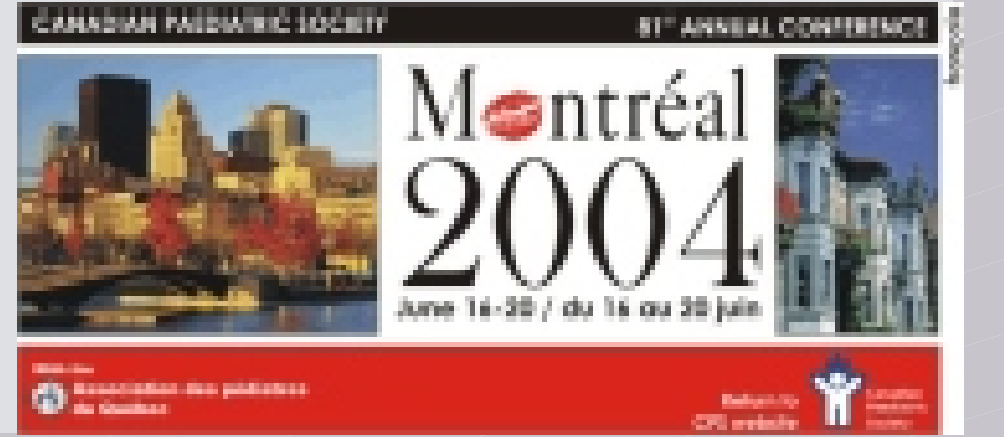


Public Health Impact of the Canadian Paediatric Surveillance Program (CPSP)

D Grenier, J Doherty, A Medaglia

Canadian Paediatric Society and Centre for Infectious Disease Prevention and Control, Health Canada, Ottawa

Presented on behalf of the CPSP participants and investigators



CPSP provides scientific evidence to support public health action by demonstrating:

- the impact of vaccines on diseases
- the importance of genetic screening
- the astuteness of specific guidelines
- the need for targeted public health strategies

Necrotizing Fasciitis (NF)

Profile:

- 37 cases of NF were reported during the surveillance period, September 2001 to August 2003
 - 11 cases were NF type I
 - 26 cases were NF type II (group A streptococcus related)
- Males <1 year of age had the highest burden of disease

Public Health Implications:

- Burden of illness estimates
 - all cases received at least one surgical procedure

- 21 cases received IVIG or unspecified blood products
- mean length of hospital stay was 16.8 days
- 2 cases died
- Universal varicella immunization would reduce the incidence of NF
- 46% of all NF cases (type I and type II) occurred within one month of the child developing varicella
- 61% of type II (GAS-related) NF cases were preceded by varicella infection
- 16 (61%) of type II (GAS-related) NF cases were varicella-associated versus one (9.1%) type I case (P<0.002)

Neonatal Herpes Simplex Virus (HSV) Infection

Profile of Neonates:

- 58 cases were confirmed during the surveillance period, October 2000 to September 2003
- Mean age at laboratory diagnosis: 11.8 days
- HSV-type, known in 48 neonates:
 - HSV-1: 62.5%
 - HSV-2: 37.5%
- Classification of HSV infection
 - localized: 63.8%
 - disseminated: 34.5%

Mother's Profile:

- Type of delivery:
 - vaginal: 75.9%
 - caesarian: 24.1%
- Absence of an HSV history prior to delivery: 40%
- Presence of intrapartum genital HSV lesions: 1.7%
- HIV infected: 0%

Public Health Implications:

- Burden of illness estimates
 - mortality: 9 deaths
 - morbidity: disseminated infection in 34.5% of cases
- Established Canadian incidence rate
 - 5.9 cases/100,000 live births
- Provided pre-vaccine baseline data
 - 63% of cases were HSV-1
 - 40% of mothers were unaware of their infection

Neonatal Hyperbilirubinemia - Severe (NH-Severe)

Profile:

- 143 cases of NH-Severe were confirmed during the surveillance period, July 2002 to December 2003
- Over 70% of cases had no etiology - attributable to incomplete evaluation at the time of diagnosis
- The cause of NH-Severe was identified in 42 cases:
 - ABO incompatibility: 28 cases
 - G6PD deficiency: 7 cases
 - Other antibody incompatibility: 2 cases
 - Other: 5 cases
 - urinary tract infection: 2
 - spherocytosis: 1
 - pyruvate kinase deficiency: 1
 - congenital hypothyroidism: 1

Public Health Implications:

- Burden of illness estimates
 - phototherapy: 126
 - exchange transfusion: 33 cases
 - packed RBC: 7 cases
- Clinical practice guidelines
 - evaluation within 48 hours of early discharge of all newborns for timely detection of neonatal hyperbilirubinemia and prevention of kernicterus
 - the complete hematological workup should include a screen for blood-group, Coomb's testing and G6PD screen

Vitamin D Deficiency Rickets (VDDR)

Profile:

- 69 cases of VDDR were reported during the surveillance period, July 2002 to December 2003
- Mean age at diagnosis: 1.4 years
- Mean maternal age at time of diagnosis: 29 years
- Risk factors for vitamin D deficiency
 - 86% of cases were classified as intermediate- or dark-skinned
 - 85% of cases had been breast-fed
 - 86% of cases had not received vitamin D supplementation

Public Health Implications:

- Burden of illness estimates
 - significant morbidity was present at diagnosis, including skeletal deformity, seizure, failure to thrive, fractures and delayed gross motor milestones
- Identified at-risk population
 - the vast majority of confirmed cases were infants and toddlers with intermediate and dark skin, who had been exclusively breast-fed without vitamin D supplementation
- Identified need for educational interventions
 - the recommendation for vitamin D supplementation during pregnancy and during breast feeding has to be reinforced to all
 - implementation strategies targeting the at-risk population could prevent the majority of nutritional rickets

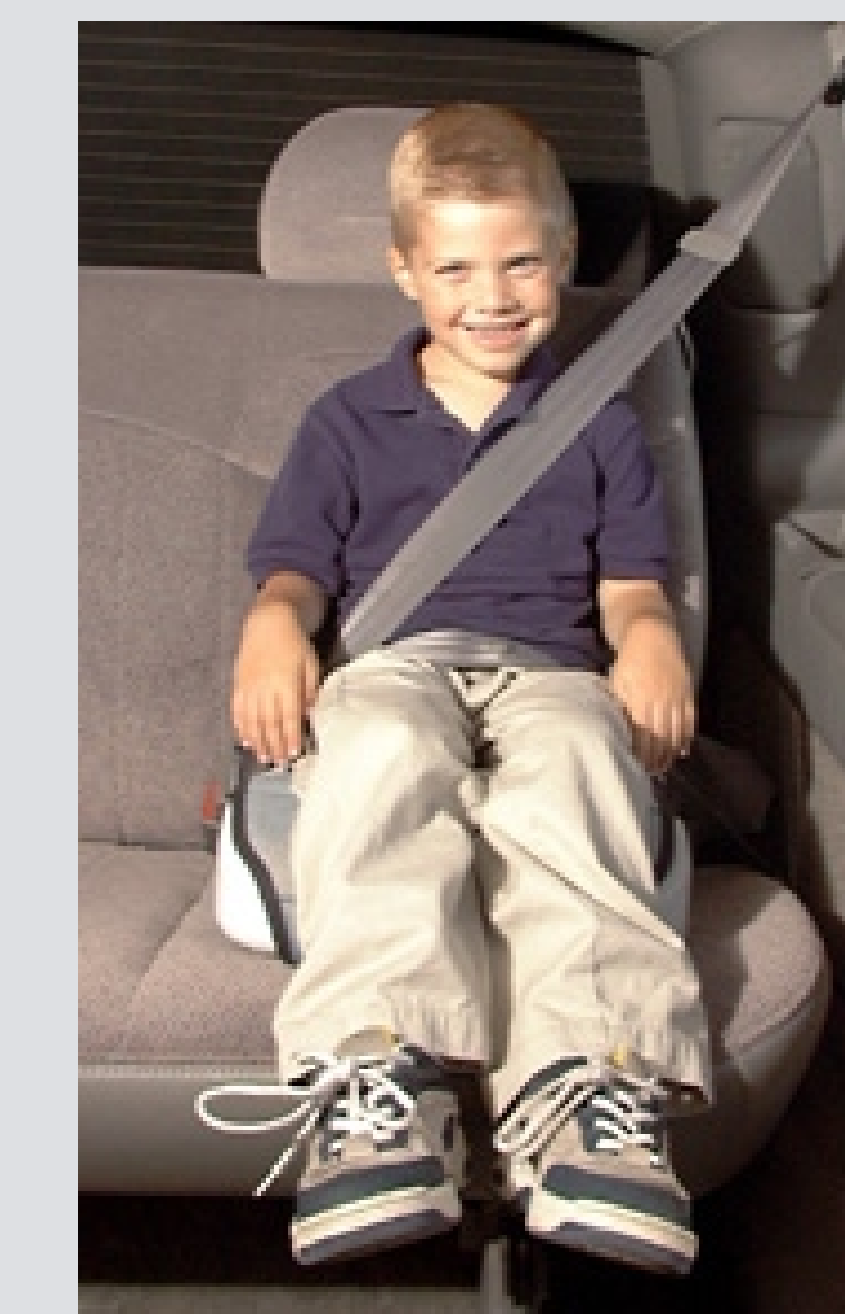
Lap-belt Syndrome (LBS)

Profile:

- Injuries in the intestinal viscera and to the lumbar spine associated with seat-belt restraints
- Children are especially vulnerable
 - intra-abdominal organs are less protected by thorax and pelvis
 - lower centre of gravity
 - iliac crests are less developed - allowing belt to ride up over the abdomen
- One-time CPSP survey identified 47 injuries
- Three cases of LBS were reported in the first four months of the study, including one child with spinal cord injury

Public Health Implications:

- Raise awareness among the public and public health organizations
- Demonstrate the need to review restraints in motor vehicles
- Advocate for mandatory use of weight-size appropriate car restraints and booster seats



Booster seats lift the child up, making the safety belt fit CORRECTLY and COMFORTABLY.

Belt sits low over the upper thighs, not riding up on the abdomen.

Shoulder belt is snug across the center of the shoulder, not across the neck or face.

California - Safety, Service & Security.

Baby-walker Injuries

A Success Story

- A voluntary retail industry ban on baby walkers had been in place since 1989
- However, in recent years, more and more baby walkers have found their way onto the Canadian market and, as a result, injuries to children continue to occur
- One-time CPSP survey documented at least 132 current injuries

