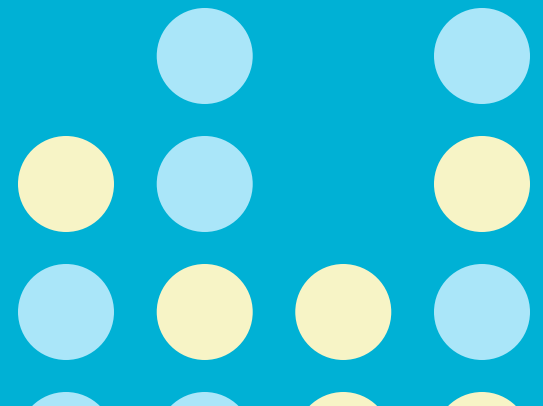




# Evidence to Action: Preventing Falls for Children and Youth

Presented by: Linda Ward  
Date: November 20, 2008

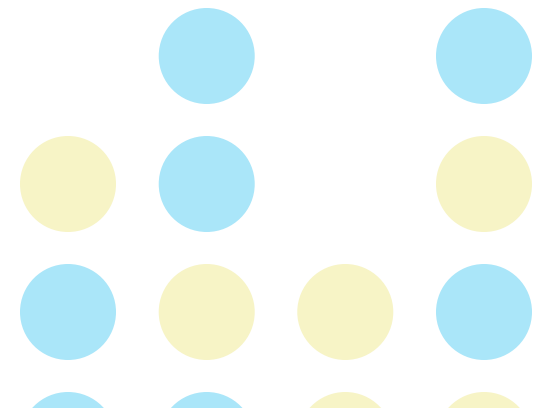




# Safe Kids Canada

## Unintentional injury –

The leading cause of death  
among children and youth in Canada

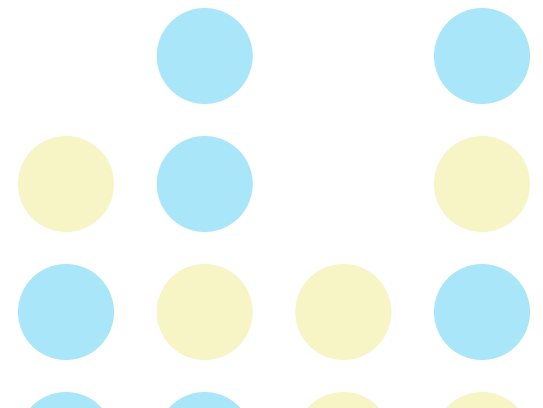




# Safe Kids Canada

We collaborate with community partners across Canada to:

- Conduct research
- Raise awareness
- Educate families
- Advocate for safer environments

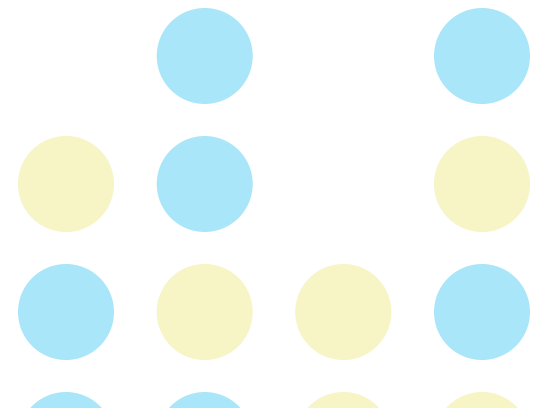




# Prevention of Injury and Substance Misuse Standard

## Goal:

- To reduce the frequency, severity and impact of preventable injury



# The Evidence



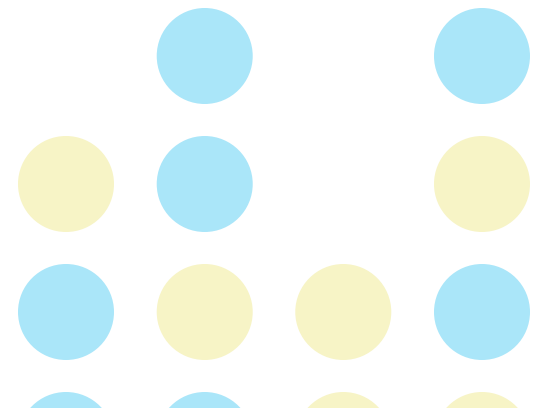
The National Injury Prevention Program of the Hospital for Sick Children





# Requirement 1

Conduct epidemiological analysis of surveillance data



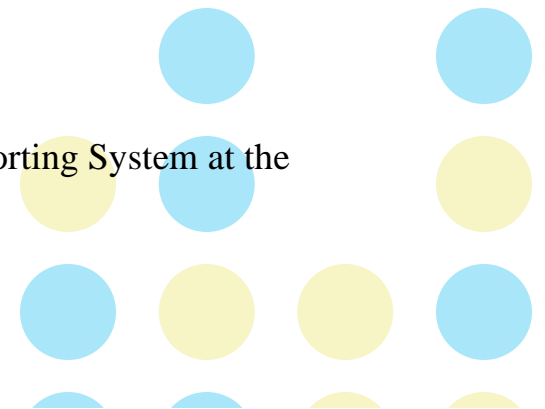


# Emergency Room Data

In Ontario in 2005/2006, for children birth to 19, there were:

- 118,895 emergency department visits
- Falling from slipping or tripping and falls involving skates, skis, sport boards, and rollerblades were the most common.

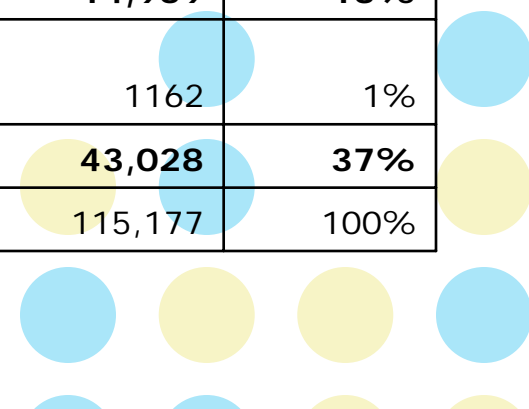
Source for emergency room data: National Ambulatory Reporting System at the Canadian Institute for Health Information (CIHI).





# Emergency Visits Fall by type 0-19, 2005/2006

Type of fall	Number	%
<b>Slip/trip on same level (general)</b>	<b>22,229</b>	<b>19%</b>
Slip/trip on same level (ice/snow)	3,289	3%
Fall from playground equipment	7,862	7%
Stairs/steps	9,679	8%
Bed	5,038	4%
Chair	3,251	3%
Other furniture	3,407	3%
Fall from tree	826	1%
From building or structure	447	0%
<b>Involving skates, skis, sport boards, rollerblades</b>	<b>14,959</b>	<b>13%</b>
Fall while being carried or supported by other persons	1162	1%
<b>Other/unspecified</b>	<b>43,028</b>	<b>37%</b>
Total	115,177	100%



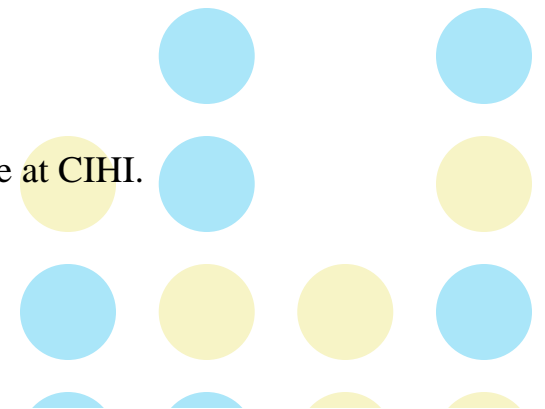


# Hospitalizations

In 2005/2006, in Ontario, for children birth to 19 years:

- 3,222 hospitalizations
- A fall involving skates, skis, sport boards, rollerblades or falling from playground equipment were the most common.

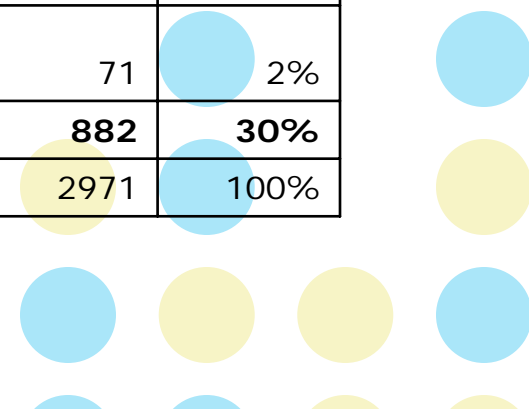
Source for hospitalization data : Discharge Abstract Database at CIHI.





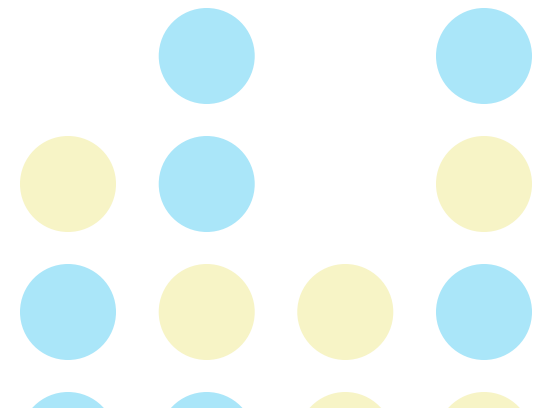
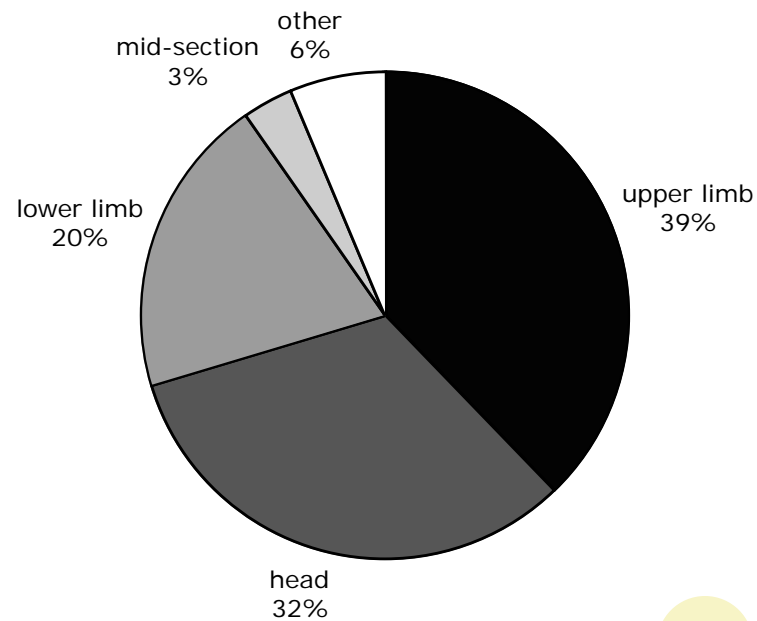
# Hospitalizations by Injury Type for 0-19, 2005/2006

Type of fall	Number	%
<b>Slip/trip on same level (general)</b>	<b>369</b>	<b>12%</b>
Slip/trip on same level (ice/snow)	35	1%
<b>Fall from playground equipment</b>	<b>484</b>	<b>16%</b>
Stairs/steps	189	6%
Bed	151	5%
Chair	81	3%
Other furniture	116	4%
Fall from tree	71	2%
From building or structure	67	2%
<b>Involving skates, skis, sport boards, rollerblades</b>	<b>455</b>	<b>15%</b>
Fall while being carried or supported by other persons	71	2%
<b>Other/unspecified</b>	<b>882</b>	<b>30%</b>
Total	2971	100%



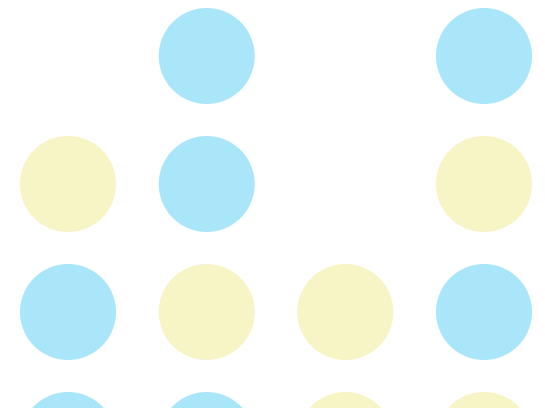
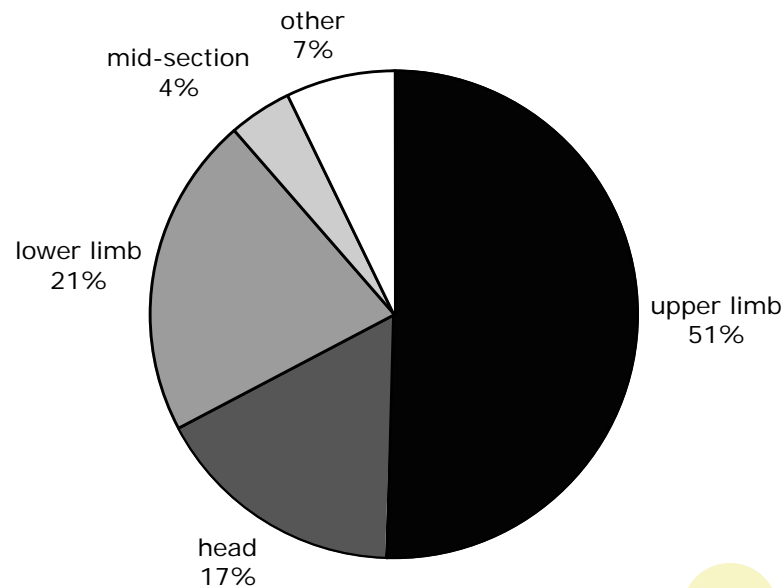
# Emergency Visits – Injury Type

Emergency Department Visits for Injuries due to Falling  
by Injury Type (Ages 0-19, Ontario, 2005/06)



# Hospitalizations - Injury Type

Hospitalizations for Injuries due to Falling by Injury Type (Ages 0-19, Ontario, 2005/06)

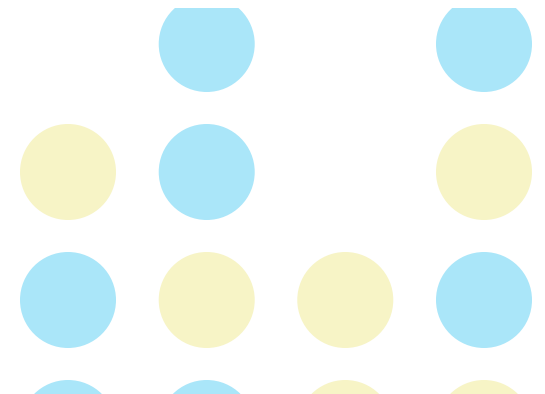




# Regional comparison of fall injuries (0-19) Ontario 2005-2006

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
<b>Emergency Department Visits</b>								
Number	17,765	12,740	19,086	23,273	16,712	16,327	11,070	118,895
Rate per 100,000 <sup>a</sup>	1,233.5	1,200.3	830.5	1,109.3	783.8	1,128.1	1,427.2	1,057.4
<b>Hospitalizations</b>								
Number	411	365	579	520	469	310	323	3,038
Rate per 100,000 <sup>a</sup>	28.5	34.5	25.0	24.6	21.9	21.2	41.9	26.9

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 1,922 emergency department visits and 60 hospitalizations.





# Regional comparison of fall injuries (0-19) Ontario 2005-2006 by age group

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
<b>Emergency Department Visits- Rate per 100,000<sup>a</sup></b>								
0-4 years	5448 (4546)	5364.4 (3257)	3867.5 (5607)	4833 (5807)	3710.9 (5333)	4795.1 (4049)	5491.7 (2314)	4640.7 (31537)
5-9 years	4052.4 (4023)	4003.2 (2928)	2803.9 (4578)	3680.9 (5374)	2986.5 (4452)	3684.5 (3624)	4838.3 (2488)	3571.8 (27879)
10-14 years	5067.7 (5492)	4772 (3858)	3292.9 (5529)	4556.9 (7299)	2938.9 (4368)	4571.7 (5010)	6005.2 (3544)	4264.4 (35588)
15-19 years	3348 (3704)	3289.6 (2697)	2093.3 (3372)	3042.2 (4793)	1738 (2559)	3335.3 (3644)	4407.8 (2724)	2880 (23891)
<b>Hospitalizations- Rate per 100,000<sup>a</sup></b>								
0-4 years	121 (101)	151.5 (92)	95.9 (139)	91.6 (110)	85.6 (123)	74.8 (63)	142.4 (60)	103.3 (702)
5-9 years	107.8 (107)	128.5 (94)	114.5 (187)	95.2 (139)	104 (155)	77.3 (76)	198.4 (102)	112.2 (876)
10-14 years	108.9 (118)	133.6 (108)	92.9 (156)	84.9 (136)	79.4 (118)	73.9 (81)	164.4 (97)	99.6 (831)
15-19 years	76.8 (85)	86.6 (71)	60.2 (97)	85.7 (135)	49.6 (73)	82.4 (90)	103.6 (64)	75.8 (629)

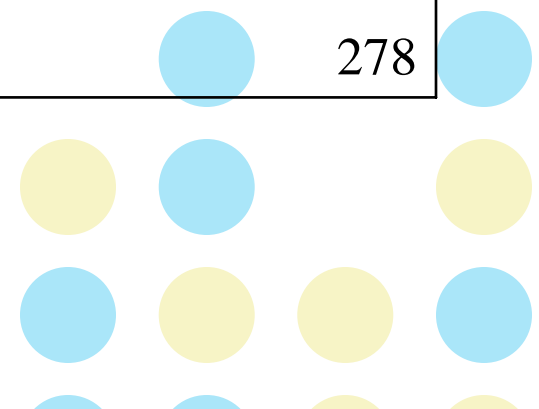
a. Age-specific rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 1,922 emergency department visits and 60 hospitalizations.





# Emergency Visits and Hospitalization by Age Group

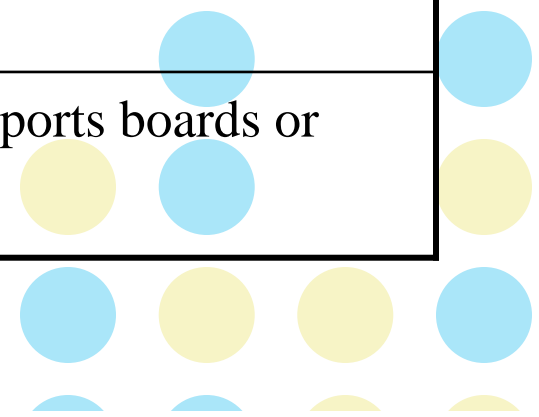
Age Group	ER Visits	Hospitalizations
	Number	Number
0-4 years	36,451	347
5-9 years	27,879	339
10-14 years	35,588	288
15-19 years	23,891	278





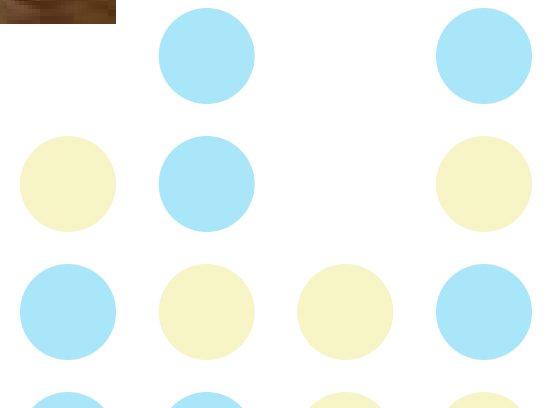
# Hospitalizations – Major Causes of Falls by Age Group, 2005/2006

Age	Cause
0-4 years	Fall from bed or other furniture Fall from one level to another
5-9 years	Fall involving playground equipment
10-14 years	Fall involving skates, skis, sports boards or rollerblades
15-19 years	Fall involving skates, skis, sports boards or rollerblades



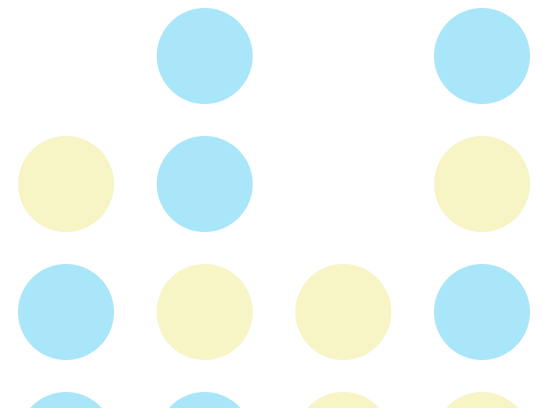
# Developmental Stages

- Why does this matter?



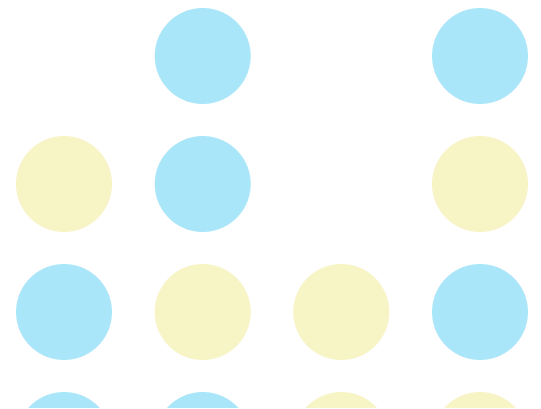
# Developmental Stages

- Children's abilities and skills are constantly changing.
- Research has found that parents often do not adjust their expectations of their child's abilities to the child's developmental level.
- Caregivers often under-estimate or over-estimate a child's abilities, resulting in exposure to risks the parent does not anticipate.
- Each stage of development puts the child at particular risks.



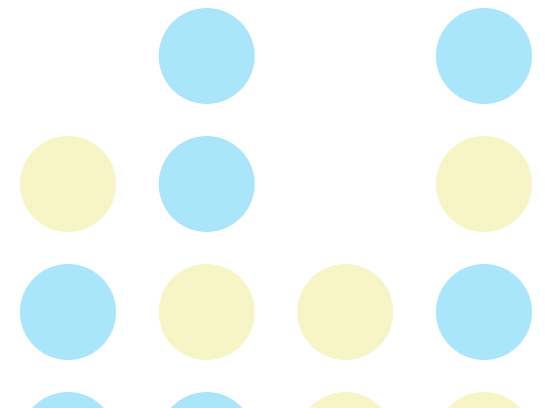
# Infants

- Top-heavy
- Learning to roll over
- Start to crawl and many start to walk



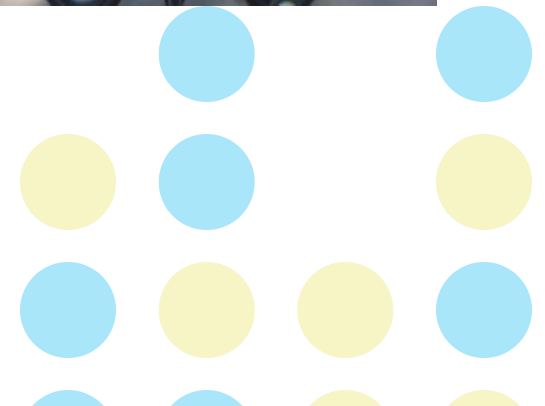
# Toddlers

- Increasing curiosity
- Their curiosity exceeds their ability to assess risks
- Climbing ability is not matched by their balancing or reasoning ability
- Immature motor skills make it hard for them to hold on when climbing



# Pre schoolers

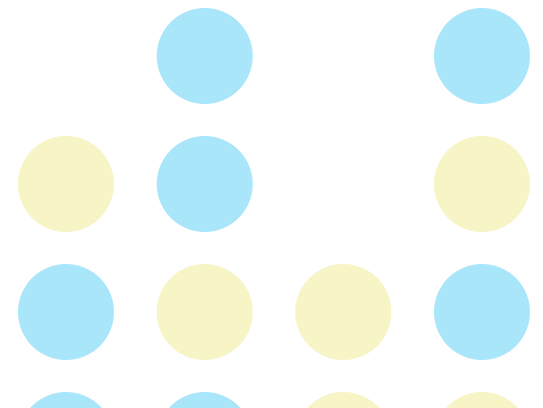
- Continue to develop increased coordination and motor development
- Can climb higher, run faster
- Falls as likely to be from deliberate climbing such as on playground structures



# Population Health Study

- Highest risk:
  - infant boys
  - living in rented homes
  - in communities with high concentrations of ethnic communities

Source: Shenassa, et al, 2004



# Boys

- Parents believe that boys are more likely to be injured than girls.
- Parents attribute boys' injuries to inborn characteristics and girls' behaviour to failing to think about the risks.
- Parents tolerate more risk taking with boys, while parents teach girls to avoid risks

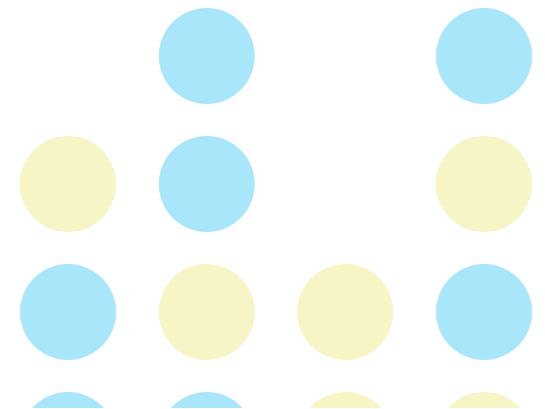
Source: Morrongiello B et al, 1998





## Requirement 2

Work with community partners, utilizing a comprehensive health promotion approach, to influence the development and implementation of healthy policies and programs and the creation or enhancement of safe and supportive environments.

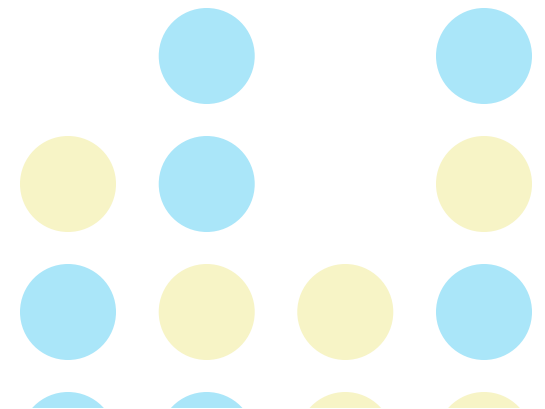




# Bike Helmets

A bike helmet properly fitting and worn correctly can prevent up to 85% of head injuries.

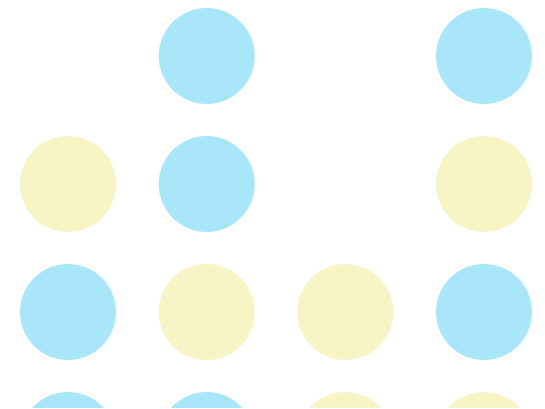
Source: Thompson D et al, 2001



# Bike Helmets – Legislation Effectiveness

- In Ontario, for cyclist under 16, after helmet legislation:
  - Number of deaths decreased by 52%
  - Mortality rate decreased by 55%
- In Ontario, for cyclist over 16, after helmet legislation:
  - No change in number of deaths or rate

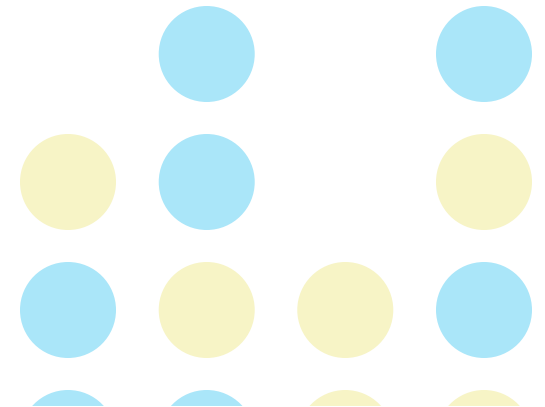
Source: Wesson D et al, 2008



# Bike Helmets – Legislation Effectiveness

- Head injury rates among child and youth cyclists are about 25% lower in provinces with helmet legislation
- Over the 4-year period studied, study concluded that:
  - *687 hospitalizations for head injuries to child cyclists could have been prevented if every province and territory had bicycle helmet legislation.*

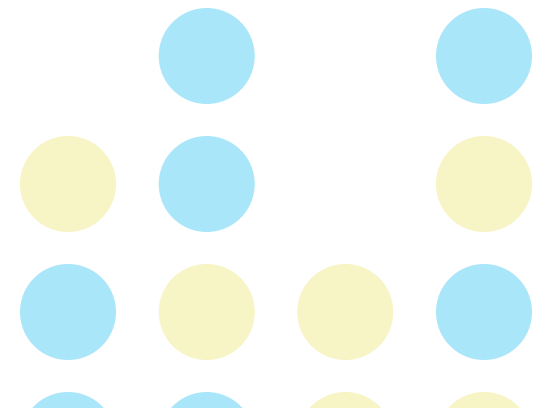
Source: Macpherson A et al, 2002



# Bike Helmets– Ontario Legislation

## Ontario Legislation:

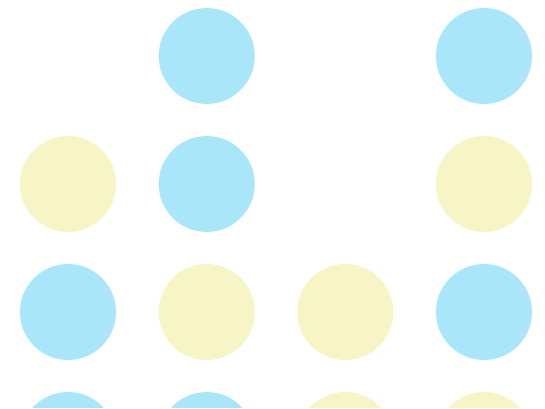
- Under the Highway Traffic Act (HTA), anyone under the age of 18 must wear a bike helmet.
- Fine: \$80
- Came into effect in October 1, 1995



# Bike Helmets – Environment

- Children under age 10 should be off the road.
- Riding a bike near motor vehicles requires a complex set of skills that children develop slowly between ages 10 and 14.

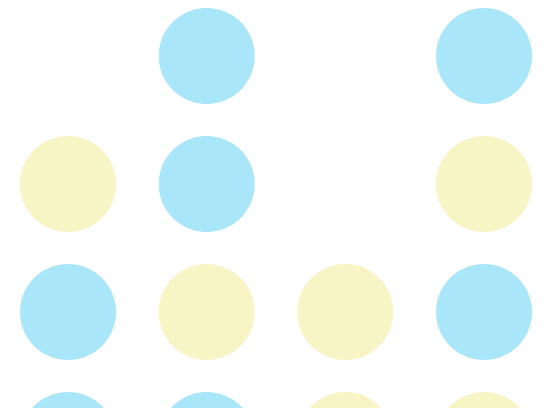
Source: Leblanc et al, 2004



# Bike Helmets - Environment

- Reduce traffic speeds.
  - International review when using traffic-calming measures (such as reduced speeds or speed bumps) found that road crashes of all kinds, including those with child and adult cyclists, declined by 15% overall and 25% on residential streets in particular.
  - When 20 cities in the United Kingdom established traffic calming zones at 40 km/h, child cyclist injuries declined by 48%.

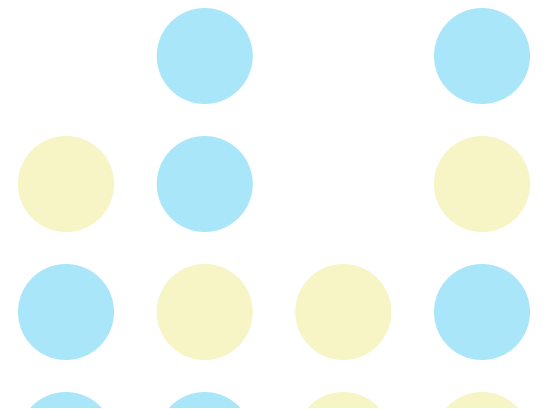
Sources: Peden et al, 2004, Elvik 2001, Webster 1996



# Bike Helmets – Education

- Experience worldwide strongly suggests that education programs alone, even if broad and sustained, are effective in bringing helmet use to only about 50% of the population.

Sources: Svanstrom L et al 2002, Harbourview 2001



# Scooter, Skateboard, In-line Skates

- Head injuries are often the most serious type of injury for wheeled activities
- Broken bones most common injury
  - fracture to the forearm most common injury in all three activities
  - followed by a wrist fracture in scooters and in-line skating and ankle sprains among skateboarders

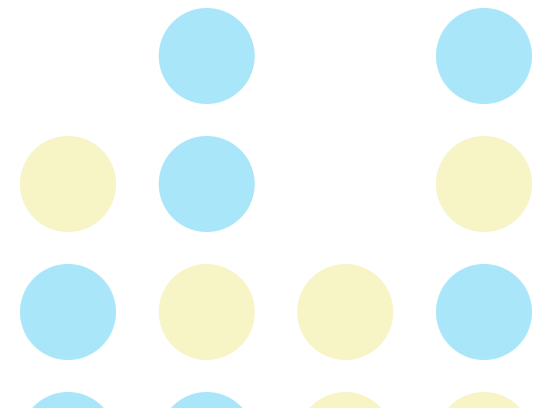
Source: Health Surveillance and Epidemiology Division, (Public Health Agency of Canada), 1998, 2000, 2001,



# Scooter, Skateboard, In-line Skates

- Causes of injuries:
  - inexperience, loss of control, lack of traffic safety skills, high speed, and the tendency to attempt stunts and difficult manoeuvres
- Most injuries occur within the first few months of learning
- Injuries most likely when lose control of the equipment and fall, as opposed to colliding with or being struck by another object.

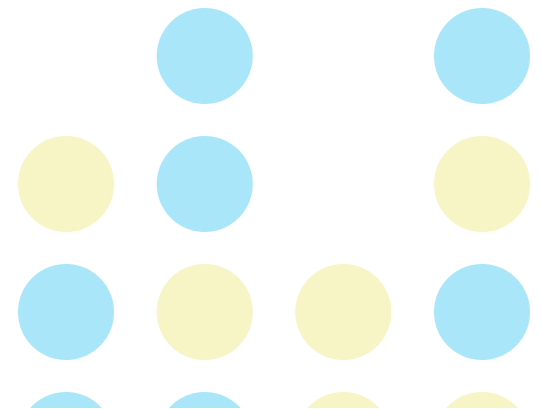
Source: Abbott M et al, 2001



# Scooter, Skateboard, In-line Skates

- Frequent injuries at skate parks may be due to:
  - the design of equipment
  - children's willingness to take more risks

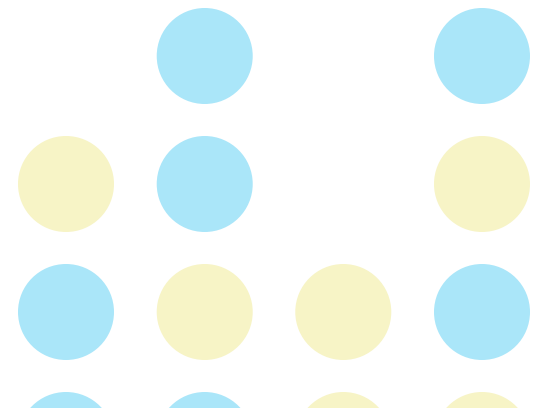
Source: Everett et al, 2002.





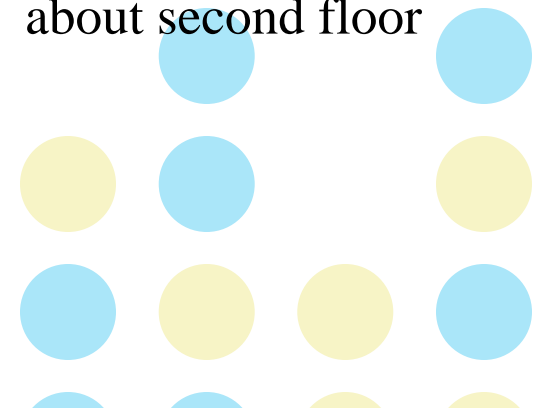
# Scooter, Skateboard, In-line Skates – Education

- Wearing a helmet
  - bike helmet for riding a scooter and in-line skating
  - skateboarding helmet to protect the back of the head
- Keep children on wheels off the road.



# Window Falls

- 545 cases of children under age 10 visited emergency room because of a fall from a window, between 1990 and 2005
- Peak age is age 3 - 61% of all cases between 2-4
- 87% were falls from a private home
- Almost half of these were falls from a bedroom window
- Almost half the cases involved a pushing or leaning on the screen.
- Almost half of the fall height was 10-15 ft about second floor window.

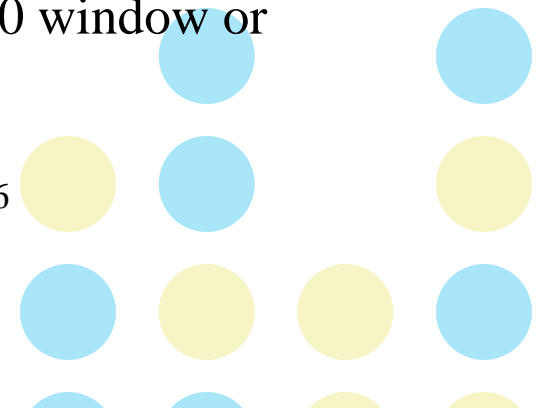




# Window Falls

- 2/3 occurred between May and August – peaking in July.
- About 22% of the injuries were closed head injuries.
- About 40% were admitted to the hospital. But increases with fall height - 86% admitted who fell greater than 30 ft.
- Show an increasing trend, with 24 falls/100,000 cases in 1990 rising to 40.5/100,000 cases in 2005.
- As well, The Toronto EMS has reported 60 window or balcony falls since 1999.

Source: Health Surveillance and Epidemiology Division, 2006

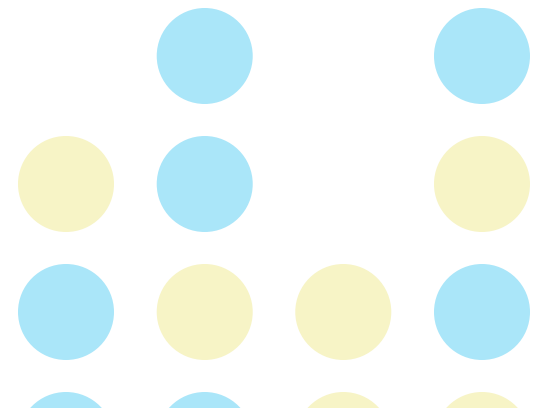




# Window Falls

## Children Can't Fly

- 50% reduction of injuries and 35% reduction of deaths in falls from windows
- Comprehensive program
  - Bylaws and enforcement
  - Adding window guards to second floor apartments
  - Parent education





# Window Falls

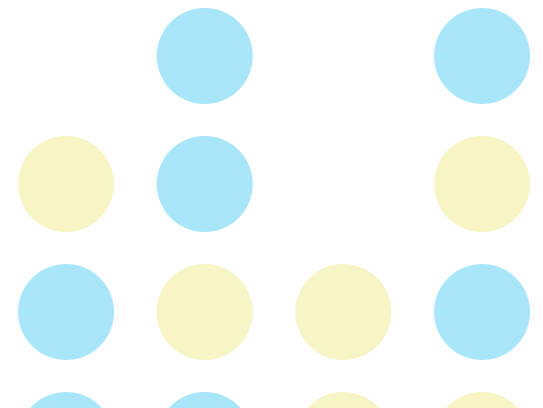
- Currently bylaws are in:
  - City of Toronto
  - Mississauga



# Safety Gates

- No research to support the effectiveness of safety gates.
- There is conflicting data on the effectiveness of comprehensive home safety programs to reduce fall injuries for young children.

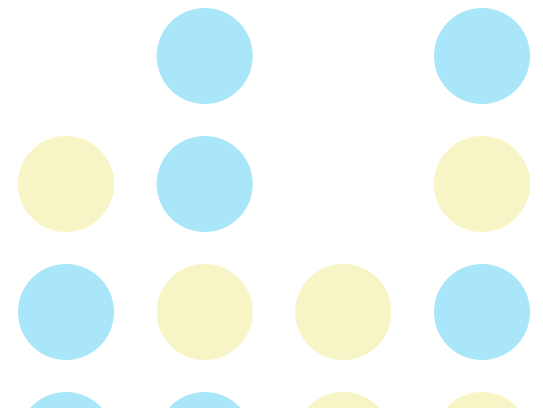
Source: Lyon et al, 2003, Kendricks, 2007



## Requirement 3

Use a comprehensive health promotion approach to increase the capacity of priority populations by:

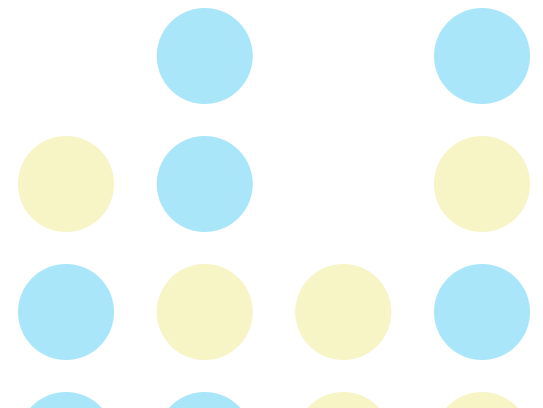
- a) Collaborating with and engaging community partners
- b) Mobilizing and promoting access to community resources
- c) Providing skill building opportunities
- d) Sharing best practices and evidence for the prevention of injury





# Collaborating with and Engaging Community Partners

- Legislative/ by law changes
  - Municipal/city planning departments
  - Municipal/city by law departments
- Enforcement
  - Police department

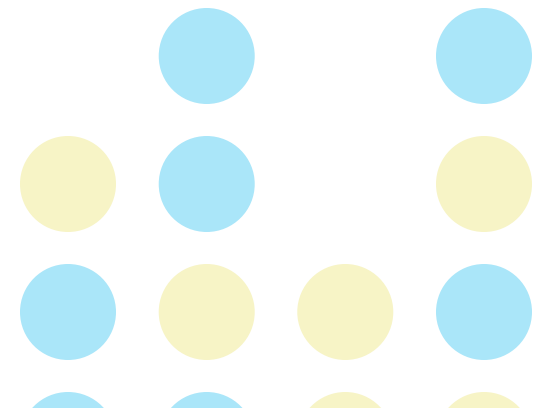




# Mobilizing and Promoting Access to Community Resources

## Safe Kids Canada

- Research
  - Safer Homes for Children Guide
  - Child and Youth Unintentional Injury: 10 years in review
- Parent Information
  - Playgrounds
  - Bike Safety
  - Baby walkers

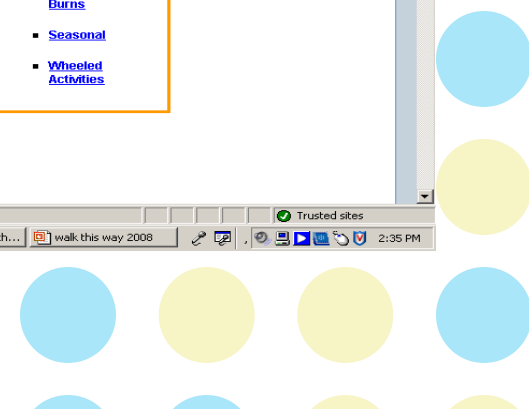




# Safe Kids Canada – website



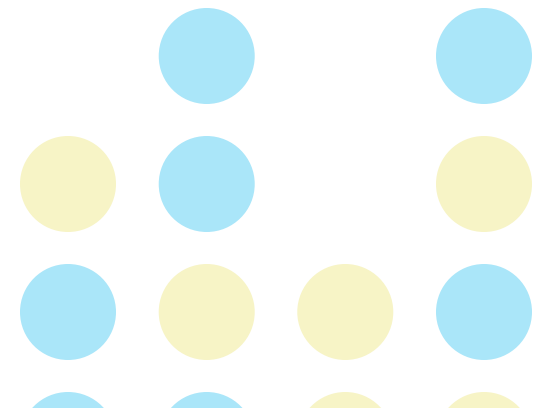
The National Injury Prevention Program of the Hospital for Sick Children





# Mobilizing and Promoting Access to Community Resources

- Ontario Injury Prevention Resource Centre
  - Data
  - Compass
    - Falls from Beds – Oct, 2008
- Consumer Product Safety, Health Canada
  - <http://www.hc-sc.gc.ca/cps-spc/index-eng.php>
  - Parent information
  - Product recalls
  - Reporting of unsafe products



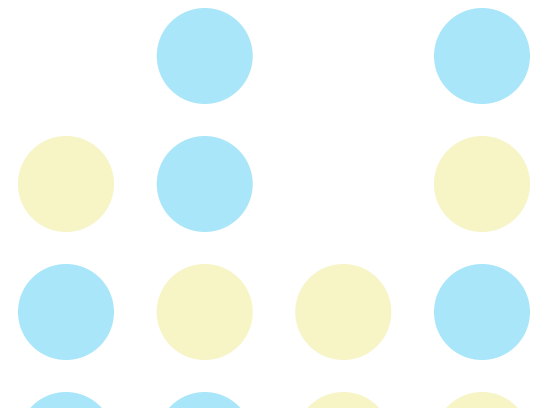


# Mobilizing and Promoting Access to Community Resources

- Canadian Pediatric Society

<http://www.cps.ca/english/publications/InjuryPrevention.htm>

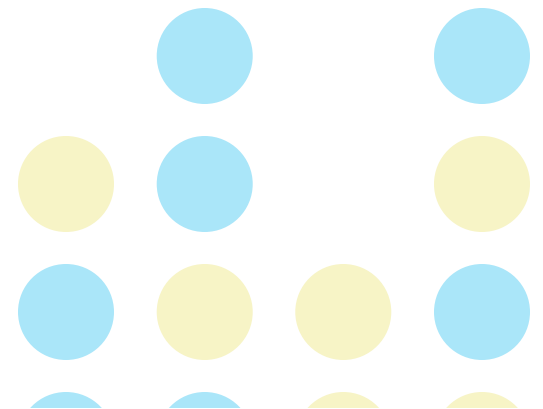
- Position Statements on Injury Prevention
  - Playgrounds



## Requirement 4

Increase public awareness by:

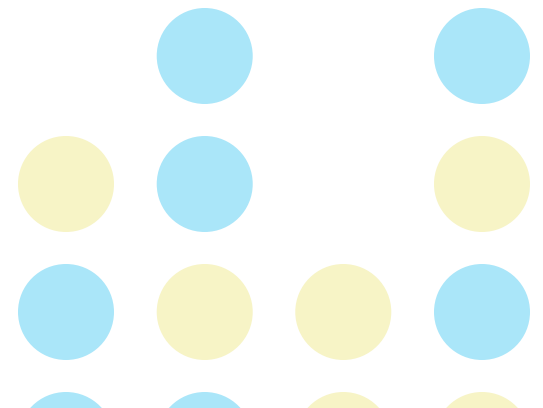
- a) Adapting and/or supplementing national and provincial health communication strategies
  
- b) Developing and implementing regional/local communications strategies



# Parents Beliefs

- Parents believe:
  - Children learn from being injured.
  - Injuries are natural consequences of play.
- Parents do not discuss risky behaviour fearing this might cause the behaviour to occur.

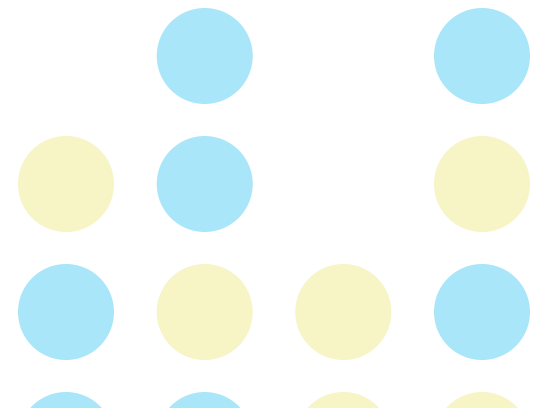
Source: Morrongiello et al 1996, Hu et al , 1996



# Parent's Behaviour

- Mothers engage in different safety practices depending on the cause of the potential injury.
- For falls, mothers used safety practices motivated by the characteristics of the child and parent. There was no one safety practice used by all mothers all of the time in the study.
- Mothers took more safety precautions to prevent burns, drowning and poisoning than falls.

Source: Morrongiello B et al, 2004



# Public Awareness

## Kids Are Unpredictable. Injuries Don't Have to Be

- Toronto Public Health

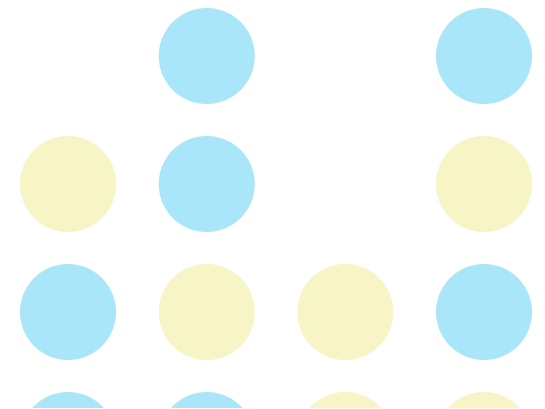


# Infant Falls

One study of 990 injured infants, found:

- Falls were the most common cause of injury
  - most commonly resulted in head injuries - 36 per cent
  - accounted for 95 per cent of skull fractures
- Since falls occur so frequently, even a small percentage of serious cases represents a large burden of injury.

Source: Pickett, 2003

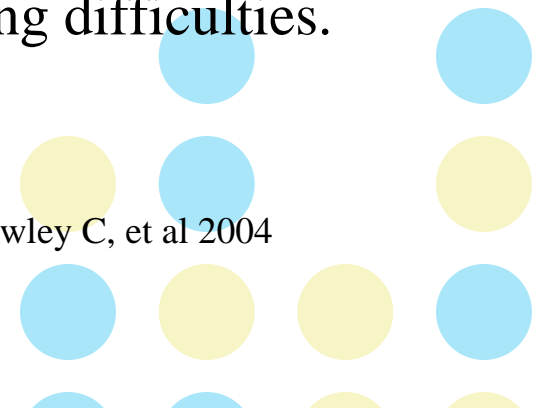




# Infant Falls

- Several recent studies:
  - falls from heights less than 1.5 meters do not usually cause multiple or serious injuries
  - except if a child is dropped by a caretaker.
- Short height falls may have long term implications including speech problems, and learning difficulties.

Source: Khambalia A, et al, 2006; McKinlay et al, 2002, Hawley C, et al 2004

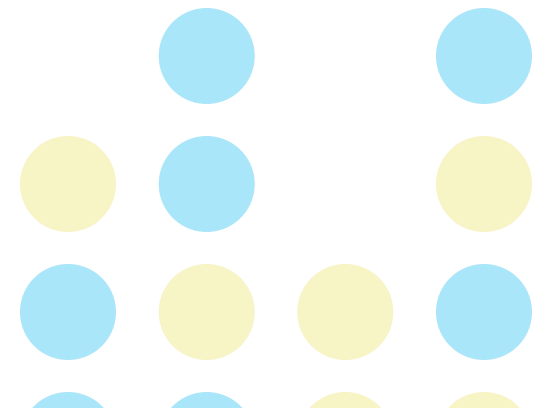




# Awareness About Infant Injuries

## Messages:

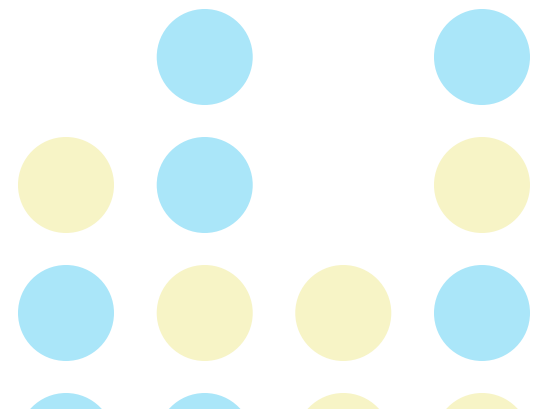
- Put infant seats and car seats on the floor in the home
- Keep hand on infant when on elevated surfaces like change tables and beds



# Bunk Beds

- For bunk beds, at risk of injury from:
  - under 6
  - lower socio economic status
  - newer beds
  - non carpeted floor

Source: Selbst, 1990

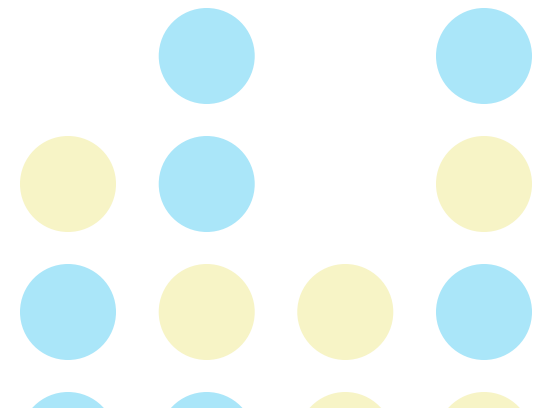




# Awareness about Bunk Beds

## Health Canada recommendations:

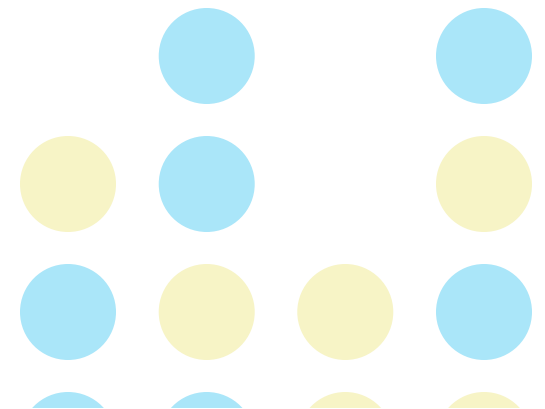
- Children under 6 should not sleep or play on the top bunk.
- Ensure bunk beds meet the latest version of the ASTM standard. The current edition is 2007.
- Check to ensure the bed comes with instructions for assembly and has a label with safety warnings. Read and follow these instructions and warnings carefully.





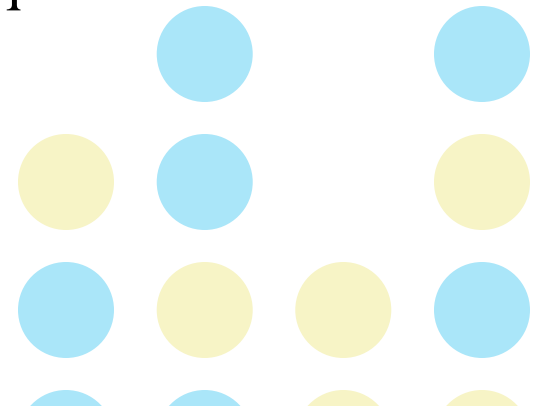
## Requirement 5

Use a comprehensive health promotion approach, in collaboration with community partners, to increase public awareness of and promote compliance with current regulation



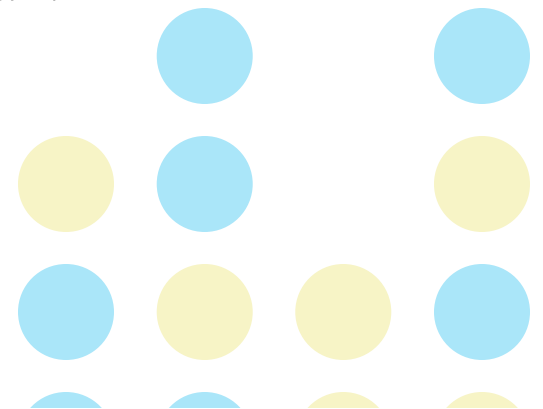
# Baby Walkers

- Before 1989, baby walkers led to 1,000 injuries to young children every year in Canada.
- Walkers caused more serious injuries than any other children's product.
- Injuries continued.
  - From 1989 and 1994, more than 100 walker-related emergency room visits in Canada
- 1989, a voluntary industry standard required walkers be too wide to fit through doorways



# Baby Walkers

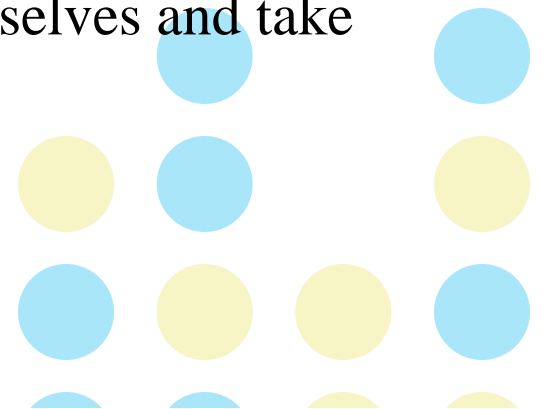
- Resulted in a de facto ban on the sale of baby walkers because no such product existed
- In April 2004, Health Canada banned the sale, importation and advertisement of baby walkers in Canada.
- Board of review in 2006, upheld the ban.





# Playground Falls

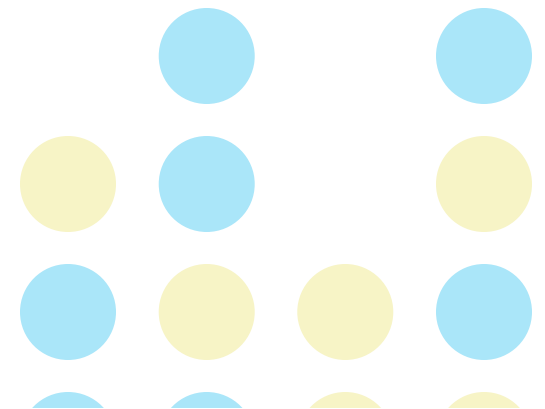
- Playgrounds have equipment designed for different age groups.
- Why children at risk:
  - young children under 5 developing climbing and balancing skills.
  - older children, 5-9, challenge themselves and take greater risks.



# Playgrounds

- Young children should be kept off equipment higher than 5 feet.
- Falls from heights greater than 5 feet (1.5 m) double the risk of severe injury for children of all ages.
- Young children should be actively supervised

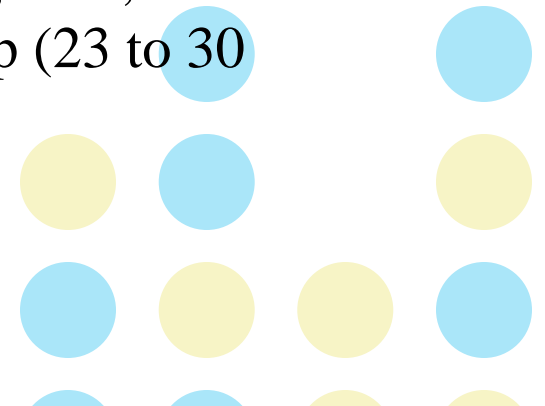
Source: Macarthur C, 2000



# Playground Standards

CSA has developed playground standards: (May 2007)

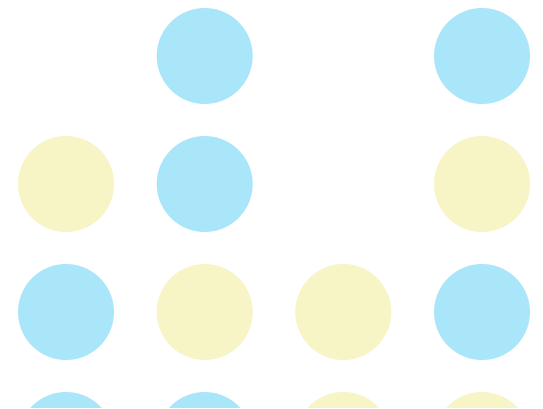
- Playground heights
  - 1.5 m ( 5ft) preschoolers
  - 2.3 m (7ft) school ages
- Deep soft surface underneath
  - Loose-fill material (sand, pea gravel, wood chips) 6 inches - 12 inches deep (23 to 30 centimetres)



# Home Playgrounds

- Backyard playgrounds account for 20% of all playground injuries.
- Same standards should apply:
  - Height
  - Surfacing
  - Supervision

Source: Safe Kids Canada, 2006

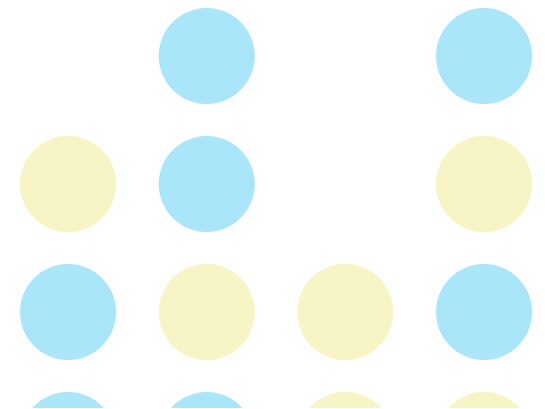


# Playgrounds to meet CSA standards

Playgrounds built to meet CSA Standard  
showed:

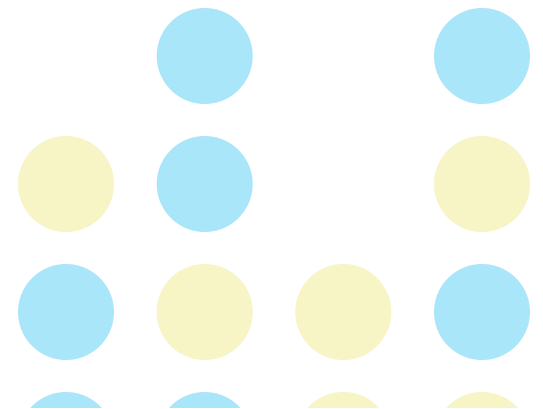
- 49% decrease in injuries
- estimated 520 injuries prevented during 4 years

Source: Howard A, 2004



# Moving Into Action – Bike Helmets

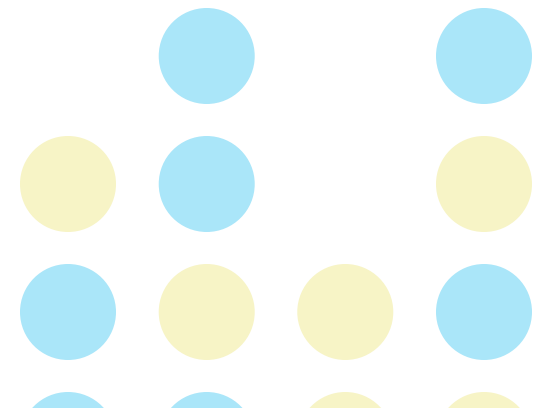
- Enhance bike helmet legislation to include all ages.
- Encourage enforcement
  - Create safer environments for cyclists
  - Reduce driver speeds
  - Separate bike lanes
- Educate the public about:
  - Importance of bike helmets
  - Current legislation
  - Proper fitting





# Moving to Action - Scooter, Skateboard, In-line Skates

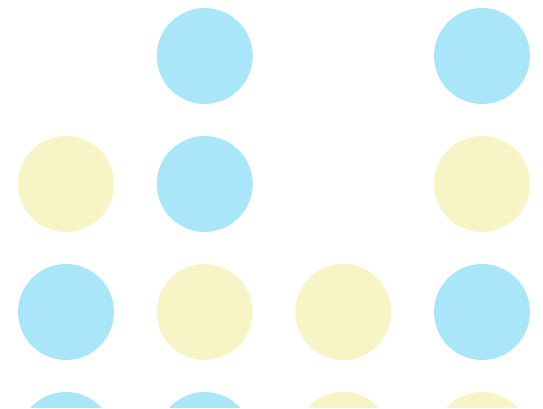
- Increase education and enforcement of the use of protective gear such as helmets.
- Include education and enforcement of safety gear at alternative environments for recreation, including skate parks.





# Moving Into Action – Window Falls

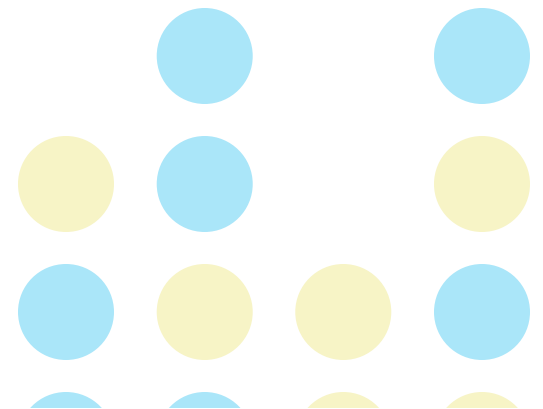
- By laws and enforcement
- Engineering changes – adding window guards/stops
- Parent education





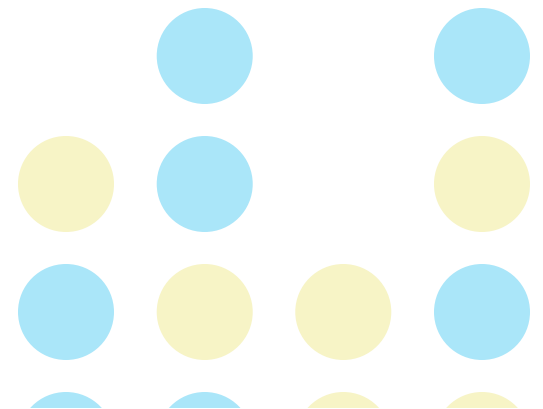
# Moving Into Action - Social Marketing

- Develop social marketing programs to inform parents about the serious injuries caused by falls.
- Develop social marketing campaigns for high risk areas:
  - Infant falls
  - Bunk beds



# Moving Into Action - Baby Walkers

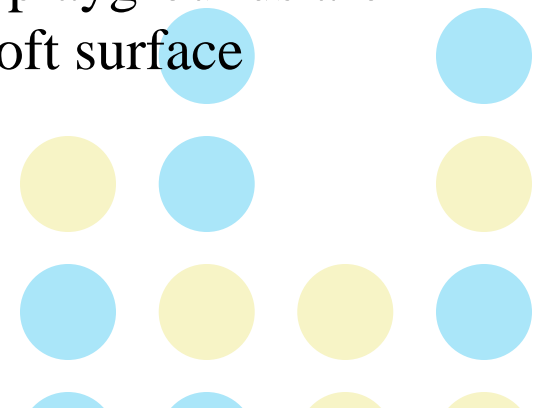
- Education
  - Inform parents about ban
  - Inform parents of dangers of baby walkers
  - Work with community partners to develop product round up programs





# Moving into Action – Playgrounds

- Build and maintain new playgrounds according to the CSA standard.
- Upgrade existing playgrounds by addressing serious hazards.
- Encourage parents to ensure backyard playgrounds are of appropriate height and have deep, soft surface underneath.





# Safe Kids Canada

[www.safekidscanada.ca](http://www.safekidscanada.ca)

**1-888-SAFE-TIPS**

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