

Structural Trauma and Toxic Stress: Lifecourse Roots of Health Inequities

CCLHO/HOAC Semi-annual Meeting, Claremont, CA



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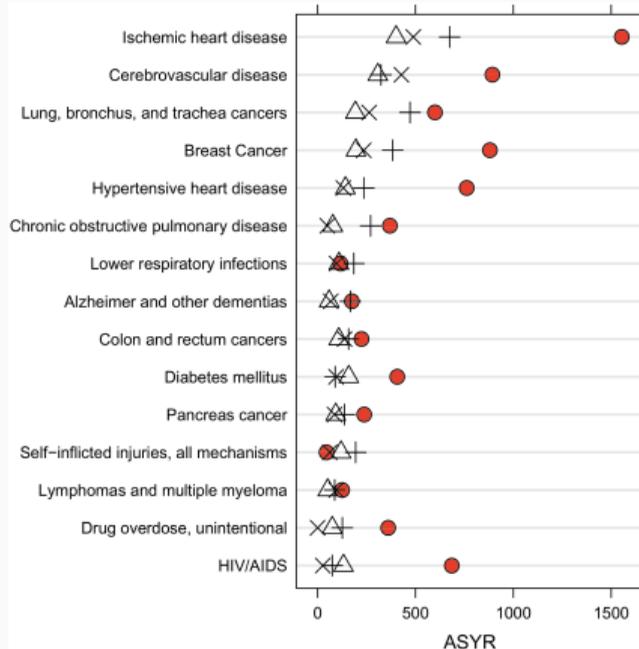
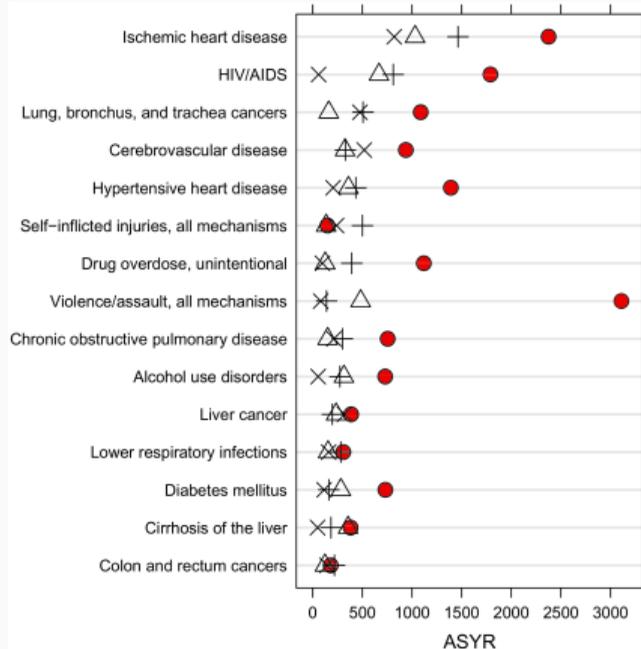
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1. How do we explain racial/ethnic health inequities?
2. San Francisco Community Health Needs Assessment, 2016
3. Structural trauma and toxic stress—The lifecourse roots of health inequities

1. How do we explain racial/ethnic health inequities?

Causes of premature deaths in men and women, San Francisco, 2003–2004

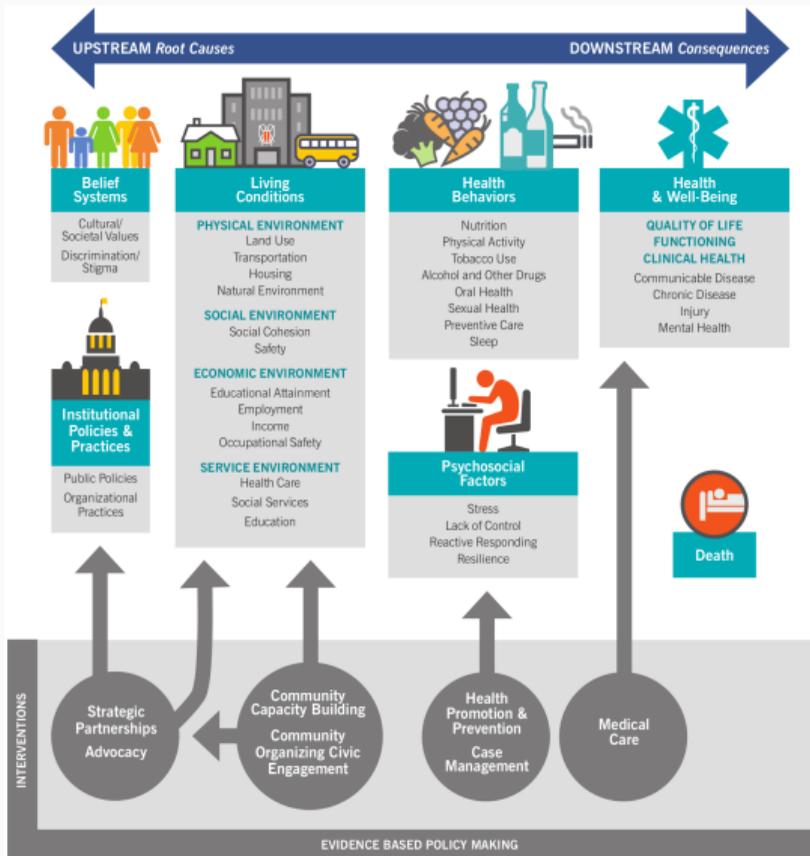
How do we explain racial/ethnic health inequities and resilience?



Age-adjusted Expected Years of Life Lost (eYLL): Male (left), Female (right); ○ Black (colored red), △ Latino, × Asian/PI, + White; Source: Aragón TJ, et al. PubMed ID: 18402698

2. San Francisco Community Health Needs Assessment, 2016

San Francisco Framework for Assessing Population Health and Equity



Health

is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO 1946).

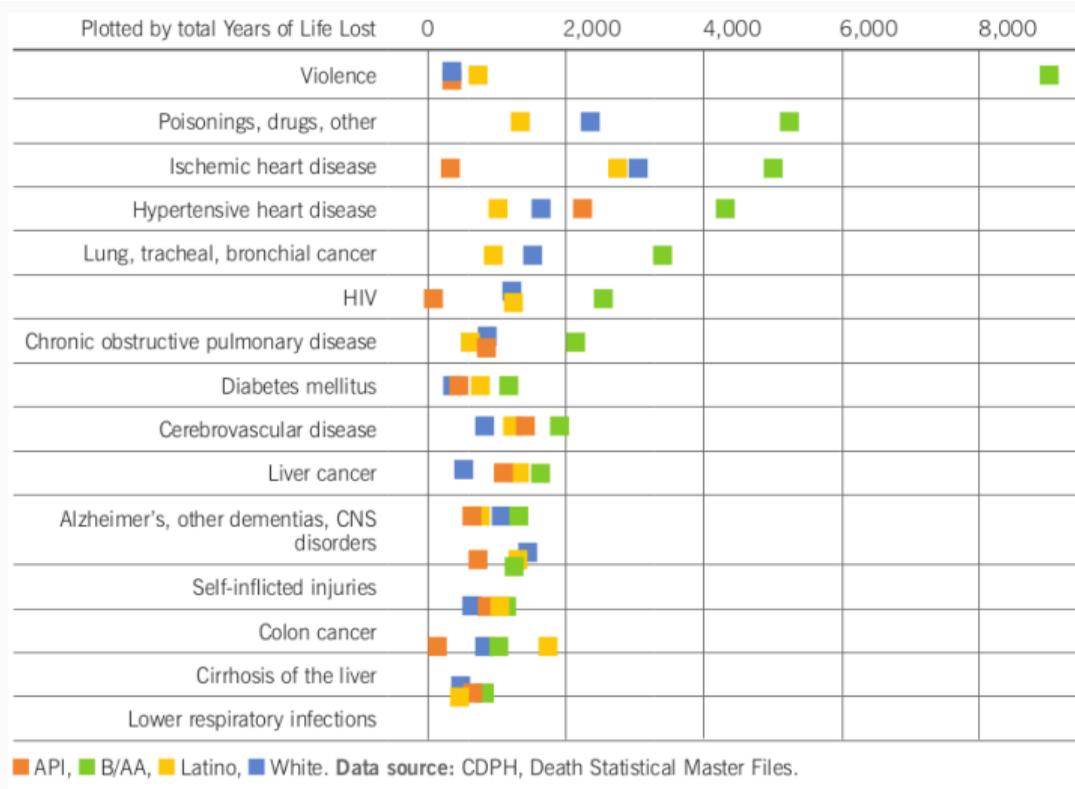
Public Health

is what we, as a society, do collectively to assure the conditions in which people can be healthy (IOM 1988).

Population Health

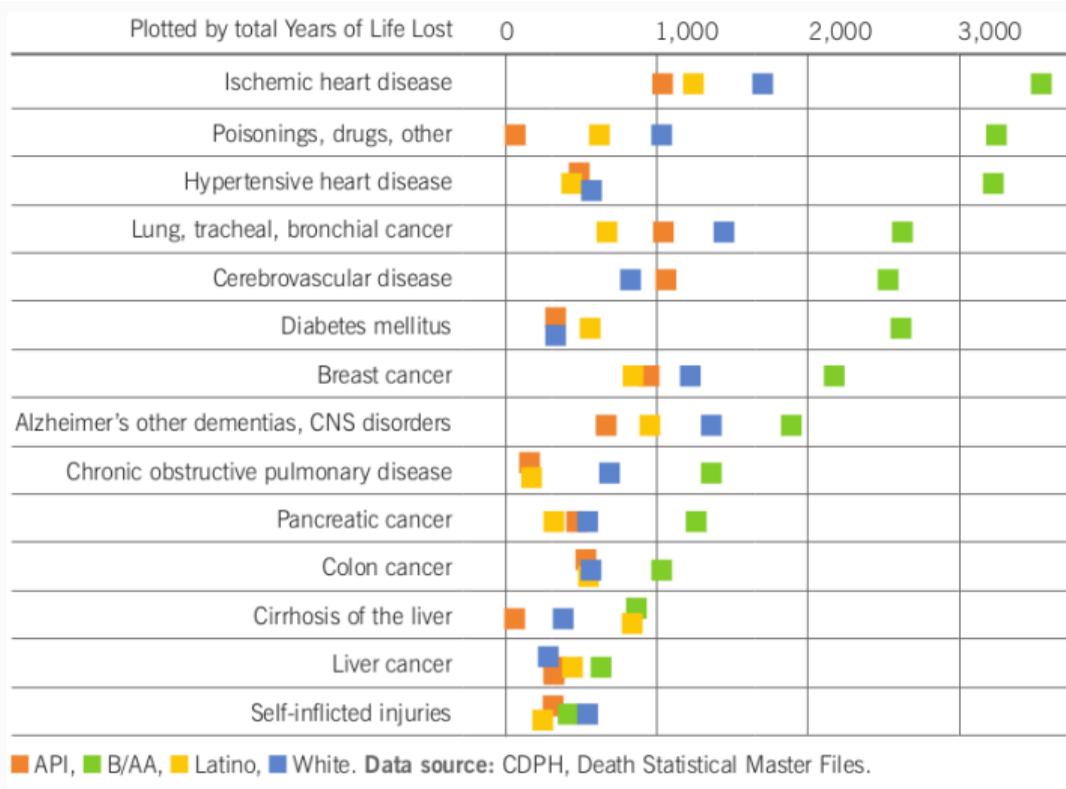
is a systems framework for studying and improving the health of populations through collective action and learning (Source: <http://phds.io>).

Leading causes of premature deaths, Males, San Francisco, 2010–2013



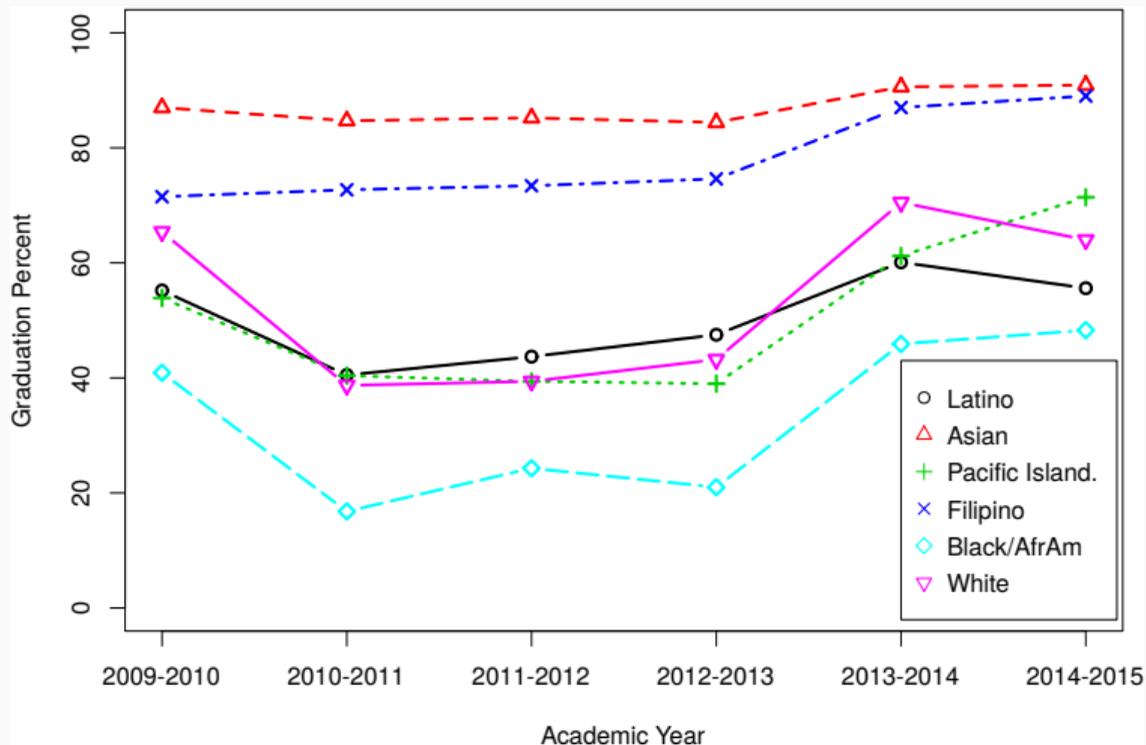
Source: San Francisco Community Health Needs Assessment (<http://sfhip.org>)

Leading causes of premature deaths, Females, San Francisco, 2010–2013



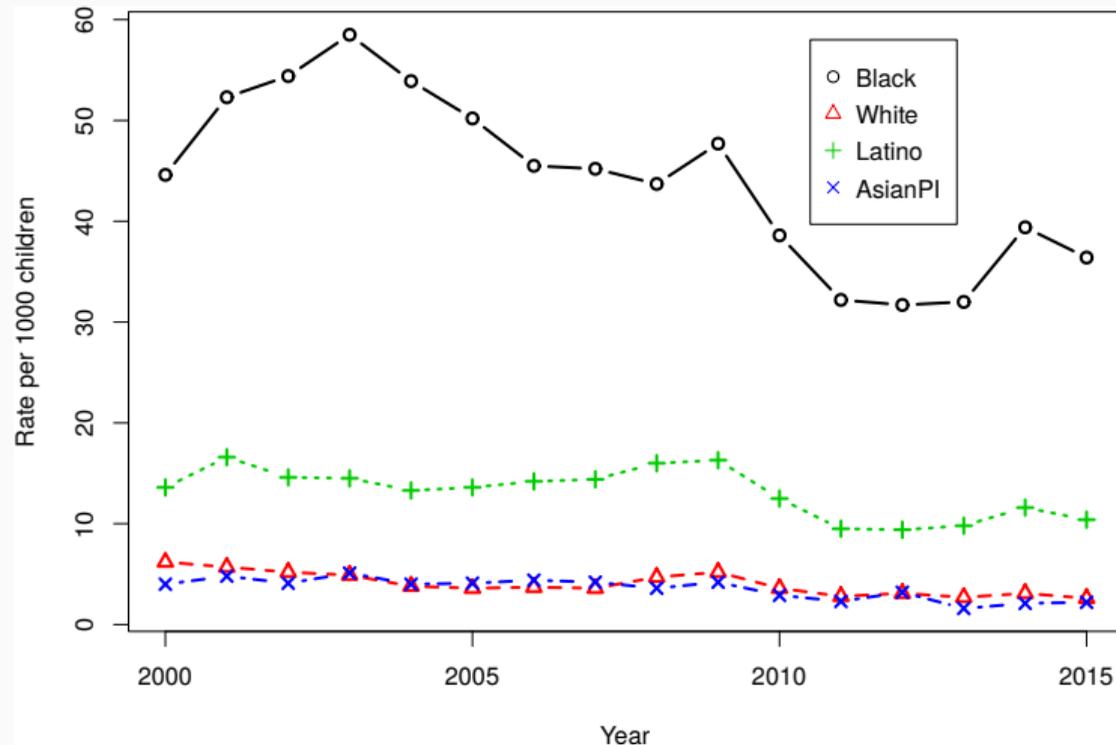
Source: San Francisco Community Health Needs Assessment (<http://sfhip.org>)

San Francisco Unified School District, Annual high school graduation, 2009–2010 to 2014–2015



Source: California Department of Education, Data Quest <http://dq.cde.ca.gov/dataquest/>

Children (ages 0–17 years) with Child Maltreatment Substantiations, San Francisco, Incidence per 1,000 children



San Franciscans do not have equal opportunity for good health

Unevenly distributed obstacles to health (left); Health inequities (right)

Unevenly distributed obstacles to health		
Variable	White	B/AA
No prenatal care in first trimester ⁶	5%	36%
Children 0-18 living in poverty* ⁷	2%	48%
Not exclusively breastfed in first weeks ⁸	9%	33%
Child neglect or abuse, age 0-18 ⁸	3/1,000	36/1,000
Not proficient on English language standardized test in 3rd grade ⁹	19%	76%
Did not meet 5th grade Fitness standards ¹⁰	26%	48%
Did not graduate from high school ¹¹	16%	63%
Unemployed ¹²	4%	18%
Arrests ¹³	45%	40%
Homelessness ¹⁴	39%	36%

*poverty = household income <100% FPL

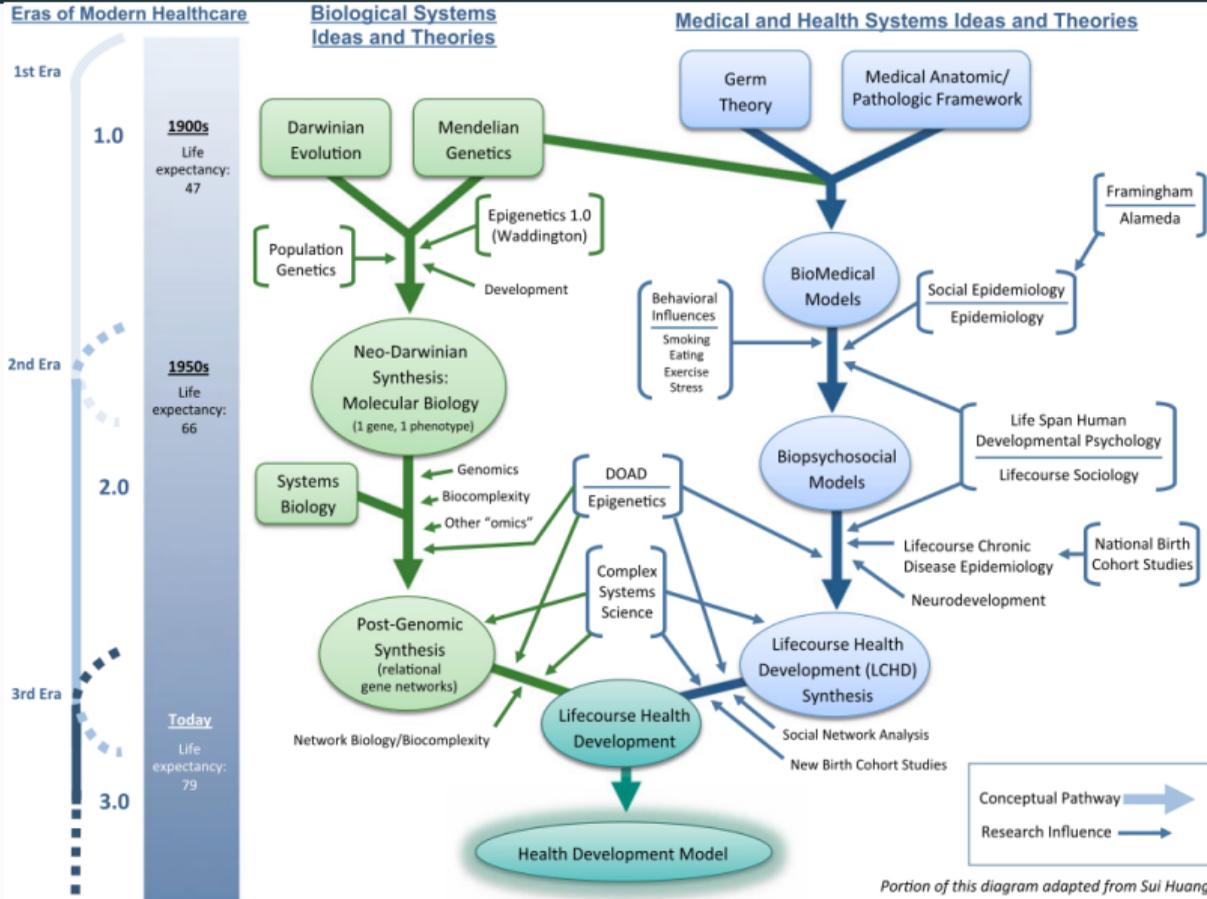
Health inequities		
Variable	White	B/AA
Unintended pregnancy ⁵	18%	69%
Born Preterm ¹⁵	7%	16%
Asthma hospitalizations at ages 0-4 ¹⁶	11/10,000	72/10,000
Experienced cavities by kindergarten ¹⁷	17%	40%
Overweight or obese by 5th grade ¹⁸	23%	50%
Overweight/obese as an adult ¹⁹	33%	60%
Emergency room visits due to assault ²⁰	39/10,000	241/10,000
Diabetes hospitalization ¹⁶	6/10,000	40/10,000
Disability ¹⁹	26%	41%
Major depression hospitalization ¹⁶	9/10,000	14/10,000
Have high blood pressure ¹⁹	18%	47%
Invasive Cancer ²¹	451/100,000	571/100,000
Tuberculosis ²²	3/100,000	22/100,000
Years of life expectancy ²³	81	71

3. Structural trauma and toxic stress—The lifecourse roots of health inequities

The lifecourse, two-generation roots of health and well-being, 2004–2016



Lifecourse Health Development (LCHD) model—The framework of the future



Source: Halfon N, Larson K, Lu M, Tullis E, Russ S. Lifecourse health development: past, present and future. *Matern Child Health J.* 2014;18(2):344-65. PubMed PMID: 23975451

Structural trauma and toxic stress—The roots of health inequities

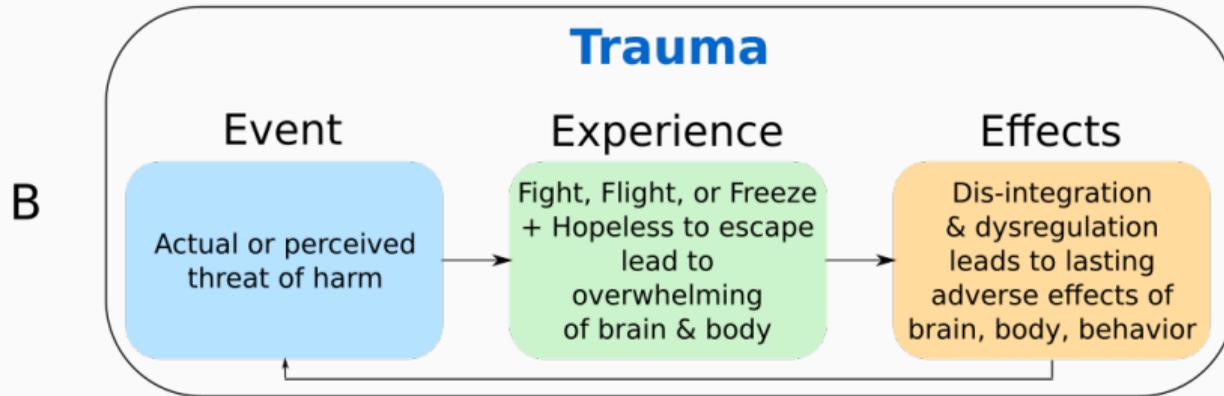
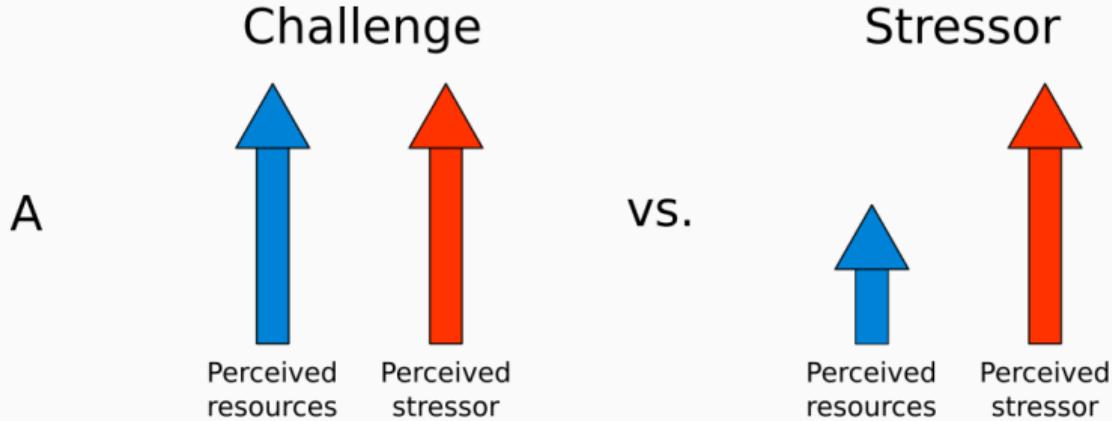
Foundational themes

- Life-course of toxic stress, structural racism, and discrimination
- Individual and communities suffer from the effects of trauma
- The effects of trauma are transmitted across generations
- Toxic stress effects child brain, body, and behavior for life

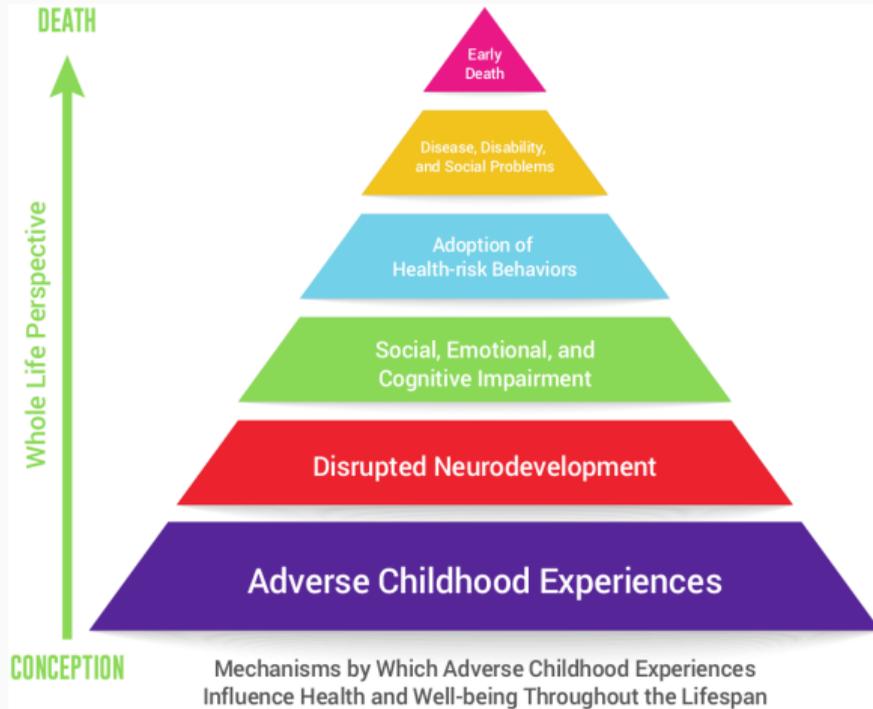
Trauma-informed approaches in San Francisco

- Trauma-informed systems training (Bay Area)
- Trauma-Informed Community Building (TICB)
- Black/African American Health Initiative (BAAHI)
- Our Children, Our Families (collective impact)

What are stressors (A) and trauma (B)?



Childhood adversities and mental health outcomes in homeless adults San Francisco, 2016 (Am J Geriatr Psychiatry 2016)



Source: <http://www.centerforyouthwellness.org/>

ARTICLE IN PRESS
REGULAR RESEARCH ARTICLES

Childhood Adversities Associated with Poor Adult Mental Health Outcomes in Older Homeless Adults: Results From the HOPE HOME Study

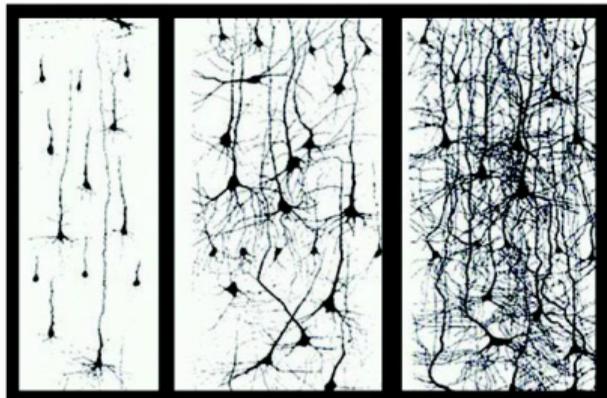
Chuan Mei Lee, M.D., M.A., Christina Mangurian, M.D., M.A.S., Lina Tieu, M.P.H., Claudia Ponath, M.A., David Guzman, M.S.P.H., Margot Kusbel, M.D.

Objective: To examine whether childhood adversity is associated with depressive symptoms, suicide attempts, or psychiatric hospitalization. **Methods:** History of seven childhood adversities (physical neglect, verbal abuse, physical abuse, sexual abuse, parental death, parental incarceration, and child welfare system placement) was gathered through in-person interviews. Multivariate models examined associations between history of childhood adversities and moderate to severe depressive symptoms, lifetime history of suicide attempt, or lifetime history of psychiatric hospitalization. The study enrolled 350 homeless adults, aged 50 and older, in Oakland, California, using population-based sampling methods. Moderate to severe depressive symptoms were measured on a Center for Epidemiologic Studies-Depression Scale (≥ 22), self-reported lifetime history of suicide attempt, and self-reported lifetime history of psychiatric hospitalization. **Results:** Participants with exposure to one childhood adversity had elevated odds of reporting moderate to severe depressive symptoms (adjusted odds ratio [AOR]: 2.0; 95% confidence interval [CI]: 1.1–3.7) and lifetime history of suicide attempt (AOR: 4.6; 95% CI: 1.0–21.6) when compared with those who had none; the odds of these two outcomes increased with exposure to additional childhood adversities. Participants with four or more childhood adversities had higher odds of having a lifetime history of psychiatric hospitalization (AOR: 7.1; 95% CI: 2.8–18.0); no increase with fewer adversities was found. **Conclusion:** Childhood adversities are associated with poor mental health outcomes among older homeless adults. Clinicians should collect information about childhood adversities among this high-risk population to inform risk assessment and treatment recommendations. (Am J Geriatr Psychiatry 2016; ■■■■■■)

Key Words: geriatrics, homeless persons, depression, suicide, mental health services, epidemiology

Neural connections and neuroplasticity in the early and late years of life

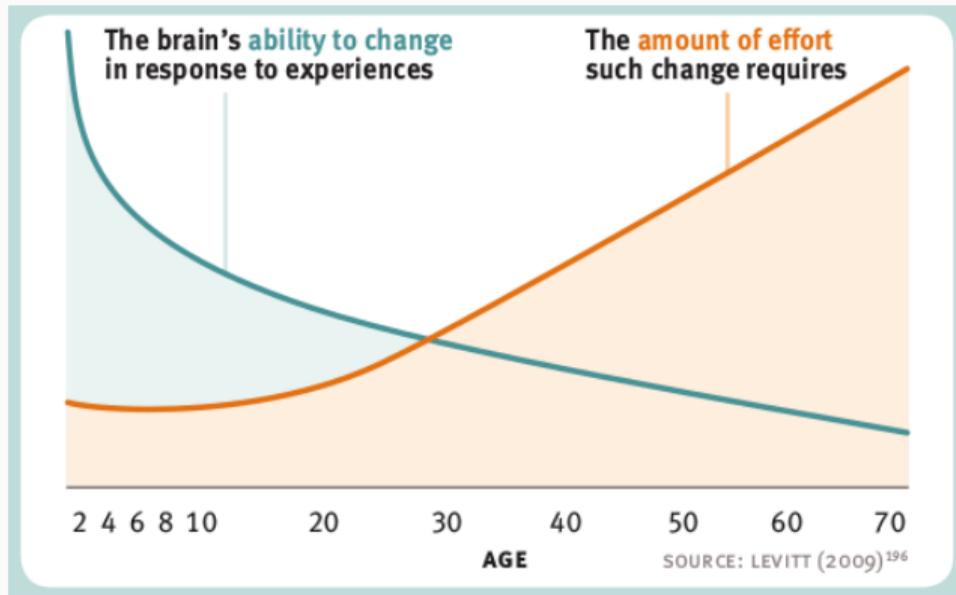
700 700 NEW NEURAL CONNECTIONS PER SECOND



NEWBORN

6 MONTHS

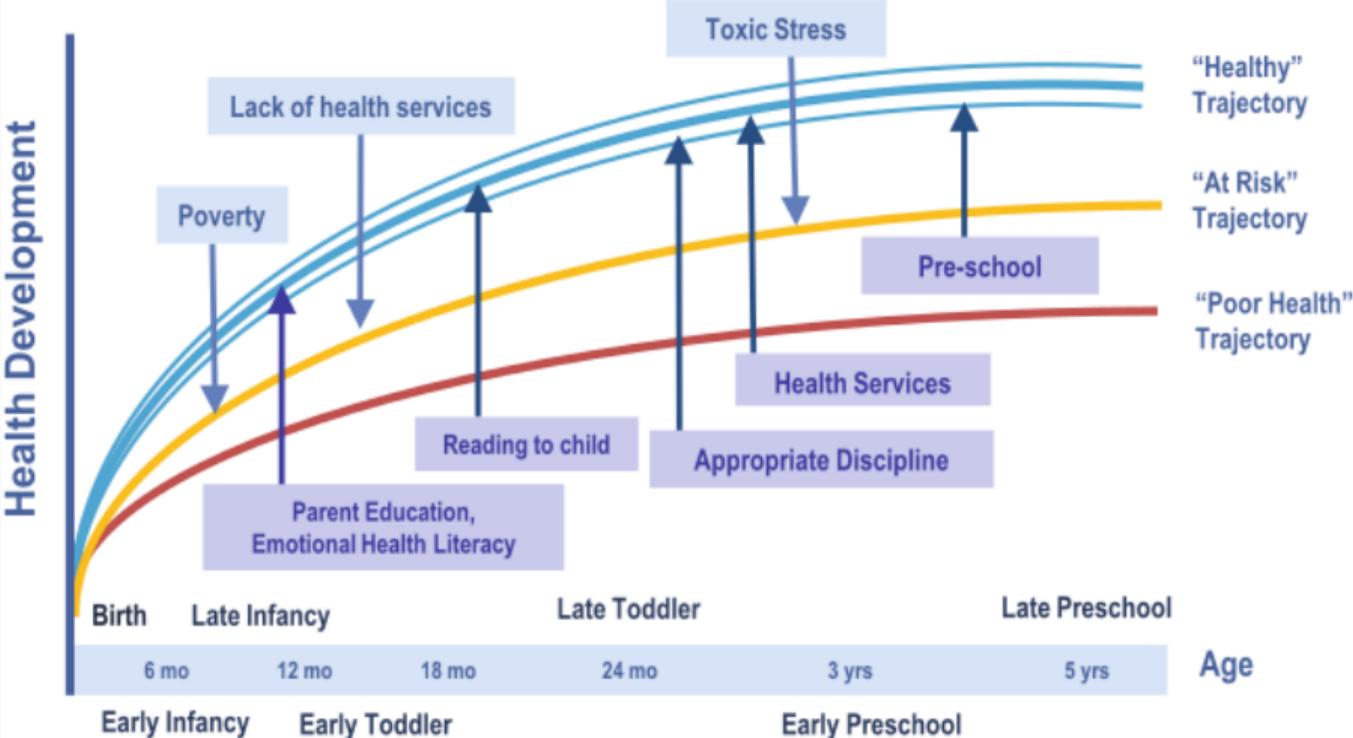
2 YEARS



Source: <http://developingchild.harvard.edu>

Lifecourse Health Development—Variable trajectories

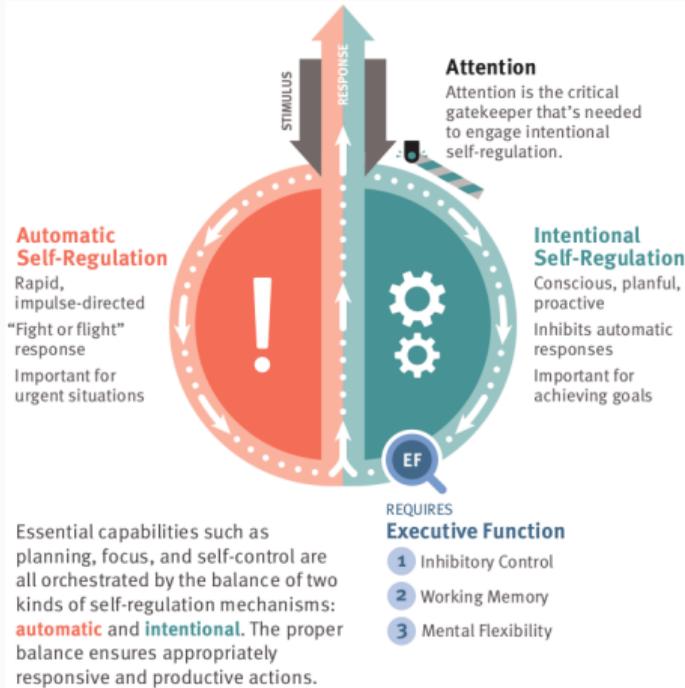
Health development trajectories: Latent, cumulative, and pathway effects



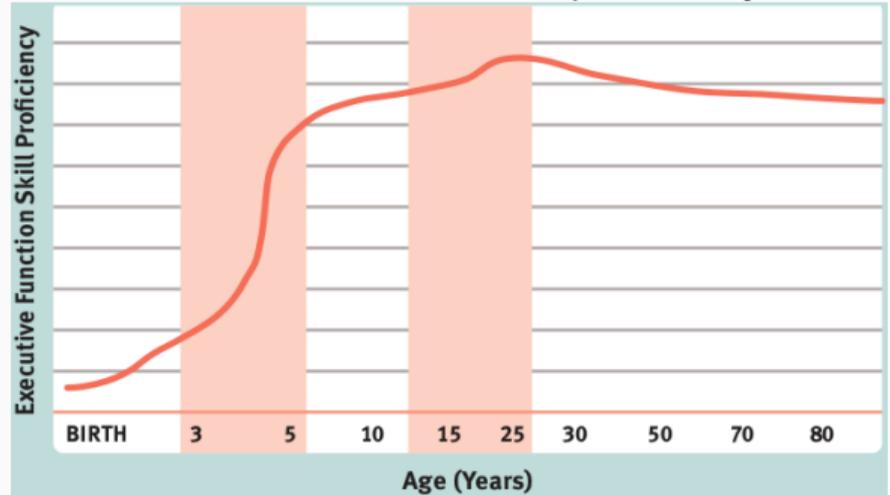
Source: Halfon N, et al. PubMed PMID: 23975451

How our core capabilities work (1/2)

Executive function, attention, and automatic and intentional self-regulation



Executive function skill proficiency



How our core capabilities work (2/2)

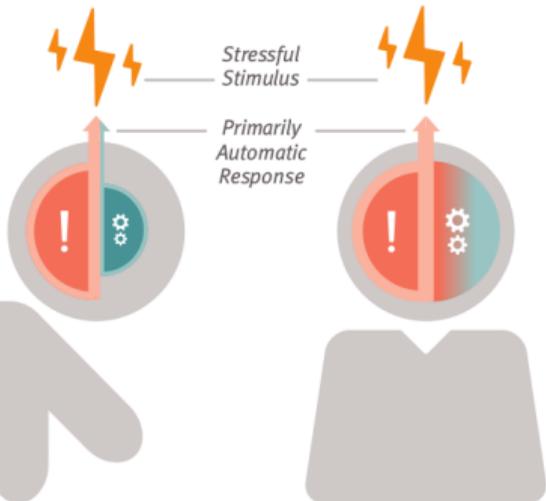
Executive function, attention, and automatic and intentional self-regulation

Excessive stress affects how well we develop and use executive function skills.



Early Childhood

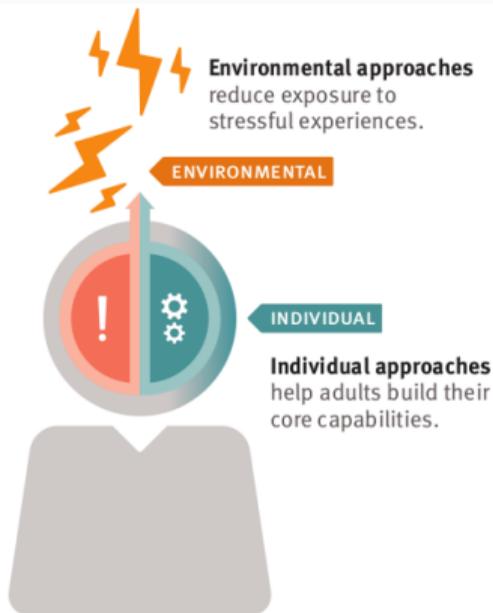
Severe, frequent stress redirects children's brain development away from planning and impulse control toward building the capacity for rapid threat response.



Adulthood

Excessive stress overloads adults' ability to use executive function and intentional self-regulation skills, leaving them to rely primarily on automatic responses.

Two approaches can reset the balance of self-regulation in adulthood.

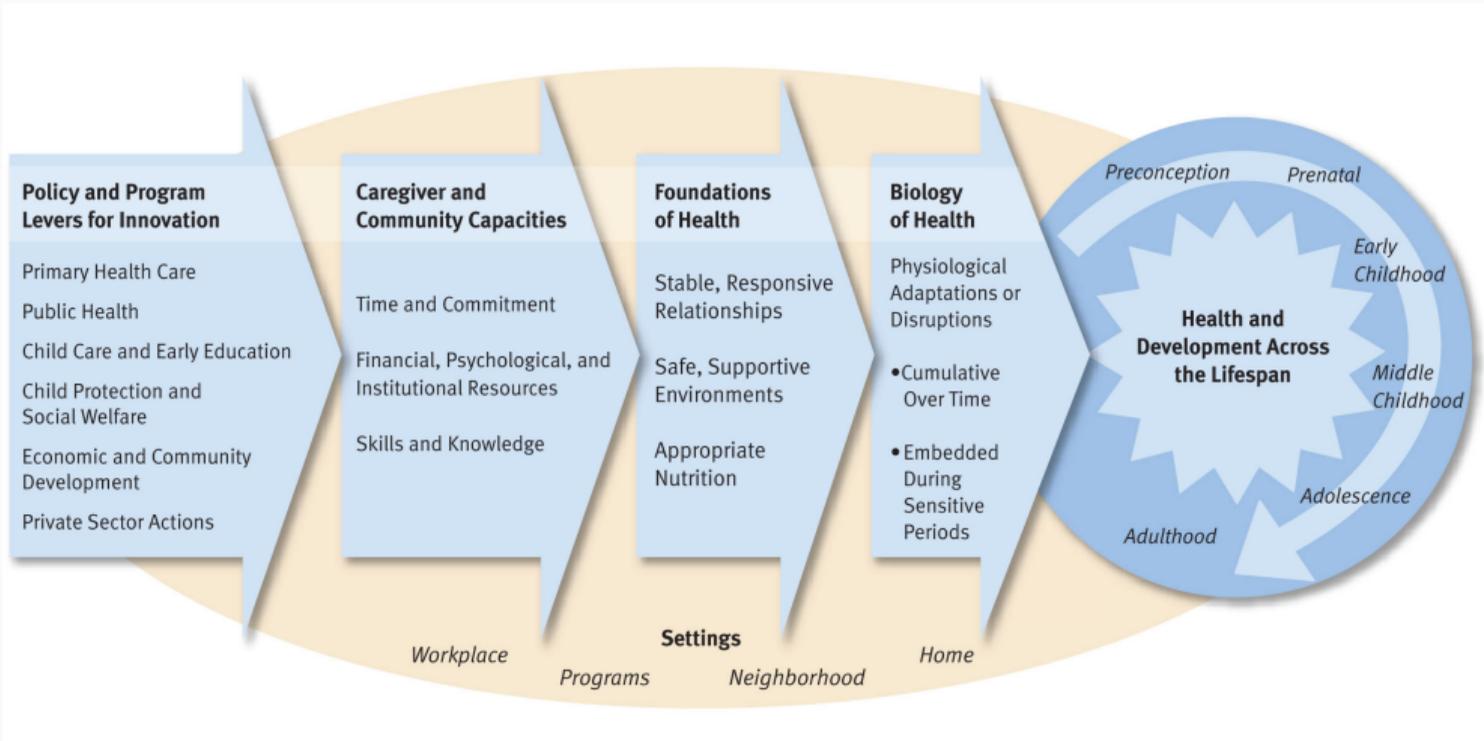


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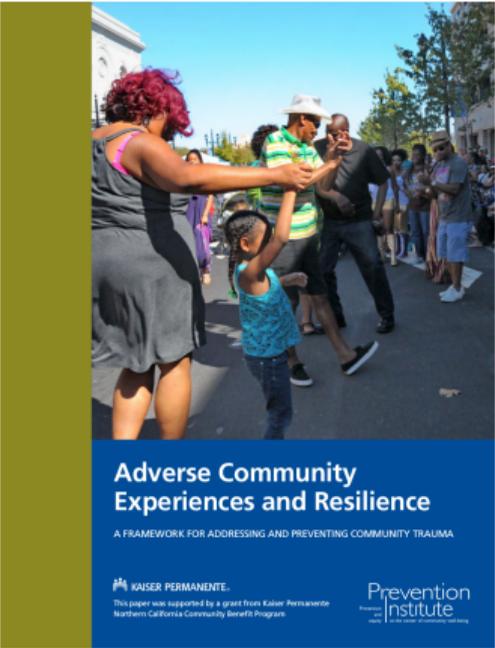
<http://www.developingchild.harvard.edu>

The lifecourse health development of adult inequities

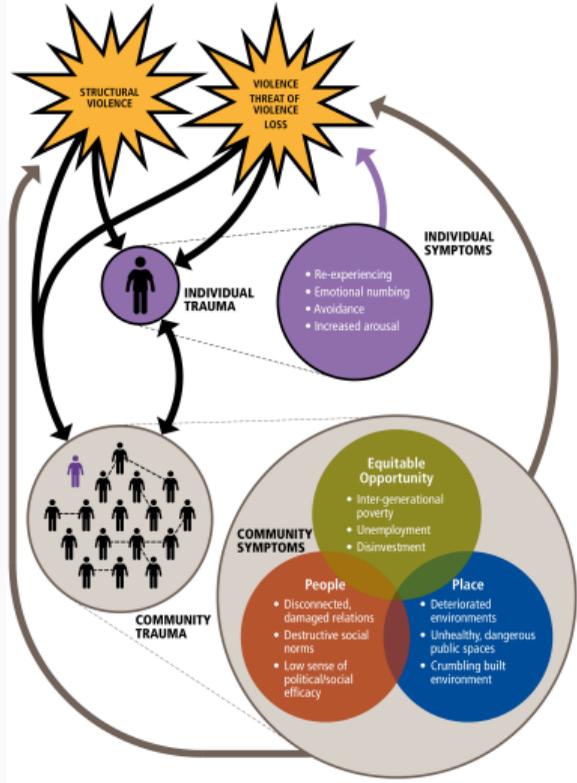
Re-conceptualizing early lifecourse policies to strengthen lifelong health



Adverse Community Experiences and Resilience: A Framework for Addressing and Preventing Community Trauma

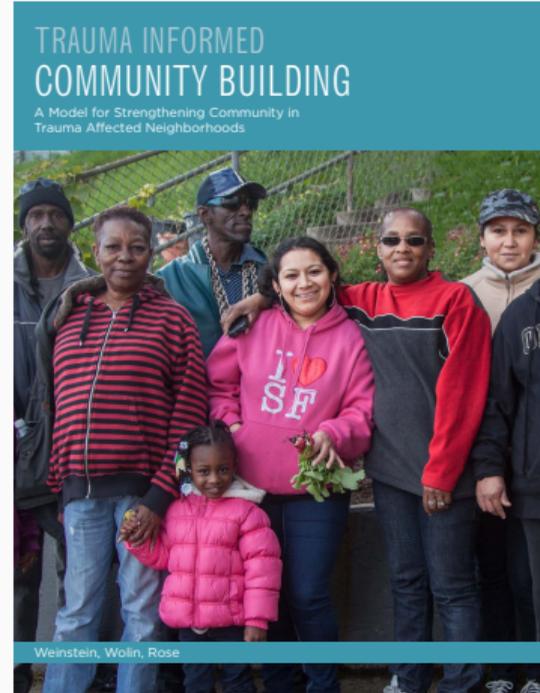
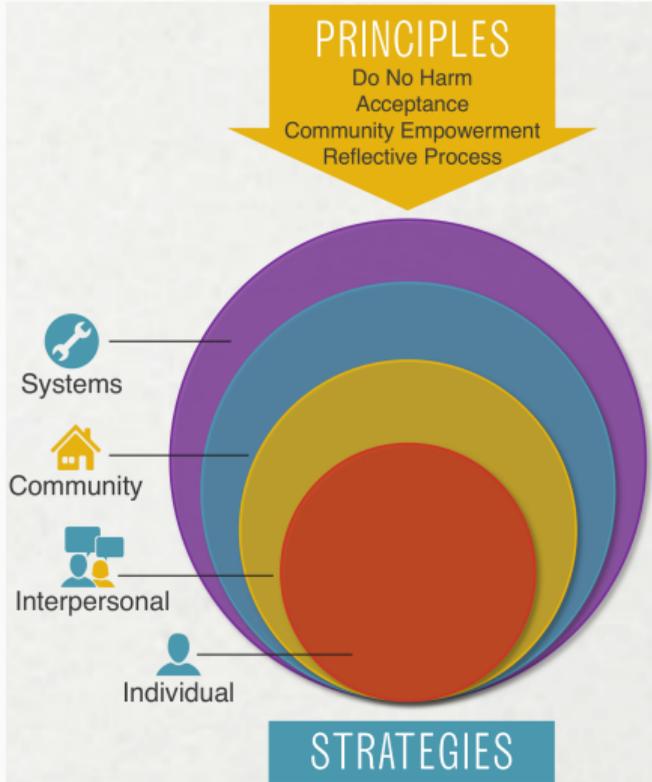


From The Prevention Institute
and Kaiser Permanente, 2015



Trauma-informed community building (San Francisco)

Lead: Emily Weinstein, Bridge Housing & Jessica Wolin, San Francisco State University



Black/African American Health Initiative, April, 2014

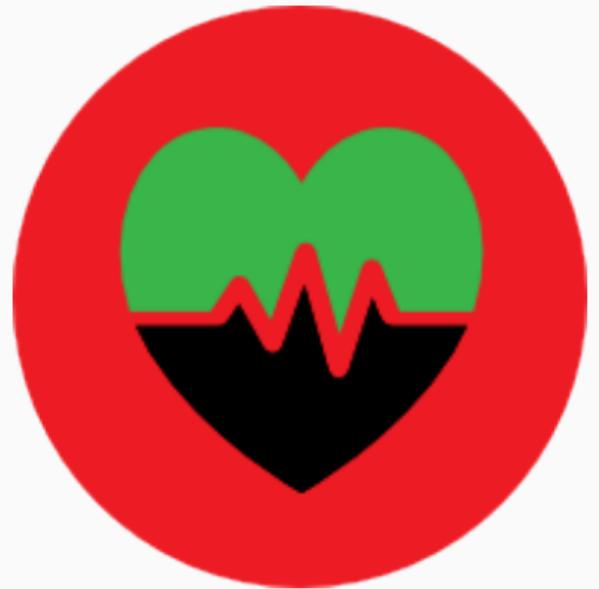
Lead: Dr. Ayanna Bennett, San Francisco Department of Public Health

BAAHI components

1. Collective impact
2. Workforce development
3. Cultural humility training

Collective impact

1. Heart health (focus: hypertension)
2. Behavioral health (focus: alcohol)
3. Women's Health (focus: breast cancer)
4. Sexual Health (focus: Chlamydia)



LEAD Initiative, San Francisco Department of Public Health

Lead: Barbara Garcia, and inspired by the Kresge Emerging Leaders in Public Health



Adapted from the Lean Transformation Framework (<http://www.lean.org>)

Core principles of trauma-informed systems

SFDPH initiative lead by Dr. Kenneth Epstein

We serve diverse, traumatized communities under chronic, toxic stress. Our diverse staff often live in or come from these communities. Therefore, we need to design **healing organizations**. Here are six core principles of healing, **trauma-informed systems**:

1. Understanding **trauma** and **stress**
2. **Compassion** and **dependability**
3. **Safety** and **stability**
4. **Collaboration** and **empowerment**
5. **Cultural humility** and **responsiveness**
6. **Resilience** and **recovery**

For more information visit: <http://www.t2bayarea.org>.

Cultural/Racial Humility

In 1998, Melanie Tervalon and Jann Murray-García published a groundbreaking article that challenged the concept of “cultural competency” with the concept of “cultural humility.” **Cultural humility**¹ is committing to lifelong learning, critical self-reflection, and personal and institutional transformation.

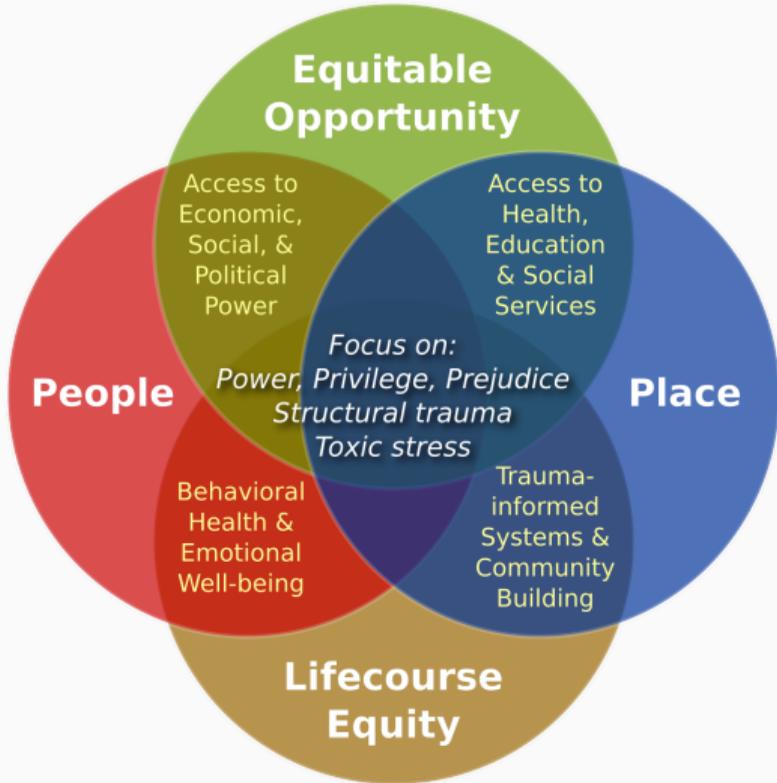
1. Commit to **lifelong learning** and **critical self-reflection**.
2. Cultivate **humility**,² opening our hearts to **transformation**.
3. Realize our own **power**, **privilege**, and **prejudices**.
4. **Redress power imbalances** for **respectful partnerships**.
5. Recognize and **validate our common humanity**.
6. Promote **institutional accountability**.

¹Adapted from Drs. Melanie Tervalon, Jann Murray-García, and Kenneth Hardy

²“Humility is the noble choice to forgo your status and use your influence for the good of others. It is to hold your power in service of others.” (Source: John Dickson, Humilitas, <http://a.co/gV1c1dW>)

The PEOPLE model for community health improvement

Inspired by The Prevention Institute's **Adverse Community Experiences and Resilience**



P = People,

E = Equitable

O = Opportunity,

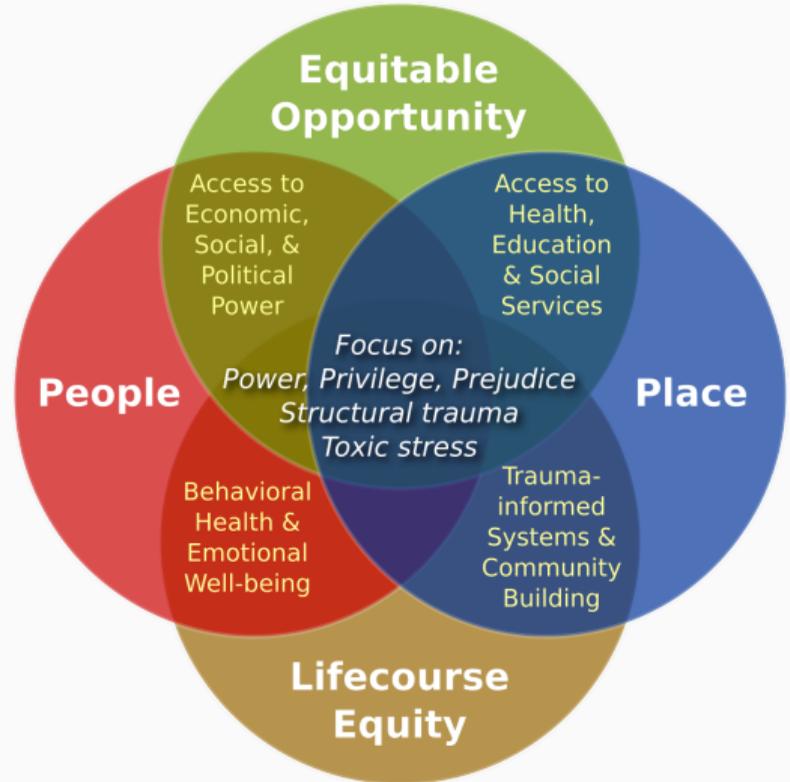
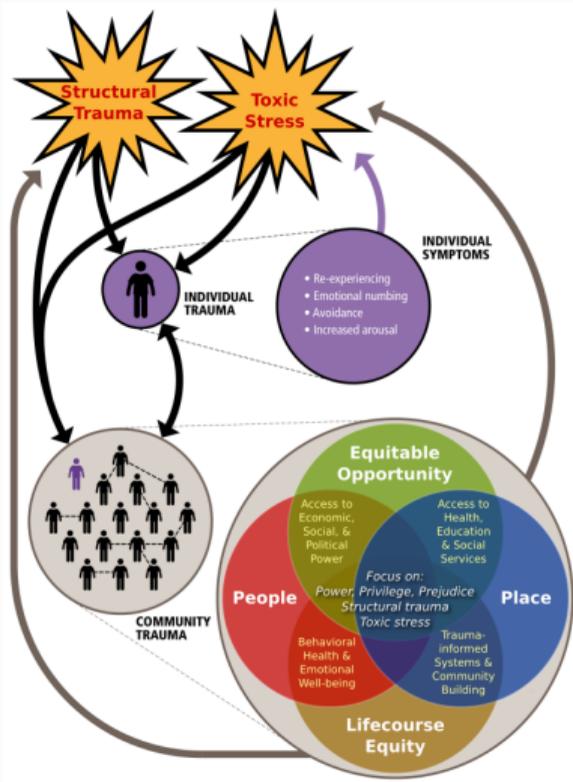
P = Place, and

L = Life course

E = Equity

The PEOPLE model for community health improvement

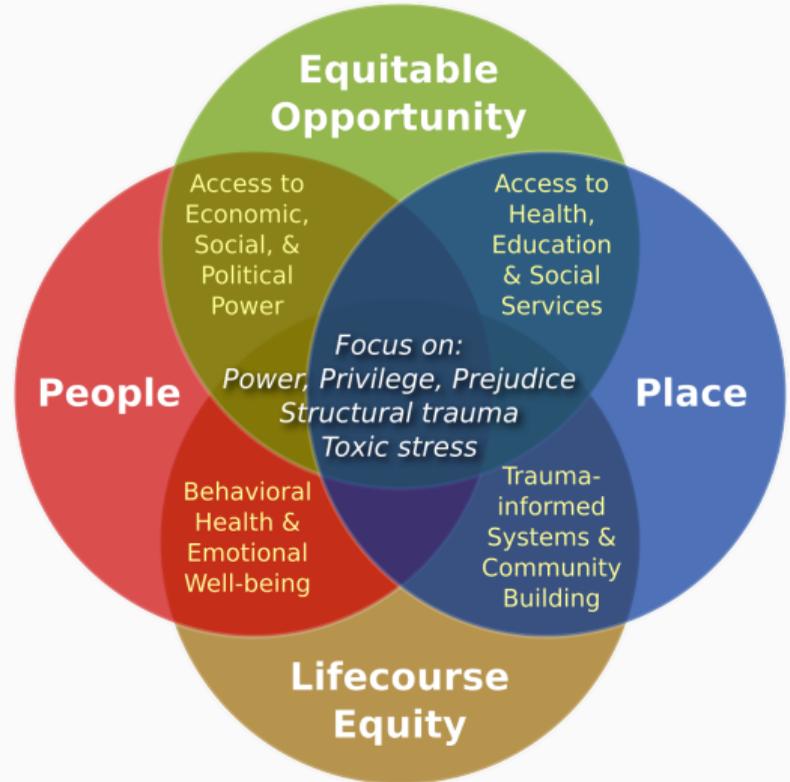
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The PEOPLE model for community health improvement

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- Life-course of toxic stress, structural racism, and discrimination
- Individual and communities suffer from the effects of trauma
- The effects of trauma are transmitted across generations
- Toxic stress effects child brain, body, and behavior for life



QUESTIONS?

Acknowledgments (in alphabetical order)

Abbie Yant, Alice Chen, Amor Santiago, Aneeka Chaudhry, Ayanna Bennett, Barbara A Garcia, Barry Lawlor, Belle Taylor-McGhee, Brittney Doyle, Cecilia Thomas, Christine Siador, Cindy Garcia, Colleen Chawla, Colleen Matthews, Curtis Chan, Darlene Daevu, David Serrano Sewell, Deborah Sherwood, Deena Lahn, Ellen Chen, Estela Garcia, Greg Wagner, Guliana Martinez, Hali Hammer, Iman Nazeeri-Simmons, Isela Ford, Israel Nieves-Rivera, Jacque McCright, James Illig, Jeannie Balido, Jenee Johnson, Jessica Wolin, John Grimes, Jonathan Fuchs, Judith Martin, Karen Pierce, Kenneth Epstein, Kenneth Hardy, Kevin Grumbach, Kim Shine, Kirsten Bibbins-Domingo, Leigh Kimberg, Lisa Golden, Maria X Martinez, Marlo Simmons, Mary Hansell, Michelle Albert, Michelle Kirian, Michelle Long, Muntu Davis, Nadine Burke Harris, Patricia Erwin, Paula Fleisher, Perry Lang, Rachael Kagan, Rhea Bailey, Rhonda Simmons, Roberto Vargas, Robin George, Roland Pickens, Ron Weigelt, Stuart Fong, Susan Ehrlich, Susan Philip, Tessa Rouverol Collejo, Thomas Boyce, Tracey Packer, Veronica Shepard, Wanda Materre, Wanetta Davis, Wylie Liu

Key online resources

- **Center on the Developing Child at Harvard University**
<http://developingchild.harvard.edu/>
- **All Children Thrive—ACT Now**
<http://www.allchildrenthrive.org/>
- **Trauma Transformed—Bay Area**
<http://www.t2bayarea.org/>
- **Trauma and Learning Policy Initiative**
<https://traumasensitiveschools.org/>
- **Population Health Lean (San Francisco)**
<http://www.phlean.org>