CHIRPP at the MCH
CHIRPP at Montreal Children’s Hospital Trauma Centre

• Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)

  is a computerized information system that collects and analyzes data on injuries to people (mainly children) who are seen at the emergency rooms of the 10 pediatric hospitals and of 4 general hospitals in Canada.
CHIRPP at Montreal Children’s Hospital Trauma Centre

• CHIRPP is a unique, richly detailed database of "pre-event" injury information

• CHIRPP is a Canada-wide Program of the Injury & Maltreatment Section of the Health Surveillance and Epidemiology Division, Centre for Health Promotion, Public Health Agency of the Federal Government

• Each centre involved in CHIRPP has a designated Director & Coordinator
From 1990-2010 CHIRPP functioned as somewhat of a silo program at the MCH

Effective 2011, CHIRPP was integrated into the MCH Trauma System

Closely linked to the MCH Trauma Centre’s Injury Prevention Program for research activities, development of educational materials, and injury prevention awareness campaigns
Cycle of Surveillance

Data Collection → Data Analysis & Interpretation

Feedback → Evidence-based Public Health Action

Stakeholder consultation
Advisory groups → Multiple sources
Consolidation
Linkage

Information Products

Knowledge Transfer

Policy
Programs
Practice

Web posting
Product distribution
Presentations/Posters
Workshops
Briefings

Briefing material
Reports
Fact Sheets
Peer reviewed papers
Response to media queries
Canadian Hospital Injury Reporting & Prevention Program (CHIRPP)

- Continuous data collection since 1990 – now 2 million records
- Injuries treated in the Emergency Departments (EDs)
- 11 paediatric EDs & 4 from general hospital EDs (all ages)
- Data on injuries & circumstances – who, what, where, when how, why?

Advantages
- Timely
- Complements population-based ICD coded data
- National and local databases produced & used
- Information on product & sport related injuries

Limitations
- Not reliable for intentional injuries
- Under represents fatalities, rural, remote & Aboriginal populations
CHIRPP Hospitals

* There currently are no past pediatric hospitals
Why Focus on Injury?

- Injuries rank 4th among leading causes of death & hospitalization for Canadians

- Injuries result in premature deaths - leading cause of death for Canadians aged 1-44

- Economic costs of injury - $19.8 billion annually

- The major causes are well understood

- Injuries and maltreatment are predictable and preventable
How CHIRPP is used

- Response to queries from
  - Other government departments
  - IP professionals
  - Media & others
- Large collaborative reports and reviews
- Brief reports
- Injury Surveillance On-Line
- Data for researchers
- Research 80+ published papers
- Evidence supporting safety campaigns
  - Safe Kids Week
- Assessment of risks
  - Product Safety Program, Health Canada; Transport Canada
Canadian Hospitals Injury Reporting & Prevention Program (CHIRPP)

Data Collection
- Participating Hospitals
  - Visit Emergency due to injury or poisoning
  - Patient describes circumstances
  - Physician describes diagnosis & treatment
- Case identification for research
- Risk factor research
- Planning interventions
- Program evaluation
- Local statistics

Analysis
- Batches of Injuries/Poisonings Reporting Forms
- Electronic updates of local data

Dissemination
- Partners and Stakeholders, Injury Surveillance Research and Prevention

Action Based on Information
- Policies, Programs, Services

PHAC
- Data entry & coding
- National database maintenance
- Data Analysis
- National Statistic
- Peer-reviewed paper
- Injury E-Bulletin
- Injury Reports

Contributes to the reduction in numbers and severity of injuries in Canada, thus improving the health of the population.
Injury Surveillance

Injury Pyramid and Injury Surveillance Data Sources

- Fatal Injuries
- Injuries resulting in hospitalization
- Injuries resulting in visits to emergency departments
- Injuries resulting in visits to primary care facilities
- Injuries treated outside the health department, not treated or injuries not reported
- Near miss injuries or prevented injuries

Data Sources:
- Mortality, Coroners (CCMED)
- Admissions, Trauma (NTR)
- CHIRPP, NACRS
- Questionnaires (CCHR, HBSC); Other data (poison control, sports and rec)
- ?

Ratio estimates:
- 1 death: 15 hospital admissions: 400+ emergency department visits
Successful Application of CHIRPP

- Baby Walkers – banned in Canada
- Playground/play space – new standards
- Hockey – new rules for body checking for children
- ATV – new legislation/regulation
- Building codes – maximum temperatures for hot tap water
- Retail display hooks - redesign and gradual replacement of hazardous single hooks
Injury Surveillance

Baby Walkers

• 1989 voluntary ban on the sale of baby walkers

• CHIRPP shows that injuries continue

• Ban on sale and distribution 2004

• Appealed

• CHIRPP used in review

• Ban upheld 2007
MCH CHIRPP patients per 100,000 of the Montreal (0-17 yrs) population

0.4 deaths

70 injury admissions

1,700 injuries
Rates of CHIRPP visits per 100 MCH ED visits (all patients)
Rates of CHIRPP patients per 1000 Montreal population (by age)
Rates of CHIRPP patients per 1000 Montreal 0-17 yrs old population
CHIRPP in the scientific Literature

• Over 90 articles using CHIRPP data have been published since 1992.

• Over 1,600 articles cited a CHIRPP article.
CHIRPP in the scientific Literature

- Protective equipment

The Effect of Bicycling Helmets in Preventing Significant Bicycle-Related Injuries in Children
CHIRPP in the scientific Literature

- Motor Vehicle Accidents

Infant injuries from child restraint safety seat misuse at British Columbia Children’s Hospital
Concordance between childhood injury diagnoses from two sources: an injury surveillance system and a physician billing claims database
CHIRPP in the scientific Literature

- Socioeconomics

An overview of injuries to adolescents and young adults related to substance use: data from Canadian emergency departments
CHIRPP in the scientific Literature

- Sports

Trends in paediatric sport- and recreation-related injuries: An injury surveillance study at the British Columbia Children’s Hospital (Vancouver, British Columbia) from 1992 to 2005
CHIRPP in the scientific Literature

- Patient recruitment

Previous Head Injury Is a Risk Factor for Subsequent Head Injury in Children: A Longitudinal Cohort Study
CHIRPP in the scientific Literature

- Sudden phenomenon

Cluster of Unintentional Carbon Monoxide Poisonings Presenting to the Emergency Departments in Kingston, Ontario during ‘Ice Storm 98’
CHIRPP in the scientific Literature

- Epidemiology

Injuries Experienced by Infant Children: A Population-Based Epidemiological Analysis
Annex – Injury Surveillance

Baby Walkers

- 1989 voluntary ban on the sale of baby walkers
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Things only I can tell you....

...injuries left and right
Injuries to the arm (shoulder to finger)

**LEFT**

- Age 1: 56%
- Age 2-4: 52%
- Age 5-9: 48%
- Age 10-14: 44%
- Age 15-17: 40%

**RIGHT**

- Age 1: 44%
- Age 2-4: 48%
- Age 5-9: 52%
- Age 10-14: 56%
- Age 15-17: 56%
SOCcer

Right Leg: 57%

Left Leg: 43%
RUGBY

RIGHT LEG 54%

LEFT LEG 46%
SKATEBOARDING

RIGHT LEG
55%

LEFT LEG
45%
SNOWBOARDING

RIGHT LEG
46%

LEFT LEG
54%
ROLLERBLADING

RIGHT LEG  44%

LEFT LEG  56%
ROLLERBLADING

RIGHT ARM
53%

LEFT ARM
47%
CYCLING

RIGHT ARM
45%

LEFT ARM
55%
DOWNHILL SKIING

RIGHT ARM 44%

LEFT ARM 56%
GOT MAD....
PUNCHED WALL, LOCKER

RIGHT HAND
84%

LEFT HAND
16%