

# BE Healthy™

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Boston Public Health Commission

## Unintentional injuries: The high cost of accidents

It was 2:30 a.m. and Anthony Perry was driving home on Washington Street when all of a sudden, a car coming toward him made a quick left onto Townsend Street.

Perry swerved, but it was too late. His Jeep Cherokee was totaled, and worse, his life was sent spiraling down a road of physical rehabilitation and economic disaster.

Unable to work, he lost his job, his health insurance benefits and his car.

And it only took less than a minute.

"Accidents can happen so fast," Perry said. "If the driver had waited just three seconds, this could have been avoided."

It could have been a lot worse.

Accidents are the fifth-leading cause of death in America, right behind heart disease, cancer, strokes and chronic respiratory illnesses. While those illnesses receive the lion's share of attention, the numbers for unintentional injuries and deaths are staggering.

Nationwide, accidents result in 26 million disabling injuries each year and roughly 120,000 deaths. That number is about the same as all deaths from prostate, breast and

colon cancers combined.

Deaths are not the only tragedies. In 2005, for instance, more than 33 million people sought medical attention for an injury, the National Safety Council detailed in its Report on Injuries in America. Of those seeking medical attention, the report said, 3 million required hospitalization.

In all, the council reported 28 million emergency room visits, 5.4 million clinic visits and 41 million visits to doctors' offices on an outpatient basis.

Despite the sheer numbers, unintentional injuries are often overlooked as one of the nation's most deadly problems.

And one of the most expensive.

In 2006 alone, fatal and nonfatal unintentional injuries accounted for more than \$652 billion in direct health care costs, as well as lost wages and productivity.

Dr. Selwyn O. Rogers Jr. knows the numbers all too well and argues that even they don't tell the whole story, largely because the impact of accidents cannot be measured completely.

"It does not measure the impact on the families," he explained. "Nor do [the numbers] take into account the people who are living with short- and long-term effects: the

people who have lost limbs or have traumatic brain injuries and require permanent medical care."

As chief of Brigham and Women's Hospital's Division of Trauma, Burns and Surgical Critical Care unit, Rogers is astounded.

"You don't find people wearing a ribbon with a color for unintentional injuries," Rogers said. "You can go into many cities and find people who can easily raise a half-million dollars for a particular illness. But you don't find the same interest in injuries. There is no political force for injuries."

The lack of political will is only part of the problem.

"People are not afraid of accidents," Rogers explained. "People are afraid of cancer, but generally, people do not express fear of a car accident."

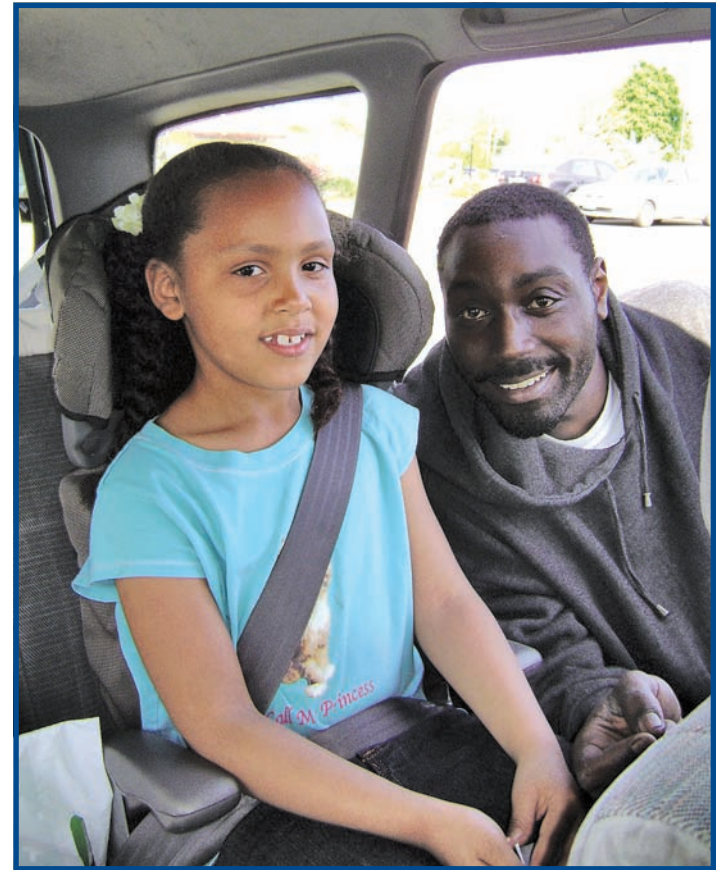
The most common types of injuries suffered are fractures, open wounds and damage to internal organs. Traumatic brain injuries — caused by a blow to the head — are particularly dangerous, sometimes resulting in

long-term physical and cognitive problems.

The death rates vary by age, gender and race. In 2006 in Massachusetts, unintentional injuries were the leading cause of death from age 1 to 44. By the age of 45, cancer and heart disease cause the most fatalities. But accidents remain one of the top 10 lifetime killers.

Unintentional injuries are significantly higher in males — exceeding those in females by more than 200 percent — and more deadly for black males. Their death

*Perry, continued to page 4*



Carlton Hamilton (right) is shown with his daughter, Kyra, 6, at a Child Safety Seat Check sponsored by the Boston Public Health Commission. Children up to 8 years old and 57 inches tall are now required to ride in a booster seat. (Photo courtesy of Boston Public Health Commission)

## Falls are risky for young and old

This story starts with a little girl chasing a cat.

It ends up in an emergency room, where 21-month-old Brianna Cruz was taken after falling two stories.

By the time Brianna's father made it to the driveway, she was motionless and not breathing.

Brianna survived, but not before triggering a major dose of panic.

"When we were in the emergency room," Brianna's mother Beatrice Guerrier recalled, "I was so nervous I thought I would wind up in the bed next to her. I thought I was going to have a heart attack."

Guerrier survived, too. But her daughter's story underscores the anxiety produced by one of the most universal childhood problems.

Falls are the most common accidents in children age 14 and younger, and certain age groups are more prone to particular types of falls. Infants often sustain their injuries by falling off furniture, such as beds, couches or tables. Older children can hurt themselves on playground equipment.

Open windows pose a threat to toddlers.

Falls from windows are particularly dangerous and can be the most severe or fatal. It can take just 5 inches of open window to present a hazard.

The young are not the only age group prone to injuries from falling. On the other end of the spectrum are the elderly. Falls are the leading cause of injury deaths among older adults.

In 2005, almost 16,000 people age 65 and older died from injuries related to unintentional falls and about 2 million people in that age range were treated in emergency rooms for their nonfatal injuries from falls.

The consequence of falls in the elderly is particularly severe. "When a 40-



Beatrice Guerrier (left) sits with her daughter, 21-month-old Brianna Cruz, who fell from her second-story porch. Falls are among the most common accidents and causes of serious injuries in toddlers.

year-old falls, he breaks his wrist," said Dr. Selwyn O. Rogers Jr., chief of the Division of Trauma, Burns and Surgical Critical Care at Brigham and Women's Hospital. "[But] when an elderly person falls, he can break his hip or suffer traumatic brain injury."

In 2004, more than 320,000 seniors were admitted to hospitals for hip frac-

tures, a number that is steadily increasing. More than 90 percent of hip fractures are caused by falling, and about 20 percent of hip fracture patients die within a year of their injury.

Furthermore, falls are the most common cause of traumatic brain injuries. According to the Centers for Disease Control and Prevention, in 2005, traumatic brain injuries accounted for 50 percent of deaths due to falls among the elderly.

By her own admission, Barbara Porter, 72, falls down a lot. Her balance is off because of a rare neurological condition called Chiari malformation in which brain tissue intrudes into the spinal canal. Some people have no symptoms at all, but in Porter's case, she is often dizzy and unsteady on her feet.

"I do fall quite a bit," she said. "I've fallen in my house, outside, especially on curbs. I fall everywhere. I even fell in the grocery store."

Fortunately, Porter has not suffered any serious injuries from her falls. "But it's embarrassing," she said.

A retired Boston Medical Center nurse, Porter said she has high blood pressure and diabetes. And things got worse after she stopped directing community

*Cruz, continued to page 4*



# Safety begins in the home

People worry about how to protect their children and themselves from accidents, but tend to overlook one of the biggest threats to their family's safety and well-being — their own home. There are basic precautions that people can take to make every room of the house safer for the whole family.

## Accidental falls

Among the most common accidents in a home are slips and falls resulting in serious or fatal injuries. But many of these falls can be prevented with the following precautions.

- Keep stairways clear and avoid storing anything on the stairs that could become an obstacle.
- Install a handrail along all staircases regardless of length, because even a few steps can be hazardous.
- Apply abrasive strips to each step and make sure your stairs are well-lit by putting light switches at both the top and bottom of the staircase.
- Remove slippery rugs and runners.
- Use nonslip backings to keep rugs or mats from skidding.

Inadequate lighting throughout the house is another major cause of falls in the home. Provide each room with sufficient illumination to avoid tripping over hidden obstacles. Always keep a nightlight on at night, or better yet, have a lamp near your bed so you can turn on the light before getting up.



**Keep stairways clear, install hand rails and use adequate lighting to prevent falls.**

## Bathroom safety

To prevent accidents in the bathroom, add anti-scald devices for faucets and shower heads. Set your home water heater to 120 degrees Fahrenheit or lower to prevent scalding. As bathroom mats can become quite slippery and dangerous, make sure you purchase nonslip floor mats for your bathroom floor. Line the bathtub floor with nonslip appliques and never use any electrical appliances when you are wet or in the bathtub, shower or pool.

## Childproofing the home

The Consumer Product Safety Commission recommends certain safety devices to help secure the home for young children. Safety latches and locks for cabinets and drawers may slow down a curious toddler from figuring out how to open them. Outlet covers and plates can keep little fingers out of electric sockets. Installing safety gates in different areas of the house can help prevent falls and keep children out of potentially dangerous rooms.

Window guards and safety netting provide security for children who may explore the windows in the house. Also, install window cord safety devices to prevent accidental strangulation. Use corner and edge bumpers to soften sharp furniture edges. It is also important to secure furniture such as bookshelves, entertainment centers and bureaus to the wall so that they



**Safety gates can help prevent falls and keep children out of potentially dangerous rooms.**



**Install smoke detectors in every bedroom and hallway.**

don't topple unexpectedly onto small children.

## Fire safety

Smoke and carbon monoxide detectors are very important additions to the home. It is highly recommended to have a smoke detector and carbon monoxide detector for every bedroom and hallway of

your home. Check monthly to be sure they are working, and change the batteries annually. To prevent fires in the home, check for faulty electric cords, replace worn or frayed cords, and do not use excessively warm outlets or switches.

## 911

If you don't feel up to the task of safety-proofing your home on your own, consider hiring a professional to evaluate your house and advise you on what needs to be done to make your home more safe. Lastly, in case an emergency does occur at your home, be sure to keep emergency phone numbers by the phone or put them on your speed dial. Place one phone low enough to be reached if an emergency prevents you from standing up, and make sure your address is marked outside in large, clear numbers so emergency personnel can find your house quickly.

## Where you least expect it

In 2006, almost 40 percent of all unintentional injury deaths in Massachusetts were poisonings, most of which were caused by accidental illegal and prescription drug misuse. Nonfatal poisonings are also common, occur frequently in the home and are preventable — if you know where to look.

Prescription and over-the-counter drugs



Certain house plants, flowers and shrubs

Cleaning products, including bleach and ammonia



Cosmetics, such as nail polish remover and hair sprays

Antifreeze and gasoline



Pesticides and fertilizers

Cigarettes and liquor



**24-hour poison hotline: 800-222-1222**

For poison prevention tips in your home, call the above number or visit [www.maripoisoncenter.com](http://www.maripoisoncenter.com)

## Use your head. Wear a helmet.

This summer, more and more Bostonians are taking to the streets on their bicycles. After all, cycling is great exercise, saves money, and is a wonderful way to explore the city. But accidents can happen.

Practicing safe, smart cycling is essential to enjoying your bike, and it starts by putting on a helmet.

This simple piece of foam and plastic can drastically reduce your chances of permanent injury and death. So when it comes to biking, do yourself a favor: use your head and protect it too.



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# Unintentional injuries

## Questions & Answers

### 1. Why is it dangerous to restrain a child in a car with only the factory-installed seat belts?

When a car collides with something, the car itself comes to an abrupt stop, but everything else in the car, including passengers, keeps moving forward. Seat belts are designed to both hold you in the car and to spread the impact of a crash along the parts of your body that will be least affected by the force — across your pelvis and along your ribcage. But seat belts — designed principally for adults — must fit properly to provide this support. For children and infants, seat belts may not work at all or may increase the risk of injury simply because they do not fit. This is why car and booster seats are necessary.



Joseph R. Betancourt, M.D.  
Director of the Disparities Solutions Center, Massachusetts General Hospital

### 2. Is it safe to allow a child to ride in the front seat of a car?

No. Head-on crashes are the most common kind of car accident. Also, many cars now have passenger side air bags meant to protect a person riding in the front seat in the case of an accident. However, the impact of the air bag itself can be enough to kill or seriously injure a child riding in the front seat. Children under the age of 13 should not ride in the front seat.

### 4. At which age do deaths from falls occur more frequently and why?

Both the number of falls and the seriousness of fall-related injuries, including death, increase after age 60, and more dramatically after 75 for several reasons. As people age, their physical condition changes. For example, when standing up quickly, older people can experience a drop in blood pressure, which can cause dizziness or fainting, leading to a fall. They may have problems with their balance or poor vision due to cataracts, or lose the inability to react quickly to an environmental hazard, such as a loose step or an obstacle in their path.

### 5. Why is unintentional suffocation the leading cause of injury death among infants?

Unintentional suffocation is common in children under the age of 1 mainly due to sleeping conditions. A child may get their face trapped in soft bedding, between a mattress and the wall or between cushions. Or an adult who is sleeping with the child may accidentally roll onto the child, smothering him or her. All these situations deprive the child of the ability to cry and alert a parent of their distress. Suffocation can also occur if a child chokes on a toy or food item or becomes entangled in a rope or a cord.

### 6. Can excessive drinking of alcoholic beverages result in accidental poisoning?

Yes. Alcohol is considered a depressant which, if drunk in excess, can suppress breathing and the gag reflex (which prevents choking), resulting in death. Excessive drinking can also lead to severe vomiting, which can be deadly if it causes an unconscious person to choke on their vomit. People who “pass out” after too much drinking are still at risk. The alcohol in their blood continues to circulate and may cause unconsciousness and breathing cessation, also leading to death. Confusion, stupor, unconsciousness, vomiting, seizures, [and] slow or irregular breathing are all symptoms of alcohol poisoning. If alcohol overdose is suspected, call 911 for immediate help.

### 7. Why is the motor vehicle accident rate high in teens?

Teenagers are four times more likely to be involved in car accidents than any other age group. Teens are much more apt to drive recklessly, ignore the speed limit, fail to yield, drive too closely to cars in front of them and fail to use seatbelts. In addition, having another teenager in the car increases the likelihood of an accident. They are often chatting, playing with the radio, making calls or texting on their cell phones — all distractions that can cause an accident. Substance abuse combined with driving is also a problem among teen drivers. Most teen accidents occur between the hours of 11 p.m. and 6 a.m. and are related to drug or alcohol use — which impairs driving ability. Finally, teenagers are less experienced than other drivers. They often misgauge stopping time, turns, speeds of other cars and fail to adapt their driving in adverse weather conditions appropriately.

*Elizabeth J. Donahue of the Disparities Solutions Center participated in the preparation of these responses.*

## A closer look

Unintentional injuries or accidents are among the leading causes of death in this country and are more frequent in people from 1 to 44 years of age. The economic toll of accidents is great and amounts to more than \$600 billion



a year in cost of care as well as productive years lost. Poisonings, motor vehicle-related accidents and falls account for over 78 percent of all accidental deaths in Massachusetts.

But many accidents are preventable. Use of age-appropriate auto restraints, installation of smoke detectors, and balance training for the elderly are all examples of steps one can take to reduce fatal and nonfatal injuries.



## Guard against falls

Falls are one of the most common fatal and nonfatal accidents in children. Falls from windows are particularly serious but can be prevented.

- Lock all unopened windows and doors.
- Keep furniture or anything a child can climb on away from windows.
- Open windows only from the top.
- Install child safety window guards. Window screens are not strong enough to prevent falls.
- Be sure children are always supervised.

Source: Boston Public Health Commission  
617-534-5197  
[www.bphc.org/childinjuryprevention](http://www.bphc.org/childinjuryprevention)



Window guards are necessary for caregivers of children under the age of 7 and for all windows above the first floor.

Healing the racial divide in health care

## Dr. Joseph Betancourt wrote the book on health care disparities. Now he's trying to erase them.

When Joseph Betancourt was in medical school, he often saw children acting as interpreters for family members who did not speak English. Originally from Puerto Rico, and as the only Spanish-speaking medical student on his team, he had to interpret for hospitalized patients.

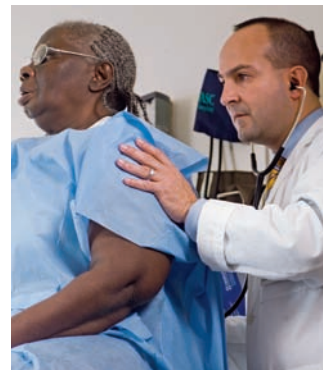
Years later, Joseph Betancourt, MD, MPH, co-authored a landmark study by the Institute of Medicine that found striking inequities in health and health care for racial and ethnic minorities across the US.

When Massachusetts General Hospital president Peter Slavin, MD created the Disparities Solutions Center at MGH, he chose Dr. Betancourt to lead it. “It is time to move from diagnosing the problem to treating it,” said Dr. Slavin.

The MGH Center is the first hospital-based Disparities Solutions Center in the country to move disparities beyond research into policy and practice. It has \$3 million in support from MGH and Partners HealthCare.

The Disparities Solutions Center will:

- advise MGH in its efforts to identify and address racial and ethnic disparities in care;
- develop and evaluate customized solutions to



eliminate disparities in the health care community in Boston and beyond;

- educate, train and expand the number of leaders working to end disparities nationwide.

Perhaps most important, the center will transfer what it learns to hospitals and health centers, community groups, insurers, medical schools, educators, government officials, and of course, physicians and nurses across the country.

One of the Center's first efforts is the new Diabetes Management Program at the MGH Chelsea Health Care Center, where more than 50 percent of patients are Latino. Latinos are more likely than whites to die from diabetes complications including kidney failure, blindness, heart disease, and amputations.

MGH Chelsea health professionals will help patients control their diabetes, get regular screenings, and prevent complications through telephone outreach, individual coaching, and group education sessions in English — and Spanish.

Translating talk into action is what Dr. Betancourt has been doing all his life.

More information at Boston Public Health Commission at [www.bphc.org](http://www.bphc.org)

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rate is almost four times that in Asian males, and nearly 13 percent higher than white and Hispanic males.

Anthony Perry readily admits that his accident could have been worse. But it was still bad enough.

He initially thought he was not seriously injured in the crash. But he later realized that he was in a daze and didn't realize the full extent of his injuries.

Though he had called a friend to give him a ride back to his home, Perry said he found himself in the emergency room three hours later. Doctors told him that he had a bulging disk in his spine and would have to wear a neck brace for a time to treat his case of whiplash.

But his spine was only part of the problem. He had lost sensation on his right side and his reflexes were diminished — both signs of neurological trauma. He is in physical therapy, and that has helped increase his strength and flexibility. He still cannot play basketball — one of his favorite pastimes — but is finally able to drive a car again.

The timing of the accident was another



Anthony Perry receives physical therapy from Danielle Rice at Bay State Physical Therapy for injuries he sustained in a car accident.

problem. Just last year, Perry had been diagnosed with diabetes. While the disease runs in his family, Perry said he had no problems until one day, he found himself constantly going to the bathroom. He also lost vision in one of his eyes.

Perry said he immediately went to a doctor, who explained "his sugar was running high."

The same doctor urged Perry to look for a less stressful line of work. At the time, Perry was a supervisor at a treatment facility. On his doctor's advice, he changed careers, found a new job at an information technology company and became a certified computer technician.

Three days after he received his certification, he got into the accident.

That was bad news for him, because he was just days away from passing his 90-day probation period.

Perry said he was unable to work for a month, and during that period he was told he no longer had a job. The company was downsizing, Perry said he was told, because business was slow.

Perry did have some medical coverage as part of his automobile insurance. But he is still looking for work.

"Accidents just change a life," he said. "People are in a rush to go nowhere. If I had not swerved, it would have been a lot worse."

Rogers has seen a lot worse.



Selwyn O. Rogers Jr., M.D., M.P.H. Chief, Division of Trauma, Burns and Surgical Critical Care Brigham and Women's Hospital

"Ninety percent of the trauma I see is the result of motor vehicle accidents," he said.

Prevention is the key.

Simple things like wearing seat belts are known to save lives.

According to the National Highway

Traffic Safety Administration, more than half of the people who died in car crashes in Massachusetts in 2006 were not wearing seat belts. More troubling is that 40 percent of all traffic fatalities were alcohol-related and 34 percent were caused by excessive speed.

Cell phone use is also becoming a problem. The National Safety Council estimates that talking, listening and dialing reduce reaction time to that of a legally drunk person — one with a 0.08 blood alcohol content.

Members of the American College of Emergency Physicians are equally concerned. Emergency physicians are treating an increasing number of people who sustained injuries while typing text messages. Physicians advise to not text while driving, walking or engaging in any activity that requires a person's attention.

To reduce motor vehicle deaths and injuries in children, Gov. Deval Patrick recently signed into law an enhanced Child Passenger Safety Law — the "Booster Seat Bill" — that went into effect July 10. The law requires that all children riding in passenger motor vehicles must be in a properly fastened and secured federally approved child passenger restraint until they reach 8 years old and 57 inches tall.

But simple prevention sometimes gets past even the experts.

As Rogers tells the story, he was backing out of his driveway when his now 6-year-old son started to yell something curious.

"We can't go until everyone is buckled," the boy exclaimed.

Rogers had forgotten to put on his own seatbelt.

## Buckle up for life

At 68.7 percent, seat belt use in Massachusetts is the second lowest in the country. Yet it is required by law that for every car trip, every person buckle up in an age-appropriate car seat, booster seat or seat belt. It is estimated that nationwide in 2006 almost 16,000 lives were saved because of restraint use and more than 5,000 additional lives could have been saved at 100 percent compliance.



### INFANTS

Infants under the age of 1 and weighing less than 20 pounds should use rear-facing car seats.

### TODDLERS



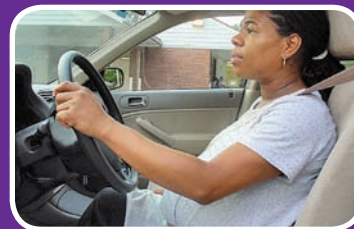
Children 1 year of age and weighing at least 20 pounds should use forward-facing seats.

### SCHOOL-AGE CHILDREN



Effective July 10 in Massachusetts, children up to the age of 8 and 57 inches tall who have outgrown their car seats should use booster seats.

### OLDER CHILDREN TO ADULTS



Children who have outgrown their booster seats should use the car's lap and shoulder belts and ride in the back seat until the age of 13. Teens and adults should always use seatbelts while driving or riding as a passenger.

Source: National Highway Traffic Safety Administration, American Academy of Pediatrics

## Get a free car seat check-up.

|                                  |                            |
|----------------------------------|----------------------------|
| Boston Public Health Commission  | 617-534-2635               |
| Boston Police Department         | 617-343-4278, 617-343-4487 |
| Franciscan Hospital for Children | 617-254-3800 x2181         |
| Cambridge Police Department      | 617-349-3238               |
| Newton Police Department         | 617-796-2120               |

workshops for the Boston Public Health Commission and Massachusetts Department of Public Health.

"Once I stopped working, my physical and mental health began to go downhill," she said. "Cardiovascular disease is a killer in my family. I have to be aware of it."

She walks with a cane, and says she needs it most often when stepping off curbs or standing for a long period of time.

To improve her condition, Porter has joined Fit-4-Life, a program sponsored by Kit Clark Senior Services and the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University. The program is designed to reduce disability and other medical conditions prevalent among seniors. It also works to prevent falls and injuries that occur among the elderly.

Porter exercises to improve her strength, balance and coordination.

The good news is that the program is working. Since enrolling in the program six weeks ago, Porter said she hasn't fallen once.

"I know I will never be 100 percent," she said, "but I can get better."

And she is determined to work on balance.

"There is still one test I cannot do yet," she explained. "You're supposed to stand with one foot directly in front of the other



Barbara Porter participates in Fit-4-Life, a program sponsored by Kit Clark Senior Services and Tufts University to improve strength and balance.

for at least three seconds. I can't do that yet."

Balance was not a problem for 21-month-old Brianna.

Her mother proudly says Brianna is a climber and has already learned to push doors open.

Such was the case with the door lead-

ing to the family's second-floor porch. "I always keep it locked," Guerrier said.

Unfortunately, Brianna's father didn't know the extent of Brianna's curiosity.

Their porch does have barriers to prevent children from falling, but Brianna's father had placed stereo speakers outside. When Brianna's kitten ran onto the porch and climbed atop the speakers, so did Brianna.

By the time her father noticed Brianna had disappeared, she had already fallen two stories. Panicked, he rushed to the driveway and carried his lifeless daughter to her bedroom. He immediately called 911, and by the time they arrived, Brianna had started to breathe again.

The emergency crew took Brianna to nearby Brockton Hospital, but she was transferred to the Boston Medical Center because of the extent of her injuries.

According to Guerrier, she had swelling and bleeding of the brain.

She was initially in intensive care, but because she made a quick recovery, was transferred to the regular pediatrics ward. Two weeks later, she was transferred to Franciscan Hospital for Children, where she received physical, occupational and speech therapies. She was discharged nine days later.

"She is back to where she was before," Guerrier said. "She is talking a lot again and singing. All that's noticeable now are scratches on her face and elbow."