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## A National Program for Injury Prevention in Children and Adolescents: The Injury Free Coalition for Kids

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**ABSTRACT** *Injury is the leading cause of death and a major source of preventable disability in children. Mechanisms of injury are rooted in a complex web of social, economic, environmental, criminal, and behavioral factors that necessitate a multifaceted, systematic injury prevention approach. This article describes the injury burden and the way physicians, community coalitions, and a private foundation teamed to impact the problem first in an urban minority community and then through a national program. Through our injury prevention work in a resource-limited neighborhood, a national model evolved that provides a systematic framework through which education and other interventions are implemented. Interventions are aimed at changing the community and home environments physically (safe play areas and elimination of community and home hazards) and socially (education and supervised extracurricular activities with mentors). This program, based on physician–community partnerships and private foundation financial support, expanded to 40 sites in 37 cities, representing all 10 US trauma regions. Each site is a local adaptation of the Injury Free Coalition model also referred to as the ABC’s of injury prevention: A, “analyze injury data through local injury surveillance”; B, “build a local coalition”; C, “communicate the problem and raise awareness that injuries are a preventable public health problem”; D, “develop interventions and injury prevention activities to create safer environments and activities for children”; and E, “evaluate the interventions with ongoing surveillance.” It is feasible to develop a comprehensive injury prevention program of national scope using a voluntary coalition of trauma centers, private foundation financial and technical support, and a local injury prevention model with a well-established record of reducing and sustaining lower injury rates for inner-city children and adolescents.*

**KEYWORDS** *Community coalitions, Injury prevention, Pediatric, Urban health.*

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### INTRODUCTION

Injury is the leading cause of death, a prevalent source of disability, and a major contributor to the use of excess resources and health expenditures for children and

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adolescents.<sup>1</sup> Although death and disability due to injuries take a disproportionate toll on socioeconomically disadvantaged youth, both intentional and unintentional injuries in this population can be significantly decreased through community-oriented, issue-focused interventions.<sup>2-5</sup> Despite incontrovertible evidence that injury risk is modifiable, injury prevention remains an historically neglected area of public health—a condition that the World Health Organization says is due to a lingering adherence to the “traditional view of injuries as accidents or random events.”<sup>6</sup>

Although children’s hospitals and trauma centers throughout the United States provide treatment for pediatric injuries and may recognize the need for community-based prevention, many are functioning under increasingly tighter budget constraints and have insufficient financial, technical, or staff resources to initiate injury surveillance, systematically identify priorities, design, and implement interventions, and evaluate the effectiveness of prevention activities. Furthermore, because there is a general lack of appreciation for the magnitude of the injury-related health burden and for the modifiability of injury outcomes, it is often difficult to mobilize the necessary resources for effective prevention.

In this report, we review the magnitude of the injury burden and describe how physicians, public health professionals, community coalitions, and a private foundation teamed to positively impact a largely neglected area of public health. We highlight key milestones in the evolution of the original Harlem Hospital Injury Prevention model, including its path to becoming a nationwide coalition of local pediatric injury prevention programs, now known as the Injury Free Coalition for Kids. And lastly, we examine recent nationalization efforts in which this prevention model was disseminated to 39 additional sites coast-to-coast with current programs operating in all 10 US trauma regions. The original program, designed and implemented in a densely populated urban minority community environment, is being expanded both in geographic coverage and in the urban–rural characteristics of the communities being served.

## MAGNITUDE OF THE INJURY BURDEN

Injuries account for a significant health burden in all populations regardless of age, sex, income, or geographical region, but this burden is borne disproportionately by the young, poor, and the poorly educated living in resource-limited neighborhoods.<sup>1,5</sup> Injuries, both unintentional and intentional, contribute significantly to health disparities in morbidity, disability, and mortality across the lifespan. These disparities begin in early childhood and produce cumulative lifetime effects that contribute to injury being among the top five health problems in the US population.<sup>1,5,7</sup> Injuries are reported to account for 40% of all emergency department visits and nearly 10% of all hospital discharges in 1999.<sup>8</sup> Over the lifespan, unintentional injuries are the third leading cause of death in Hispanics preceded by heart disease and cancer, and the fourth leading cause in blacks preceded only by heart disease, cancer, and cerebrovascular disease. In addition, injuries are a leading cause of years of potential life lost prematurely in the US population.<sup>1,7</sup>

Injury is the leading cause of death in children after the first year of life.<sup>1,9</sup> These injury patterns are known to vary by gender, age, socioeconomic status, geography, rural/urban residence, and other factors. In low income, urban communities, including the ones served by this national program, injury rates are higher than the national average and frequently vary in the distribution of intentional versus unintentional injury mechanisms.<sup>1,10-13</sup>

## **MILESTONES IN THE DEVELOPMENT OF A NATIONAL PROGRAM FOR INJURY PREVENTION IN CHILDREN**

Following the observation in 1984 that the childhood injury rate in Harlem, a New York City community, was twice the national rate, partnerships with other organizations with an interest in prevention of injury to children were developed to form the Harlem Hospital Injury Prevention Program.<sup>3</sup> The first milestone, in what would eventually evolve first into a successful local initiative and later into a national program for prevention of pediatric injuries, began 25 years ago with observations that preventable injuries were occurring to children from window falls (Table). Neighborhood safety demonstration projects funded by the New York City Health Services administration in 1972 and community education about the New York City window guard law of 1979 was used to address this cause of injury in Harlem.<sup>14,15</sup> The effort implemented educational initiatives of a coalition of health care providers and school health staff. This was the beginning of the injury prevention efforts in Harlem. The success of the window falls program was demonstrated by reviewing 10 years of experience with falls from height in children (82% were from windows with a 23% mortality rate), and comparing the number of falls before and after the “Children Can’t Fly” program was initiated (96% reduction in falls from a height).<sup>14</sup> Injury rates from window falls were reduced and remain a rare cause of injury in Harlem today.

Although it would take 7 years before substantial funding became available for the injury prevention efforts, population and trauma registry based pediatric injury surveillance continued using local and national data.<sup>16-18</sup> The Northern Manhattan Injury Surveillance System was set up to analyze and monitor injuries to children under 17 in Central Harlem.<sup>16</sup> With funding from The Robert Wood Johnson Foundation, a critical mass of injury prevention activity began in 1988 (Table).<sup>3,19-22</sup>

## **THE HARLEM HOSPITAL INJURY PREVENTION PROGRAM**

Causes of injury have been investigated and found to be rooted in a web of social, economic, environmental, and criminal factors. Given the wide array of contributing causes, it became clear that improvements in injury could not be accomplished solely through the traditional medical model. Community coalitions were formed and became instrumental in fomenting change in hazards in both the physical and the social environments that were conducive to injury.<sup>3</sup> Physicians, public health professionals, and coalition members worked to increase public awareness that injuries are a preventable public health problem and to empower the community to work for change.

Although early programmatic efforts and successes proceeded without formal funding, in 1988 the Harlem Hospital program received a 3-year grant from The Robert Wood Johnson Foundation, which provides programmatic stability through staff salaries and office support. A small grant from the Center for Disease Control provided support for the injury surveillance system. Injury data were instrumental in building a broad-based community coalition, increasing coalition cohesiveness, and directing community activism to unsafe neighborhood conditions.<sup>23-25</sup> Robert Wood Johnson Foundation funds supplemented by small grants from local charities and foundations, philanthropists, and corporate sponsorship made possible an expanded range of new social and mentoring activities including after school dance, art, reading, and sports programs, which lowered exposure to intentional and unintentional injury mechanisms including street traffic, guns, drugs, violence, and gang activities.

**TABLE. Milestones in the development of the Injury Free Coalition for Kids**

1972	New York City data show falls from heights account for 12% of unintentional deaths in children under 15, 82% are from windows. "Children Can't Fly" educational campaign is developed. <sup>14</sup> New York City Health Services Administration begins campaign to prevent falls.
1976	NY City Board of Health code passes requiring owners of multiple dwellings to install window guards and to be in compliance by 1979.
1981	96% decrease in falls from heights in children living in Central Harlem follows efforts of combined passive injury prevention (legislation requiring window guards) and active injury prevention (education and behavioral changes) (1979–1981). <sup>15</sup>
1982	Ten-year experience with treatment of pediatric gunshot wounds in Central Harlem is published in peer review literature. <sup>11</sup>
1984	Population-based pediatric injury surveillance is initiated for Central West Harlem. <sup>16</sup>
1987	Burns and gun shots identified as having high injury mortality rates in epidemiologic analysis of severe injuries to children in Northern Manhattan, including Central Harlem (1983–1987). <sup>16</sup>
1988	<i>Robert Wood Johnson Foundation (RWJF) supports pilot injury prevention project providing "a critical mass of activity" for a hospital-based inner-city injury prevention program (\$241,544 from 1988 to 1990).</i> <sup>3</sup>
1988	Traffic (pedestrian, bicyclists, and motor vehicle occupant) injuries identified as a problem through injury surveillance system.
1988	Playground project started in Central Harlem to provide off-street play areas; Fenced perimeters and water sprinklers added to decrease street play in open fire hydrants. (Board of Education and Department of Parks and Recreation). <sup>19</sup>
1989	Safety city traffic education initiated in Harlem (NYC Department of Transportation). <sup>20</sup>
1989	Kids, Injuries and Street Smarts (KISS) injury prevention curriculum developed (NYC Emergency Medical Services, Community School District, and NYC Health and Hospital Corporation). <sup>3</sup>
1989	Mentoring and after school programs developed through cooperation of community groups and Harlem Hospital including horticulture projects (Greening of Harlem, NYC Department of Parks and Recreation), Harlem Horizon Art Studio (unity through murals and other projects), Harlem Hospital Dance Clinic, Harlem Little League, and Harlem Soccer League. <sup>3</sup>
1990	Multipronged bicycle safety initiative; distribution of free helmets, bicycle fix-up days coupled with bicycle safety educational programs, pocket-sized cards with rules of the road. <sup>3</sup> Advocacy for bicycle helmet legislation for State of NY; Legislation passes in 1993.
1990	<i>RWJF supports local injury prevention activities for Harlem, NY (\$299,762 from 1990 to 1992).</i>
1990	School- and community-based burn prevention education and smoke detector distribution initiated "Burnwise" program. <sup>3</sup>
1991	Injury surveillance program shows hospital trauma admissions decrease for ages 2–12 years, but remain largely unaffected for ages 13–17 years. <sup>3</sup> Program begins to reassess injury prevention activities and initiates efforts to identify and target interventions aimed at experiences/activities that place adolescents at injury risk (1988–1991). <sup>2</sup>
1991	Primary prevention activities intensify for gun safety education for parents and children with conferences, interactive workshops, computer games, alternatives to violence curriculum, rap group (talking straight), mentoring, and after school activities. <sup>3</sup>
1992	50% decrease in assault and gun injuries in Central Harlem adolescents aged 13–16 years; majority of improvement was between 1991 and 1992. <sup>21</sup>
1994	RWJF Program Officer approaches the surgeon director of Harlem Injury Prevention Program regarding expanding the program with hospital-based sites in other US cities.
1995	<i>RWJF Foundation funds a three-year "Replication Program" to disseminate the model program to five additional inner-city sites Atlanta, Chicago, Kansas City, Los Angeles, and Pittsburgh, and none of which have population-based injury surveillance systems or active injury prevention programs (\$1.1 million) (1995–1998).</i>

**TABLE. Continued**

1995	45% decrease in pedestrian injuries in Harlem among targeted preadolescent school-aged children (1989–1995). <sup>4</sup>
1996	St. Louis Children’s Hospital joins program on a small grant.
1997	Replication of the Harlem Hospital Injury Prevention Program is named the Injury Free Coalition for Kids by attendees at the second annual injury prevention conference of member sites in Kansas City.
1998	RWJF continues expansion support to build an inner-city coalition of hospital-based injury prevention centers (\$3.2 million) (1998–2001). Sites are added in Miami and Philadelphia.
2001	Two replication programs report significant decreases in pediatric trauma (28%) and burns (66%) (E. Powell and K. Sheehan, 2000). <sup>27</sup>
2001	<i>RWJF funds National Program Office and “Dissemination of a Model Injury Prevention Program” expansion from 15 to 40 sites over 5 years (\$15 million) (2001–2006).</i>
2001	Six new sites added.
2002	National Program Office is set up in Department of Epidemiology, Columbia University’s Mailman School of Public Health.
2002	Expansion efforts add 12 new sites by competitive proposal. The coalition has 27 sites in 18 states and the District of Columbia, representing 9 of 10 US trauma regions.
2003	Expansion continues with the addition of 13 more sites by competitive proposal and now represents all 10 US trauma regions.

In addition to expanding the range and choice of activities available to children and adolescents, several efforts were undertaken to make existing homes, neighborhood streets, and play areas safer. Existing playgrounds were inspected, photographed, and graded by Consumer Product Safety Standards, and reports were sent to school and parks and recreation officials. The reports spurred the Department of Parks and Recreation to replace outdated, unsafe equipment in all the public parks in Harlem with modern safe equipment to lower fatal and disability-producing injuries. Cement and asphalt surfaces underneath play equipment were replaced with more fall absorbent materials, such as poured rubber or rubber mats designed for use in children’s playgrounds. New playgrounds for the community schools and day care centers were built with a combination of private and public funds to provide alternative play areas to the streets.<sup>3,19</sup>

### **THE ABC’S OF INJURY PREVENTION: PROGRAM COMPONENTS OF THE INJURY PREVENTION MODEL**

The components and activities of the injury prevention program have been summarized into the ABC’s of injury prevention: A, “analyze the data”; B, “build a coalition”; C, “communicate the problem”; D, “develop the interventions”; and E, “evaluate the program.”

#### **A, “Analyze the Data”**

Conducting injury surveillance allows communities to make informed decisions regarding the categories and mechanisms of injury for which there is the greatest need for intervention. In addition to helping identify priorities, surveillance provides a mechanism for monitoring the effectiveness of injury prevention initiatives. The Northern Manhattan Injury Surveillance System guided the Harlem Hospital Injury Prevention Program by identifying and measuring the magnitude of potentially

preventable injuries and programmatic effectiveness in lowering the rates of these injuries across a variety of injury mechanisms in children and adolescents.<sup>1-4,10,16,21,22</sup>

Developing a sound injury surveillance system capable of monitoring program outcomes requires data on both nonfatal and fatal injuries. The backbone of the Northern Manhattan Injury Surveillance System includes data from two primary sources: vital statistics from the New York City Department of Health on fatal injuries and a mandatory-reporting hospital discharge system called the Statewide Program and Research Cooperative System or (SPARCS) for injuries requiring hospitalization.<sup>23</sup> This system contains hospital discharges from all acute care hospitals, coding for external causes of injury, and ZIP codes of residence for the injured person. Maintained at the New York State Department of Health, SPARCS is created through two primary forms: the uniform billing forms and clinical data abstracting form. Since 1990, the state has required that international classification of diseases pertaining to injury also be coded with the External Causes of Injury Supplementary Codes (better known as E-codes in ICD-9-CM or X, Y, Z codes in the upcoming ICD-10-CM).

Several of the national injury prevention program sites function in states where legislation governing vital statistics prevents release of data files containing ZIP code or small area data. Injury surveillance is still possible in most states through the cooperation of vital statistics departments that process the raw data files and provide injury tallies by mechanism of injury death at the community or ZIP code level.

### **B, "Build a Community Coalition"**

Because many injuries were deemed to be dependent on the social and physical environment, interventions aimed at reducing the injury burden were approached with community involvement, which is an effective way to create and sustain change.<sup>3,24,25</sup> The original Harlem community coalition consisted of a pediatric surgeon, pediatricians, elected public officials, public health professionals, fire and emergency medical service personnel, district attorney's staff, law enforcement, school principals and parent associations, office of school facilities staff, school health and trauma center nurses, parents, staff and commissioners from the Departments of Transportation, Health, and Parks and Recreation, and community volunteers. Physical and social environments were assessed, and specific programs were sequentially put in place. Coalition members worked on projects that were of interest to them, so the working group varied by project, forming "sliding coalitions." Meetings were kept to a minimum. Once a coalition member was committed to a project, much of the work was done by telephone or e-mail.

Coalition members and community residents frequently have an anecdotal frame of reference and preconceived ideas of which problems they feel are the greatest risk to their communities or are the most feasible to address technically and politically. Community-based epidemiologic data were used to validate or dismiss those preconceived ideas, support local initiatives, quantify the magnitude of injuries by mechanism, and provide a basis for the evaluation of program effectiveness. The impact of coordinated coalition efforts are greater than the efforts realized by any one member organization. For example, the Manhattan district attorney's community outreach program with the narcotic task force removed drug dealers from the parks. The Department of Parks and Recreation upgraded all the parks and playgrounds. The Department of Transportation provided lighting for the parks and developed an educational program for pedestrian safety. The Department of

Health's rat task force eliminated the rodent problem. The Department of Sanitation containerized school garbage near playgrounds. The community parents filled the parks and playgrounds with positive supervised activities such as Little League, soccer, and basketball. The new parks had murals painted by local children working with artists from the Department of Parks and Recreation and from the Harlem Hospital art program.

### **C, "Communicate the Problem"**

Before beginning an injury prevention program, political leaders and the community may not have been aware of the frequency and types of injury occurring in the community. Educational efforts began with the education of health professionals serving the community and community leaders. Physicians, public health professionals, and coalition members worked to increase public awareness that injuries are a preventable public health problem. Raising the awareness of the problems was instrumental in gaining the support needed to effect environmental change for safer streets, playgrounds, and neighborhoods.

### **D, "Develop the Interventions"**

The goals of the injury prevention program are to reduce injuries to community children by decreasing the risk of preventable injuries and to increase the use of safety devices to decrease the severity of injury. Intervention efforts encompassed both passive prevention (measures which do not require an individual to change behavior to experience the benefit of lower injury risk) and active prevention (measures which require individuals to make behavioral changes to experience lower injury risk). Active prevention efforts included educational interventions directed toward safety instruction in street crossing, poison prevention, and fire safety. Education in areas requiring active prevention was combined with product distribution efforts, first to educate parents and caregivers on proper use of commercially available safety devices and then to improve access to the products for low-income residents. These efforts were targeted at decreasing financial obstacles that lowered use of transportation and home safety devices such as infant and child car seats, booster seats, bicycle helmets, and reflective gear. Home safety products funded through corporate sponsorship and national organizations included cabinet locks, bath thermometers, smoke alarms, window guard disks, choke tubes, home safety checklists and brochures. Educational interventions were geared to specific groups, populations at high risk, and the community at large.

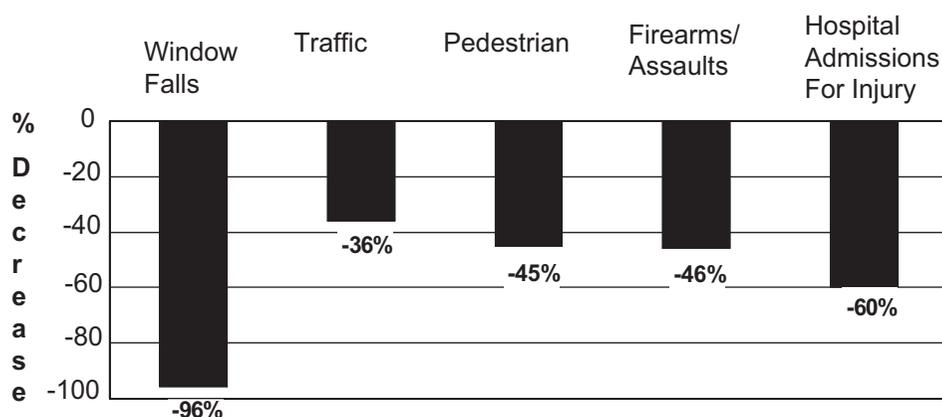
### **E, "Evaluate the Programmatic Efforts"**

Epidemiologic study principles are used to evaluate the impact of interventions. Once a program has been initiated, evaluation, modification as necessary, and reevaluation become ongoing activities. Sites use multiple data sources for the evaluation of the program's impact including locally collected data, pooled data from multiple sites, trauma registry data, and secondary analysis of administrative data. Information from these evaluations is fed back to program staff and community coalitions for improvement of programmatic effectiveness. Program evaluation efforts vary from program to program and from intervention to intervention within programs. Many attempt a comprehensive evaluation of program processes, effectiveness, and impact.<sup>26</sup> A *process evaluation* provides evidence of whether the program is being implemented as planned. For example, if the plan calls for educating

school-age children about traffic safety, a process evaluation may provide documentation of the number of children attending the programs and the distribution of educational materials to targeted individuals. *Evaluation of effectiveness* provides evidence that the intervention works. If the goal is to modify behaviors that predispose to injury, evidence of effectiveness may consist of data showing a change in the frequency of injury-related behaviors following exposure to the intervention. An *impact evaluation* provides evidence of whether the intervention is having the desired effect on the community. For example, studies showing widespread changes in behavior or actual reductions in the incidence of injuries following implementation of the intervention are examples of impact evaluations.

### SUMMARY OF THE IMPACT OF THE HARLEM HOSPITAL INJURY PREVENTION PROGRAM

This injury prevention approach, combining injury surveillance with education and community activism, was effective in reducing injury across a wide spectrum of injury mechanisms (Fig. 1). Improvements were recognized across targeted intervention areas for both intentional and unintentional injuries while rates for nontargeted injury mechanisms remained high.<sup>2,3</sup> Following the sequential introduction of programs aimed at reducing several causes of injury for school-age children, such as motor vehicle pedestrian injury, assaults, firearms, and falls in this inner-city community, the incidence of injury among school-aged children declined compared with preintervention rates: traffic injuries declined by 36%, pedestrian injuries by 45%, violent injuries due to firearms and assaults by 46%.<sup>2-4,12,21</sup> Neurological injury was reduced by 44% in the group receiving injury-prevention interventions.<sup>22</sup> As of 2001, Harlem had a 60% reduction in the overall injury rate in children. Improvements in injury rates have been sustained, as hospital admissions for injury to children and adolescents under 17 years of age continue to be 60% lower than preintervention rates.



**FIGURE 1.** Injury reduction in children for mechanisms of injury with targeted interventions in the Harlem community. The percent decrease in injuries occurring due to falls from windows, traffic, pedestrian, firearms/assaults and for all injuries in children requiring hospitalization in the targeted communities are shown.

### **THE EARLY EXPANSION EFFORT: FORMATION OF A NATIONAL COALITION OF PHYSICIAN-DIRECTED, COMMUNITY-BASED, ISSUE-FOCUSED INJURY PREVENTION PROGRAMS**

In 1994, after peer review publications reported that both intentional and unintentional injury rates had fallen in this resource-limited community with drug, assault, and other crime-related problems, the issue of whether the program could be replicated was raised. Several questions were asked. Could the significant reductions in injury rates observed under the Harlem model be duplicated in other inner-city communities? Was implementation of the model and its program components sufficient to bring about improvements in injury rates in other similarly resource-limited communities or was its success dependent on factors unique to the Harlem community, the program staff, and the community coalition? Funding was provided by The Robert Wood Johnson Foundation to expand on a small scale to other urban sites using the Harlem program model. The sites chosen were in Pittsburgh, Atlanta, Kansas City, Chicago, and Los Angeles (Table).

Consistent with the program aims, local member programs were required to develop similar program components which had been found effective in the Harlem program. Early expansion sites implemented a local version of the Injury Free Coalition model tailored to their community, this time under the direction of a physician based in a local pediatric trauma center. Although the components were similar across sites, considerable uniqueness arose within the programs as they tailored their local program components to the specific injury problems, political environment, and social climate in their communities.

### **PROGRAM IMPACT AT EARLY EXPANSION SITES**

Following implementation of the multiyear grant program in other resource-limited communities, reductions in injury rates were again observed—this time in neighborhoods remote from the city where the original program had been founded. Among the notable results from the early expansion sites is a 28% reduction in children's trauma admissions for targeted catchment areas in Chicago (E. Powell and K. Sheehan, personal communication, 2000) and a 66% reduction in pediatric burn deaths in St. Louis where an intervention to prevent home fires was implemented.<sup>27</sup>

### **CHARACTERISTICS OF SITES LIKELY TO DEVELOP A SUCCESSFUL INJURY PREVENTION PROGRAM**

Successful local injury prevention programs are highly dependent on a strong, committed, and well-informed leader who is familiar with the spectrum of traumatic injury and dedicated to reducing injury in the community. Because our programs are hospital based, it is important to have a leader who has both knowledge and access to the administrative and decision-making bodies of the hospital. Within the hospital setting, physicians are more likely to have this access as part of their trauma center functions. Each site has a program coordinator who is involved in the design and daily implementation of the injury prevention center's prevention activities while the physician provides overall direction and leadership. Program success depends on having leadership and programmatic staff who are culturally sensitive to the communities where the interventions are being conducted. Communities in

greatest need of interventional programs are frequently clustered near the inner-city trauma centers and pediatric hospitals. Analyses of census tract data for communities with higher injury rates reveal that they have lower median incomes, lower educational levels, more female headed households, higher poverty rates, and higher unemployment rates.<sup>10,28</sup> Consequently, all member sites have programs targeted to the reduction of the injury burden in resource-limited communities.

### **NATIONAL EXPANSION OF THE INJURY FREE MODEL**

With continued funding from the Robert Wood Johnson Foundation, expansion efforts resulted in a national coalition comprised of seven children's hospitals and eight general hospitals with pediatric trauma centers. The national program sites selected a name and logo so the network would have a clear identity. In 2001, the program Injury Free Coalition for Kids became a national program of The Robert Wood Johnson Foundation with grant funding to establish 40 injury prevention sites by 2003. These 40 sites in 37 cities, at various stages of development, are located in all 10 trauma regions in the mainland United States. Grants to member sites require two-to-one matching funds which can be cash or in-kind match. Programs established during earlier expansion efforts report that this requirement gave them leverage to garner support locally from the hospital, local businesses and foundations, charities, and philanthropists.

The national program grant extended the application of the Injury Free Coalition prevention model into rural and mixed urban-rural environments. Although the program components of this model appear to apply to a variety of settings, it was unclear whether this model, developed and proven effective in urban communities, could be adapted successfully to rural or mixed urban-rural environments. In late 2002, we added a rural site and a mixed urban-rural site. Both sites have implemented the model successfully. One site has now taken the lead in developing innovative educational strategies and interventions for all terrain vehicle injuries, which are growing in importance as sales of the vehicles and injury incidence increase. Although many of our sites are treating all terrain vehicle injuries, having a mixed urban-rural program take the lead in this area has been advantageous since the site has a high volume of injuries and substantial experience dealing with this injury mechanism. As expected, the rural site is struggling with the difficulties of small numbers for injury surveillance and program evaluation associated with low density population and a wider geographic area compared to our urban sites.

### **THE NATIONAL PROGRAM OFFICE**

The recently established National Program Office for the Injury Free Coalition for Kids is located at the Department of Epidemiology, Columbia University's Mailman School of Public Health. One tool for coordination among sites is an Injury Free sponsored annual meeting supported by the Robert Wood Johnson Foundation, which is required for all principal investigators and key site staff. The cost of meeting attendance is budgeted in each site grant. These meetings provide for cross pollination of ideas and act as a forum for sharing and discussing potential injury prevention ideas and issues across sites. It facilitates local and national staff interactions with program officers from funding agencies, cross-site networking, coordination of

multisite research efforts, and provides a forum for the delivery of technical assistance workshops conducted by National Program Office staff and program staff from established sites.

The National Program Office, through corporate and private philanthropy, provided member sites with funding for local playground projects, car seats, and home safety devices (including smoke alarms, bath thermometers, refrigerator magnets with safety messages, brochures and safety checklists, window safety disks and choke tubes for measuring small items which might cause choking, and cabinet door locks). In addition, through coordination with local and national agencies and corporations, cooperative arrangements have been made at the local level to increase funding for the program and access to injury prevention aids and devices for low-income residents. Currently, The National Program Office coordinated research activities across sites for a multisite randomized control trial on home safety.

National Program Office technical assistance is provided through lectures, workshops, written materials, and a website ([www.injuryfree.org](http://www.injuryfree.org)). Sites are given assistance with calculation of population-based injury rates and compilation of resource materials to facilitate research and evaluation including *State Summaries: A Report on the Availability and Use of Statewide Hospital Discharge and Vital Statistics Data* for injury prevention, methods for conducting epidemiologic injury surveillance, and a technical assistance working document on methodological issues for using census data with hospital discharge data to further injury-related health disparities research.<sup>29,30</sup> The National Program Office facilitates injury-related communication among sites, from sites to their communities, and to the general public through lectures, TV, radio, website postings, newspaper and other print media, and promotional videos. The Injury Free website ([www.injuryfree.org](http://www.injuryfree.org)) contains information on all program sites, resource links, injury prevention slide shows, general news, conference dates, electronic publications and other resources.

## **GEOGRAPHIC REGION AND MEMBER SITES**

The distribution of current member sites is shown in Fig. 2 with the American College of Surgeons Trauma Regions, which are based on U.S. Federal health regions. Consistent with the historical development of the injury prevention program, all member sites are operating community injury prevention programs targeted at low-income communities with injury rates that are higher than the national average. Programs are physician directed and staffed with a program coordinator or program assistant who either does the community education or coordinates with designated injury prevention educators at their injury prevention site. The physician director and staff are based in a pediatric trauma center serving their particular target community. Local program staff provides coordination with local and national organizations with common interests in the particular injuries or mechanism(s) of injury that have been identified for prevention activities at their local site.

## **CONCLUSIONS**

It is feasible to develop a comprehensive injury prevention program of national scope through a voluntary coalition of trauma centers, private foundation financial and technical support, and a local injury prevention model with a well-established record of reducing and sustaining lower injury rates for inner-city children and



**FIGURE 2.** Map of injury free member program sites by American College of Surgeons U.S. Trauma Regions. There are 40 member sites covering the 10 national trauma regions which are based on divisions of the U.S. Federal health regions.

adolescents. Because injury prevention crosses boundaries of responsibilities, community coalitions are an essential component of prevention efforts aimed at impacting intentional and unintentional injury mechanisms that cannot be effectively addressed by the public health community alone.

#### **ACKNOWLEDGEMENT**

The support of the expansion of one local community's success into a programmatic effort of national scope is a tribute to The Robert Wood Johnson Foundation's commitment to improving health as well as health care. Current Injury Free sites include Hughes Spalding Children's in Atlanta, Children's Hospital of Austin in Austin, Johns Hopkins Children's Center in Baltimore, The Children's Hospital of Birmingham in Birmingham, Children's Hospital in Boston, Children's Memorial Hospital in Chicago, University of Chicago Children's Hospital in Chicago, Cincinnati Children's Hospital Medical Center in Cincinnati, Columbus Children's Hospital in Columbus, The Children's Hospital in Denver, Blank Children's Hospital in Des Moines, Children's Hospital of Michigan in Detroit, Pitt County Memorial Hospital in Greenville, North Carolina, Connecticut Children's Medical Center in Hartford, Riley Hospital for Children in Indianapolis, Sands Jacksonville Medical Center in Jacksonville, Truman Medical Center/Children's Mercy Hospital in Kansas City, University of Kentucky Children's Hospital in Lexington, Arkansas Children's Hospital in Little Rock, Harbor-UCLA Medical Center in Los Angeles, Jackson Memorial Hospital in Miami, Children's Hospital and Health System in Milwaukee, Hennepin County Medical Center in Minneapolis, Children's Hospital of New York Presbyterian in New York, Harlem Hospital Center in New York, Children's Hospital of Illinois in Peoria, The Children's Hospital of Philadelphia in Philadelphia,

St. Joseph's Hospital and Medical Center in Phoenix, Children's Hospital of Pittsburgh in Pittsburgh, Mercy Hospital in Pittsburgh, Oregon Health and Science University in Portland, Rhode Island Hospital/Hasbro Children's Hospital in Providence, Glissando Children's Hospital in Rochester, Primary Children's Medical Center in Salt Lake City, University Health System in San Antonio, Children's Hospital and Health Center in San Diego, Harborview Medical Center/Seattle Children's Hospital in Seattle, St Louis Children's Hospital in St. Louis, Children's National Medical Center in Washington, DC, and University of Massachusetts Memorial Children's Medical Center in Worcester. This work was supported by grants from The Robert Wood Johnson Foundation, Princeton, New Jersey, and the National Center for Minority Health and Health Disparities through the EXPORT grant mechanism (NIH 1P60MD000206).

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