

## FEATURED PROGRAMME

## An overview of the National Center for Injury Prevention and Control at the Centers for Disease Control and Prevention

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The Centers for Disease Control and Prevention (CDC), located in Atlanta, Georgia, USA, is a public health agency of the US Department of Health and Human Services. CDC employs approximately 6000 staff, worldwide, and has an annual budget exceeding 2.5 billion dollars. As the nation's prevention agency, CDC is responsible for promoting health and quality of life by preventing and controlling disease, injury, and disability. In its half century of successes working with partners across the nation and the world, CDC has made important strides in detecting and investigating health problems, conducting research to enhance prevention, developing and advocating sound health policies, implementing prevention strategies, promoting health behaviors, fostering safe and healthy environments, and providing leadership in public health.

### History of the National Center for Injury Prevention and Control

In the early 1970s, CDC began to investigate injuries, particularly in the home and the recreational environment. These activities were located in the Division of Environmental Health Services of the Bureau of State Services. These activities were expanded into CDC's Division of Injury Control in the Center for Environmental Health. The National Institute for Occupational Safety and Health was also established at CDC to address a broad spectrum of occupational health issues, which include workplace safety and injuries. Also, the Violence Epidemiology Branch was created in 1983 in the Center for Health Promotion and Education as CDC began to focus surveillance and epidemiologic strategies on the problems of self directed and interpersonal violence and to promote the concept of violence as a public health problem.

A report published in 1985 by the National Academy of Sciences, *Injury in America*, documented serious inadequacies in the understanding of and approach to injury as a public health problem and recommended the establishment of a central agency to coordinate research efforts in injury prevention and control. Based on criteria established for a unit that could effectively manage a large scale national injury prevention

research effort to promote and support research into the causes, treatment, prevention, and rehabilitation of injuries, the report recommended the establishment of a new "Center for Injury Control" at CDC.

In response to the National Academy of Sciences report, Congress authorized and provided funding for the establishment within CDC of a national injury prevention research effort, consistent with CDC's mission to lead national efforts to prevent unnecessary disease, disability, and premature death. The Division of Injury Epidemiology and Control was established in CDC's Center for Environmental Health. Early in 1986, CDC's programs for violence and alcohol as a risk factor for injury became part of the division. In June 1992, the Division of Injury Epidemiology and Control along with a new program for acute care, rehabilitation, and the prevention of injury related disabilities became the National Center for Injury Prevention and Control (NCIPC).

The objectives outlined by the National Academy of Sciences provide NCIPC with a focus that is unique among federal agencies with activities in injury prevention and control. Where others have regulatory or enforcement roles, NCIPC is a scientific organization concerned with the public health. It uses science to understand the causes of injuries and how they occur; applies the findings from scientific studies to create programs to prevent injury; and works in partnership with various groups dedicated to solving the injury problem in America. CDC's science informs public health policy and programs.

### Mission of the National Center for Injury Prevention and Control

The mission of the NCIPC is to provide leadership in preventing and controlling injuries by reducing the incidence, severity, and adverse outcomes of injury. This mission is achieved through research, surveillance, implementation of programs, and communications. As the lead US federal agency for injury prevention, NCIPC works closely with other federal agencies; national, state, and local organizations; state and local health departments; and research institutions across the country.

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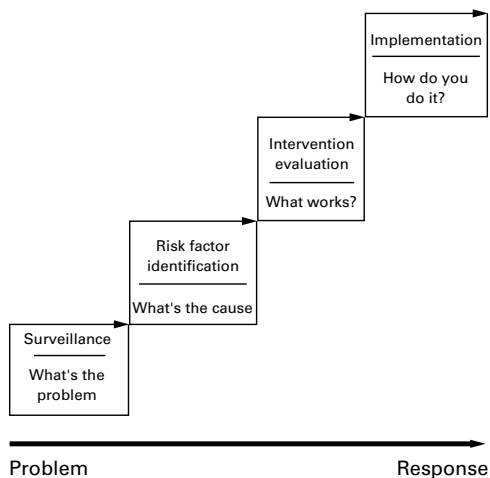


Figure 1 The public health approach.

**National Center for Injury Prevention and Control's public health approach**

The strength of NCIPC's program is its strong science base. The approach used in injury control is the same as in solving other important public health problems such as malaria, HIV/AIDS, and smoking. The steps include surveillance, risk factor identification, intervention, and evaluation (fig 1). They are interwoven to provide the scientific basis that makes interventions effective when placed in the community.

**SURVEILLANCE**

Surveillance describes the magnitude of injury problem, the location of the problem, and who is affected. This information allows those who make decisions about programs and research to allocate resources where they are most needed and where they will have a positive impact. The information from surveillance will also tell us how well we are doing over time,

where to shift resources, or when to set a different direction.

**RISK FACTOR IDENTIFICATION**

Risk factor identification provides information on populations who are at risk of particular injuries and why. This information is crucial in developing effective, targeted interventions. This type of research also can provide information that helps protect people from the risk of injury.

**EVALUATION**

Evaluation research provides answers to the ultimate question: Does it work? Evaluation determines whether an intervention itself works as was intended, and whether it will work when implemented in communities.

**IMPLEMENTATION**

Implementation research gives understanding on how best to implement and diffuse effective intervention programs.

**Organization of the National Center for Injury Prevention and Control**

The NCIPC is composed of over 140 staff organized into three divisions and five offices (fig 2). The three divisions are the Division of Acute Care, Rehabilitation Research, and Disability Prevention; the Division of Unintentional Injury Prevention; and the Division of Violence Prevention. Under the Office of the Director, there are five offices, including the Office of Communication Resources; Office of Planning, Evaluation, and Legislation; Office of Research Grants; Office of Statistics and Programming; and the Office of Program Management and Operations.

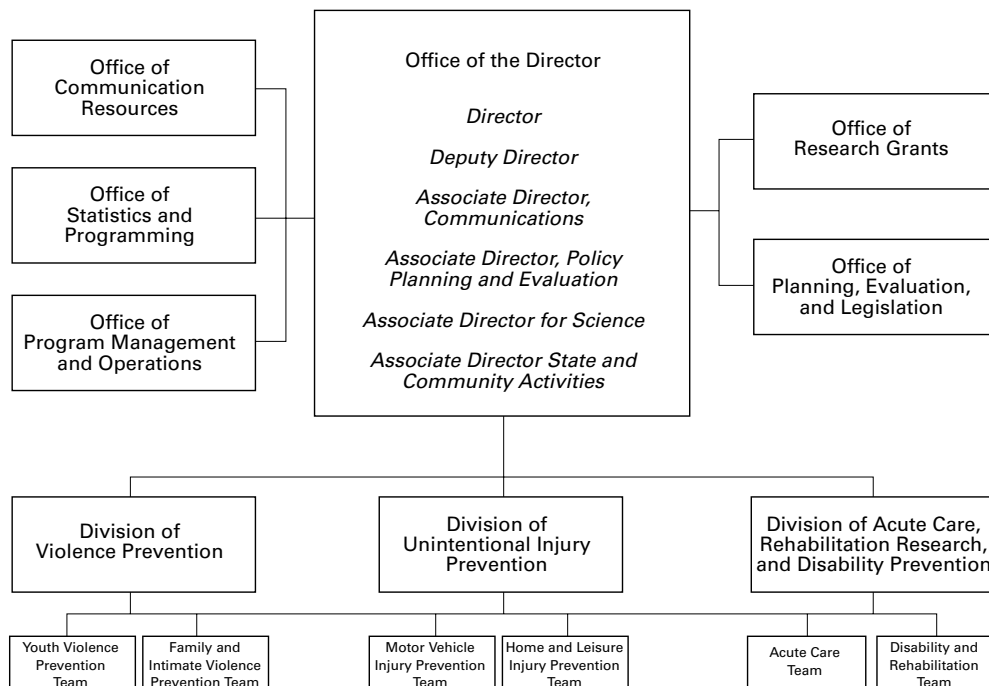


Figure 2 NCIPC organizational chart.

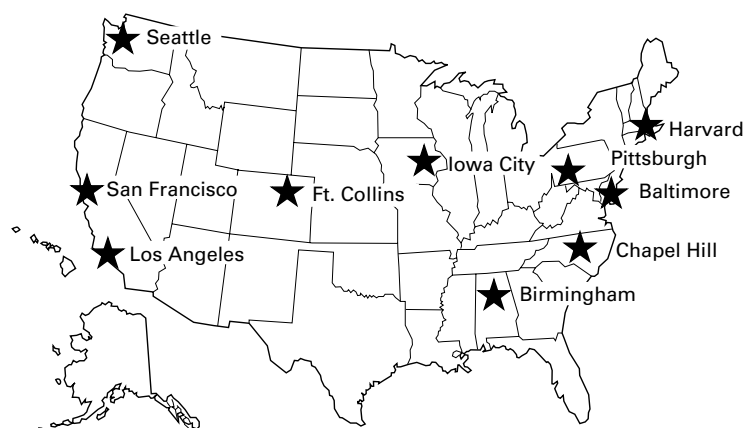


Figure 3 ICRCs, 1998.

#### DIVISION OF ACUTE CARE, REHABILITATION RESEARCH, AND DISABILITY PREVENTION

Prevention is the first line of defense against injury, but not all injuries can be prevented. Fortunately, however, the effects of injuries that do occur and the related disabilities and their recurrence can be reduced. The Division of Acute Care, Rehabilitation Research, and Disability Prevention (DACRRDP) does this by using a public health approach to reduce the impact of injuries by improving trauma care and rehabilitation systems, by integrating prevention in the acute care setting, and by preventing disabilities and secondary conditions in the community. DACRRDP is organized around two teams: the Acute Care Team and the Disabilities and Rehabilitation Team. Recent acute care activities include: development of Data Elements for Emergency Department Systems (DEEDS), which are specifications for information routinely entered into emergency department records that can be used for public health surveillance; the evaluation of emergency department screening and brief interventions for alcohol-related injuries; and support of poison control centers and the development of trauma care systems. Disability prevention efforts include collaborating with health departments to develop follow up registries to monitor disabilities and service needs of persons with traumatic brain injury. Other projects involve a public health approach in communities to prevent secondary conditions among persons with disabilities.

#### DIVISION OF UNINTENTIONAL INJURY PREVENTION

Injuries from unintentional causes kill more people between the ages of 1 and 34 years in the US than any other cause of death. Many recognized measures for preventing unintentional injury exist, such as safety belts and child safety seats to prevent fatalities in traffic crashes, smoke alarms to warn residents of a fire in time for them to escape uninjured, and fencing around swimming pools to prevent drowning, but people do not consistently use these measures.

NCIPC's research and prevention programs target two types of unintentional injury: (1) transportation injuries, especially those related to older drivers with medical impairments, young drivers, pedestrians, and alcohol im-

paired drivers, and (2) home and leisure related injuries caused by falls especially among the elderly, residential fires, bicycle related injuries, and playground, sports, and recreation related injuries. Injuries among high risk populations are a special focus.

Division staff have published recommendations for promoting the use of bicycle helmets; they have also conducted research studies on residential fires, risks related to teenage drivers, bicycle helmet promotion, in-line skating, dog bites, and childhood injuries. They have also investigated floods, blizzards, and bombings to learn how to reduce injuries in disasters.

#### DIVISION OF VIOLENCE PREVENTION

Violence claims the lives of many of our nation's young people and threatens the health and wellbeing of many Americans. The pervasiveness of violence and the fear it causes have rapidly changed the quality of life in America. On an average day in America, 70 people die from homicide, 87 people commit suicide, as many as 3000 attempt suicide, and a minimum of 18 000 survive interpersonal assaults.

NCIPC's research and prevention programs target injury resulting from youth violence, suicide, and family and intimate partner violence, which includes rape and sexual assault. The problem of violence in minority populations is a particular concern. The division has studied suicide clusters, violent deaths in schools, civil disturbances, aggression after natural disasters, child abuse, and violence against women. Fifteen youth violence prevention programs across the country were evaluated. These programs focus on methods such as peer mediation, mentoring, and teaching anger management to reduce violence. The Family and Intimate Partner Violence Prevention Team of the Division of Violence Prevention provides consultation and technical assistance to each state health department and to those states funded for rape prevention and education funds from the Preventive Health and Health Services Block Grant.

#### OFFICE OF RESEARCH GRANTS

NCIPC funds a grants program of over \$15 million annually for extramural research. The Office of Research Grants administers grants awarded to researchers, universities, and other public and private organizations for research in the three phases of injury control—prevention, acute care, and rehabilitation—and in the two major disciplines—epidemiology, which looks at the risks for injury, and biomechanics, which studies how the human body reacts to impact. Extramural research grants are awarded in the following categories:

An *injury control research center (ICRC)*—this is a broad scientifically based organization unit that is generally, but not exclusively, established within an academic institution and is funded to develop an interdisciplinary approach to the injury problem. The ICRCs also serve as training centers for public health professionals as well as information centers for the public (fig 3).

Table 1 Key resources on the NCIPC web site

Page name	URL
NCIPC publications order form	<a href="http://www.cdc.gov/ncipc/pub-res/pubsav.htm">http://www.cdc.gov/ncipc/pub-res/pubsav.htm</a>
NCIPC organizational chart	<a href="http://www.cdc.gov/ncipc/org.htm">http://www.cdc.gov/ncipc/org.htm</a>
NCIPC employment opportunities	<a href="http://www.cdc.gov/ncipc/jobs/jobs.htm">http://www.cdc.gov/ncipc/jobs/jobs.htm</a>
NCIPC funding opportunities	<a href="http://www.cdc.gov/ncipc/res-opps/funding.htm">http://www.cdc.gov/ncipc/res-opps/funding.htm</a>
List of currently funded extramural grants	<a href="http://www.cdc.gov/ncipc/res-opps/extra.htm">http://www.cdc.gov/ncipc/res-opps/extra.htm</a>
List of currently funded cooperative agreements	<a href="http://www.cdc.gov/ncipc/res-opps/state.htm">http://www.cdc.gov/ncipc/res-opps/state.htm</a>
Injury mortality data	<a href="http://www.cdc.gov/ncipc/osp/mortdata.htm">http://www.cdc.gov/ncipc/osp/mortdata.htm</a>
Leading causes of death for the US, individual states, and Washington, DC	<a href="http://www.cdc.gov/ncipc/leadcaus/chrtrqpg.htm">http://www.cdc.gov/ncipc/leadcaus/chrtrqpg.htm</a>
NCIPC bibliographies	<a href="http://www.cdc.gov/ncipc/pub-res/bibs.htm">http://www.cdc.gov/ncipc/pub-res/bibs.htm</a>
CDC/NCIPC injury prevention guidelines	<a href="http://www.cdc.gov/ncipc/pub-res/prevguid.htm">http://www.cdc.gov/ncipc/pub-res/prevguid.htm</a>
NCIPC injury fact sheets	<a href="http://www.cdc.gov/ncipc/cmprfact.htm">http://www.cdc.gov/ncipc/cmprfact.htm</a>
Monthly injury Medline update	<a href="http://www.cdc.gov/ncipc/update.htm">http://www.cdc.gov/ncipc/update.htm</a>
Injury books	<a href="http://www.cdc.gov/ncipc/pub-res/injbkbib.htm">http://www.cdc.gov/ncipc/pub-res/injbkbib.htm</a>
Injury related web sites	<a href="http://www.cdc.gov/ncipc/injweb/websites.htm">http://www.cdc.gov/ncipc/injweb/websites.htm</a>
Injury conference/meeting calendar	<a href="http://www.cdc.gov/ncipc/calendar.htm">http://www.cdc.gov/ncipc/calendar.htm</a>

A *research program project grant* (RPPG)—this is a cluster of research projects that focuses interdisciplinary resources on a particular aspect of injury control. An RPPG is generally established within an academic institution and is less comprehensive in its scope than an ICRC.

*Injury prevention and control research projects*—these are supported by individual research grants and are designed to: (1) clarify the chain of causation of injuries; (2) yield results that identify ways to prevent injury occurrence or minimize disability; or (3) evaluate the effect of known injury prevention practices on morbidity, mortality, disability, and costs.

*Small business innovation research grants*—these support research and development among for-profit small businesses, especially those developing new technology and devices for injury prevention.

Knowledge gained from the NCIPC extramural research program is disseminated widely to practitioners, other federal and state agencies, and other researchers in the field. The current database of research findings from the extramural grant program and the inventory of federally funded injury research are important tools for communicating research outcomes.

#### STATE AND LOCAL INJURY CONTROL PROGRAMS

NCIPC provides funding to state and local health departments, academic institutions, and community based organizations for injury prevention programs. This support is usually in the form of cooperative agreements and is usually for demonstration projects of promising intervention activities. These programs have a variety of activities including surveillance, injury prevention program design, and program and intervention evaluation in a number of injury areas such as bicycle helmet promotion, fire-related injury prevention, youth violence prevention, family and intimate partner violence prevention, and suicide prevention programs. In addition, NCIPC has provided basic program support to state and local health departments so that they may build or expand an injury prevention focus.

#### OFFICE OF STATISTICS AND PROGRAMMING

Statistical consultation and computer programming activities have been centralized within NCIPC. Office of Statistics and Programming (OSP) staff work closely with the staff of the

Office of the Director, other offices, and divisions to conduct epidemiologic and statistical research and to meet programmatic needs. Numerous statistical applications have been developed in this office for ready access to national and state injury mortality statistics on the NCIPC web site (see table 1). Also, OSP staff are working with the injury data obtained in national and statewide hospital and emergency department based data systems for in use in injury prevention activities.

#### OFFICE OF COMMUNICATION RESOURCES

Staff in the NCIPC Office of Communication Resources (OCR) are involved in all aspects of communications, from developing and acquiring information to managing and organizing it to disseminating and evaluating final products. Editorial and graphics staff support the development of the injury prevention and control message in a variety of formats. Technical information services for NCIPC staff and the injury community are provided by information specialists in the William Foege National Injury Control Library. The NCIPC web site is developed and managed by communication specialists in OCR. Media specialists in the office coordinate and respond to requests from the media.

#### National Center for Injury Prevention and Control's collaborations and partnerships

Injury is a complex problem requiring complex solutions. Making a lasting difference requires the efforts of all of the many groups working in the field of injury prevention. To this end, NCIPC collaborates with many other federal, state, and private organizations including the US Departments of Transportation, Justice, and Education; Consumer Product Safety Commission; Indian Health Service; Health Resources and Services Administration; American Academy of Pediatrics and other medical associations; state and local health departments; and SAFE KIDS. These collaborative efforts have resulted in a number of tangible outcomes, such as a national plan of injury control, collaborative research efforts on violence issues with the Department of Justice, and a surveillance system to detect the number of non-fatal firearm injuries through a joint effort with the Consumer Product Safety Commission.

#### Training at the National Center for Injury Prevention and Control

There are four training programs available at the CDC from which the NCIPC recruits and trains injury prevention and control professionals. They are:

*Epidemic Intelligence Service*—this is a two year, postgraduate program for health (and related) professionals (for example, physicians, sociologists, anthropologists, psychologists, nurses, veterinarians) interested in the practice of epidemiology and public health.

*Associations of Schools of Public Health and Association of Teachers of Preventive Medicine fellowships/internships*—these are short term fel-

lowships or internships awarded to students enrolled in accredited schools of public health to work at CDC.

*Visiting scientists/fellows*—this is an opportunity for visiting fellows, academic researchers, scientists, and injury prevention practitioners to work at CDC on various projects for terms ranging from three months for up to two years.

*Public Health Prevention Service*—this is a three year training program for individuals interested in developing skills in planning, implementing, and evaluating programs and interventions. During the first year, all prevention specialists work in two different program areas for six months each. The first year is followed by a two year field placement in a state or local health department.

### **National Center for Injury Prevention and Control resources**

Additional information about the NCIPC and resources available from the center can be accessed via the internet. The NCIPC web site can be viewed at <http://www.cdc.gov/ncipc>. The layout of the NCIPC home page is representative of the organizational structure of the center. Table 1 shows the key resources available on the NCIPC web site along with the corresponding urls (addresses).

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#### **Reviewers in this volume**

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