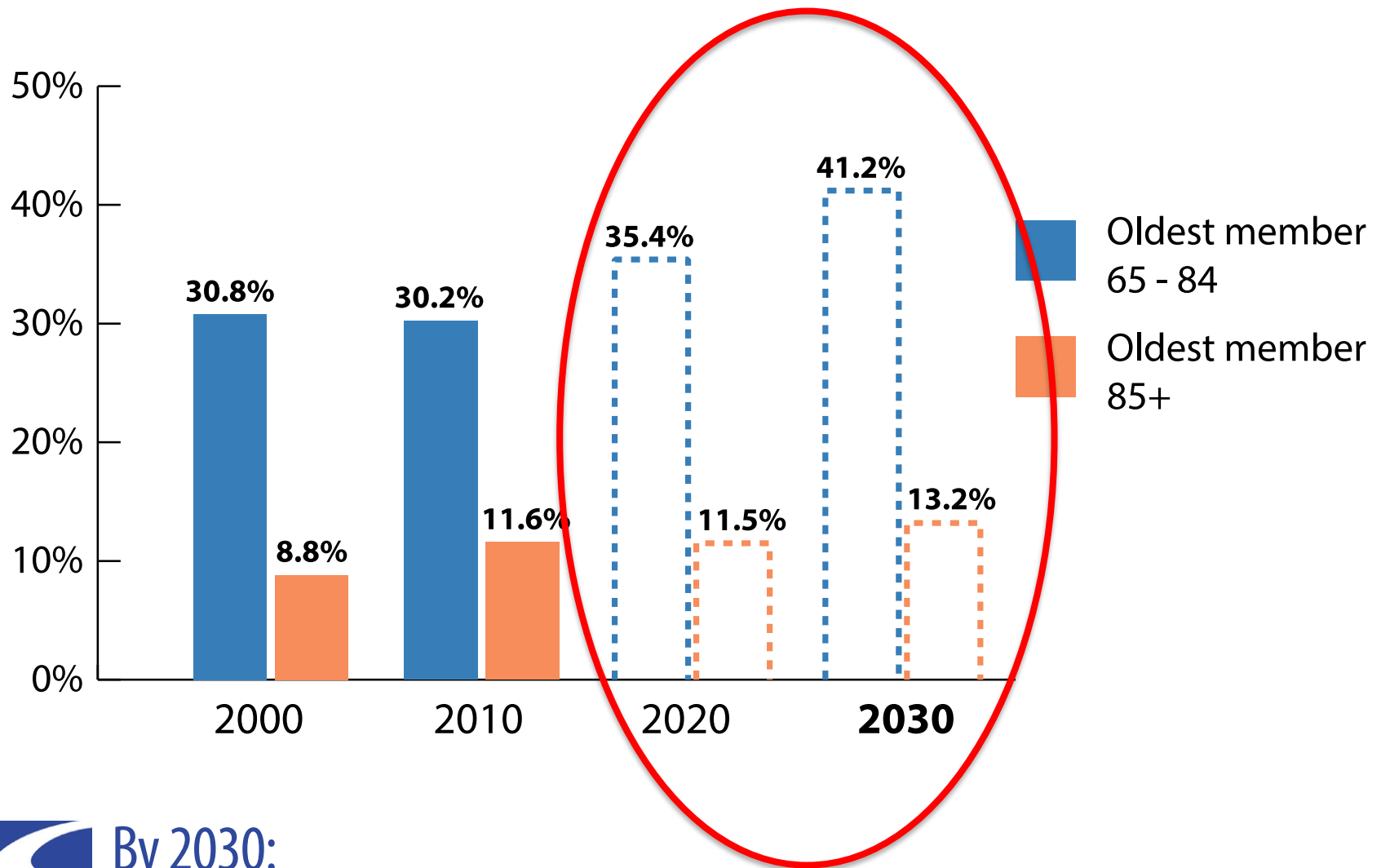
By 2030:

To age in place, older adults will require home modifications

U.S. labor force by age (1978 - 2018)

% of working population

100%

80%

60%

25 to 54

40%

55 and older

20%

16 to 24

0%
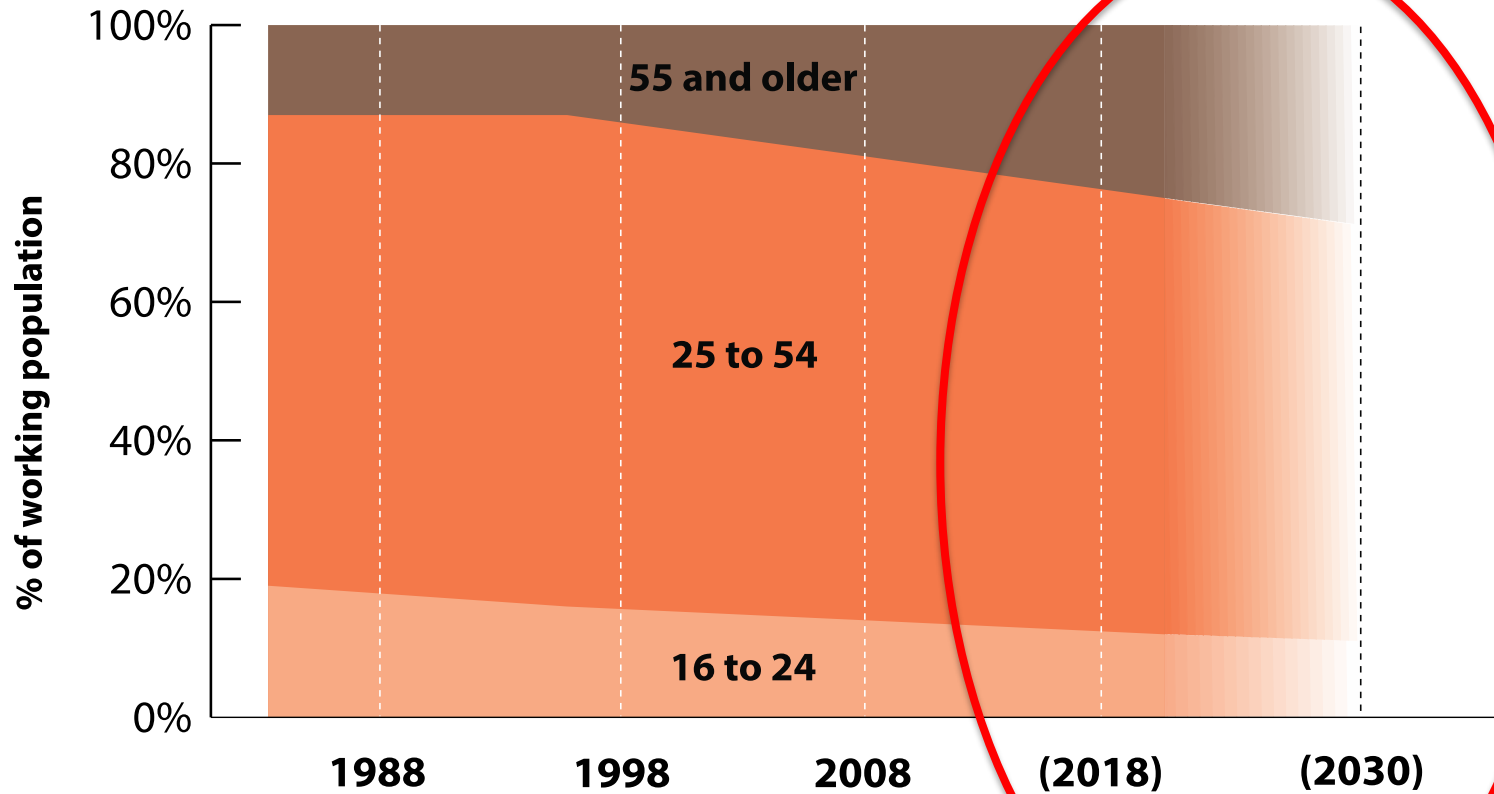
	1988	1998	2008	(2018)	(2030)
Projected average age of the U.S. labor force	**36**	**39**	**41**	**42**	**(45)**

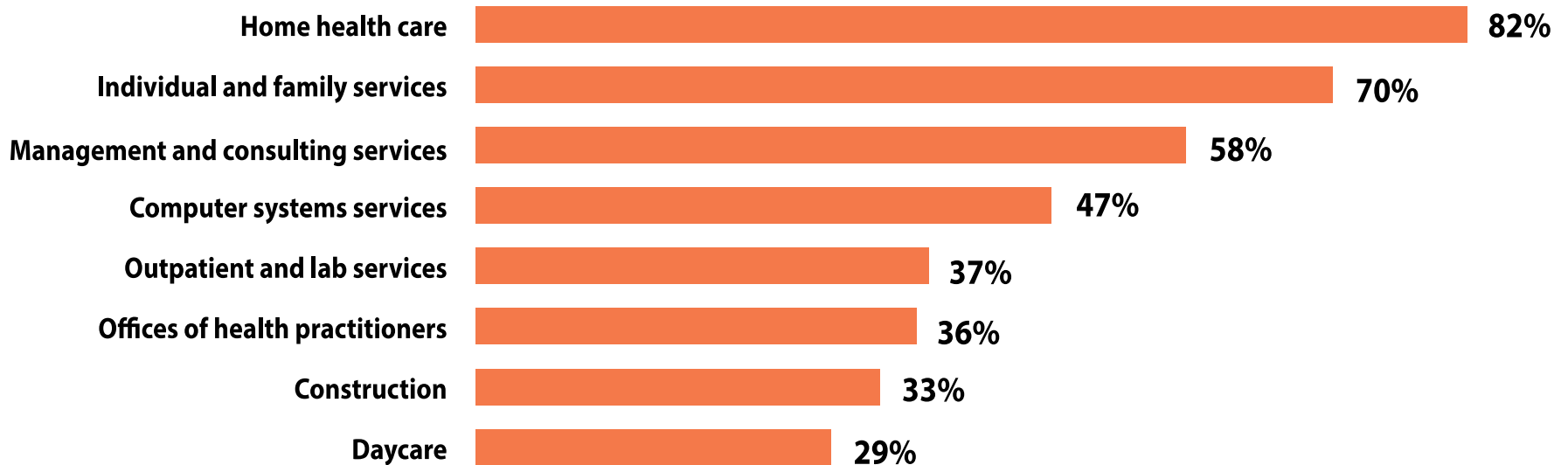## By 2030:
More Americans will work well past age 55

Industries that will experience the most growth (2010 - 2020)

Industry	Growth
Home health care	82%
Individual and family services	70%
Management and consulting services	58%
Computer systems services	47%
Outpatient and lab services	37%
Offices of health practitioners	36%
Construction	33%
Daycare	29%

By 2030:
Service industries will grow to meet an aging population

Issues to address on the path to 2030
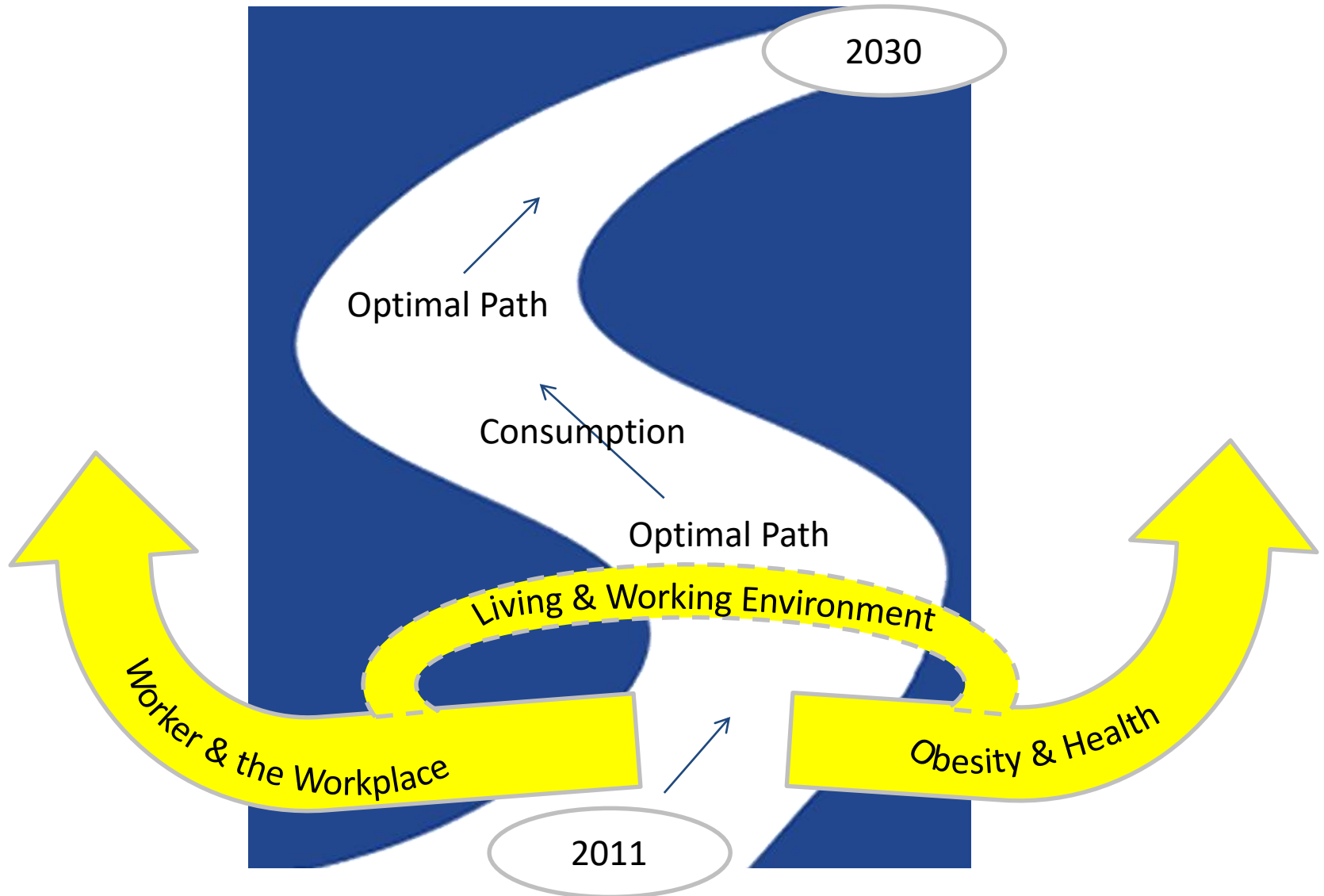
Planning for a New Age

These changes in population structure have significant implications for our society and the world in which we live.

Are we ready? No, not really.

Implications For Society 2030 – Consumption

- Population aging will alter consumption patterns, increasing the need/demand for universal design for goods and services.

- Racial and ethnic population shifts will require new marketing strategies for goods and services.

- Higher health care costs will mean lower income individuals must choose between healthcare services and other goods and services.

- Increased multigenerational households, caused in part by lower incomes, will consume fewer and less expensive durable and household goods, and need to reduce living costs.

Implications For Society 2030 – Workforce

• New age structures will require rethinking how people work, how long they work, work place accommodations & career (re)training.

•Chronic illnesses & disabilities (e.g. from > obesity) unchecked will mean greater employer/employee costs and loss of productivity.

•Changing contractual obligations for pensions and healthcare, plus continued pressure for lower production costs will further acerbate the levels of full-time employment

•Shifting from manufacturing goods to a service based economy will result in need for (re)training in secondary careers.

Society 2030 Consortium: Unique Model

A cooperative arrangement that teams academics with corporate partners.

A Proactive Plan:

To move through multiple stages from identifying a future society that will most effectively meet the needs of our changing society;

To identifying the ways to meet those needs from productive or plan identification to development and testing.

Draws from unique strengths and resources at the University of Michigan and our corporate partners.

Why Academic/Corporate Partnerships?

Academic scholars/researchers

&

Industry/corporations

Traditionally have different strengths, emphasis, goals and objectives

Illustrative Examples:
Academics and Transportation

- Academics from a wide range of disciplines study specific aspects of the life course experience:

  Individual lifespan development

  Biochemical changes over the lifespan

  Physical and mental health

  The family

  The physical environment

  Age related adaptations and assistive devices

Illustrative Examples:
Corporate Products and Transportation

Corporations provide targeted products and services:

- Leisure and recreational equipment

- Mobility adaptation devices

- Enhanced safety devices

- Urban/Rural adaptations

Academics and Corporations rarely focus on overall needs or attempt to proactively shape our society

And

That is exactly what is needed to meet the needs of the drastically changed

Society of 2030

Society 2030 Consortium: Objectives

- A consortium of the corporate world and the academic world to proactively shape our changing society.

- Begin with sharing cutting edge research and information by world renown experts

- Together predict the needs for the aging society

- Convene corporate and academic consortium members to design a future society and develop a roadmap that will meet the changing needs of its members.

Society 2030 Consortium: Objectives

- Identify what change or new developments are needed
  - ➢ What new knowledge might be necessary
  - ➢Develop mutually beneficial research as a team

- Envision product development based research predicated on the previous fact finding and knowledge development.

- Achieved through interdisciplinary teams that will pair academic researchers with corporate development researchers and planners.

Society 2030
Challenges and Issues

Introductory Session

- Bringing the Cohorts Alive – psychology

- Multi-Disciplinary Design – engineering

- Maintaining Independence while Aging – medicine

- Health, Morbidity, and Bioengineering – engineering/medical team

- Fiscal and Financial Challenges - economics

Society 2030
Challenges and Issues - continued

- Aging in America in the 21st Century - demography
  - Demographics: Implications for Technology and Design - industry perspective

- Cognitive Enhancement – cognitive neuroscience
  - Design Assumptions 2030 - industry perspective

- Consumption – organizational psychology

Society 2030: Recommendations

Aging in America in the 21st Century

- Include all generations, all cohorts

- Research across age groups

- Changes in life expectancy around the world

- In U.S. cohort aged 55 to 64 less healthy than previous generation

Cognitive Enhancement

- Without intervention, a decline in life expectancy is projected to be manifested first among vulnerable groups

- Intervention effectiveness documented

- Potential mechanisms of intervention

Society 2030: Recommendations

Principles of the Future Design 2030

- Cohorts in 2030 will be more technologically savvy

- Consumers will have access to much more information

- Universal and personal design opportunities

- Functional limitations will require personalized design

The Ecology of Consumption

- Changing capacity for handling products

- Social Isolation → problem behaviors e.g. compulsive hoarding, unhealthy life styles

- Housing and transportation needs to address issues of social isolation, unhealthy life styles

Society 2030: Health Challenges and Issues

- Getting Heavier, Younger: pediatrics

- Health Trends in Mid-Life: sociology

Society 2030: Health Challenges and Issues

Getting Heavier Younger

• Childhood obesity on the rise

• Gen Y - 2 to 3 times more obesity compared to Baby Boomers at same age

• Diabetes developing at younger ages due to rise in obesity

• Workforce of 2030 functionally impaired earlier in life

• Two potential pathways for action:

  1) Adapt - create enabling technologies

  2) Shape the future - create technology to avoid future problems

Society 2030: Health Challenges and Issues

Health Trends in Mid-Life

- Today people kept alive longer, but in an unhealthy state

- Health in mid-life (older adults of 2030) worsening

- What is going to happen in 2030?

  -Baby Boomers - more educated, smoke less, more accepting of technology

  -Due to health disparities and obesity could be worse off health-wise

- Healthy aging combination of accommodation and prevention

Society 2030: Health Recommendations

- Product innovation in healthcare to address obesity (i.e., colonoscopy and wound care)

- exercise trail at the workplace and educating workforce on home safety issues

Society 2030: Culture Challenges and Issues

Exploring the Culture and Values of Society 2030

The Predictors/Drivers and Rise of Worldwide Population
-       economics
The Geography of Thought: Implications for Values –
        psychology

        Relevance to Smart Cities

Society 2030: Possible Solutions

- Industry Perspectives/Market Illustrations
  - Dove – reinventing attitudes on aging and beauty
  - LG - diabetes handset
  - age training mannequin
  - wearable power assist suit for healthcare workers
  - anti-obesity gum
  - elective surgeries earlier in life

- Generational perspectives on products and employment:
  - Baby Boomers: big houses and cars; employed for life
  - Gen X: less materialistic; workforce tensions waiting for retirement of previous generation
  - Gen Y: desire products for digital lifestyle; employed for now not lifetime

Planning for a New Age: Society 2030
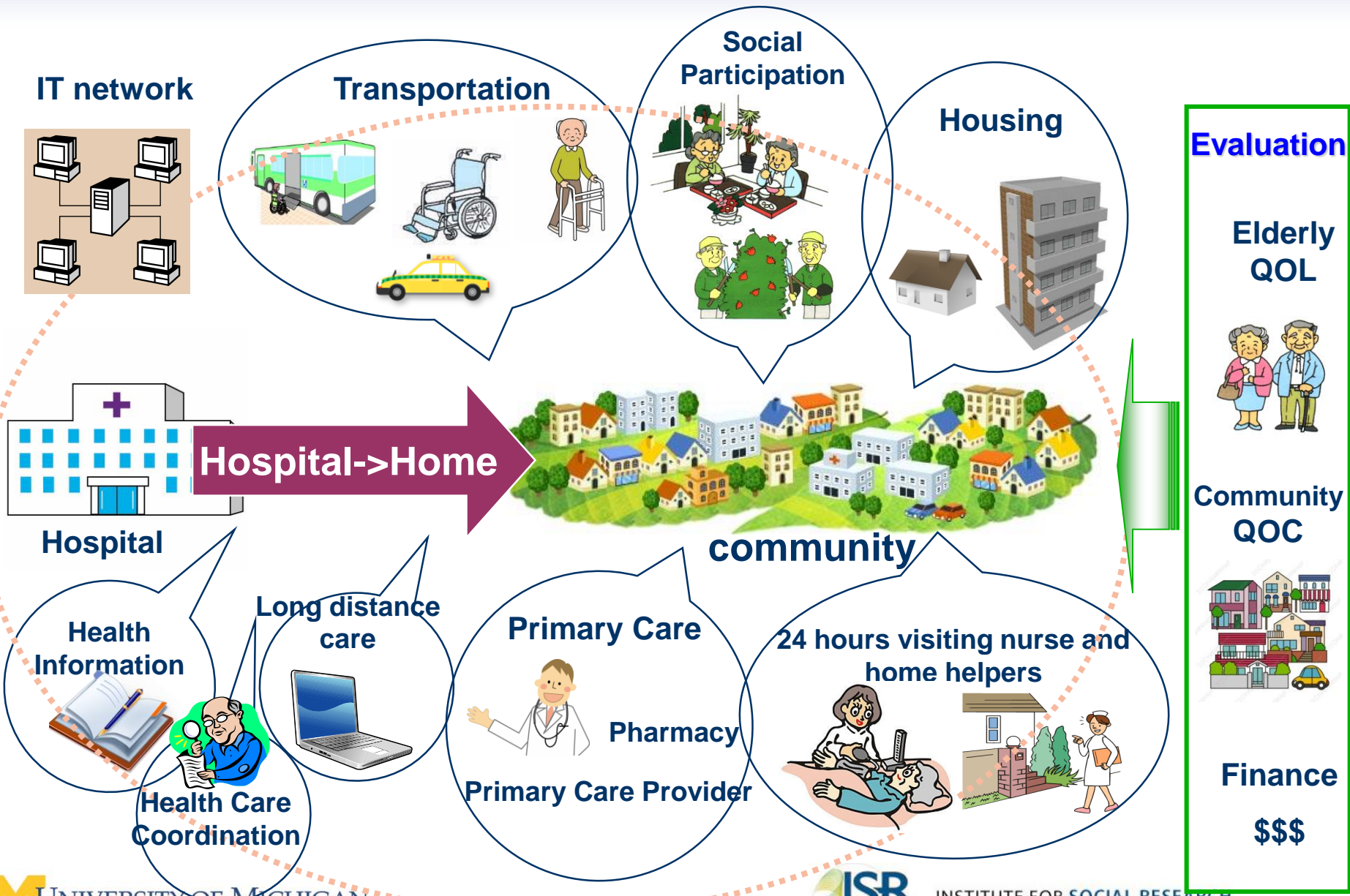
Facing Future Complex Problems

Partnerships:

Interdisciplinary academic teams

Basic and Applied Research

Academic/Corporate/Governments

Redesigning Communities into Smart Cities: A Sample Case

Thank You