Implementing, Monitoring, and Evaluating Social Determinants of Health Investments and Programs

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Hooray—That ear is better...
Anything else...?
7 Steps to Success

1. Partner with health department
2. Map preventable hospitalizations and area-level poverty
3. Engage community leaders and members
4. Identify high impact, cost saving, interventions
   a) Consider life course perspective
   b) Concurrently address geographic disparities and population-wide health
   c) Consider ancillary multi-sector benefits (education, housing, reduced crime, economic growth/employment)
5. Collectively develop 5 year (minimum) plan
6. Monitor implementation and short-term outcome data
7. Evaluate total patient & population health improvement
7 Steps to Success

2. Map preventable hospitalizations and area-level poverty

4. Identify high impact, cost saving, mutually reinforcing interventions
   a) Consider life course perspective
   b) Concurrently address geographic disparities and population-wide health
   c) Consider ancillary multi-sector benefits (education, housing, reduced crime, economic growth/employment)

5. Monitor implementation and short-term outcome data

6. Evaluate total patient & population health improvement
Life expectancy, by county, compared to the world’s 10 best countries

Source: Institute for Health Metrics and Evaluation
Life Expectancy in King County by Census Tract

- Difference of 30 years! (Low of 63; High of 96)
- King County Average: 81.6
- Tracts with the lowest life expectancy are more than 40 years behind the longest lived countries
Harvard Geocoding Project

- Harvard Geocoding Projects I & II (Nancy Krieger)

- **Results: Census Tract (CT) Poverty detected disparities**
  - Missed by other measures (e.g., education, wealth, unemployment, SES indices) and geographic units (zip codes)
    - As large or larger than those by race/ethnicity
    - Within race/ethnic groups.

- **Reflect confluence of neighborhood risk factors including unemployment, deteriorated housing, violent crime, material resource access, behavioral factors, access to care, and pollution.**
New York City Example

Age-adjusted Mortality Rate by % in census tract who live below poverty, NYC, 2000

Death Rate per 1000

Death Rate per 1000 vs. Percent below poverty in census tract

Hadler J 2013
New York City Example

Age-adjusted Mortality Rate by % in census tract who live below poverty by race/ethnicity, NYC, 2000

Death Rate per 1000

Percent below poverty in census tract

Hadler J 2013
Harris County Concentrated Poverty, 2010

O’Connell HA and Howell J 2016
Inadequate response to new challenges

Life course

Early intervention

Earlier intervention improves functional capacity & responses to new challenges

Late intervention impactful for vulnerable groups

No intervention

Late intervention

Earlier intervention

Childhood

Adulthood

Mother & infant

Chronic NCD risk

Plasticity

Life Course Strategy for Disease Prevention

The new CDC population health initiative to improve health in 5 years or less

Office of the Associate Director for Policy
Division of Community Health
Centers for Disease Control and Prevention
Initial List Identification Methods

- Earned the highest evidence rating from:
  - County Health Rankings and Roadmaps What Works for Health site (n=144 “Scientifically Supported”)
  - The Guide to Community Preventive Services (n=120 “Recommended”)

- Excluded Clinical Interventions
- Excluded duplicate interventions
- CDC experts proposed additional interventions for consideration
HI-5 Intervention Selection Methods

Initial list assessed against the following criteria:

1. **Health outcome**: Highest level of evidence one or more health outcomes.

2. **Measurable improvement in 5 years**: Demonstrated with available measure of health outcomes or widely accepted interim measure causally linked to health (e.g., smoking).

3. **Saturation**: Interventions excluded if implemented in more than half (>50%) of states. This threshold was later changed to >85%.

4. **Cost data**: Economic evidence showing cost savings or cost-effectiveness.
Initial Interventions Mapped to Health Pyramid

**High Risk Populations**
- High touch, programs to meet complex needs of vulnerable populations

**Wrap Around Services**
- Policy, system or environmental change to influence behaviors
  - Directly addresses upstream factors (e.g., education, housing)

**Clinical Interventions**
- Changing Context
  - Total & Subpopulations
    - Social Determinants of Health
      - Directly addresses upstream factors (e.g., education, housing)

**Counseling and Education**
- Early Childhood Education*
  - Public Transportation Systems*
  - Clean Diesel Technology Fleet Transition*
  - House Rehabilitation Loans and Grants*
  - Indoor Smoke Free Policies*
  - State and local EITC programs*
  - Access to Clean Syringes
  - Activity programs for older adults
  - Breastfeeding promotion programs
  - Safe Routes to School
  - School-based physical activity
  - School-based violence prevention
  - Pregnancy peer support program
  - Unit price increase for alcohol
  - Unit price for tobacco products
  - Universal motorcycle helmets
  - Worksite multi-component obesity programs

* Intervention improves additional outcomes including educational attainment, employment, housing stability, social competency and crime prevention
High Impact, Cost Effective Interventions Mapped to the Health Pyramid

Counseling and Education
Clinical Interventions
Long Lasting Protective Interventions

Changing the Context
Making the healthy choice the easy choice

Social Determinants of Health

HI-5

Health Impact in 5 Years

- School-Based Programs to Increase Physical Activity
- School-Based Violence Prevention
- Safe Routes to School
- Motorcycle Injury Prevention
- Tobacco Control Interventions
- Access to Clean Syringes
- Pricing Strategies for Alcohol Products
- Multi-Component Worksite Obesity Prevention
- Early Childhood Education
- Clean Diesel Bus Fleets
- Public Transportation System
- Home Improvement Loans and Grants
- Earned Income Tax Credits

Breastfeeding promotion programs
Comprehensive Tobacco Control
Mass Reach health communications for tobacco
Multicomponent school-based obesity prevention
Safe Routes to School
School-Based violence prevention
Pregnancy peer support program
Worksite multi-component obesity programs
Activity programs for older adults
Early Childhood Home Visitation Programs
Supportive Housing Programs (Housing First)*
Multidimensional Treatment Foster Care*
Social Determinants of Health

Directly addresses upstream factors (e.g., education, housing)

Changing Context
Total & Subpopulations

Policy, system or environmental change to influence behaviors

Wrap Around Services
High Risk Populations

High touch, programs to meet complex needs of vulnerable populations

Clinical Interventions

Counseling and Education

Program Interventions Meeting HI-5 Criteria

Early Child Home Visitation Programs*
Supportive Housing Programs (Housing First)*
Multidimensional Treatment Foster Care*

Activity programs for older adults
Breastfeeding promotion programs
Pregnancy peer support program (Centering Pregnancy)

* Intervention improves additional outcomes including educational attainment, employment, housing stability, social competency and crime prevention
EXAMPLE: EARLY CHILDHOOD HOME VISITING PROGRAM
Early Childhood Home Visiting Programs

- Starts in pregnancy & continues until child is 2 – 5 years old

- Multiple model programs: nurses, social workers, community health workers

- Documented effective in improving:
  - Maternal, newborn, and child health
  - Child injuries, abuse, neglect, maltreatment
  - Reductions of emergency room visits
  - School readiness and child academic achievement
  - Crime, domestic violence
  - Family economic self-sufficiency

- Implementation Resources:
  - Home Visiting Evidence of Effectiveness (HOMEVEE)
  - Maternal and Child Health: Home Visiting
Nurse Family Partnership: Return On Investment

Estimated range: Every $1 invested yields $5.3 - $9.56 ROI to society

Karoly et al. 2008
Evaluation Break Out Session Potential Topics

- **Mapping Applications & Resources**
  - Resource for calculating neighborhood life expectancy
  - Patient hot spotting

- **Additional HI-5 Intervention Examples**
  - Combinations to address population-wide health and geographic disparities
  - Identifying ancillary SDOH benefits
  - Reducing preventable ED visits and hospitalizations

- **Introduction to Monitoring & Evaluation**
  - Logic models
  - Accessing and collecting data
Questions?

For more information please contact Centers for Disease Control and Prevention
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
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O’Connell HA and Howell J. *Disparate City: Understanding Rising Levels of Concentrated Poverty and Affluence in Greater Houston*. 2016

Evidence-based Intervention Resources

- **Intervention Effectiveness:**
  - Health Impact in 5 Years (HI-5)
  - Guide to Community Preventive Services (The Community Guide)
  - County Health Rankings and Roadmaps: What Works for Health

- **Cost Effectiveness**
  - Washington State Institute for Public Policy