HHS Public Access

Author manuscript

J Safety Res. Author manuscript; available in PMC 2017 December 20.

Published in final edited form as:

J Safety Res. 2012 September ; 43(4): 249–255. doi:10.1016/j.jsr.2012.08.005.

Twenty years of scientific progress in injury and violence research and the next public health frontier☆

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Abstract

The establishment of the National Center for Injury Prevention and Control (NCIPC or Injury Center) in 1992 as part of the Centers for Disease Control and Prevention (CDC) firmly established the Injury Center as the lead federal agency for non-occupational injury prevention and control (Sleet et al., 2012). Since then, it has provided leadership and a strong scientific base for intramural and extramural-investigator funded injury research. The Injury Center's scientific mission encompasses efforts from primary prevention to treatment and rehabilitation. Early CDC efforts were primarily focused on describing the extent of the problem, identifying risk and protective factors that affect the extent of violence and injury in our society, and gaining visibility for violence and injury as a major public health problem. Efforts such as the development of injury-based surveillance systems provided population-based surveillance data regarding the extent and distribution of fatal and non-fatal injuries, helped to identify demographic characteristics for those who were most at risk, and identified risk and protective factors that influence that risk. Celebrating the Injury Center's 20th anniversary presents an opportunity not only to reflect on past accomplishments but also to look ahead at what still needs to be done.

Keywords

Injury; Violence; Translation; Surveillance; Prevention

1. Introduction

Since the establishment of the CDC Injury Center twenty years ago, much progress has been made in a number of injury areas. For example, during the past decade deaths and nonfatal injuries from traffic crashes have declined significantly. From 2000–2009, while the number of vehicle miles driven in the United States increased by 8.5%, the death rate associated with motor vehicle travel declined from 14.9 per 100,000 population to 11.0 and the injury rate

☆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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declined from 1,130 to 790 per 100,000 (National Highway Traffic Safety Administration [NHTSA] [NHTSA]). The recognition of violence as a public health problem has led the way for development of evidence-based strategies in the reduction of youth violence. These successes were highlighted in the publication *Youth Violence: A Report of the Surgeon General* (U.S. Department of Health and Human Services, 2001). Among the important findings highlighted in the report, the cost-effectiveness of prevention over incarceration is particularly noteworthy. Another recent achievement is in the early recognition and treatment of concussion. This work has led to the growing awareness of the importance of delaying an athlete's return to play following concussion until fully healed. Players who return to play too early are at increased risk of developing secondary impact syndrome if a second concussion is sustained. Secondary impact syndrome is a catastrophic response to a second concussion that results in increased pressure on the brain and can lead to permanent brain damage or even death. This awareness has led to policies that prevent athletes from retuning to play before they have fully recovered from their first concussion.

New areas of inquiry, such as economic analysis, are contributing to a powerful financial argument about the benefits of prevention. For example, due to the high societal cost of older adult falls (currently estimated at $28 billion a year) CDC's Division of Unintentional Injury Prevention (DUIP) developed a "business case for fall prevention," which provides information about cost and return on investments for community-based programs (Carande-Kulis, Stevens, Beattie, & Arias, 2010). This business case lays out a clear rationale, and benefit, for private insurers and health care professionals who serve older adults. Even more staggering is the cost of motor vehicle-related injuries, as measured by Naumann, Dellinger, Zaloshnja, Lawrence, and Miller (2010) whose study armed DUIP with compelling information about the need for greater prevention efforts.

Similarly, the Division of Violence Prevention just released a study on the cost of child maltreatment (Fang, Brown, Florence, & Mercy, 2012) that suggests each death due to child maltreatment had a lifetime cost of about $1.3 million, almost all of it in in indirect costs, (i.e., money that the child would have earned over a lifetime if he or she had lived). In non-fatal cases, child maltreatment has been shown to have many negative effects on survivors, including poorer health, social, and emotional difficulties, and decreased economic productivity. Fang and his colleagues found these negative effects over a survivor's lifetime generate many costs that impact the nation's health care, education, criminal justice, and welfare systems. For more information about the cost of injuries see Finkelstein, Corso, and Miller (2006).

One way to capture the sheer increase in injury research is by examining the volume of injury-related publications since the establishment of the Injury Center. Fig. 1 shows the growth of injury and violence publications. While there was some growth prior to the establishment of the Injury Center, the rate of growth has increased since 1992. From 1992 – 2011, there has been a four-fold increase in injury-related peer review publications (http://www.safetylit.org). Likewise, the Injury Center has seen growth in its extramural program. In 1987, CDC funded the first Injury Control Research Centers. At that time five centers were funded including Harvard University, Johns Hopkins University, University of North Carolina, University of Washington, and Wayne State University. Today the CDC Injury

Center funds eleven such programs. In addition to the research that is conducted at each of these centers, they have and continue to contribute to the growth in the field through their training efforts aimed at increasing both the research and practice of injury prevention.

While this article is not meant to be an exhaustive summary of Injury Center achievements, Table 1 provides some of the major Injury Center achievements over the past two decades. Additional Injury Center accomplishments as well as those in the injury and violence community in general have been highlighted in a special Morbidity and Mortality Weekly Report (MMWR) Supplement that celebrated the MMWR's 50th anniversary and highlighted injury and violence prevention achievements as part of the issue (Sleet et al., 2011).

Despite these advancements, continued work is needed. While we have identified several effective interventions, translation and dissemination of these interventions have lagged behind resulting in limited implementation of strategies that work. In addition, we have identified new injury threats. Unintentional poisoning deaths in the United States have increased by 160% from 1999 to 2009. Changes in our demographics to an aging population create new challenges. Injuries that may not be serious for young adults may be life-threatening or result in loss of independence in an aging population. As a Center, we must be able to identify emerging injury problems, but most importantly not think our work is done once we have identified effective interventions. Translational research is needed to make sure that interventions meet the needs of the community and are broadly disseminated and widely adopted.

2. Focus areas

As a small center with limited resources, the Injury Center has maximized its impact by identifying specific focus areas. While the breadth of our work is far broader than that of our focus areas, establishing a few focus areas allows the Injury Center to concentrate attention and/or resources on areas that are ripe for achieving impact. Focus areas are selected based on three principles: (a) responsiveness to emerging trends and increasing injury burden; (b) support of proven and promising interventions and policies; and (c) wise use of resources. Based on these principles the Injury Center's current focus areas include: motor vehicle-related injury, traumatic brain injury, violence against children and youth, and prescription drug overdose. Accomplishments, progress, and challenges in these areas are highlighted later in this journal. Our intent is to be nimble and responsive to changing demographics, emerging concerns, as well as being able to address issues where promising practices and policies are ready for dissemination, implementation, and further evaluation.

3. Research agenda

The Injury Center developed its first Research Agenda in 2002, establishing goals for 2002 – 2007. In order to ensure consideration of a broad range of topics and perspectives, the Injury Center invited external experts and partners to participate in its development (NCIPC, 2002). Toward the end of 2007, the research agenda was revised and established goals for 2009 – 2018. The revision was based on a review of accomplishments toward the goals outlined in

the 2002 agenda. In addition the findings and recommendations from Injury Portfolio Reviews were also considered. From 2005 through 2007, the Injury Center conducted several internal program reviews including youth violence (2005), falls among older persons (2006), traumatic brain injury (2007), and biomechanics (2007). External review panels were convened to review findings and develop recommendations. Other documents considered in this revision included CDC Health Protection Goals (available at http://www.cdc.gov/about/goals.htm), the CDC Research Guide, and Healthy People 2010 objectives. A draft of the Research Agenda was reviewed by the Injury Center's Advisory Committee for Injury Prevention and Control, selected federal partners, and nonfederal injury prevention researchers, practitioners, and organizations before being finalized (NCIPC, 2009).

The Injury Center's research agenda is organized along two guiding principles. First, the Public Health Model is used to describe and acknowledge the importance of the different phases of research from identification of the problem through to the assurance of widespread adoption of effective interventions and is described more fully below (Mercy, Rosenberg, Powell, Broome, & Roper 1993). The second guiding framework, the Socio-ecological model (Garbarino & Crouter, 1978) considers the importance of targeting different levels along a societal continuum. This model, first developed in the 1970s to study child abuse, considers different spheres of influence and the interaction of those levels. The first level considers factors that directly impact the individual. The second level considers relationships, such as the interaction between family, friends, or intimate partners and how those relationships impact on risk for injury or violence. The third level examines the effect of various aspects of the community, such as schools and neighborhoods, on injury or violence risk. The last level explores societal influences on injury and violence risk. For example, the effect of laws, policies, and regulation in creating a climate that may enhance or reduce the risk of injury.

4. The public health model

The Public Health Model was adapted for violence by Mercy and his colleagues in the early 1990s (Mercy, Rosenberg, Powell, Broome, & Roper, 1993) and later expanded more fully to include assurance of wide spread adoption. The first phase considers the basic descriptive epidemiology of the problem, describing the extent, trends, and basic demographic characteristics of the problem. The second phase identifies the risk and protective factors that affect the likelihood of the occurrence of an injury. Third, based on the findings from the first two phases, intervention strategies are developed to prevent the injury from occurring or to minimize the impact of injury when it does occur. Finally, the purpose of the last phase is to assure that best and promising strategies are translated into programs, services, or policies that are tailored to community needs and that effective interventions are widely disseminated and broadly adopted. Traditionally, this model is referred to as a linear model, moving sequentially from left to right. More recently, there has been recognition of the importance of a feedback loop such that practice has valuable information to feed back to researchers regarding how intervention strategies work in communities (see Fig. 2). This feedback loop is important in modifying interventions so that they are culturally sensitive

and acceptable to the community (Green, 2008). This also coincides with other shifts in the area of chronic disease incorporating a ‘systems’ type approach.

5. Steps one and two: Describing the problem and identifying risk factors

Valid and reliable data are the underpinnings for identifying priorities, developing, and testing interventions, as well as evaluating programs translated for the community. The Injury Center has been in the forefront not only in the development of injury surveillance data tools but in the development of user-friendly platforms that increase ease of use for researchers, public health practitioners, and policy makers.

These contributions include those that (a) improve the platform for existing data systems, (b) link multiple data sources to provide a more comprehensive picture of the problem, and (c) obtain new data through population-based surveys.

In 1999, CDC Injury Center launched the Web-based Injury Statistics Query and Report System or *WISQARS* using death data from National Center for Health Statistics’ (NCHS) *National Vital Statistics System* (http://www.cdc.gov/injury/wisqars/index.html). WISQARS offers an easy-to-use, menu-driven query system, providing both national and state population-based data on injury-related deaths, including death counts, death rates, and leading cause of death charts. The Center’s efforts to provide the best available population-based data through WISQARS has led to a number of innovations over the years. In 2000, in collaboration with the U.S. Consumer Product Safety Commission, the Injury Center initiated the National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP; Quinlan et al., 1999), which is an ongoing surveillance system that provides data on all types and causes of nonfatal injuries treated in a nationally representative sample of U.S. hospital-based emergency departments. In 2003, a non-fatal injury module using NEISS-AIP data was incorporated into WISQARS. In 2008, a violence-related death module was added using detailed data from the National Violent Death Reporting System. Most recent (2010 and 2011) innovations to WISQARS included modules to generate maps of state- and county-level injury death rates and to estimate the lifetime medical and work loss costs of fatal and non-fatal injuries by external cause and intent of injury, and by body region and nature of injury.

Traditional public health databases such as vital statistics, and hospital or emergency department data, do not provide a complete picture of injury or violence-related incidents. For example, the National Highway Traffic Safety Administration (NHTSA) maintains a number of databases on traffic crashes. These databases provide valuable information about the circumstances and environment of the crash but do not provide adequate information regarding injuries. NHTSA has been able to supplement their data through the Crash Outcome Data Evaluation System (CODES) project, which links crash data to medical records in a selected number of states. For violence-related deaths, death certificates have limited utility in identifying the full incident leading up to a violent death. In 2002, CDC Injury Center received funding to create the *National Violent Death Reporting System (NVDRS)*. NVDRS is a state-based surveillance system that links a variety of sources including death certificates, police reports, criminal justice reports, medical examiner and

coroner reports, hospital reports, and reports from crime laboratories to obtain a comprehensive description of the circumstances surrounding homicide and suicide. Currently 18 states are funded to collect data.

Comprehensive information, particularly those on risk and protective factors are best obtained through direct interviews. In 1994, the CDC Injury Center conducted the first nationwide Injury Control and Risk Survey (ICARIS) to assess the magnitude of injury and violence in the United States and to identify risk factors that contributed to likelihood of sustaining an injury or violence-related incident. This survey was repeated July 23, 2001, through February 7, 2003 and a shorter version was administered from March 8, 2007 through May 30, 2008. The ICARIS surveys collected information on a variety of violence and unintentional injury-related topics. Topics for the shorter third survey included older adult mobility, child supervision, traumatic brain injury and other injury causing disabilities, as well as violence-related injury topics. More recently (2010), CDC Injury Center launched *the National intimate Partner and Sexual Violence Survey (NISVS),* an ongoing population-based surveillance system designed to gather national and state data on the incidence, prevalence, and health consequences of sexual violence, stalking, and intimate partner violence.

Finally, In addition to our centralized efforts to track violence and injuries, the Injury Center supports states in preparing and disseminating the State Injury Indicators (SII) Report. These data are essential to state efforts in monitoring violence and injury-related deaths and non-fatal occurrences and targeting programs to meet the needs most relevant to their state. The indicators, developed using a consensus methodology in conjunction with Safe States Alliance and the Council of State and Territorial Epidemiologist, also is designed to capture a snapshot of injury across the nation. Centralized electronic hospital discharge data, electronic emergency department data, and centralized electronic vital statistics data are used to calculate the indicators. Injuries resulting in or occurring from the following are currently included in the *State Injury Indicators*: all injury, drowning, fall-related injury, fire-related injury, firearm-related injury, homicide/assault, motor vehicle-related injury, poisoning, suicide/suicide attempt, and traumatic brain injury (TBI). Overlap exists among these indicators. For example, a firearm-related homicide would be included in both the firearm-related death indicator and the homicide indicator.

6. Step three: Developing and evaluating interventions

Understanding the scientific base for injury and violence are at the core for developing effective interventions. Interventions may be classified by their timing, the target of the intervention, whether the intervention is universal or targets a specific risk group, or by the level of evidence established (Doll, Bonzo, Mercy, & Sleet, 2007). Most of the focus within CDC has been on development of primary prevention interventions that aim to prevent the occurrence of injury. Over the past 20 years, CDC has been involved in the development and evaluation of several interventions. Evidenced-based interventions have been identified in a number of areas, including prevention of youth violence (http://www.colorado.edu/cspv/blueprints/modelprograms.htmlref), teen dating violence (Foshee et al., 1998), falls among

older adults (Stevens, 2010), and motor vehicle-related injuries (Dinh-Zarr et al., 2001; Elder et al., 2011; Zaza et al., 2001).

The Injury Center's collaboration with the Guide to Community Preventive Services (Community Guide) and the Community Guide's Community Preventive Services Task Force (Task Force) has established credible evidence for identifying effective interventions that are ready for translation and dissemination. (Community Guide, http://www.thecommunityguide.org/about/aboutTF.html) The Task Force is an independent non-federally funded task force, appointed by the Director of CDC, to oversee and participate in the systematic review of public health and prevention interventions. Based on rigorous systematic reviews of existing research, The Task Force provides recommendations on the effectiveness of public health programs, services, and policies. The work of the Task Force is to examine the body of evidence around specific topic areas and determine whether there is sufficient evidence to recommend an intervention. Evidence of effectiveness ranges from strong, sufficient, to insufficient. Several Community Guide Reviews have focused on injury and violence topic areas. Topics on motor vehicle-related injury prevention include interventions to promote seat belt use, child safety seat use, and reduce alcohol-impaired driving (http://www.thecommunityguide.org/mvoi/index.html). Community Guide reviews that focus on the prevention of violence among children and youth include early childhood home visitation, firearm laws, reducing psychological harm from traumatic events, school-based violence prevention programs, therapeutic foster care, and youth transfer to adult criminal systems (http://www.thecommunityguide.org/violence/index.html). These reviews have guided implementation efforts at CDC as well as partner agencies. For example, the National Highway Traffic Safety Administration partnered with CDC to provide funding for motor vehicle Community Guide efforts. Results have thus guided NHTSA as well as CDC in promotion of only those interventions that had sufficient evidence to be recommended (Task Force on Community Preventive Services, 2001).

7. Step four: Assuring widespread adoption

Although the Injury Center's scientific attention has been largely focused on identifying the extent of the problem, tracking trends, identifying risk and protective factors, and developing and assessing the effectiveness of interventions, there has been a growing interest in translational research (sometimes called "dissemination and implementation research") to assure widespread adoption (Brownson, Colditz, & Proctor, 2012). Translational research builds on a body of theory and science associated with the diffusion, dissemination, and implementation of innovations that scientists have deemed effective (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Rogers, 1962).

This growing interest in translational research is warranted. Many of the interventions that have demonstrated effectiveness have not yet achieved public acceptance or widespread adoption. If we are to have a major impact in reducing mortality and morbidity from injury and violence, we are ethically bound to assure that effective intervention strategies do not sit on the shelf, but rather are translated into programs, services and policies that are culturally relevant, acceptable, and accessible to diverse populations in cities, suburbs, and rural areas.

The last step in the public health model indicates that effective interventions must be translated and implemented at the community level, and finally disseminated broadly to achieve widespread adoption. However, the public health model provides little insight into how scientists and public health practitioners translate effective interventions into successful programs and scale up to reach target populations (Hanson, Finch, Allegrante, & Sleet, 2012). Recognizing that the mere availability of evidence-based strategies was insufficient to achieve widespread adoption, scientists in the Injury Center's Division of Violence Prevention worked with external partners to develop a framework to guide the process of translation, this led to the development of the Interactive Systems Framework for Dissemination and Implementation (ISF) (Wandersman et al., 2008). The ISF provides guidance for synthesizing research findings and providing accessible materials, building capacity to use new strategies or "innovations" and promoting effective implementation by reducing barriers to adoption and fidelity of implementation). This framework also recognizes the important perspective that practitioners bring to the process and that the process must be bi-directional.

One example of the Injury Center's work in translation and dissemination is in the area of fall prevention among older adults. As a previous focus area in the Injury Center, this topic received much needed attention and resources toward identifying effective interventions and developing a plan to translate, disseminate, and implement effective programs broadly. As a first step toward moving effective interventions into the community, the Injury Center published *A CDC Compendium of Effective Fall Interventions: What Works for Community-Dwelling Older Adults*. (Stevens, 2010) This compendium, first published in 2008 and later revised in 2010, describes 22 scientifically tested and proven interventions with details for practitioners interested in implementing these interventions in their communities. In 2008, the Injury Center also published the document Preventing Falls: How to Develop Community-based Fall Prevention Programs for Older Adults. This document is a "how-to" guide for practitioners interested in developing their own intervention programs (NCIPC, 2008). To further assist states and communities with the translation and dissemination of fall interventions, The Injury Center is funding state health departments to translate one of three evidence-based programs and tailor to their community needs and population. Even more recently, the Injury Center invested in the translation of the American Geriatrics Society's clinical guidelines to prevent falls among older persons (http://americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/prevention_of_falls_summary_of_recommendations). This effort draws upon best practices in translational science to: create materials and processes that are based on end-user input; provide visuals that are pleasing to the eye and that condense complex information into digestible segments; capitalize on existing professional networks to disseminate and train new adopters; and reach the greatest number of older adults possible with the least amount of individual effort (as Frieden's, 2010 "Health Impact Pyramid" recommends).

8. Research to practice agenda: Addressing the next public health frontier

As the Injury Center looks forward to the next 20 years, it is incumbent on us as researchers to collaborate with the practice community to do the needed work to translate our

interventions into programs that meet the needs of diverse communities. This fact has been recognized in the past, and echoed by the oft-cited mantra that “we need more evidence-based practice.” However, to expedite the development and effective use of robust strategies, we also need more practice-based evidence (Green, 2008). Practitioners are experts in their own communities and know best what approaches may resonate with the affected population. They are also very practical about what can be done within existing time and resource limitations. We need to include them, and other end users, in the development of research at all stages of the public health model. Their inclusion promises to reduce complexity and cost of interventions – two enormous barriers to implementation in the real world – and supports the public health goal of affecting the greatest number of people in the cheapest and fastest way possible. We can only achieve this goal by working collaboratively with experts in fields of program delivery, marketing, communications, capacity building and training, as well as epidemiology and behavioral sciences. That is to say, it will take a village.

To that end, the Injury Center is in the process of developing a Research to Practice Agenda. While we must not lose sight of emerging areas in need of foundational research and areas in which effective interventions have not yet been established, we must also make sure that effective programs, services, and policies receive the attention they need to assure adequate translation, dissemination, and support for implementation. Just as we apply scientific rigor to the identification of risk and protective factors and the development of effective interventions, we must apply the same systematic and scientific rigor to assure that evidence-based strategies are translated with fidelity but yet are flexible to the needs of different communities. It is equally important to make sure that once strategies are translated, we understand the best vehicles for dissemination and capacity building in order to assure widespread adoption and effective use of appropriate strategies. Reaching these lofty scientific goals is the next public health frontier that must be addressed. We hope you will join us in this effort and help us realize our ultimate mission: preventing violence and injury so people can live their life to the fullest potential.

Acknowledgments

The authors acknowledge the contributions of David Lawrence, PhD, Director, Center for Injury Prevention Policy & Practice Graduate School of Public Health, College of Health & Human Services, San Diego State University for compiling the number of injury publications using “SafetyLit.org®” and Paige Cucchi who compiled the list of Injury Center accomplishments over the past 20 years. We also would like to thank thoughtful reviews from Drs. David Sleet, Linda Dahlberg, Marilyn Radke, Lee Annest, and Ms. Marcie Kresnow.

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Biographies

Arlene Greenspan was appointed the Associate Director for Science at CDC's National Center for Injury Prevention and Control (Injury Center) in 2011. From 2003 – 2011, Dr. Greenspan was the senior health scientist in the Injury Center's, Division of Unintentional Injury Prevention on the Motor Vehicle Team. During her tenure on the motor vehicle team, Dr. Greenspan conducted research and managed projects in the area of motor vehicle safety focusing on child occupant and teen driver and occupant injuries. Why does she do what she does? So teens are safe on the road every day.

Rita Noonan is the Associate Director for Program Development and Integration at CDC's Injury Center. This position ensures that the Center's programs and programmatic priorities are well supported, widely disseminated, and implemented effectively across a variety of settings. Prior to joining CDC, Dr. Noonan worked as a sociology and women's studies professor at the University of Iowa. Dr. Noonan has been the recipient of several prestigious awards, including a Fulbright Scholarship and a MacArthur Fellowship. Dr. Noonan received her doctoral degree in sociology from Indiana University in 1998. Why does she do what she does? So her parents can live falls free.

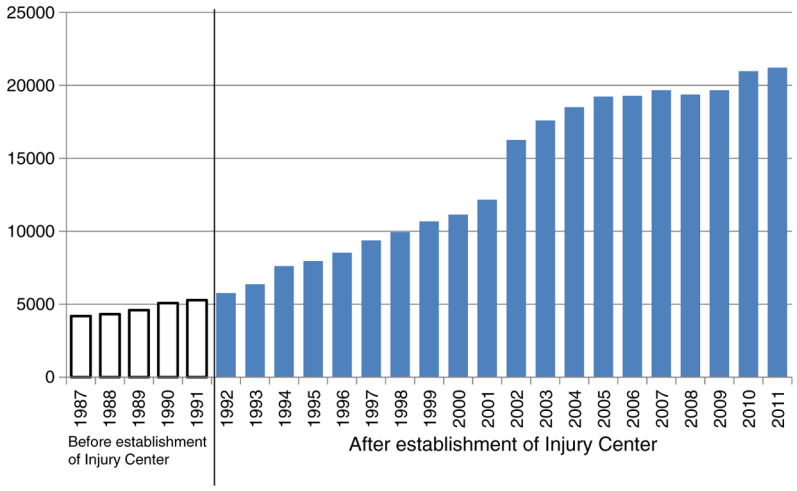

Fig. 1.

Number of Injury and Violence Publications 1987–20011*. Permission from SafetyLit.org® (http://www.safetylit.org).

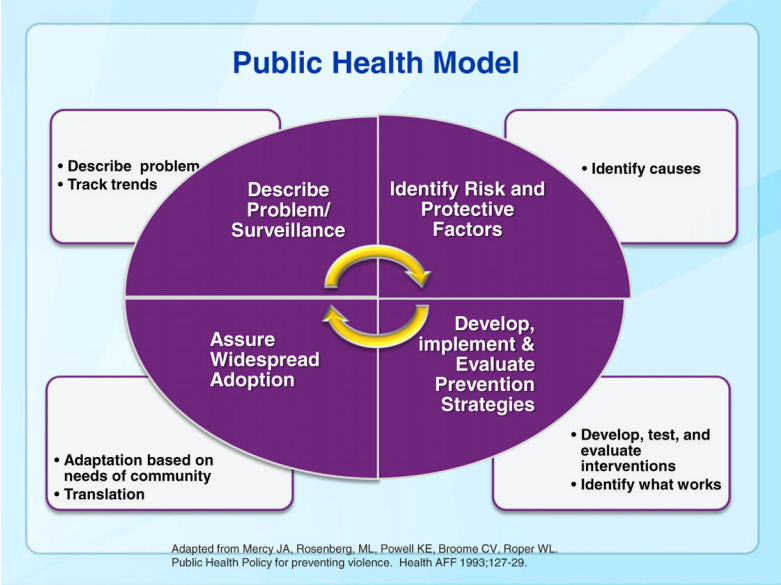

Fig. 2.
Public Health Model.

Table 1

National center for injury prevention and control scientific achievements.

BEFORE THE FOUNDING OF CDC'S INJURY CENTER

1985

Institute of Medicine (IOM) publishes Injury *in America: A Continuing Public Health Problem.* The Report by the committee on trauma research (William H Foege, Chairman) recommends the establishment of a Center for Injury Control within the CDC and called for funding that would be commensurate with the size of the problem. Support for the IOM report recommendations contributed to the increase in the number of staff and the size of the budget for injury prevention research and programmatic activities at the CDC.

1986

Congress responds to IOM report (*Injury in America)* by appropriating $10 M in the NHTSA budget to go to CDC to initiate a 3-year pilot program for the study of injury control at the CDC. One half of the money was to be used to fund motor vehicle-related research.

1987

CDC begins funding Injury Control Research Centers (ICRCs) throughout the United States to study ways to prevent injuries and disabilities. Initially, five universities received CDC grants to build "centers for excellence in injury research." The five included:

Harvard University,

John Hopkins University,

University of North Carolina,

University of Washington and

Wayne State University.

THE INJURY CENTER'S 20 YEAR HISTORY, 1992–2012

1992

HHS Secretary Donna E. Shalala officially creates The National Center for Injury Prevention and Control on June 25, 1992, with support from the CDC Director.

1993

CDC establishes the Divisions of Violence Prevention and Unintentional Injury Prevention within the newly created Injury Center.

CDC Injury Center publishes *Injury Control in the 1990s: A National Plan for Action. A Report to the Second World Conference on Injury Control.* Atlanta, GA: Centers for Disease Control and Prevention.

CDC Injury Center publishes *the Prevention of Youth Violence: A Framework for Community Action*, an inflential document that outlined the steps necessary to implement a public health approach to youth violence prevention.

1994

CDC Injury Center conducts the first nationwide *Injury Control and Risk Survey (ICARIS)* to assess the magnitude of injury and violence and various risk factors.

1995

CDC Injury Center publishes the first *Injury Control Recommendations for Bicycle Helmets* in MMWR.

CDC Injury Center and the National Institute of Justice collaborate on the National Violence Against Women Survey (NVAWS), providing the first national data on the incidence and prevalence of violence against women. Several publications emerge from this survey including the *Extent, Nature, and Consequences of Intimate Partner Violence: Findings From the National Violence Against Women Survey, July 2000.*

CDC Injury Center releases *Guidelines for the Surveillance of a Central Nervous System Injury,* serving as the U.S. Standard for collecting information on traumatic brain and spinal cord injuries, forming the basis for international guidelines published by WHO.

CDC Injury Center publishes Air-*Bag–Associated Fatal Injuries to Infants and Children Riding in Front Passenger Seats and Public Health Recommendations to Prevent Air-Bag–Associated Injuries to Infants and Children* in MMWR.

1997

CDC Injury Center publishes *Data Elements for Emergency Department Systems (DEEDS*) which sets uniform specifications and national standards for data entry in

Emergency Department (ED) patient records. This product was based on findings from a national workshop on ED data, which was sponsored by the Injury Center.

1998

CDC Injury Center publishes *Measuring Violence-Related Attitudes, Beliefs, and Behaviors among Youths: A Compendium of Assessment Tools.* The Compendium provides researchers and prevention specialists with tools to assess factors related to youth violence and to evaluate

prevention programs. More than 7,000 copies are distributed in the first three months. The compendium is reprinted in 1999 to keep up with demand and a second edition is published in 2005.

1999

CDC Injury Center launches *WISQARS* with National Center for Health Statistics' (NCHS) *National Vital Statistics System* death data. The ten leading causes of death charts are added in 2001.

CDC Injury Center publishes *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements* to improve and standardize data collection. This effort paved the way for the development of uniform definitions and standards of data collection for other types of violence – Sexual Violence (2002), Child Maltreatment (2008), Self-Directed Violence (2011), and Pediatric Abusive Head Trauma (2012).

2000

CDC Injury Center receives congressional appropriations to establish 10 National Academic Centers of Excellence (ACEs) for Youth Violence Prevention. CDC Injury Center funds 10 colleges and universities. The Centers foster efforts between university researchers and communities to address youth violence. CDC Injury Center helps creates the *National Youth Violence Prevention Resource Center* (NYVPRC), a user-friendly source of youth violence information and effective strategies to control and prevent violence.

CDC Injury Center issues *Best Practices of Youth Violence: A Sourcebook for Community Action*, which highlights the best available knowledge on parent, family, mentoring, and school-based strategies to prevent youth violence.

CDC Injury Center adds the U.S. Consumer Product Safety Commission NEISS-All Injury Program data to WISQARS. The NEISS All Injury Program is launched as a result of direct congressional funding to obtain national estimates of all types and causes of nonfatal injuries treated in US hospital EDs. Non-fatal injury modules are added to WISQARS using NEISS-AIP data in 2003.

2001

CDC Injury Center publishes the first *State Injury Indicators Report* in partnership with Safe States Alliance (formerly known as STIPDA) and Council of State and Territorial Epidemiologists (CSTE). The report includes surveillance data for 12 states. A second report is released in 2004 and includes data for 26 states.

CDC Injury Center plays a key role in the Federal Steering Group for the Surgeon General's *National Strategy for Suicide Prevention.* The Strategy provides national goals and objectives for preventing suicide, promoting awareness of suicide, and discusses program development and tracking systems.

CDC Injury Center publishes *Recommendations on Reducing the Risk of Motor Vehicle Injuries, in the MMWR and in the American Journal of Preventive Medicine, addressing alcohol, seat belts, and child safety seats,* the first set of systematic reviews on injury control conducted for the Guide to Community Preventive Services.

Present Clinton signs legislation making 0.08 Blood Alcohol Concentration the new alcohol limit for drivers, supported by evidence from CDC Injury Center's systematic review and the Community Guide.

2002

CDC Injury Center publishes the *CDC Injury Center Injury Research Agenda* which identifies priorities for injury prevention and control research. The original agenda included research priorities for a 5-year period (2002–2007). The updated agenda was issued in 2009 and includes priorities for a 10 year period (2009–2018).

CDC Injury Center receives funding to create the *National Violent Death Reporting System (NVDRS*), the first state-based surveillance system to link data from multiple sources about the same incident with the goal of informing violence prevention efforts. Six states begin collecting data. By 2012, the system is expanded to include 18 states.

CDC Injury Center researchers and WHO produce the first *World Report on Violence and Health*, the first comprehensive report on violence as a global public health issue. The World Health Assembly, the United Nations High Commission on Human Rights, the World Medical Association, and all 52 heads of state in the African Union endorse the report and call for the implementation of the report's recommendations.

2003

CDC Injury Center publishes *Heads Up: Brain Injury in Your Practice* a tool kit to help physicians recognize traumatic brain injury.

2004

CDC Injury Center researchers help plan, develop and write the *World Report on Road Traffic Injury Prevention*, the first report of its kind to provide background and recommendations for solving the global road traffic crisis.

2005

CDC Injury Center helps develop *Falls Free: Promoting a National Falls Prevention Action Plan* that outlines strategies to reduce fall dangers for older adults and addresses barriers to a national falls prevention initiative.

CDC Injury Center and partners develop *Heads Up: Concussion in High School Sports* tool kit for coaches.

CDC Injury Center collaborates with the WHO to develop guidelines for *Prehospital Trauma Care Systems* and *TEACH-VIP*, a comprehensive curriculum covering the fundamentals of injury and violence prevention and control that is aimed at building the capacity of low- and middle-income countries to address these issues. A web-based version of the course—*TEACH- VIP E-Learning* – is launched in 2010.

2006

The United Nations Secretary General releases a *World Report on Violence Against Children.* The report, which is co-edited by CDC, paints a detailed picture of the

THE INJURY CENTER'S 20 YEAR HISTORY, 1992–2012

2006

nature, extent, and causes of violence against children worldwide and provides recommendations to act and respond to the problem.

CDC Injury Center publishes *Incidence and Economic Burden of Injuries in the United States*. This study updated the original 1989 study with more detailed data based on the improvements in the coding and classification of injuries over the previous decade and provided new estimates on the nature and severity of injury and their economic burden.

CDC Injury Center and ICRC collaborators from Johns Hopkins and Emory University produce a book on "*Injury and Violence Prevention: Behavioral Science Theories, Methods, and Applications*.", *the first of its kind to focus on behavioral science contributions to the field.*

2007

CDC Injury Center in collaboration with UNICEF and other partners, conduct the first national survey on violence against children. This landmark study which focused on sexual violence generated interest among other countries and formed the basis for the Together for Girls initiative.

CDC Injury Center produces the first *Handbook of Injury and Violence Prevention, a* comprehensive manual that details injury and violence interventions that have proven to work effectively with vulnerable populations across all stages of life.

2008

CDC Injury Center co-edits *World Report on Child Injury*, (WHO & UNICEF) which compiles current knowledge and highlights knowledge gaps regarding various types of unintentional child injuries and action that should be taken to prevent them. CDC publishes a companion report *CDC Childhood Injury Report* that uncovered patterns of unintentional injuries among 0–19 year olds in the US, 2000–2006.

CDC Injury Center publishes *Strategies to Improve External Cause-of-Injury Coding in State-Based Hospital Discharge and Emergency Department Data Systems*.

2009

CDC Injury Center publishes *Guidelines for Field Triage of Injured Patients* after collaborating with American College of Surgeons-Committee on Trauma and NHTSA. CDC in collaboration with nine public and private organizations launches the Together for Girls Initiative at the annual meeting of the Clinton Global Initiative. Expanding on the Swaziland project, Together for Girls aims to end sexual violence against girls.

2010

CDC Injury Center releases *Compendium of Effective Fall Interventions: What Works for Community- Dwelling Older Adults* which describes 22 scientifically tested and proven falls prevention interventions.

CDC Injury Center launches *the National Intimate Partner and Sexual Violence Survey (NISVS),* an ongoing population-based surveillance system designed to gather national and state data on the incidence, prevalence, and health consequences of sexual violence, stalking, and intimate partner violence.

The Injury Center and the Department of Defense partner to produce a special issue of the American Journal of Preventive Medicine on using public health approaches to document and prevent injuries in the military.

Bloomberg Philanthropies offer $125 million for prevention to fund 10 countries with the highest road traffic injury burden. CDC works with the Asia Injury prevention Foundation to evaluate the impact of Global Helmet Vaccine Initiatives.

2011

The United Nations launches the "*Decade of Action for Road Safety, 2011–2020*" with passage of General Assembly resolution A/RES/64/255. CDC Director Dr. Tom Frieden shares the podium with NHTSA Administrator David Strickland in launching the Decade with a CDC Injury Center study on the costs of motor vehicle deaths in Washington DC.

2012

The Division of Unintentional Injury launches National Action Plan on Child Injury Prevention (NAP) with 65 partner organizations and launches a mini-grant program to fund implementation of more than 100 recommended actions in the plan.

CDC releases "Stopping Elderly Accidents, Deaths, and Injuries" (STEADI) tool kit to prevent older adult falls. This toolkit translates the American Geriatrics Society clinical guidelines for elderly fall prevention into easy-to-use materials for health care providers.