Cart Crusade

Pediatrician works to revamp shopping-cart design, prevent injuries

Pediatricians usually don't redesign shopping carts during their spare time.

But after 20 years of caring for children and seeing young patients with head, neck and skeletal injuries as a result of shopping cart accidents, Joseph W. Russell, a pediatrician from Plainfield, Ill., decided to investigate how and why the injuries took place, and to see if he could do something to address the problem. What he has learned about the safety of the common shopping cart — and the lack of interest in improving the item to make it safer — shocked him. So Russell decided to see if he could aid in building a better, safer shopping cart. After ten years dedicated to the project, he believes he has a viable solution.

"Shopping carts have a basic design limitation: a narrow wheelbase and a dangerously high center of gravity," Russell says. The present-day shopping cart poses a serious tip-over hazard, and falls from the seat area frequently occur. Accompanying safety belts do not address the dangerously high center of gravity, he adds. Russell has redesigned the rear lift gate of the standard shopping cart and believes it could have a significant impact on reducing this type of injury.

The Consumer Product Safety Commission (CPSC) through its National Electronic Injury Surveillance System (NEISS) tracks injury statistics on a variety of items. It finds shopping cart falls are among the leading causes of injuries to young children — over 24,000 per year since 1990 — with no signs of decreasing Russell adds that while the CPSC tracks the number and type of injuries, they don't track the problems these children may have later in life, as a result of such injuries.

The Commission found that injuries most frequently occurred when a child fell or climbed out of a shopping cart because the restraint system was not being used. A child standing up in the child seat or cart basket was the most common reason for injury. Children climbing on the outside of the cart and causing the cart to tip over led to a number of falls, as did kids wriggling out of or

unbuckling the seat restraints. Tens of thousands of children visit hospital emergency rooms each year as a result of injuries related to shopping carts.

A detailed CPSC study on cart injuries from January 1985 to June 1994 concluded that "three children out of 1,000 riding in shopping carts of current design will require emergency room treatment for an injury related to a fall from a shopping cart prior to reaching five years of age."

The numbers beg the question: How can so many young children be injured without repercussions or an attempt to correct the problem? The surprising answer is that there are no federal regulations for shopping cart safety. It's not for lack of trying.

John W. Morse is a nationally recognized expert on shopping cart injuries. A senior engineer from Siloam Springs, Ark., he has investigated numerous shopping cart accidents and has appeared on national televised news programs to discuss shopping cart safety. In 1997, he petitioned the CPSC and requested development of a safety standard. As Morse tells it, the three-member panel voted 2-1 against creating a safety standard because the statistics he cited in the petition noted a tip-over rate higher than what had customarily been reported to the CPSC. Morse said the request was denied even though one of the panelists was in favor of investigating further, regardless of whether the statistics matched.

"The shopping cart looks innocuous, but it can definitely be hazardous," Morse says.

He draws a parallel between shopping cart safety and airbags in automobiles. He mentions how automobile manufacturers spent a lot of money on litigation to avoid installing airbags. Then, Chrysler started installing airbags in some of their luxury models. After a particularly famous head-on collision, where both drivers had airbags installed — and both drivers walked away — there became a surge in attention on the safety item. "Out of that, there was public outcry, and then the government jumped on it. The media jumped on it, and there was public demand for a safety feature." Morse surmises that if enough attention is focused on the need for shopping cart safety, then the public may demand improvements from manufacturers and retailers. "I think that if there's public outcry – if parents say they want a safety standard – then maybe it'll happen," he says.

As it currently stands, any precautionary measures (safety straps, warnings) are completely voluntary.

ASTM International sets voluntary standards for manufacturers. The organization's latest shopping-cart standard, F 2372-04, published in July 2004, covers performance requirements, test methods, labeling requirements and restraint systems. Specifically, it covers children between six months to four years of age who weigh no more than 35 lbs. It states: "Shopping carts with a child seating area must have an adjustable child-restraint system. The shopping cart's child-restraint system and occupancy retention capabilities shall include, but not be limited to, a mid-torso strap or other adjustable restraining device designed to restrain the child when tested..." However, restraints are to be tested on *nonmoving* carts using a dummy — and therein lay another part of the problem.

Jennifer DeYoung is a teacher and mother of two: 4-year old Tyler and 18-month old Elizabeth. She warns that safety straps can give a false sense of security. DeYoung knows firsthand how easy it is for kids to wriggle out of safety restraints in a shopping cart.

Last December, during a trip to the grocery store, Elizabeth managed to turn completely around to face the basket, while restrained. In a matter of seconds, she flipped herself forward into the basket, and was hanging by her feet caught in the straps. Luckily, Elizabeth was uninjured, but DeYoung was amazed at how fast it all happened.

"The strap is on the cart, but my daughter still managed to flip herself over. Straps are an extra, preventative measure, but you can't rely on them for safety," DeYoung said.

"As a parent, you believe that carts are there for your children to sit in, and that they're safe. You think that they're there to hold your child. They're not; they're designed to hold groceries; they're not designed to hold a child," she said. "You expect these things to be safe. My husband and I would take two carts, if necessary, but the carts need to be safe in the first place."

Though restraints provide her with a minimal sense of safety, DeYoung mentions how even finding a cart with the working restraints isn't always a given. She notes how frequently, a number of carts don't have buckles that work or they're missing the safety straps altogether.

Despite the notion that shopping cart injuries occur due to an "education" issue, Russell contends it is one of an engineering and design issue. The child seat on shopping carts was introduced in 1947 and the design has changed little since its original introduction.

Russell warns that the safety belt alone, without a redesign of the cart itself, is not the answer. Research indicates straps are only used about 20 percent of the time. The real problem, according to Russell, is that present-day shopping carts were not designed with the safe transport of children in mind.

It takes only a few minutes of talking with Russell about his project before he admits it's a full-scale obsession. After ten years of studying the issue, consultations with engineers, manufacturers and national retail chains, Russell has designed a new rear gate and child-seat assembly that he believes would save countless injuries and possibly lives. His (and others') conclusion is that the center of gravity is too high in standard shopping carts in use today. Russell's design modification would alleviate that problem while only replacing one side of the cart. The carts would still nest and function identically as typical shopping carts currently in use. The major difference is that the seat is located much lower within the cart, and higher sidewalls in the seating area serve to enclose the child and thus reduce potential for falls and the number of serious head injuries.

Morse evaluated Russell's shopping cart prototype in October 2004. Of the more than two dozen carts his firm has reviewed, Russell's is the first without a potential manufacturer. He says Russell's redesigned cart would lead to fewer injuries.

"The new design places the child substantially lower in the cart basket than previous designs. Testing and analysis revealed that this new cart/seat design provides several important safety benefits," Morse said. "The risk of a rear tip-over is lessened, as the child's center of gravity is lowered and moved forward, thus requiring increased torque to flip the cart. The child is positioned lower in the shopping cart, so that if an accidental fall from the seat occurred, it would commence from a lower height. The fall would thus cause less injury," he said.

"The sides of the shopping cart basket extend higher relative to a child's standing height, so accidental falls from the seat area are less likely if a child were to stand on the seat base. The child's ability to reach to the side is lessened, so side pull-overs of shopping carts are less likely

to occur. Potential injury to extended arms or hands, and potential damaged merchandise resulting from a child accessing items located on the store shelves by reaching over the cart side are also less likely to occur," Morse said.

With such an endorsement and seeming solution to the problem, Russell has yet to find a single manufacturer or retailer that's willing to undertake the project. "I understand that their major concerns are the expense and time to retrofit existing carts," Russell said. "But when you look at the responsibility retailers have to their patrons to provide a safe shopping experience, this should be an easy call."

In spite of retailers' and manufacturers' resistance, some are confident Russell's redesign will catch on. Kevin Moore, Sr., has been an associate of Russell's for 14 years. Moore accompanied Russell to the Arkansas meeting where his cart redesign was analyzed.

"It's going to come to pass, it just needs to get into the right person's hands," Moore says. "You're getting away from something that's been in existence for years that people have been used to. He only needs one retailer or manufacturer to get interested. It only takes one key person to bite on it — and it'll take off from there," he said.

Moore adds that Russell's motivation is the safety of children, an obvious concern for a pediatrician. "Everybody has motives, but he's not financially driven. He's doing this because he's eliminating a danger that's out there. It's not about the money; it's about the children. It's not about the cart; it's about the child."

"There needs to be an increased public awareness of this danger to children five years of age and younger," Russell concludes. "If I am able to prevent one head injury to a child, then my efforts and passion were not without merit."

— # # # —