

# Life Course Indicator: Homicide Rate

## 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:** Homicide rate (LC-08)

**Brief description:** Homicide rate

**Indicator category:** Community well-being

**Indicator domain:** Risk/Outcome

**Numerator:** Total homicide-related deaths

**Denominator:** Total population

**Potential modifiers:** Race, ethnicity, sex, age, socioeconomic status, geographic region

**Data source:** National Vital Statistics System (NVSS) records

**Notes on calculation:** Multiply by 100,000 for rate

**Similar measures in other indicator sets:** HP 2020 Focus area IVP-29

## Life Course Criteria

### **Introduction**

Growing evidence suggests the social environment has an impact on health. Research on this relationship is focused on aspects of support and cohesion within the social environment. These concepts are often discussed as 'social capital' across populations. Social capital is the collection of features of social organization – such as civic participation, norms of reciprocity, and trust in others – that help facilitate cooperation for mutual benefit. In an attempt to clarify social capital and to assess its importance to social policy, Forrest and Kearns (2001) identify eight domains of social capital. Social capital, they argue, is composed of the following: empowerment; participation; associational activity and common purposes; supporting networks and reciprocity; collective norms and values; trust; safety; and belonging. Homicide has implications for all of the domains of social capital (22).

Homicide is related to community well-being and wider social conditions such as poverty and low education, racial composition, and the disruption of family structure. Homicide events influence larger, community-level aspects of social capital (i.e. trust, safety, belonging) and impact life course trajectories, turning points, and transitions, for victims, perpetrators, and their families (1). Homicide rate is an important life course indicator for both individual level health effects and overall social capital within and across populations.

### **Implications for equity**

Homicide is deeply rooted in equity issues. Tcherni (2011) has examined how homicide and social conditions are intertwined. Research suggests there are three major structural factors related to homicide: poverty and low education, racial composition, and the disruption of the family structure (1).

Poverty and low-education are often highly connected (1). Poverty stricken neighborhoods often lack social control and cohesion (1). Lack of social control and cohesion can lead to community disorganization which corresponds with a higher tolerance for disorder (1). Conflict in impoverished areas is more likely to be resolved through physical means than verbal communication, and poverty leads to higher incidences of conflict in relationships (1). Youth raised in poverty are typically exposed to higher incidences of interpersonal conflict and also experience harsher, inconsistent discipline and less supervision than youth raised in non-impoverished areas (1).

Another social factor correlated with homicide is disruption of family structure. Single parent homes lack economic resources, time and energy to be involved in building community, which serves as a protective factor against homicide (1). Additionally, separated women tend to have elevated levels of interpersonal violence between previous partners (17). Unstable household arrangements have adverse effects on children and play a crucial role in adolescent delinquency, which is also related to homicide rates.

Racial composition of a neighborhood also is related to homicide rate. Among young males 15-34 years of age, African-American men are 12 times more likely than White men to be victims of homicide and Hispanic men are four times more likely as White men to be victims of homicide (23). Homicide rates are higher in neighborhoods that have higher concentrations of African-Americans and Hispanics, however, large portions of these rates are attributable to neighborhood and social characteristics (23). A study of 10 major U.S. cities found two measures of social disadvantage, percent of households headed by a female and lower levels of educational attainment, explained a large portion of higher homicide rates in neighborhoods with high concentrations of African-Americans or Hispanics (23). These data support the Social Disorganization theory, which states higher homicide rates in neighborhoods with high concentrations of African-Americans and Hispanics are attributable to the social conditions of that neighborhood (24). Additionally, neighborhoods with low social capital are unable to maintain a safe environment because the community lacks shared common values and informal social controls (25).

Beyond descriptive differences across populations, homicide rate is a larger measure of inequity of wider social conditions and structural factors. There is evidence that homicide rate affects social capital, just as social capital affects homicide rate. High rates of violent crime promote fear in a community leading to constraints on social interaction, withdrawal from community life, and disorder within the neighborhood (25, 26, 27). Homicide rate also is strongly spatially clustered. Lowering homicide rates will not only contribute to health equity, but also broader social equity across communities.

### ***Public health impact***

Violence, in itself, is a major contributor to premature death, injury, and disability, and highly influences quality of life (12). The consequences of violence for victims and those exposed to it are severe, including serious physical injuries, post-traumatic stress disorder (PTSD), depression, anxiety, substance abuse, and other long-term health problems associated with the bio-psychosocial effects of such exposure (15). Many urban youth experience trauma and may have PTSD from exposure to violence. One study found that more than 75 percent of urban elementary school children living in high-violence neighborhoods had been exposed to community violence and other studies have shown that 35 percent of urban youth exposed to community violence develop PTSD (16). The negative effects of exposure to homicide and violence also may manifest themselves as violence and criminal behavior, particularly among adolescents and young adults who were exposed as children (19). This reaction to violence creates a self-perpetuating cycle in communities most affected by homicide and violence. Homicide also influences other aspects of public health. For example, violence (or perceived violence) influences physical activity rates, particularly because if a community is perceived as violent or unsafe, members of the community are less likely to be physically active outdoors (20). The public health implications of changing the rates of homicide in the United States are far-reaching, from improved mental health outcomes to higher social cohesion, and resulting in improved social capital, and reduced mortality and morbidity.

### ***Leverage or realign resources***

Historically, homicide has not been considered a public health issue. Until recently, the focus on prevention of homicide and violence were outside the scope of public health, and instead belonged to other jurisdictions, such as city and state municipalities, justice systems, and law enforcement. Given that the factors influencing ongoing violent victimization are varied and include a number of health and social issues, the aforementioned entities would serve as potential collaborators for public health advocates aiming to reduce homicide rates. Neighborhood associations and schools in high-risk areas also may be ideal places to leverage community support and advocacy.

Recently, programs like Chicago's Cease-Fire have been tackling homicide from a multifaceted approach by including public health program design with interventions, clergy and community mobilization, educational campaigns, and involvement of police and prosecution. Cease-Fire has formed partnerships with businesses, churches, community organizations, police, schools, and other human service agencies. This program has been successful at reducing homicide crime and has been used as a program model for other cities (13). Further, given that high rates of homicide and violence are associated with increased community tolerance for social disorder, public health leaders can collaborate with community members to build social capital from within, working to improve feelings of community control and investment by improving advocacy skills and voter registration rates.

Homicide is the second leading cause of death for youth between the ages of 15-24, creating a need for youth engagement in violence prevention (28). The Centers for Disease Control and Prevention (CDC) funds six National Centers of Excellence in Youth Violence Prevention that implement comprehensive strategies that engage the community to reduce youth violence (28). Youth Empowerment Solutions (YES) is one such strategy developed at the University of Michigan by the Michigan Youth Violence Prevention Center academic-community partnership (28). The project goals are to "provide youth with opportunities for meaningful involvement in preventing youth violence and creating community change, enhance neighborhood organizations ability to engage youth in their activities, and change the social and physical environment to reduce and prevent violence (28)." Evaluation of the program has shown YES participants had better conflict resolution skills and were less likely to be victims of neighborhood crime (29). A school-based intervention, Second Step, was developed at Virginia Commonwealth University to reduce impulsive and aggressive behaviors and increase protective factors and social-emotional competence (28). The Second Step curriculum uses discussion, teacher modeling, coaching skills, and role playing to focus on building skills surrounding empathy, impulse control and problem solving and anger management (28). Evaluations of the program have shown reductions in physical aggression in the classroom (30). These programs and others designed by National Centers of Excellence in Youth Violence Prevention serve as models for youth violence prevention interventions.

### ***Predict an individual's health and wellness and/or that of their offspring***

As described by Settersten (2003), trajectories in life course chart the course of an individual's experiences over time (11). Therefore, it is important to identify opportune moments related to homicide in order to find ideal times / ages / circumstances at which to intervene and prevent the perpetration of this kind of crime. Settersten (2003) also highlights turning points as significant events that mark when a trajectory takes a certain form or direction (11). Prior exposure to

violence, prior perpetration of crimes, and maltreatment during childhood (18) are important risk factors for subsequent violent activity and these may serve as useful turning points or opportunities to affect individuals' trajectories. This is exemplified in how homicide reflects psychosocial conditions. Brezina (2009) states that youth who anticipate early death and hopelessness are more likely to take risks and engage in reckless behaviors (21). Sharkey et al found homicides occurring near the home of preschoolers have negative effects on their attention levels, impulse control, and preacademic skills, possibly due to increases in parental stress (32).

In 2012, 12,765 people were victims of homicide (33). An estimated seven to 10 close relatives, in addition to the victim's neighbors, friends and coworkers, are left to deal with the consequences of each homicide (34). Relatives of people who have been lost to sudden and violent deaths experience a wide range of mental health problems including PTSD, alcohol and drug abuse/dependence, suicidal thoughts, major depressive disorder and prolonged grief disorder (35). Symptoms can persist for years after the death has occurred (35).

Poverty/low education, neighborhood factors, and family structure may influence homicide rates (1). Public health professionals, as well as strong collaborations with other disciplines, may be able to change trajectories in the life course by intervening through increased social control and cohesion, conflict resolution skill building, family mediation including appropriate and consistent parental discipline. These factors could influence critical and transitional periods throughout a child's life, particularly as the child moves toward adolescence and young adulthood where homicide has the highest potential of affecting a person's life. Homicide also can influence life course trajectories for children of homicide victims. Children who are exposed to violence may experience higher rates of PTSD, depression, anxiety and substance abuse(15).

## **Data Criteria**

### ***Data availability***

Information on U.S. mortality, including homicide, is collected by state registries and provided to the National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS). NVSS is an intergovernmental sharing of data whose relationships, standards, and procedures form the mechanism by which NCHS collects and disseminates the nation's official vital statistics. Vital event data are collected and maintained by the jurisdictions that have legal responsibility for registering vital events; these entities provide the data via contracts to NCHS. Vital events include births, deaths, marriages, divorces and fetal deaths. In the United States, legal authority for the registration of these events resides individually with the 50 states, two cities (Washington, DC, and New York City), and five territories (Puerto Rico, the Virgin Islands, Guam, American Samoa and the Commonwealth of the Northern Mariana Islands).

Vital Statistics data are available online in downloadable public use files, through pre-built tables in VitalStats, and through the ad-hoc query system CDC WONDER (Wide-ranging Online Data for Epidemiologic Research). Death certificate data is available by underlying cause of death (detailed mortality) for 1999-2010, and CDC WONDER includes this data at the county level as well.

### ***Data quality***

Standard forms for the collection of the data and model procedures for the uniform registration of the events are developed and recommended for state use through cooperative activities of the states and NCHS. As reported in the NCHS publication *U.S. Vital Statistics System, Major Activities and Developments, 1950-1995*, efforts to improve the quality and usefulness of vital statistics data are ongoing. NCHS uses techniques such as testing for completeness and accuracy of data, querying incomplete or inconsistent entries on records, updating classifications, improving timeliness and usefulness of data, and keeping pace with evolving technology and changing needs for data. Work with state partners to improve the timeliness of vital event reporting is ongoing, and NCHS is working closely with National Association of Public Health Statistics and Information Systems and the Social Security Administration to modernize the processes through which vital statistics are produced in the United States, including implementation of the 2003 revised certificates.

However, the death reporting systems will vary state by state. Medical examiners and coroners determine the cause and mode of death in each county. A study conducted by the Oklahoma statewide Medical Examiner and Vital Statistics Office surveillance systems that compared reporting on violent injury death methods (including homicide) in the state of Oklahoma found that sensitivity rates were higher in the Medical Examiner system for homicides (99.2 percent versus

90.7 percent). Positive predictive value rates were higher in the Vital Statistics system (99.1 percent versus 95.0 percent)(2). Other studies have demonstrated the usefulness of mortality rates through Medical Examiner and Surveillance Systems (4-10). The National Violent Death Reporting System (NVDRS) is a surveillance system that pulls together data on violent deaths including information about homicides from a variety of sources, including death certificates, coroner/medical examiner reports, law enforcement reports and crime laboratories (36). These data may be useful in determining opportunities for prevention because they include more information on why an event may have occurred, however NVDRS data are only available for the 32 states that currently participate (36).

### ***Simplicity of indicator***

The level of complexity in calculating and explaining this indicator is low. The numerator and denominator are simple as they are both calculated by state-level data. Data weighting, indexing or adjustments are not required as they are actual counts not sample counts and the statistical formula is straightforward. Homicide is a standard definition according to the law on all vital records. The indicator is straightforward and easy to communicate to the public and partners.

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To learn more, please contact Caroline Stampfel, Senior Epidemiologist at [cstampfel@amchp.org](mailto:cstampfel@amchp.org) or (202) 775-0436.

#### **Association of Maternal & Child Health Programs**

2030 M Street, NW, Suite 350

Washington, DC 20036

(202) 775-0436 ▪ [www.amchp.org](http://www.amchp.org)

