Life Course Indicator: Poverty

The Life Course Metrics Project

As MCH programs begin to develop new programming guided by a life course framework, measures are needed to determine the success of their approaches. In response to the need for standardized metrics for the life course approach, AMCHP launched a project designed to identify and promote a set of indicators that can be used to measure progress using the life course approach to improve maternal and child health. This project was funded with support from the W.K. Kellogg Foundation.

Using an RFA process, AMCHP selected seven state teams, Florida, Iowa, Louisiana, Massachusetts, Michigan, Nebraska and North Carolina, to propose, screen, select and develop potential life course indicators across four domains: Capacity, Outcomes, Services, and Risk. The first round of indicators, proposed both by the teams and members of the public included 413 indicators for consideration. The teams distilled the 413 proposed indicators down to 104 indicators that were written up according to three data and five life course criteria for final selection.

In June of 2013, state teams selected 59 indicators for the final set. The indicators were put out for public comment in July 2013, and the final set was released in the Fall of 2013.

Basic Indicator Information

Name of indicator: Poverty (LC-10)

Brief description: Percent of population living under the Federal Poverty Level

Indicator category: Community Well-being

Indicator domain: Risk/Outcome

Numerator: Number of families below the Federal Poverty Line or FPL (determined by U.S. Thresholds)

Denominator: Total number of families

Potential modifiers: age, sex, race, ethnicity, geographic location. If age, sex, race and ethnicity are examined as moderators, data users should limit analysis to the number of individuals living below the FPL, as opposed to the number of families or households, as these units are less amenable to sub-group analyses.

Data source: American Community Survey (ACS)

Notes on calculation: Families are defined as any household that includes at least one adult over 18 years old and one child who is younger than 18 years old. All other persons, including those in multi-person households consisting of only adults or only children, are reported as single individuals.

Similar measures in other indicator sets: HP 2020 Focus area SDOH-3; MIECHV Benchmark Area Improvements in Family Economic Self-Sufficiency: Household income (including earnings, cash benefits, and in-kind and non-cash benefits); Chronic Disease Indicator; United Health Rankings Core Measure

Life Course Criteria

Introduction

Poverty is associated with health deficits over the life course, particularly when the individual was exposed to high levels of concentrated disadvantage early in life. Poverty is widely regarded as a driver of increased morbidity and mortality in the United States, and the relationship between poverty and reduced health is likely cyclical. Concentrated disadvantage, poverty, and socioeconomic position (SEP) are all very similar markers. While poverty is consistently linked to a host of health outcomes, it may not fully capture the synergistic composite of social factors that mark spatial disadvantage, or the qualitatively distinct aspect of growing up in truly disadvantaged neighborhoods (8). This narrative focuses on poverty and SEP given their overlapping and often inseparable conceptual foundation and serves as a complement to the narrative for the concentrated disadvantage life course indicator.

Poverty is consistent with life course science because it has significant effects both at "critical periods" of development (infancy and parental socioeconomic position, for example) and throughout life through cumulative burden. Across the entire life course, poverty is associated with cognitive function, depression, health behaviors, and diabetes risks. Poverty also is transmitted across generations. Children growing up in impoverished homes are more likely to lack resources and opportunities that promote resilience to the adverse impact of the stressors of poverty throughout the life span.

Implications for equity

Poverty, or being poor, is defined as living in conditions that are both below the conditions of the average citizen and deemed as socially unacceptable (1). The gap between rich and poor (or income inequality) has remained wide, and this gap may be increasing in certain areas (7). The federal poverty guideline for a family of four in the 48 contiguous states and D.C. was $22,050 in 2010 and $22,350 in 2011. There are clear disparities in poverty across racial and ethnic groups. In 2010, 27.4 percent of blacks and 26.6 percent of Hispanics were poor, compared to 9.9 percent of non-Hispanic whites and 12.1 percent of Asians (4). Poverty rates are highest for families headed by single women, particularly if they are black or Hispanic. In 2010, 31.6 percent of households headed by single women were poor, while 15.8 percent of households headed by single men and 6.2 percent of married-couple households lived in poverty (4).

There also are differences between native-born and foreign-born residents. In 2010, 19.9 percent of foreign-born residents lived in poverty, compared to 14.4 percent of residents born in the United States. Foreign-born, non-citizens had an even higher incidence of poverty, at a rate of 26.7 percent.

Children represent a disproportionate share of the poor in the United States; they are 24 percent of the total population, but 36 percent of the poor population. In 2010, 16.4 million children, or 22.0 percent, were poor (4). The poverty rate for children also varies substantially by race and Hispanic origin, similar to adult disparities.

SEP, including poverty, is seen as a common social stratification, and its implications for equity are numerous. On a social level, the levels of prestige across SEP are inversely associated with mortality. On a psychosocial level, SEP is inversely associated with adverse behaviors such as drug use across all ages and bullying in children. On an environmental level, exposures to asthma triggers, hazardous waste, lead particulates, and air pollution are all more common in areas with greater poverty. With respect to health disparities, SEP has implications in HIV diagnosis rates, cardiovascular disease (CVD) risks, body mass index (BMI), cancer diagnoses and treatments, general practitioner and follow-up visits, physical activity, diet, and diabetes incidence. A complex relationship exists between health, gender and racial discrimination, and SEP; nonetheless improvements in poverty status may have major health benefits. Evidence has shown that moving an individual out of a high-poverty area to a low poverty area does result in some improved outcomes, such as improved mental health, indicating that the effect of poverty on an individual is not necessarily permanent (17).

Public health impact

Socioeconomic factors such as poverty have been proven to act cumulatively over a lifetime to impact health (3). While the association between health and wealth is well-established, the direction between the two factors is less so. Literature suggests that the relationship is bidirectional. Poverty has a tremendous impact on health, not only through material resources, e.g., access to care and healthy food, but through its psychological and psychosocial impact on health and behavior of individuals and their communities. Poverty also has been shown to be related to reduced educational

attainment, meaning future earnings potential also is affected, which continues to deleteriously affect health and the health of communities as a whole.

High concentrations of poverty also have been shown to have increased high school drop-out rates, high rates of teen pregnancy, and higher rates of adolescent delinquency (9, 10). More specifically, birth and early childhood outcomes, such as infant mortality, low birth weight, and child maltreatment have all been shown to increase among communities with poverty and concentrated disadvantage (9, 10). Mental health has similarly been linked to poverty and concentrated disadvantage, as girls who grew up in communities with high levels of poverty have decreased mental health and show increased risk-taking behaviors (14). These areas also show increased proliferation of food deserts, decreased social capital, and less recreational space. In older ages, the linkage between poverty and concentrated disadvantage and health is less clear, however evidence shows that higher levels of poverty result in lower self-rated health (15, 16).

SEP is as much a health stratifier as a social one, and changes in SEP would greatly impact public health (13). On an individual level, the impact of low SEP starts at the molecular level with inflammatory markers of chronic disease and moves into oral health, mental health, health behaviors like dietary patterns and early screenings, and chronic disease like diabetes, BMI, CVD, and cancer incidences. On a neighborhood level, low SEP is associated with differences in a range of outcomes and risk factors, from less frequent cancer screenings and physical activity, and more violence/victimization, to arthritis, depression and poor mental health, and overall morbidity and mortality. From a public health program perspective, educational attainment may affect receptivity to health interventions and messages, which in turn influence the ability to make healthy choices and practice healthy behaviors (20).
A positive and sustained change in this indicator, or a reduction in the percent of families living in the most extreme poverty (less than 100 percent of the FPL), would indicate that more families have access to basic resources (e.g. stable housing, food) to meet physiological needs and allow for their own satisfaction of self-actualization (among other human needs) to participate more fully as individuals within their communities. This is a critical component of not only improving the health status of the impoverished population but also educational attainment of individuals and the strength and well-being of the community in which they live.

Leverage or realign resources
Bollens (1997) identifies poverty and concentrated disadvantage as results of institutional discrimination ("institutional practices that create and reinforce oppressive systems of race relations whereby people and institutions engaging in discrimination adversely restrict, by judgment and action, the lives of those against whom they discriminate" (Krieger 2003) and individual prejudice, arguing that segregation concentrates poverty, particularly among metropolitan inner-cities(2). In addressing concentrated poverty, he references the importance of public policy-makers, regional and city planners, and lawmakers at various levels (particularly at the regional level). Concentrated poverty can be addressed in two primary ways: via enrichment (or in-place), and integration (or mobility interventions). Enrichment consists largely of improvement of living and economic conditions through community development and revitalization programs, as well as educational improvements. Integration interventions, conversely, refer to moving concentrations of poor people to other areas, often suburbs, with better economic and social structures. Quilian (2012) similarly finds that there are three different types of segregation that affect concentrated disadvantage: racial segregation, poverty-status segregation within race, and segregation from high- and middle-income members of other racial groups (11). To slow the cyclical relationship between poverty, education, and health and address poverty and segregation requires the purposeful engagement and leadership of key stakeholders to change the economic systems of their communities. Already mentioned are policymakers and regional and city planners, especially with regard to zoning; related entities could include housing agencies, local businesses, social services, and programs for job training, mental health and substance abuse, and re-entry for previously incarcerated individuals.

Monitoring and reporting on poverty, its relationship to community well-being, and its relation to MCH outcomes will provide not only the opportunity to create new, non-traditional partnerships but will perhaps paint a clearer picture of MCH disparities within and across states in the United States. With the growing momentum for the life course approach, poverty is emerging as a root cause for health inequities and is raising the alarm for social and economic justice.

Predict an individual's health and wellness and/or that of their offspring
Poverty, especially when experienced at early ages, has been shown to be a reliable indicator of individual health. It sets a trajectory of exposure to heightened intra- and inter-personal physical, emotional, and mental stress, poor health

behaviors, and unequal access to myriad services and supports that accumulate over time. When interacting with other socioeconomic and community factors, the cumulative impact greatly contributes to inequities both inside and outside of health. These inequities emerge as early as childhood and adolescence, in the form of lower school attainment or dropout, risk-taking behaviors, and delinquency. Individuals exposed to poverty experience higher CVD risks, tobacco use, and alcohol consumption as young adults. The increased exposure to risk factors and decreased exposure to protective factors contributes to poorer maternal health and birth outcomes, and this increased risk for poorer health of offspring, coupled with the likelihood that offspring will be born into poverty, further perpetuates the cycle. For example, children growing up in impoverished households are more likely to be exposed to physical hazards (e.g., air pollution, lead, violence, poor nutrition) as well as psychosocial hazards (e.g., unhealthy role models and norms, family conflict) (5). This association with health remains consistent over the life span. A mother's SEP is associated with breastfeeding intention, maternal diet, and early childhood nutrition.

Later in life, individuals exposed to poverty in childhood have lower self-rated health and higher risks for CVD, and further, the association with poverty and mental health carry over into both adult SEP and health. As an adult, the later in life SEP changes for the worse, the more extreme the health effects. Poverty and SEP have associations with everything from spontaneous abortion and depression to diabetes and early morbidity and mortality. It is clear that experiencing poverty, particularly during critical and sensitive periods of the life course, will have an adverse impact on future health. This impact likely exists even if the effect is minimized by later life course events or removing the individual from a highly disadvantaged community.

Data Criteria

Data availability

The American Community Survey (ACS) is an ongoing nationwide survey that collects and provides annual data on demographic, social, economic, and housing characteristics in the United States. The survey is administered by the U.S. Census Bureau, and it replaced the decennial census long form starting in 2010. The ACS is sampled each year, resulting in three million addresses selected and approximately two million final interviews. However, the sample drawn is substantially smaller than the one used for the previous Census long form; as a result, data must be pooled across years in order to provide reliable estimates for some geographic units. The ACS provides yearly estimates for all states, as well as all cities, counties, metropolitan areas, and population groups of 65,000 people or more. For smaller areas, multiple survey years are combined to obtain reliable estimates: three survey years in areas with 20,000 to 65,000 people, and five survey years in areas with fewer than 20,000 people. ACS data are released the year following the year in which they were collected, making the estimates extremely timely.

FactFinder provides tables by year, state and county, or data can be downloaded from an FTP (file transfer protocol) site. Data are available for all 51 jurisdictions (50 states and DC). Data also are available at county and in some cases sub-county levels (may require combining several years of data, especially for rural areas).

Data quality

Since the ACS is a sampled survey, there is uncertainty in the estimates. The Census Bureau takes steps to minimize the error associated with non-sampling error (reporting, coding, sampling frame, survey questionnaires, non-response, and interviewer bias) through the use of trained interviewers and careful review of all questionnaire design, sampling, and analytic steps. In addition, the Census Bureau began releasing margin of error data for ACS estimates starting in 2006; these estimates allow data users to calculate 90 percent confidence limits for all point estimates released from the ACS.

To account for the complex sampling design, the ACS employs an equally complex weighting scheme. The weighting process is well-documented in the survey methodology handbook, accessible on the web. Response rates for the ACS are calculated for housing units and group quarters (person). From 2000 to 2011, the housing unit response rate ranged from a low of 93.1 percent in 2004 to a high of 98 percent in 2009. Between 2006 and 2011, the group quarter response rate ranged from a low of 97.4 percent in 2006 to a high of 98 percent in 2008 and 2009.

The data quality is excellent. Sensitivity, specificity, predictive value positive and reliability will vary depending on the outcome. The challenge in calculating the percent of families living in poverty emerges in the calculation of poverty status. The Census Bureau does not take into account geographic variation in cost of living, nor some significant expenses such

as child care costs when assessing poverty status (18). It is for this reason that the indicator must be contextualized with the cost of living for the area under investigation.

Simplicity of indicator

This indicator is fairly easy to calculate because it is calculated by the U.S. Census. It does not require linkage on the part of the data user. Poverty thresholds are determined by household family size and age of members and do not change geographically. Thresholds are updated annually to account for inflation.

Poverty as an indicator can be calculated by accounting for total family income compared to the appropriate threshold for each family. If the family income is less than or equal to the poverty level, their income is considered as less than the threshold. However, if total family income is greater than the threshold, it does not constitute poverty.

Poverty = income/ (threshold income)* 100. Then, if poverty ≤100, that family is 100 percent under the FPL.

This indicator is simple to explain. Its connection to health may be more difficult to communicate, however it can be achieved through the focal point of access. The most significant implication of poverty is access: health care, social services, resources, skills, work, education, technology, nutrition, and safety are all impacted by poverty status (19).

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