CIHR IRSC

Injuries

The CIHR Institute

Injury is a multi-institute strategic initiative co-championed by Dr. Morris Barer, Scientific Director of the Institute of Health Services and Policy Research and Dr. Cy Frank, Scientific Director of the Institute of Musculoskeletal Health and Arthritis. The Listening for Direction – Injury initiative brought together researchers and decision makers from the four areas of injury to identify strategic priorities. The final report from the LFD-Injury initiative proposes that CIHR create and lead a partnership consortium that would support the development of at least five Centres of Excellence for interdisciplinary injury research across the country.

About the Canadian Institutes of Health Research

The Canadian Institutes of Health Research is the Government of Canada's agency for health research. Its objective is to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system. Composed of 13 Institutes, CIHR provides leadership and support to close to 10,000 researchers and trainees in every province of Canada. For more information visit www.cihr-irsc.gc.ca

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. Through CIHR, the Government of Canada invested approximately $26 million in 2004-05 in research related to injuries.

The facts

- Injuries are the leading cause of death for Canadians between the ages of 1 and 44, and the fourth-leading cause of death for Canadians of all ages. They are also a leading cause of premature disability.
- In 2001, 12,552 Canadians died as a result of injuries. A quarter of a million people were admitted to hospital because of injury between April 1, 2000 and March 31, 2001.
- There are four areas that dominate research in injury prevention and control. They are: unintentional injury prevention (accidents); intentional injury prevention (homicide, suicide, family violence); acute care of injury (emergency/health care system response); and, post-acute care of injury (rehabilitation).
- Unintentional injuries result from falls, motor vehicle crashes, railway accidents, farming accidents, drowning and suffocation, poisoning and fires. The majority of unintentional injuries are preventable.
- The economic burden of injuries in Canada, both intentional and unintentional, has been estimated at more than $12.7 billion each year in direct and indirect costs, making it the fourth highest among all health conditions (after cardiovascular disease, musculoskeletal conditions, including arthritis, and cancer).
- Falls are the leading accidental cause of death among seniors. In 2001 and 2002, 1,432 seniors died because of fall-related injuries. This accounts for one third of all injury deaths among seniors aged 65 and over.
- Falls – mostly among the elderly and children – account for about 40% of the total cost of unintentional injuries, with motor vehicle accidents accounting for another 20%. These are also the most significant cause of permanent disability or death from injury.

Research finding solutions to injuries

- PLAD – it's not a patterned fabric, but a Personal Lift Augmentation Device and Dr. Joan Stevenson, from Queen's University, developed it to help people with back injuries return to work sooner. The PLAD works with back muscles to allow people to lift objects with less muscle force. As well as making life easier for injured workers, her invention could save up to $260 million each year in insurance claims across North America. Dr. Stevenson has received CIHR funding to move her device closer to commercialization.
- Serious burns can be treated – but the scars left behind can be debilitating. With CIHR support, Dr. Aziz Ghahary of the University of Alberta has discovered a protein that could provide a target in the healing process that can slow, or even prevent, scarring. Scarring happens when there is overproduction of extracellular matrix (ECM) proteins and lack of degradation signals. The protein discovered by Dr. Ghahary, called keratinocyte-derived anti-fibrogenic factor, or KDAF, enhances substances that send degradation signals. His finding could also help people with osteoarthritis and rheumatoid arthritis.

- A suicide prevention program targeting police officers in Montreal reduced suicides to one in seven years, compared to 26 in the 17 years prior to the program's introduction. The evaluation, by CIHR-supported researcher Dr. Brian Mishara of the Université du Québec à Montréal, found that knowledge increased and that supervisors engaged in effective interventions and activities were highly appreciated, suggesting that suicide prevention programs tailored to the culture of specific work environments can be effective.

- Nearly 40% of adolescents in a Victoria survey had sports injuries serious enough to limit their normal daily activity, according to CIHR-funded research by the University of Victoria's Dr. Bonnie Leadbeater. Unexpectedly, 70% of the injuries occurred in organized sports, compared with much lower injury rates in unorganized sports such as biking, rollerblading or skateboarding. Dr. Leadbeater's research team is now examining whether these injuries are a disincentive to continuing to participate in sports, thus contributing to youth obesity rates.

- Training on a wobble board can help adolescents playing fast-moving sports prevent injury, according to research by Dr. Carolyn Emery, a CIHR-funded physiotherapist at the University of Calgary. A wobble board is a disk perched on top of half a ball, with the rounded side of the ball touching the floor. The person stands on the board and tries to maintain balance while it wobbles. Dr. Emery says that working on balance control on an unstable surface can help prevent knee and ankle injuries.

In the pipeline … Keeping seniors on the road and independent

Losing a driver's license can be a crushing blow to a senior, a loss of independence and autonomy. Yet continuing to drive when it is no longer safe poses a risk to them and to everyone in their path.

Canadian researchers are working together through the CanDRIVE initiative to improve the safety of older drivers and extend their period of safe driving. Led by Dr. Malcolm Man-Son-Hing of the Ottawa Health Research Institute, the multi-disciplinary initiative is examining tools such as retraining programs and customized or restricted licensing for older drivers who might otherwise have their licenses revoked. CanDRIVE researchers are also working to develop a screening tool to help clinicians identify older drivers who should not be driving or who require more in-depth evaluation.

CanDRIVE supports more than 50 researchers and trainees from across the country in disciplines ranging from psychology to emergency medicine, public health and occupational therapy. It is supported by CIHR with additional support from the Elisabeth Bruyère Research Institute, the Regional Geriatric Assessment Program of Ottawa and the Ottawa Health Research Institute.

The researchers … Injuries: Serious business for Dr. Rob Brison

How do you convince people that Injury is a disease? "The general consensus among the public," Dr. Rob Brison says, "is that Injury is not a disease and can't be prevented — injuries are just accidents."

For the past 20 years, Dr. Brison has been fighting this belief. And, given that injuries cost the Canadian health care system $13 billion each year in direct and indirect costs, there's a lot riding on his and his colleagues' success. Defining injuries as a preventable disease is the first step in reducing their incidence.

Dr. Brison is a Professor of Emergency Medicine and Epidemiology at Queen's University, and Director in the Clinical Research Centre at Kingston General Hospital.

In the 1980s, Dr. Brison started tracking serious injuries on Ontario's farms that resulted in death or injury requiring hospitalization. In 1995, he took this agricultural injury surveillance system to a national level.

"There is no other country that tracks these injuries with the level of detail that we do in Canada," he says.

In 2003, Dr. Brison helped to create the multidisciplinary Canadian Centre for Health and Safety in Agriculture with Dr. James Dosman at the University of Saskatchewan. The CIHR-funded centre focuses on inhalation exposure, food and water contamination and adverse working conditions in agricultural production. It works in partnership with the Canadian Agricultural Safety Association, universities, Agriculture and Agrifood Canada, and provincial farm safety agencies and ministries of health, all of which help to shape the direction of the centre's policies.

Dr. Brison has also co-chaired CIHR's Listening for Direction – Injury initiative. As part of this initiative, he and a scientific advisory committee, which he co-chairs with Dr. Cameron Mustard of the Toronto-based Institute for Work and Health, oversaw a national consultation process focused on identifying opportunities to advance our success in injury prevention and control by bringing together researchers from different disciplines and areas of injury research to explore potential synergies.

Based on his work on this initiative, Dr. Brison would like to see a national strategic research agenda, linking health researchers and community-based injury prevention and control groups, that will ultimately reduce injuries and the death and disability they cause.

"In Injury, we have the opportunity to do research that will make a difference to the health of Canadians in a few years — not decades," Dr. Brison says.

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