

PROMOTING BICYCLE SAFETY FOR CHILDREN: Strategies and Tools for Community Programs

This issue brief provides strategies and resources for community organizations to use in developing and implementing bike safety programs for children and youth. Here is how you can use the information:

- **Scope of the Problem:** Use these facts to support the need for your program.
- **Evidence-Based Strategies:** These are drawn from comprehensive, expert reviews of research. Use these strategies to increase the likelihood that your program will actually improve the safety of young bicyclists in your community.
- **Program Planning Guides:** Use these comprehensive guides to plan and implement the kinds of activities described in the Evidence-Based Strategies section.
- **Basics of a Successful Community Program:** These three elements are critical aspects of effective programming.
- **Information and Materials for Program Implementation:** Once you have planned your program, use these tools to find the resources you need to carry it out.



The Children's Safety Network (CSN) created this tool for State maternal and child health (MCH) and injury and violence prevention programs to disseminate to local health departments and community organizations interested in developing effective bike safety programs for children and youth.

CSN is a resource center for MCH and injury prevention professionals in State and Territorial health departments who are committed to reducing injuries and violence among children and adolescents. CSN is supported by the Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services.

SCOPE OF THE PROBLEM

Bicycle injuries and deaths affect children and young people more often than any other age group.

- In 2008, **50 percent** of nonfatal bicycle injuries occurred in children and youth age 5 to 20.¹
- In 2008, the rate per million of nonfatal bicycle injuries in children and youth age 5 to 20 was **318.9** compared to **172.3** overall.¹
- In 2008, children and youth age 0 to 20 made up **20.5 percent** of bicycle fatalities.¹
- In 2008, the rate per million of bicycle fatalities in children and youth age 5 to 20 was **2.14 compared to 2.35** overall.¹
- In 2008, children under 15 accounted for **45 percent** of bicycle injuries treated in emergency departments.¹
- From 2001 to 2004, the average annual cost of bicycle fatalities in children and youth age 0 to 19 was **\$993 million**.²
- In 2008, the average annual cost of nonfatal bicycle injuries in children and youth age 0 to 19 was **\$4.7 billion**.²

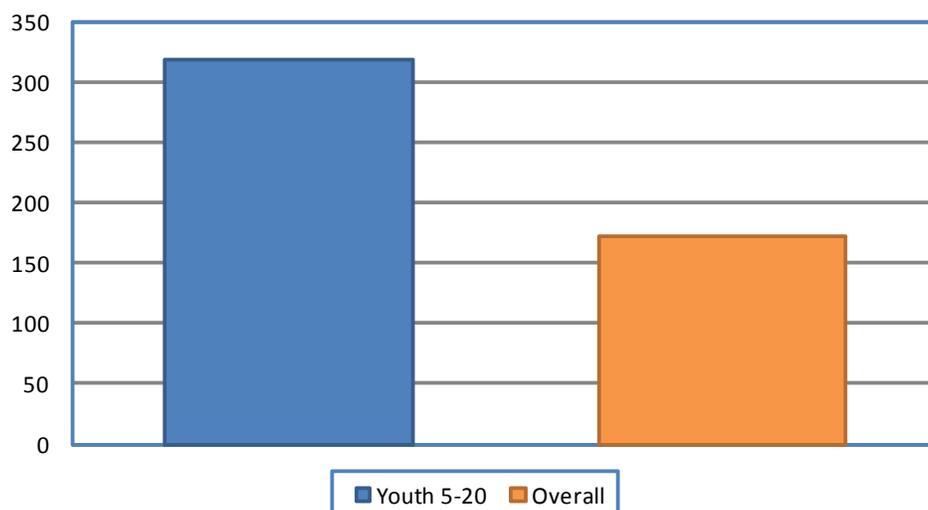


Young cyclists are more likely than adult cyclists to die of head injuries, most of which are caused by motor vehicle collisions.

Among children and youth age 0 to 19 in 2006:

- Traumatic brain injuries accounted for **54.5 percent** of bicycle fatalities.³
- Collisions with motor vehicles accounted for **79.4 percent** of bicycle fatalities.³
- **55.7 percent** of motor vehicle collision deaths were due to traumatic brain injury.³

NONFATAL BICYCLE INJURIES, 2008¹



¹National Center for Statistics and Analysis, National Highway Traffic Safety Administration. Traffic safety facts, 2008 data: Bicyclists and other cyclists. (DOT HS 811 156). Washington, DC: Author. Retrieved January 28, 2011, from <http://www-nrd.nhtsa.dot.gov/Pubs/811156.PDF>

²Sheppard, M. A., & Taylor, D. Medical, work loss, and quality of life costs for fatal and hospital-admitted bicycle injuries to children 0–19 in 2004 dollars [unpublished data]. Calverton, MD: Pacific Institute for Research and Evaluation.

³National Center for Health Statistics. Multiple Cause-of-Death File (2006). Centers for Disease Control and Prevention.

EVIDENCE-BASED STRATEGIES

What Works?

Comprehensive reviews of high-quality evaluations show consistent, significant reductions of bicycle-related injuries and fatalities when the following strategies are used.

- **Properly wearing a helmet** approved by the Consumer Product Safety Commission provides an 85 to 88 percent reduction in the risk of head and brain injury for bicyclists of all ages. This makes helmets the single most effective way to reduce head injuries and fatalities resulting from bicycle crashes.⁴ A properly worn helmet fits snugly, is shifted forward on the head, and is secured with a taut chin strap.⁵
- **Helmet use education** should draw on research data, focus on a targeted age group, and have a built-in evaluation component. It should include access to bicycle helmets (through discounts or donations) and demonstration and practice of how to fit a bicycle helmet properly.⁶ Education is most effective when supported by other interventions such as public service announcements, bicycle rodeos, and helmet discounts. Stand-alone interventions, such as providing helmets in pediatric offices, are less effective.^{7,8}
- **Helmet subsidies** are effective in increasing helmet use among low-income children⁷ and should be accompanied by instruction on how to fit a helmet and the importance of always wearing a helmet while bicycling.⁶
- **Helmet give-away programs** are more effective than subsidies.^{8,9,10}
- **Helmet use legislation** is effective, but the impact varies from study to study.^{11,12} In addition, only 21 states, the District of Columbia, and about 149 municipalities have helmet use laws. Most of these laws cover bicyclists only under age 16.¹³

What Might Work?

Comprehensive reviews conclude that the following strategies are likely to work, but they have not yet been sufficiently evaluated to provide conclusive evidence of effectiveness.

- **Bike fairs, rodeos, and skills training** can make children more aware of safe cycling behavior and legislation, but such measures can't counteract developmental factors such as coordination and strength or the ability to evaluate traffic hazards.^{6,7}
- **Visibility aids** are fluorescent materials or lights used by cyclists so that drivers will see them sooner or more clearly. While there is evidence that these improve driver detection and recognition, there have been no studies assessing their effect on cyclist-motor vehicle collisions or injuries.¹⁴
- **Targeted enforcement of bicycle-related laws** is directed toward both bicyclists, such as impounding bicycles of unhelmeted cyclists or imposing fines for wrong-way riding, and motorists, such as issuing citations for turning in front of an oncoming cyclist or passing too close.^{6,7}
- **Bike lanes and paths** should be paved and go with the flow of traffic.⁶
- **Area-wide traffic calming** has consistently been shown to reduce overall traffic injuries, but studies have not independently examined its effect on injuries to bicyclists.¹⁵
- **Parental modeling** of proper helmet use. Children are more likely to wear helmets each time they ride when their parents wear helmets as well.¹⁶



PROGRAM PLANNING GUIDES

National Strategies for Advancing Bicycle Safety recommends national, state, and local action steps to address bicycle injuries and fatalities and focuses on five key goals: sharing the road, safe riding, helmets, safety legislation, and safe roads and paths. http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/bicycle_safety/

Helmets: A Road Safety Manual for Decision-Makers and Practitioners provides guidance on the design, implementation, and evaluation of helmet programs. http://www.who.int/violence_injury_prevention/publications/road_traffic/helmet_manual.pdf

Good Practices Guide for Bicycle Safety Education provides effective practices for the development of bicycle safety programs and case examples of existing effective programs that can be implemented in local communities. http://katana.hsrb.unc.edu/cms/downloads/GoodPracticesGuide_BikeSafetyEdu.pdf

Safe Routes to School Guide provides information on engineering, education, enforcement, encouragement, and evaluation strategies to increase safety for children walking and bicycling to school. <http://www.saferoutesinfo.org/guide/>

BASICS OF A SUCCESSFUL COMMUNITY PROGRAM

Use these links to identify potential partners, funding sources, and evaluation criteria for your program.

Partners

- State injury prevention program directors. Contact csn@edc.org or info@safestates.org
- State 4-H chapters. <http://www.fourhcouncil.edu/find4h.aspx>
- Directories of local, state, and provincial bicycle advocacy organizations.
 - Alliance for Biking & Walking <http://www.peoplepoweredmovement.org/site/index.php/site/memberservices/C530>
 - League of American Bicyclists https://members.bikeleague.org/members_online/members/findit.asp
- Safe Routes to School state contacts. <http://www.saferoutesinfo.org/contacts/index.cfm>
- State highway safety offices. For the office in your state, visit <http://www.ghsa.org/html/links/shsos.html>
- Traffic safety and injury prevention organizations with local chapters.
 - Safe Kids Worldwide. <http://www.usa.safekids.org/>
 - Injury Free Coalition for Kids. <http://www.injuryfree.org/ifsites.cfm>
- Bicycle clubs. League of American Bicyclists https://members.bikeleague.org/members_online/members/findit.asp
- Bicycle Shops.
 - League of American Bicyclists https://members.bikeleague.org/members_online/members/findit.asp
 - Bicycle Retailer Dealer Finder, National Bicycle Dealers Association <http://nbda.com/articles/dealer-finder-pg32.htm>
 - Service organizations. Kiwanis. <http://www.kiwanis.org>; Lions Club. <http://www.lionsclubs.org>; Rotary. <http://www.rotary.org>

Funding

- Pedestrian and Bicycle Information Center has a page on public and private funding sources for local programs. <http://www.bicyclinginfo.org/pp/funding/index.cfm>
- The Good Practices Guide for Bicycle Safety Education offers advice on how to secure funding on pages 53–56. http://katana.hsrb.unc.edu/cms/downloads/GoodPracticesGuide_BikeSafetyEdu.pdf

- Safe Routes to School provides funding for infrastructure, education, and campaign materials. State coordinators are listed at <http://www.saferoutesinfo.org/contacts/index.cfm>
- Bikes Belong Coalition has a grant program that funds bike paths and parks; big-city cycling initiatives; and innovative, high-profile bicycling projects that serve as national models. <http://www.bikesbelong.org/resources/publications/grants-publication-brochure>
- State and Community Highway Safety Grant Program provides some funding for bicycle safety projects. http://www.bikeleague.org/resources/reports/pdfs/section_402.pdf

Evaluation

- "Evaluating Helmet Campaigns," a document from the Bicycle Helmet Safety Institute, provides case studies, sample forms, guidelines, and sources of further information. <http://www.helmets.org/evaluate.htm>
- Good Practices Guide for Bicycle Safety Education provides guidance on evaluating bicycle safety programs on page 62. <http://www.bicyclinginfo.org/ee/bestguidedoc.pdf>

INFORMATION AND MATERIALS FOR PROGRAM IMPLEMENTATION

The Pedestrian and Bicycle Information Center (www.bicyclinginfo.org) has a number of items to help you implement your program, including:

- Planning and assessment tools, design guidelines, strategies for promoting bicycling, case studies of model programs, and law enforcement training. <http://www.bicyclinginfo.org>
- A searchable online catalogue that identifies skills and knowledge that young bicyclists of different ages need to have and matches those needs to existing resources. <http://www.bicyclinginfo.org/education/children.cfm>
- Bicycle Countermeasure Selection System (BIKESAFE), which provides resources and tools to help address specific roadway problems that can lead to bicycle crashes. It also includes bike safety education and enforcement activities. <http://www.bicyclinginfo.org/bikesafe/>

The National Highway Traffic Safety Administration has the following resources:

- Materials for bicycle safety education, enforcement, outreach, and legislation, including instructional videos, law enforcement training materials, resource guides, and children's activity kits. <http://www.nhtsa.gov/Bicycles>
- Bicycle Helmet Use Laws: Lessons Learned from Selected Sites, the experiences of six jurisdictions in enacting and implementing bicycle helmet use laws. Appendices include specific activities that states and communities have used to raise awareness of and promote compliance with the new laws. <http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/BikeHelmetUseLawsWeb/images/BicycleHelmetUseLaws.pdf>

League of American Bicyclists has the following resources:

- Bicycle safety and education materials and training courses. <http://www.bikeleague.org/programs/education/>
- Information on the Safe Routes to School movement. <http://www.bikeleague.org/programs/saferoutes/>
- Information on the Bicycle Friendly America program, including how to become a Bicycle Friendly Community. <http://www.bikeleague.org/programs/bicyclefriendlyamerica/>
- Bicycle Helmet Use Laws: Lessons Learned from Selected Sites, the experiences of six jurisdictions in enacting and implementing bicycle helmet use laws. Appendices include specific activities that states and communities have used to raise awareness of and promote compliance with the new laws. <http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/BikeHelmetUseLawsWeb/images/BicycleHelmetUseLaws.pdf>

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