

Community Risk Issues and Prevention Interventions

Student Manual

**1st Edition, 1st Printing
August 2001
CRIPI**



FEMA

FEMA/USF/ANFA
CRIP1-SM
August 2001
1st Edition, 1st Printing

***Community Risk Issues and
Prevention Interventions***



FEMA

Community Risk Issues and Prevention Interventions

Student Manual

**1st Edition, 1st Printing
August 2001
CRIPI**



FEMA

**U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
UNITED STATES FIRE ADMINISTRATION
NATIONAL FIRE ACADEMY**

FOREWORD

On March 1, 2003, the Federal Emergency Management Agency (FEMA) became part of the U.S. Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

FEMA's U.S. Fire Administration (USFA) serves as the agency fire protection and emergency response community expert. It is located at the National Emergency Training Center in Emmitsburg, Md., and includes the National Fire Academy and the Emergency Management Institute. The mission of the USFA is to save lives and reduce economic losses due to fire and related emergencies through research and training, public education and coordination with other federal agencies and fire protection and emergency service personnel.

To achieve the USFA's legislated mandate (under Public Law 93-498, October 29, 1974), "to advance the professional development of fire service personnel and of other persons engaged in fire prevention and control activities," the USFA's National Fire Academy offers a diverse delivery system. Courses are delivered at the Emmitsburg campus and throughout the nation in cooperation with state and local fire training organizations.

TABLE OF CONTENTS

	PAGE
Foreword	iii
Table of Contents	v
Course Schedule.....	vii
MODULE 8: COMMUNITY RISK ISSUES AND PREVENTION INTERVENTIONS	SM 8-1

COURSE SCHEDULE

Module 8: Community Risk Issues and Prevention Interventions

Evening Assignment (Optional)

MODULE 8: COMMUNITY RISK ISSUES AND PREVENTION INTERVENTIONS

GOAL

The students will be able to evaluate education/behavior change, legislation/enforcement, and engineering/technology interventions and apply them to a community risk issue.

OBJECTIVES

The students will:

- 1. Approach injury prevention/control in a scientific manner.*
 - 2. Apply the Haddon Matrix and Haddon's Strategies to generate a range of prevention options.*
 - 3. Develop an education/behavior change strategy for a community risk issue.*
 - 4. Summarize the key steps in developing a legislative strategy.*
 - 5. Develop a public policy recommendation.*
 - 6. Evaluate engineering/technology interventions applied to community risk issues.*
 - 7. Evaluate the effectiveness of combining education/behavior change, legislation/enforcement, and engineering/technology interventions.*
-

LEVELS OF PREVENTION

Prevention is a process of creating conditions and fostering individual, organizational, and community attributes that lead to the well-being of people.

Three Levels of Prevention

Primary prevention includes activities designed to promote optimal health or to provide protection against specific injuries, including those who are already healthy. Primary prevention seeks to provide awareness, increase knowledge, and reinforce health behaviors. Examples include presentations, health fairs, and open houses, and the use of child safety seats, seatbelts, smoke detectors, bicycle helmets, etc.

There is a national emphasis on expanding primary prevention. Health Management Organizations (HMOs) were designed to provide "wellness" treatment. There also is a place for the fire service to expand its prevention efforts to have a greater impact on prevention in the community.

Secondary prevention focuses on early and accurate diagnosis and prompt and appropriate treatment. Secondary prevention is directed toward people who are considered to be at risk for injury, and including already healthy people. It seeks to minimize the extent of the injury or disease. Examples include cardiopulmonary resuscitation (CPR), choking prevention, first aid, 911, emergency medical systems, trauma center, blood banks, and regional burn centers. The fire service, in its suppression and Emergency Medical Services (EMS) response, is doing secondary prevention already.

Tertiary prevention is directed at individuals with chronic illness or disability. Examples include reconstructive surgery, rehabilitation centers, head injury resources, vocational training, and independent living services. The Americans with Disabilities Act (ADA) is directed at this type of prevention. Community education programs for persons with disabilities, and evacuation procedures to meet their needs are examples.

EPIDEMIOLOGY OF INJURIES

Injury is physical damage due to the transfer of energy (kinetic, thermal, and chemical energy; electricity; and radiation) or the absence of essentials, such as oxygen and heat.

Epidemiology

Epidemiology is the study of the occurrence and causes of disease and injury in a population. It is the framework used to study injuries. It applies the same methods that have been so successful in controlling diseases. Injuries can be studied and high-risk groups identified. The occurrence of injuries is largely determined by characteristics of the human environment. The incidence of severity of the injury was greatly influenced by demographic characteristics.

Injuries, like classic infectious diseases, are characterized by:

- seasonal variation;
- long-term trends;
- geographic distribution;
- socioeconomic distribution; and
- urban/rural distribution.

Today, science recognizes that there are no basic scientific distinctions between injury and disease. In some cases, the etiologic agents are identical. For example, the results of brief exposures to high concentrations of a toxic gas are called "injury," whereas the eventual pulmonary effect of a chronic exposure to low concentrations of the same agent is called "disease."

Disease Causation Applied to Injury and Disease

Pathological Condition	Etiologic Agent	Vector/ Vehicle	Exposure Event	Interval Till Illness
Malaria	p. vivax	mosquito	bite	days
Lung cancer	carcinogens	tobacco smoke	habitual smoking	years
Fractured skull	kinetic energy	motor vehicle	crash	seconds
Scald burn	thermal energy	hot water	spill	seconds

"Injury" has Replaced the Term "Accident"

In the past decade, the term "accident" has been replaced with the term "injury." An accident is a happening that is not expected, foreseen, or intended. An injury is a wrongful or unjust happening, and refers to physical harm or damage caused to a person or property. Injuries are not random, freak accidents. We know much about how, when, and where injuries occur and who is at risk. Unlike accidents, injuries are a describable, epidemiologic condition that can be prevented and controlled. The word "accident" evokes images of inevitability, suddenness, randomness, or acts of God. To describe events or actions that lead to injuries as "accidents" perpetuates the notion that nothing can be done to prevent or to minimize them.

The science of injury control has shown us that these injuries are predictable, preventable, and understandable.

Major Subdivisions of Injury

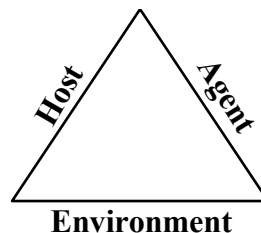
Unintentional injuries include motor vehicle crashes, falls, drownings, burnings, and poisonings. This is the appropriate term to use for injuries we used to refer to as "accidental."

Intentional (deliberate) injuries include homicide, child abuse, and suicide.

The Classic Epidemiologic Triad or Injury Triangle

Injuries can be studied in the same way that we use the fire triangle to explain fire. There are three variables in disease and injury. The first variable is the host--the human who suffers the injury. The second variable is the agent--energy carried through an inanimate object (vehicle) that causes the injury. The third variable is the environment--the context in which the injury occurs.

The Epidemiologic Triad or Injury Triangle



Just as epidemiologists analyze an outbreak of measles in a community by looking at who got sick, how they were exposed, and the context in which they were exposed, we can analyze a pattern of injury.

Factors Affecting the Host

- Sex--Males have higher injury rates than females for all causes of injury. Male death rates are more than four times those for females for suicide, unintentional firearm, farm machinery, and motorcycle (Waller, *et al.*, 1989).
- Age--Associated with different types of risks throughout life.
- Race--Native Americans, followed by African-Americans, Caucasians, and Asians. Native Americans experience high pedestrian nontraffic deaths (example--backing over a child in a driveway), poisoning, aspiration of nonfood materials, and motor vehicle occupant deaths. House fire and homicide rates are highest among African-Americans. Asian children experience the highest death rate from falls (Waller, *et al.*, 1989).
- Income--Death rates due to unintentional injuries decrease as income increases.
- Season--May through September is injury season.
- Time--Weekends.
- Locale--Unintentional death rates are highest in rural areas, regardless of income. Homicide rates are highest in urban areas.

Agent/Vehicle

This is the critical energy conveyed or denied by the host. Abnormal energy transfers that exceed the body's threshold. For example, frayed extension cords are the vehicle of electrical energy, hot tap water the vehicle of thermal energy, medicine containers the vehicle of chemical energy, and automobiles the vehicles of mechanical energy (Haddon, 1980).

Environment

The environment can reduce or contribute to the risk of injury. Often a small change in the physical environment can make an enormous difference in risk reduction. Examples include reducing temperature of hot water heaters to prevent scald burns, lighting to prevent falls, and car safety seats in automobiles to protect children. Sometimes the environment is subdivided into physical environment and sociocultural or socioeconomic environment.

Haddon's Ten Strategies

Dr. William Haddon, a physician and engineer, developed ten strategies that are designed to help people to understand the injury event and to identify countermeasures or strategies to reduce the losses. He maintained that the fundamental tasks of injury control were to

- prevent the agents from reaching people in amounts or rates that exceed injury thresholds; and
- minimize the consequences of the injury once it has occurred.

Just as the occurrence of an injury requires the interaction of several factors, preventing an injury may require a combination of interventions. Haddon's Strategies are another aid to thinking logically and systematically about injury prevention and control. The strategies are largely directed not at the host but at the agent and environment. Some options may or may not be practical. These strategies are designed to interfere with the energy transfer/injury process. The ten strategies are

1. Prevent the creation of the hazard.
2. Reduce the amount of the hazard.
3. Prevent the release of the hazard that already exists.
4. Modify the rate of release of the hazard from its source.
5. Separate that which is to be protected from hazard by time and space.
6. Separate that which is to be protected from hazard by physical barrier.

7. Modify relevant basic qualities of the hazard.
8. Make what is to be protected resistant.
9. Begin to counter damage done by hazard.
10. Stabilize, rehabilitate, and repair the object of the damage.

The Haddon Matrix

Dr. William Haddon converted the public health approach into a matrix as another aid in studying injury prevention and control. It is used to organize what is known about a given injury and to evaluate possible interventions. Even if the incident can't be prevented or avoided, often the injury can be prevented. The Haddon Matrix has been used to study a diverse set of injuries, including motor vehicle crashes, falls, drownings, burns, pedestrian fatalities, bicycle injuries, and sports injuries, among others. The matrix is designed to examine each aspect of an injury problem systematically.

The matrices have two dimensions--phases and factors. The first dimension divides the time sequence into three phases:

- Preevent--Factors that create or prevent the potential for injury.
- Event--Factors that occur at the moment of mishap that increase or decrease the potential for injury.
- Postevent--Factors that influence the result of the injury occurrence.

The second dimension of the matrix is divided into three factors: human, agent, and environment. This is similar to the epidemiologic triad: host, agent (vehicle), and environment.

Prevention interventions can be aimed at any of the cells in the matrix. There may not be a factor for every cell. Some approaches may focus on preventing the incident (preevent), or, if the incident occurs, on lessening the severity of the injury (event), or on helping to reduce deaths even after an injury (postevent). Strategies should be developed to attack as many factors as possible.

Haddon Matrix

FACTORS				
Phase	Host (human)	Vector (vehicle)	Physical Environment	Sociocultural Environment
Preevent				
Event				
Postevent				

PREVENTION APPROACHES

The Three Es of Prevention

Education. Raise awareness, provide information and knowledge, and ultimately produce the desired behavior.

Enforcement. Refers to all the ways in which people are required to act to reduce injuries.

Examples include laws and building codes requiring the installation of smoke detectors and sprinkler systems; laws that require drivers to use seatbelts and bicyclists to use helmets; and regulations for the manufacture of safe toys.

Engineering. Designed to change vehicles, products, materials, and processes to make them less hazardous, or to alter the environment to make it safer.

Examples include automatic shutoff switches on lawnmowers; airbags and antilock brakes for cars; smoke detectors and sprinkler systems for residential and commercial properties; flame-retardant clothing for children.

Examples of environmental modifications include fencing around pools; building pedestrian and bicycle overpasses above busy streets; and installing lighting in parking lots.

Passive Interventions

Passive interventions are built in. They protect automatically and require no action on the part of the individual. Passive interventions are considered the most effective way to protect those at risk, and to protect the general population at the same time. They often require a legislative or regulatory approach directed at specific product modification. The emphasis is on community rather than on the individual. Examples include adding fluoride to public water systems to prevent cavities, automobile air bags, fire-resistant clothing, and spacing of crib slats. Truly passive interventions are rare.

Active Interventions

With active interventions individuals must take preventative measures each time they are confronted with a situation. Active interventions may be the only solution for a particular problem. Examples include looking both ways before crossing the street, turning pot handles inward on the stove, putting on a seatbelt, and testing bath water temperature.

Combining Interventions

In many cases a passive device, such as a helmet or a smoke detector, has an active element. A bike helmet will provide protection automatically (passive), but the user must put it on his/her head (active). A smoke detector will sound an alarm automatically (passive), but requires testing and battery replacement (active). The individual has to know the sound and act accordingly (active).

EDUCATION AND BEHAVIOR CHANGE INTERVENTIONS

Education and behavior change interventions are preventive measures involving the education of the population at large, targeted groups, or individuals, and efforts to alter specific injury-related behaviors (The National Committee for Injury Prevention and Control, 1989). They involve awareness-building, educational presentations, and media.

Purpose

Given information or skill training, a person will retain what is taught and will use it to reduce risk of injury.

Education and behavior change interventions influence people and ultimately change their behavior.

Role of the Community Educator

Education and behavior change interventions are the primary arena in which the community educator operates. The community educator is charged with creating awareness, providing education, and motivating people to respond appropriately using a variety of techniques.

The role of the community educator is to:

- identify risk issues;
- select target injuries and populations;
- determine intervention strategies;
- develop an implementation plan;
- identify, select, and commit agencies and personnel to implement the plan;
- develop materials;
- provide training;
- use media;
- monitor program and provide support; and
- evaluate and revise.

Characteristics

This is the most widely used approach and the easiest method to implement compared to other interventions. This approach requires reinforcement necessary on a continuous basis to make the desired behavior a habit. It needs to be targeted but it may be the only viable intervention for a particular problem.

Education and behavior change is an active approach because someone must do something in order to be protected. The effects may not be seen for years. There may be limited success when this approach is used independently of other interventions.

Benefits of Using Education/Behavior Change Interventions

Education can be a powerful tool in changing values. Changes in social attitudes can occur with education and mass media campaigns, e.g., smoking, drinking and driving, seatbelts. In this way, education can be used to address user rejection or misuse of injury prevention technologies, e.g., child safety seats and seatbelts. Education can establish a readiness that often is essential for effective implementation of engineering and legislative injury prevention and control measures. It provides the avenue to teach people about using technology such as smoke detectors, life jackets, airbags, and seatbelts. Education is an important component in gaining acceptance and in maintaining compliance with laws and regulations. Decisionmakers must be educated about various risks and the technological solutions that may require legislative action.

Weaknesses of Using Education/Behavior Change Interventions as Stand-Alone Interventions

Those at highest risk may not see that a problem exists for them. For example, people who smoke or drink, teenagers who speed and drive without seatbelts, and motorists who drive drunk. Often it is difficult to control the learning environment. This approach relies on an active approach because someone must do something in order to be protected. Often information is provided without attention to attitude changes or to skill development.

Educational programs have not always been evaluated properly in terms of behavior and outcome. When studies do occur, the evidence may show little improvement in these parameters. Many diseases and injuries are created by socioeconomic situations, lifestyles, and environments that are beyond the realm of educational interventions alone. Injuries usually result not from lack of knowledge on the part of the injured person, but from failure to apply what is already known.

Strengthening Education/Behavior Change as an Intervention

Education/Behavior change as an intervention can be strengthened by developing an appreciation of community education as an effective intervention to confront community risk issues. More research is needed to understand the role behavior plays in injury.

- To understand why people do what they do as it relates to injury.
- To understand the role of risk and the perception of risk in injury control and prevention.
- To understand the factors that influence people to protect themselves and others from injury.

Programs need to be evaluated to address more than recordkeeping (numbers of presentations made or pamphlets distributed) to include the impact and long-term benefits.

Behavioral research on motivating seatbelt use suggests several promising techniques.

- Participative education--Contracts and participant commitment. There appears to be a stronger motivation to use seatbelts when people are asked for a written or oral commitment.
- Incentives--The likelihood increases that an individual will change his or her behavior when positive reinforcement or rewards are involved.
- Behavioral feedback--Signs placed on highways or in vehicles have been successful in reminding people to fasten seatbelts and to reduce speed.
- Modeling--Adults and children can learn safety behaviors by watching others perform the behavior.

Health Belief Model

This model can help us to understand the beliefs that people must have to change their behavior and can help us to tailor our messages and programs to include these beliefs.

The model proposes that in order for people to change their behavior in a certain area of health they must

- believe they are personally at risk for the problem;
- believe that the risk is unacceptable and serious;
- believe that their behavior change will reduce the risk;
- believe that the benefits to change outweigh the barriers; and
- believe they are capable of the behavior change.

Behavioral Factors Affecting Health Behavior

Three classes of behavior factors have been identified that have a potential for affecting health behavior:

- predisposing
- enabling
- reinforcing

Predisposing factors include a person's attitudes, values, and perceptions, all of which facilitate or hinder personal motivation for change. The factors also include unalterable variables such as age, sex, and race (Green, *et al.*, 1980). Examples that may hinder people and may put them at risk include believing that car safety seats are not necessary; that smoke detectors are not important; and that it's better not to use seatbelts for fear of entrapment in a crash. Talking to the target audience and experts in the field can help to identify what the predisposing factors are.

Enabling factors encompass all aspects of the availability and accessibility of resources. Includes access to community resources and skills necessary to perform a specific task (Green, *et al.*, 1980). Examples include which car seat to buy, cost of car seats, access to CPR training, swimming lessons, and skills to conduct a home inspection or to develop a fire-escape plan.

Reinforcing factors are those related to rewards, incentives, or punishments for continuation of the behavior (Green, *et al.*, 1980). Examples are positive feedback and encouragement by physicians, family members, employers, educators, and firefighters, or negative feedback such as fines or citations.

DEVELOPING AN EDUCATION/BEHAVIOR CHANGE STRATEGY

Planners occasionally fall prey to the "shotgun approach" to programming. No one strategy can be expected to bring about any meaningful, long-term change. A combination of educational strategies can maximize the effectiveness.

Direct Communications Strategies

Communication strategies address the predisposing factors (beliefs, attitudes, and other motivating attributes) (Green, *et al.*, 1980). The choice of communications methods depends upon:

- the message itself;
- the size and nature of the target audience;
- the type of behavior change desired;
- compatibility with the rest of the program; and
- the human and material resources available.

No medium is inherently superior to any of the others. Along the continuum from one-on-one interaction, group methods, and mass media, communication with the target population often can be effective in influencing their knowledge, attitudes, and practices. The challenge lies in selecting a combination of communications approaches that offers effectiveness, efficiency, and feasibility.

Community Organization Strategies

Community organization strategies address the enabling factors (the availability and accessibility of services) (Green, *et al.*, 1980). They call for community involvement. Every contact with community representatives provides a new opportunity for developing better working relationships and for encouraging more cooperative action. A solid community organization, augmented by a coalition of concerned groups and organizations, can increase, redistribute, or develop additional resources.

Indirect Communication Strategies

These strategies rely on staff, allied professionals, and family support (Green, *et al.*, 1980). They have their influence through inservice training, continuing education, and a variety of staff development activities. Safety behaviors are reinforced by family members, teachers, and firefighters.

LEGISLATION/ENFORCEMENT INTERVENTIONS

Legislation/Enforcement interventions are preventive measures involving the enactment or enforcement of laws or regulations (The National Committee for Injury Prevention and Control, 1989). Their purpose is to mandate behavior or environmental changes. The authority to mandate behavior or environmental changes comes under the U.S. Constitution: the police power of states confers broad authority to enact legislation to protect the health, welfare, safety, and morals of the people.

Role of the Community Educator

Traditionally, involvement in public policy has not been the arena of the community educator. By systematically examining the community risk issue, using the Haddon Matrix and Haddon's Strategies, public policy intervention may be a viable solution. Intervening successfully against community risk issues may involve the passage and enforcement of laws with the potential to reach and protect greater numbers of people. This strategy offers an opportunity to use planning and problem-solving skills in policy analysis. Coalitions lend themselves to influencing legislation. The community education manager can assert the right to participate in its development and application, if not possible as an individual then through the coalition.

Factors that Influence Legal Effectiveness and Legal Compliance (Randolph, 1983)

- Compatibility of the law with some existing social value.
- Accurate identification of problem and solution.
- Clear statement of policy.
- Identification of a bureaucracy responsible for implementation and enforcement.
- Consistency of enforcement.
- Commitment to law by enforcers and implementers.
- System of incentives to encourage implementation and compliance.
- General support for law by community.

Limitations and Restrictions to Implementation of Legal and Administrative Directives

Society must see the need for the rule. If the people perceive that it will stop someone else from injuring them, e.g., regulating drunken drivers and speeders, they will support a law. Generally, they oppose a ruling that prevents one from harming oneself, e.g., gun control, motorcycle helmet law, and seatbelt laws. They dislike laws that affect us individually. It is difficult to convince people that the increased cost of preventable injuries to society affects them as well (Martinez, 1990).

Opponents' Argument Against Using Legislation

Opponents of legislation strategies attack this approach based on the argument that it interferes with personal freedom and is not cost effective. However, legislation strategies can be very effective. Consider the following:

- Children's Sleepwear Statute of 1971;
- seatbelt laws;
- Poison Prevention Packaging Act of 1970;
- motorcycle helmet laws;
- smoke detector laws; and
- The Hotel/Motel Fire Safety Act.

Motivations for Compliance (Randolph, 1983)

- Civic-mindedness: Obeying a rule because it is good for others or for society as a whole.
- Morality: Obeying a law because it is ethical to obey the law.
- A sense of fairness: Obeying a law because it applies to everyone equally.
- Trust: Believing that the law reflects the interests of the community.
- Legitimacy: Having faith or trust in the legal procedure.

Characteristics of Policy (Beckman, 1977; Mico, 1978)

- Integrative and interdisciplinary, recognizing that policy problems are complex, with multiple causes and effects.
- Anticipatory, looking forward to decisions which are to be made.
- Decision-oriented, with emphasis on an analysis of feasible decision options and their costs and benefits.
- Identifies for the decisionmakers the preferences of the consumers for particular options and the assumptions, values, costs, and benefits they would attribute to the various alternatives.
- Educational, since the process helps those involved to become more informed.
- Strategic.
- Has a long life and can stand the test of time.
- Political.
- Manageable.

DEVELOPING A LEGISLATIVE STRATEGY

Learn the Legislative Process Unique to Your Community

This would include how legislation is passed, and the legislative timetable. Learn the legislators' names and get a listing of their addresses.

Select the Issue

Identify a clear and tangible goal, and criteria to decide whether your coalition should pursue the issue. Ask the following questions.

- Is the need a new law, an amendment to an existing law, or changes in regulations?
- What kinds of resources, both human and financial, will be required?

- What are the public relations implications?
- What is your goal for the current session?
- Who are your enemies?
- Who are your detractors?
- What does your coalition want?
- Is there an existing legislative effort underway by another group or coalition to which your issue relates? Can the efforts be combined?

Research the Issue and Its History

It is necessary to develop facts about the issue. If you do not have research capability, connect with an academic group, research group, or government entity that does have the capability. Present these factors in a clear, succinct manner so that legislators will care. Show how their districts are affected.

Detailed local injury data presented in an understandable way for local officials can confirm that there is a problem.

Prepare a one-page fact sheet, including

- a clear statement of the problem;
- who is affected;
- key facts and data that support your position; and
- what action legislators should take to help.

Build a Broad-Based Coalition

Decide who you want in your coalition, and select people who will enhance your chances for success. Members will bring different strengths and resources, whether they are financial, media access, access to other people, clerical, etc.

Make sure that members are assigned tasks that are commensurate with their powers and abilities. Look for support in administrative agencies, and in staff from your legislative and executive branch offices.

Strive to have your coalition or network continually grow. The goal is to be a spider web throughout the community.

If you plan to write letters, decide who you are targeting. Is it a letter to the editor, a letter to a public official, or a letter to friends and neighbors (especially if fundraising or petitioning).

Provide background information and sample letters. Let letter writers know about timelines and deadlines.

Know Your Detractors

Find out who your detractors are, who supports them, what their position is, and what their arguments are.

Do not underestimate detractors, and don't assume you know their position. Find out exactly what it is, and make certain that you have a good rebuttal. Also, look for opposition in the legislature, the executive branch office, and in the administrative agencies.

Draft the Bill

You may get help from the legislative staff; usually the sponsor will request this. Make sure you monitor this process carefully to ensure that the bill meets your goals.

If this service is not available, consider putting together a drafting team. Be clear on what you want the bill to do. Consider including people with a different point of view to help you frame the bill realistically. Identify if there is any model legislation written on the issue.

Name the Bill

Choose the name carefully, e.g., Welfare Moms versus Aid to Families with Dependent Children. Keep it simple and direct, and use as few words as possible.

Select the Sponsor

Picking the right legislator is probably the single most important factor in getting your bill through the legislative process. He or she should be powerful, should sit on the committee with jurisdiction, should be committed to your issue, and should be willing to see it through actively.

It may be necessary to meet with several legislators until you find one willing to take on the issue.

Set Up a Meeting

Once the meeting has been scheduled, write the legislator outlining the general nature of your proposal and thank him/her for agreeing to meet with you to see if he/she will sponsor the bill.

Touch base with any staff to explain the problem and your position. A supportive staff can be extremely helpful.

The people who attend the meeting should have expertise about the subject. At the meeting, make sure you present the issue in a clear and concise way that appeals to the legislator and to his/her constituents. Present the problem, your position, and the proposed solution. Identify the supporters and detractors.

Follow Up

Send a thank-you letter. Then, within one to two weeks, follow up to see if the legislator will support your bill. In some cases, a legislator may not want to be the lead sponsor because of the time and effort it takes, but will be a cosponsor, or support the bill in committee.

Once a sponsor has been identified, you need to meet with his/her staff to draft the legislation as it will be introduced.

If you have a model bill or have prepared a draft, the legislator will want it reviewed and submitted to his/her own legislative drafting service to make sure it is appropriate.

Make sure you review each version, understand what the bill does, and ensure that it meets your goal.

Try to get cosponsors from committees that would help with its passage, such as rules and appropriations committees.

Introduce a Bill

The sponsor will submit the bill to the clerk of the parent body for official reading by the reading clerk. It will be introduced by the Speaker, and assigned to the appropriate committee.

It is important to know who is responsible for assigning bills to committees, and how to gain access to that person.

Some bills can be referred to several committees.

A bill can be killed if the committee is uninterested or opposed. The sponsor can influence the joint referral of the bill and prevent this from happening.

Educate Committee Members

Use your coalition to educate committee members about the issue. Have them visit members in teams, carrying a fact sheet with pertinent information about the problem, its current status, and names of organizations supporting the bill.

The Media

The media include the print press, TV, and radio. It is useful to develop an ongoing relationship throughout the process with reporters and editors.

Use the press for:

- hard news stories;
- editorial and op-ed articles;
- periodic guest columns; and
- setting up a press conference.

Compromise

Compromise is a critical component in legislative circles. It can make a bill palatable to more people without destroying its effectiveness. It's also a way to dilute the bill.

Negotiation often is essential to complete agreement on legislation.

ENGINEERING/TECHNOLOGY INTERVENTIONS

Engineering/Technology interventions are preventive measures involving changes in the design of products or in the physical environment (The National Committee for Injury Prevention and Control, 1989). They are passive measures designed to intervene during the event phase to prevent or to minimize the severity of the injury.

Characteristics of engineering/technology interventions include the following:

- built in;
- protect automatically;
- require no action on the part of the individual during the event phase; and
- may have an active component such as putting on a life jacket or a bike helmet.

Engineering/Technology interventions are considered the most effective way to protect those at risk and the general population at the same time. Often they require a legislative or a regulatory approach directed at changing the design of products or the environment. Their emphasis is on community solutions rather than on individual solutions.

Limitations

Society tends to demand that safety be built into items used for us, but not for items that we use. If an active element is part of the design, it is likely to be less effective. Early attempts to design cars with a seatbelt system connected to the ignition influenced people to always keep the seatbelts connected. They then sat on top of the belt, rendering it useless.

Proven Injury Prevention Interventions That Use Engineering and Technology

- car safety seats;
- air bags;
- motorcycle helmets;
- bicycle helmets;
- poison prevention safety packaging;
- barriers around swimming pools;
- fire sprinklers;
- smoke detectors;
- window bars; and
- flame-resistant sleepwear.

SUMMARY

Approach injury prevention/control in a scientific manner. Apply the Haddon Matrix and Haddon's Strategies to generate a range of prevention options. Develop an education/behavior change strategy for a community risk issue, and a public policy recommendation. Evaluate engineering/technology interventions, and the effectiveness of combining education/behavior change, legislation/enforcement, and engineering/technology interventions.

Activity 8.1

Student Introductions/Role of Community Education

Purpose

To introduce you to one another; to define community education; to identify the purpose of community education; and to identify the role of the community educator.

Directions

1. You have been assigned to a small group of fellow students. Using an easel pad, draw a map of each group member's state, county, or local area. On the map, mark the home town/city of each group member. Next to the town, list the group member's name, organization, and job title with that organization.
2. Next, discuss and answer the question that was assigned by the instructor.

What is the definition of community education?

What is the purpose of community education?

What is the role of the community educator?

3. Record your answers on an easel pad.
4. Select a spokesperson to introduce each member of your group, including name, home town, organization, and job title within the organization, and to present the answer to your assigned question.
5. You have 20 minutes to complete the activity.

Activity 8.2

Current Fire Department Involvement in Injury Prevention Efforts

Purpose

To examine the types of activities you have identified as injury prevention programs in your communities.

Directions

1. Look at the list titled "Current Fire Department Involvement in Injury Prevention Efforts" that was compiled by students in NFA classes.
2. You will be divided into groups; each group will be assigned one of the quadrants.
3. Using an easel pad, list the activity and determine whether it is primary, secondary, or tertiary prevention. Assign a P, S, or T beside the activity.
4. Scan the rest of the list and write down any activities you are involved in that are not on the list; assign the appropriate letter for those activities--P, S, or T.
5. You will have 25 minutes for this activity.
6. Assign a spokesperson to report your findings.

Activity 8.2 (cont'd)

Current Fire Department Involvement in Injury Prevention Efforts - as identified by students in NFA classes -

Group One

Code Enforcement
Fire Suppression
Public Education
Life-Safety Education
Building Inspection
Zoning
Weed Control
911 Dispatching
Disaster Planning/Emergency Management
CPR Training
Smoke Detector Installation
Water Rescue
Fire Cadet Programs
Special Events Standby
Emergency Medical Services (EMS)
Trench Rescue
Urban Search and Rescue (US&R)
Fire Investigations
Juvenile Firesetter Counseling
Safety Fairs
Plan Review

Group Two

First Aid Classes/First Aid
Animal Control
Electrical Inspection
Environmental Response
Fire Prevention
Abandoned Vehicle Abatement
Car Seat Safety
Community Safety
Injury Prevention
Vacant Building Abatement
Coalitions (NSKC, etc.)
Lot Mowing
Burn Prevention
Mitigating Hazardous Situations
Heavy Rescue
Medical Screening
Water Safety (Boating & Swimming)
Disaster Preparedness
Planning
Assembly/Meeting Hall Exit Checks
Bicycle Safety

Group Three

Technical Consulting
Lawn Mower Safety
Appliance Disposal
Emergency Response (hazardous situations,
i.e., gas leaks, wire down, etc.)
Traffic Control
Support to Burn Centers
Response to Killer Bee Attacks
Sprinkler Inspections
Emergency Management
Installing Smoke Detectors
Rabies Testing
Bicycle Licenses
Prehospital Medical Care
Blood-Pressure Screening
Speaker's Bureau
Community First Aid Training
Public Education
Child Car Seat Safety Installation and
Instruction
Mentoring Programs
Sponsor Explorer Scout Post
Safe House Demonstrations

Group Four

Aircraft Rescue and Firefighting
Fire Safety (cooking, heating, lighters,
matches, electrical, smoke detector/
residential sprinklers, etc.)
Swimming Pool Safety
Drunk Driving Programs
Setting of Water Heater Thermostats
Seat Belt Usage
Burn Injury Follow up
Highway Safety
Trips & Falls (rugs, runners, & mats)
Fire Stations as Safe Havens (i.e., safe places for
kids, spousal abuse escape)
Urban Survival Training
Senior Safety Programs
Guns & Ammunition Safety
Hunting Safety
Gangs/Community Relations
Crime Prevention
Poison Control
Rodent Control (stopping spread of disease)
Garage Door Safety
Shower & Tub Safety
Chemical Storage & Use Guidance

Activity 8.3

Case Study: Teenager Burned While Cooking

Purpose

To study injuries epidemiologically by looking at the host, agent, and environment.

Directions

Read the following case study and answer the questions.

Case Study

John, 16 years old, was hungry and wanted to fry some chicken for dinner. He poured some cooking oil into a large deep frying pan and set it on the electric range. He turned the setting to "high." A few moments later he left the room to answer the telephone. The smoke detector activated and he returned to the kitchen to find the pan on fire.

John called his brother Kevin for help and then picked up the pan carefully and started to take it outdoors. Kevin held the door for him. As John carried the pan, his elbow hit the door jamb and the flaming oil spilled onto his arms, legs, and stomach area. He was able to set the pan down before the flames spread onto his clothing. Kevin grabbed the top of the trash can and covered the pan. He yelled to John to get down on the ground. John immediately fell to the ground and performed stop, drop and roll. Kevin ran and got the garden hose that was in a nearby flower bed and doused the flames on John with the hose. Kevin then called 911.

1. Who was the host?
2. What was the agent?
3. What were the environmental factors?

Activity 8.4

Haddon's Countermeasures

Purpose

To think logically and systematically about measures that prevent agents from reaching people in amounts or rates that exceed injury thresholds, or to minimize the consequences of the injury once it has occurred.

Directions

1. Refer to the worksheet on strategies and interventions for the use of cigarettes.
2. Think of other interventions for fire/burns caused by cigarettes, and similar interventions for the drowning in pools intervention for each risk issue.
3. The instructor will list interventions on an easel pad.

Activity 8.4 (cont'd)

Worksheet

Strategy	Fire/Burns Caused by Cigarettes Intervention	Drowning Intervention
Prevent the creation of the hazard.	Do not permit use of cigarettes.	
Reduce the amount of the hazard being brought into being.	Require owners to destroy cigarettes.	
Prevent the release of the hazard that already exists.	Manufacture a limited number of cigarettes.	
Prevent the release of the hazard that already exists.	Don't light the cigarette.	
Modify the rate or spatial distribution of release of the hazard from its source.	Put out cigarettes when not actually smoking.	
Separate that which is to be protected from hazard by time and space.	Smoke in areas away from combustibles.	
Separate that which is to be protected from hazard by physical barrier.	Provide a barrier between smokers and nonsmokers.	
Modify relevant basic qualities of the hazard.	Make cigarettes self-extinguishing/fire safe.	
Make what is to be protected resistant to damage from the hazard.	Require flame-resistant furniture, flame-retardant clothing, and sprinklers in all buildings.	
Begin to counter damage.	Apply cool water.	
Stabilize, rehabilitate, and repair and the object of damage.	Develop a regional EMS system to care for burn injuries.	

Activity 8.5

Using The Haddon Matrix

Purpose

To apply the Haddon Matrix to reach the conclusion that a wide range of interventions may exist for a particular injury problem.

Directions

1. You will be divided into four groups.
2. Each group will be assigned one of the following community risk problems:
 - a. Group 1--Children under age five drowning in bathtubs.
 - b. Group 2--Children unrestrained in motor vehicles.
 - c. Group 3--Children falling out of windows.
 - d. Group 4--House fire involving older people.
3. Refer to the completed Haddon Matrix on the "Drunken Driver" case. Review the model. These are all examples of factors that can influence, positively or negatively, the potential for injury involving a drunken driving scenario.
4. Use the blank matrix on the Student Activity Worksheet to brainstorm possible factors for your assigned problem.
5. Don't become overly concerned about where to classify a particular factor. The purpose is to analyze the problem to develop a variety of interventions for a specific injury problem.
6. In group discussion, decide which cell or cells have the greatest promise for developing an intervention for your particular problem. Circle those cell(s).

Activity 8.5

Haddon Matrix--Drunken Driver

Phase	Host (human)	Vector (vehicle)	Physical Environment	Sociocultural Environment
Precrash (Preevent)	Driver vision Alcohol intoxication Experience and judgment Amount of travel	Brakes, tires Center of gravity Jackknife tendency Speed of travel Ease of control Load characteristics	Visibility of hazards Road curvature and gradient Surface coefficient of friction Divided highways, one-way streets Intersections, access control Signalization	Attitudes about alcohol Laws related to impaired driving Speed for injury prevention efforts
Crash (Event)	Safety belt use Osteoporosis	Speed capability Vehicle size Automatic restraints Placement, hardness, and sharpness of contact surfaces Load containment	Recovery areas Guardrails Characteristics of fixed objects Median barriers Roadside embankments Speed limits	Attitudes about safety belt use Laws about safety belt use Enforcement of child safety seat laws Motorcycle helmet use laws
Postcrash (Postevent)	Age Physical condition	Fuel system integrity	Emergency communication systems Distance to and quality of emergency medical services Rehabilitation programs	Support for trauma care systems Training of EMS personnel

Activity 8.5 (cont'd)

Haddon Matrix Worksheet

Phase	Host (human)	Vector (vehicle)	Physical Environment	Sociocultural Environment
Preevent				
Event				
Postevent				

Activity 8.6

Community Risk Problems That Use the Education/Behavior Change Intervention

Purpose

To identify the types of community risk problems that lend themselves to the education/behavior change intervention.

Directions

1. You will brainstorm community risk problems for which education/behavior change is used as an intervention.
2. The instructor will record the issues on an easel pad.
3. You have 10 minutes to name the community risk problems.
4. The instructor will put a capital E beside each issue to stand for education (one of the three "Es").
5. You will evaluate how effective education alone has been in reducing the risk issue.
6. If you determine that it has been effective, the instructor will place a star beside the issue.

Activity 8.7

Addressing Behavior Factors in Developing an Education/Behavior Change Intervention

Purpose

To give you an opportunity to address behavior factors in developing an education/behavior change intervention.

Directions

1. You will be divided into four groups and assigned one of the following community risk problems:
 - a. Group 1--Drownings of children under age five.
 - b. Group 2--Car safety seats.
 - c. Group 3--Children falling out of windows.
 - d. Group 4--House fire involving older people.
2. Address the following:
 - a. Identify predisposing factors.
 - b. Develop a communication strategy to address the predisposing factors.
 - c. Identify enabling factors.
 - d. Develop a community organization strategy to address the enabling factors.
 - e. Identify reinforcing factors.
 - f. Develop an indirect communication strategy using staff, allied professionals, and family support.
3. Each group will have 40 minutes to work. Record your information on an easel pad.
4. Each group will select a spokesperson to make the presentation.

Activity 8.8

Community Risk Issues and Public Policy

Purpose

To identify community risk issues that use public policy as an intervention strategy.

Directions

1. Refer to the education/behavior change intervention list developed as part of Activity 8.6.
2. Go through the list. The instructor will put a capital E (for enforcement--the second E in our prevention approaches) beside those community risk issues that have incorporated public policy as an intervention.
3. Evaluate the effectiveness of using public policy and education together.
4. The instructor will place a star beside the issues that have used public policy and education together successfully to reduce risk.

Activity 8.9

Developing a Public Policy Recommendation

Purpose

To give you an opportunity to develop and to present a public policy recommendation based on an identified community risk in which the justification for the policy is documented and the impact of the policy can be stated clearly.

Directions

1. Resume the same groups you were assigned to for Activity 8.7.
2. Each group will write a public policy recommendation to address the challenges the issue presents. Groups will have 40 minutes to complete the activity.
3. Discuss the following questions to develop your recommendation.
 - a. Is there a model policy already available? Where would you look for it?
 - b. Has the issue been considered by other legislatures? What was their experience?
 - c. What is the impact of the policy? What are the public-relations ramifications?
 - d. Does a policy-support coalition or a national organization exist?
 - e. What human and financial resources will be needed?
 - f. What are the enforcement issues?
4. Each group will write its responses on an easel pad.
5. Each group will select a spokesperson to present the rationale and recommendation to another group. For example, Group 1 presents to Group 2, Group 2 presents to Group 3, Group 3 presents to Group 4, and Group 4 presents to Group 1.

6. The group receiving the presentation will take on the roles of chief and senior staff in the fire department. The spokesperson will assume the role of the community educator who has been given the task of presenting the rationale and developing a public policy to address the issue. The chief and senior staff are expected to ask questions to explore the issue further and to make a decision on a future course of action.

Activity 8.10

Evaluating Engineering and Technology in Community Risk Issues

Purpose

To illustrate that the most effective community risk issues employ the use of engineering and technology.

Directions

1. Refer to the sheets from Activity 8.6.
2. As you go through the list, the instructor will place a capital E for engineering (the third E in our prevention approaches) beside the risk issue that uses engineering and technology to reduce risk.
3. Evaluate how effective engineering has been in reducing the risk issue.
4. If you determine that it has been effective, the instructor will place a star beside the issue.

Activity 8.11

Combining the Three "Es"

Purpose

To illustrate that the most effective way to combat community risk issues is to develop community risk strategies that combine the three "Es": **education**/behavior change, legislation/**enforcement**, and **engineering**/technology.

Directions

1. Refer to the sheets from Activity 8.10.
2. The instructor will circle all the items that have three Es.
3. Evaluate the effectiveness of the items that have three Es compared to those that have one or two.

BIBLIOGRAPHY

- Beckman, N. "Issues in Implementing Policy Analysis Guidelines for Public Administration." Paper presented at the NASPAA Annual Conference, Chicago, IL, April 1977.
- California Department of Health Services, Maternal and Child Health Branch. Proceedings from the Seventh Annual California Conference "Childhood Injury Control: Making It Happen." Presentation outline by Steven Barrow on Advocacy Tool Checklist.
- _____. Maternal and Child Health Branch. Proceedings from the Seventh Annual California Conference "Childhood Injury Control: Making It Happen." Excerpts from *Champions of Child Health: Pediatricians as Advocates*. American Academy of Pediatrics, Department of Government Liaison and Division of State Government Affairs, 1989.
- Education Development Center, Inc., and the Johns Hopkins Injury Prevention Center. *Introduction: Injury Prevention for Health Professionals*. Part of "Educating Professionals in Injury/Control (EPIC)." Newton, MA, 1990.
- Green, L.W., et al. *Health Education Planning: A Diagnostic Approach*. Palo Alto: Mayfield Publishing, 1980.
- Haddon, William. "Advances in the Epidemiology of Injuries as a Basis for Public Policy." *Public Health Reports*, 95, 1980.
- Harborview Injury Prevention and Research Center. *You Can Do It: A Community Guide for Injury Prevention*. University of Washington: HIPRC, 1991.
- Jones, Nancy E. "Childhood Injuries: An Epidemiologic Approach." *Pediatric Nursing*, Vol. 18/No. 3, May-June 1992.
- Martinez, Ricardo. "Injury Control: A Primer for Physicians." *Annals of Emergency Medicine*, 19:1, January 1990.
- Maryland State Department of Health and Mental Hygiene. *Health Education Strategies for Local Health Departments*, 1976.
- McGuire, W.J. "Attitude Change--The Information Processing Paradigm." In C.G. McClintock, ed. *Experimental Social Psychology*. New York: Holt, Rinehart and Winston, Inc., 1972.
- McLoughlin, E. *Smoke Detector Legislation: Its Effect on Owner-Occupied Homes*. Dissertation. Baltimore, MD: Johns Hopkins University, 1984.

Mico, Paul R. "An Introduction to Policy for Health Educators." *Health Education Monographs*, Vol. 6, Supplement 1. San Francisco, CA: Society for Public Health Education, Inc., 1978.

The National Committee for Injury Prevention and Control. *Injury Prevention: Meeting the Challenge*. New York: Oxford University Press, 1989.

New Mexico EMS-C Project. *An EMT's Handbook for Community-Based Injury Prevention*. Albuquerque, NM, 1993.

Randolph, F.L. "The Regulation of Smoking in Public Places: Predictors of Compliance and Voluntary Enforcement Behavior" (Doctoral dissertation, University of California, Berkeley, 1982). *Dissertation Abstracts International*, 44, 1983.

Rossomando, Christina. *The Community-Based Fire Safety Education Handbook*. Washington, DC, 1995.

Waller, A.E., S.P. Baker, and A. Szocka. "Childhood Injury Deaths: National Analysis and Geographic Variations." *American Journal of Public Health*, 79, 1989.

GLOSSARY

Active Interventions	Individuals must take preventive measures each time they are confronted with a situation.
Agent	Energy carried through an inanimate object (vehicle) that causes the injury.
Education and Behavior Change Interventions	Preventive measures involving the education of the population at large, targeted groups, or individuals, and effort to alter specific injury-related behaviors (The National Committee for Injury Prevention and Control, 1989).
Enabling Factors	Encompass all aspects of the availability and accessibility of resources. Includes access to community resources, and skills necessary to perform a specific task (Green, <i>et al.</i> , 1980).
Enforcement	All the ways in which people are required to act to reduce injuries.
Engineering	Designed to change vehicles, products, materials, and processes to make them less hazardous, or to alter the environment to make it safer.
Environment	The context in which the injuries occurs.
Epidemiology	The study of the occurrence and causes of disease and injury in a population.
Haddon Matrix	Designed to study each aspect of an injury problem systematically.
Haddon's Ten Strategies	Designed to study how to interfere with the energy transfer/injury process.
Intentional Injuries	Deliberately caused injuries, which include homicide, child abuse, and suicide.
Passive Interventions	Built in, protect automatically, and require no action on the part of the individual.
Predisposing Factors	Include a person's attitudes, values, and perceptions, all of which facilitate or hinder personal motivation for change, and unalterable variables such as age, sex, and race (Green, <i>et al.</i> , 1980).
Reinforcing	Those related to rewards, incentives, or punishments for

Factors	continuation of the behavior (Green, <i>et al.</i> , 1980).
Unintentional Injuries	Term to use for injuries we used to refer to as "accidental." Include motor vehicle crashes, falls, drownings, burns, and poisonings.