

Guiding Cancer Control: A Path to Transformation
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The Rationale for a Life Course Approach to Cancer Control

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Disclaimer/disclosure

I have no conflicts to disclose

The content of this presentation reflects several decades of personal experience as a clinical oncologist and cancer control researcher, and as such the information is both experiential and data-based.

Overview

- Social Determinants of Health
- Vulnerable Time Points Across the Life Course
- Risk Factors for Cancer
- Prevention of Cancer
- Conclusions

Social Determinants of Health

Beyond genetics—you cannot pick your parents!

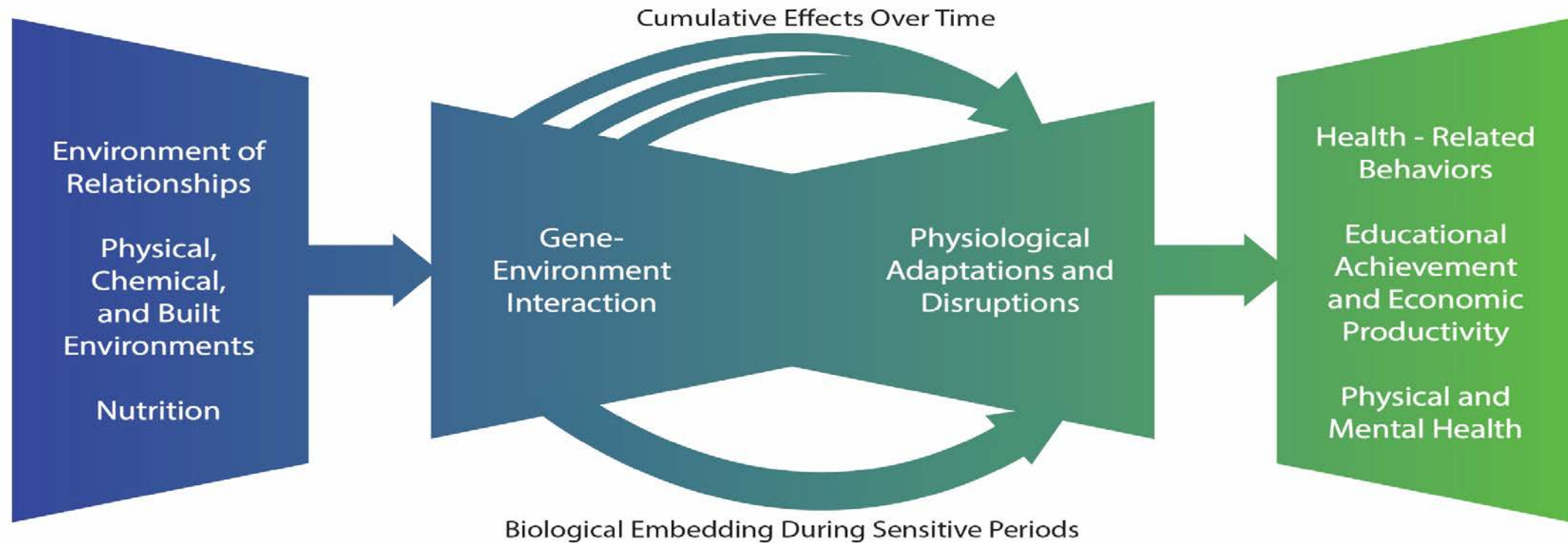
However, the environment provided by parents/family/community plays strong role in subsequent health outcomes after childhood

Pre-natal and pre-conception considerations

A BIODEVELOPMENTAL FRAMEWORK

Foundations of Healthy Development
and Sources of Early Adversity

Lifelong Outcomes



Adapted from Shonkoff, 2010

Social Determinants of Health

Factors that are important

- Poverty/deprivation—Is there enough to eat? Is there shelter? Is the environment safe?
- Is there safe water and protection from infections?
- Is there neglect and lack of affection?
- Is there social isolation and lack of communication with adults and peers?
- Is there early life trauma?
 - Chaotic households
 - Substance abuse in the environment
 - Physical abuse observed or received
 - Sexual abuse

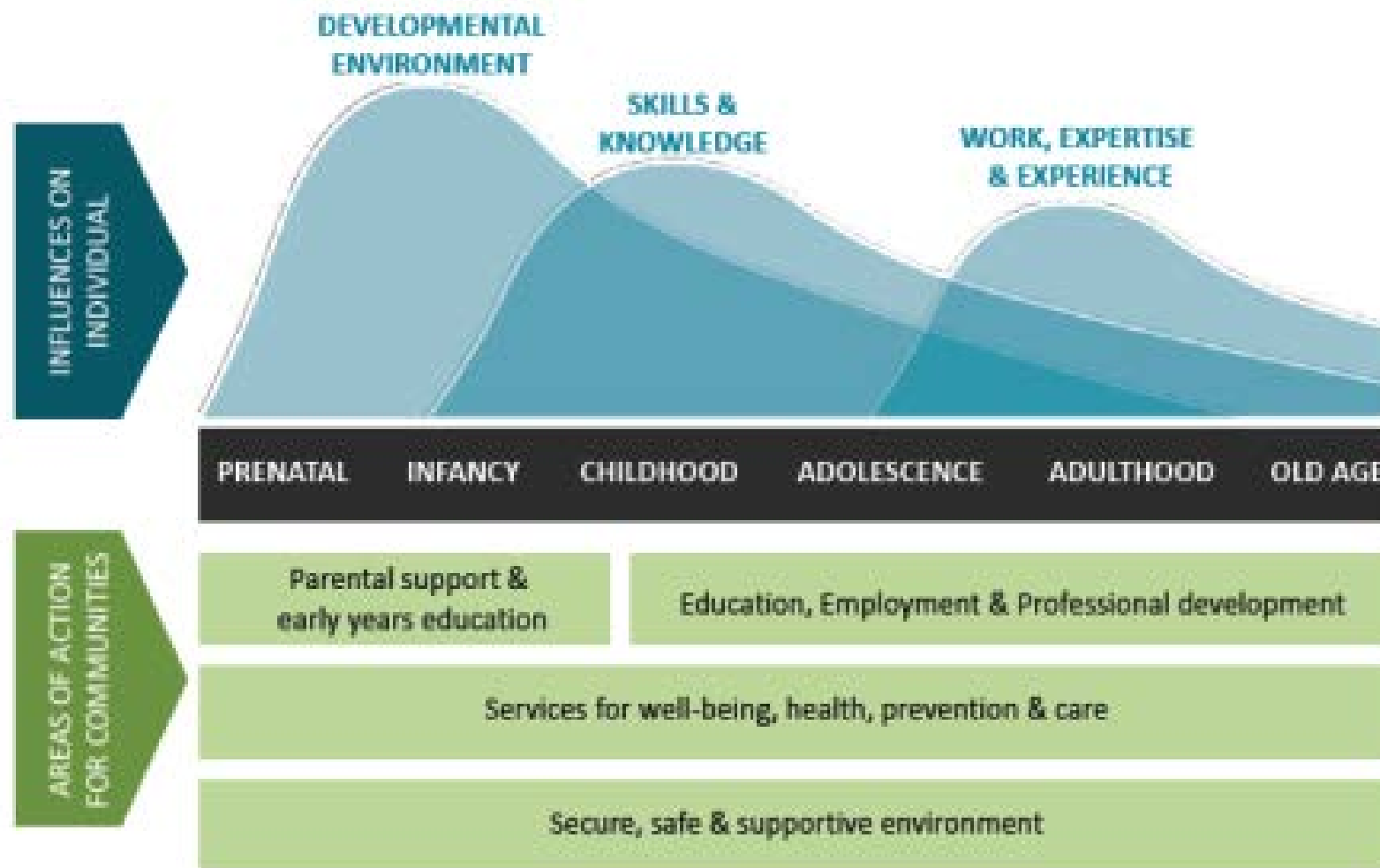
Social Determinants of Health

Factors that are important

- RESILIENCE***

 - Poverty/deprivation—Is there enough to eat? Is there shelter? Is the environment safe?
 - Is there family violence?
 - Is there parental mental illness?
 - Is there parental substance abuse?
 - Is there peer violence?
 - Is there peer substance abuse?
 - Chaotic home environment
 - Substandard housing
 - Physical abuse observed or received
 - Sexual abuse
 - Warm, supportive relationships
 - Supportive school environment
 - Supportive community
 - Supportive religious/spiritual community
 - Supportive family
 - Supportive friends
 - Supportive neighbors
 - Supportive teachers
 - Supportive coaches
 - Supportive mentors
 - Supportive role models
 - Supportive adults
 - Supportive peers
 - Supportive family
 - Supportive friends
 - Supportive neighbors
 - Supportive teachers
 - Supportive coaches
 - Supportive mentors
 - Supportive role models
 - Supportive adults

RESILIENCE



"Influences and actions along the life course"; model inspired by Fair Society, Healthy Lives

Chief Medical Officer's Report, United Kingdom, 2011

Vulnerable Time Points Across the Life Course

Early childhood—0-12 years

Teenage Years—13-18 years

Late adolescence and early adult —19-25 years

Young adults—26-39 years

Middle age—40-60 years

Old age – 61-75 years

Older age – 76-85 years

Oldest Old—86+

What factors lead to vulnerability?

- Dependence on others for social support and basic care needs— *childhood, oldest old*
- Challenges to cognition and rational decision-making— *teenage years, late adolescence, older and oldest adults*
- Developing, but incomplete emotional, social, and financial independence – *late adolescence and early adult*
- Delayed maturation into adulthood— *young adults*
- Physical and mental decline in health; “frailty”—*old, older, and oldest*

Risk Factors for Cancer: Genetics

In general not modifiable, but potentially identifiable

Who is most at risk? From childhood to middle age

Knowledge of family history is very helpful

Even among childhood cancer patients, there is substantial representation of germline mutations associated with adult cancers

Importance of testing with new panels, even if earlier tests were not informative

Important to test cancer survivors, especially to detect or prevent new cancers

Risk Factors for Cancer: Behavioral

Risky habits and exposures : tobacco, alcohol, drugs, infections

- Adolescents and young adults most at risk due to experimentation and psychological vulnerabilities during this period of maturation
- Early sexual debut and injection drug use leading to infectious exposures

Lifestyle factors : diet quality & quantity, physical activity, energy balance, “healthy microbiome,” adequate sleep

- Critical concerns related to childhood obesity
- Sedentary behavior—a challenge across all age groups
- Weight gain across the lifespan
- Insomnia as a risk factor for weight gain, systemic inflammation

Risk Factors for Cancer: Social

Social Isolation

- Important in all age groups, especially for mental health and prevention of risky behaviors
- Family and peer support can reduce behavioral risks and enhance mental health

Social Networks

- May promote risky behaviors and be unsupportive of positive lifestyle activity
- Social norms may not promote healthy behaviors—especially important in teens and young adults

Risk Factors for Cancer: Environmental

The environment may not be safe —dangerous settings where physical activity is hindered— *all age groups*

Food deserts

The built environment does not foster regular physical activity

Carcinogens in the environment, e.g. radon, arsenic and others

Second-hand smoke

Radiation, UV, and some cancer therapies

Prevention of Cancer: Personal

Promoting and adopting a healthy lifestyle from early childhood through young adulthood and middle age

- Avoiding obesity and maintaining regular physical activity
- Avoiding tobacco, and use of alcohol in moderation if at all

Participation in preventive health behaviors and health care

- Immunizations
- Sun avoidance
- Cancer screening/early detection

Prevention of Cancer: Family/Peers/Schools

Role models for preventive behaviors, especially related to lifestyle factors

Critical role of normative behaviors, especially from peers

Prevention of Cancer: Health Care Settings

Focus on **age and gender relevant cancer prevention and early detection** strategies

- A major focus in pediatric, teen and young adult health care
- Should include counseling related to behaviors: tobacco, alcohol, sun, and sex
- Screening and early detection in adults at high risk for cancers, focused on increased risk with age or genetic predisposition

Prevention of Cancer: **Government Policy**

Major impact of **tobacco control policies**: tobacco tax, regulation of smoking indoors and in public spaces, banning advertising and sales to minors

Radiation safety in health care settings

Legislation requiring health insurance coverage for **cancer screening** tests (e.g. Medicare, Medicaid; followed more generally)

Protection against **genetic discrimination**

Conclusions: Challenges We Face

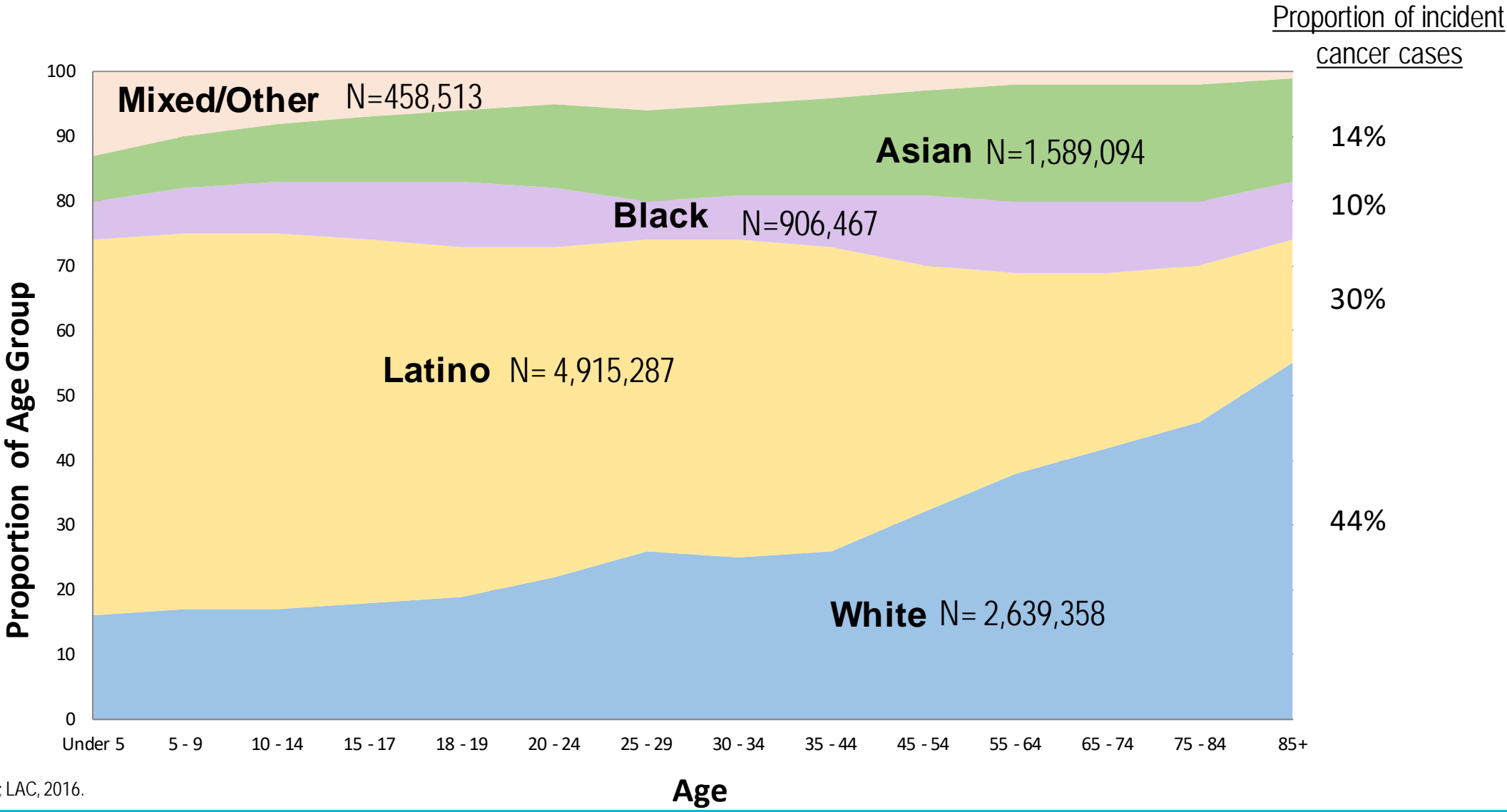
Dramatic demographic changes will influence the pattern of cancers and will challenge cancer control

- Aging of the population
- Increasing racial/ethnic diversity
- New types of cancer-e.g. HPV associated oropharyngeal cancer
- Rising incidence of cancers in young adults
- Obesity epidemic

The absolute number of incident cancer cases is expected to rise

There are no coordinated strategies to address these changes and their implications

Ethnic Composition by Age Group in Los Angeles County



U.S. Census Bureau, 2018; LAC, 2016.

Concluding Thoughts

A strong societal commitment will be necessary to reduce the incidence of cancer, even though we are making great progress in the treatment and cure of many cancers.

Question: Will a commitment to development of a cancer control system and a life course perspective turn the tide?