Hockey concussion: Is it child abuse?

If not a stampede, it appears there is at least a slow shuffle of Canadian youngsters out of contact hockey as a result of widespread publicity about the parade of National Hockey League (NHL) superstars onto injured reserve lists.

Meanwhile, one critic says Hockey Canada's failure to implement even more stringent anticoncussion measures constitutes nothing short of "child abuse."

Drawing a parallel to equipment changes made in the 1970s to prevent eye injuries, Emile Therien, former president of the Canada Safety Council, says the sport faces similar consequences if changes aren't made. "If we hadn't made changes to the equipment back then, there's no doubt in my mind the game wouldn't exist today. Parents just wouldn't enrol their kids. It would be child abuse. And that's what it is today; it's child abuse."

Total registration for all branches within Hockey Canada declined to 572 411 during the 2010–11 hockey season, the second year in a row that numbers have dropped.

Although the current campaign is nearly over, Hockey Canada says it cannot provide numbers for this season.

But many observers expect the tally to again decline, in part because of publicity over the fate of hockey wunderkind Sidney Crosby — whose playing status seems a barometer of national angst levels and whose every skate-around for the past 15 months has been monitored by a media horde — and editorial calls for an end to on-ice brutality (www.cmaj.ca/lookup/doi/10.1503/cmaj.112081).

But Hockey Canada says some of the decline over the past two years may be the product of a change in reporting procedures as figures for years prior to 2010–11 included duplicate registrations. Had those been included in the 2010–11 numbers, the tally would have been 582 219, an increase of 5147.

By contrast, registrations in the United States appear to be soaring, surpassing 500 000 in 2010–11, an increase of more than 25 000 over a tally of 474 592 in 2009–10 and nearly 35 000 over a tally of 465 975 in 2008–09.

The decline in Canadian registrations is almost entirely occurring within enrolment for boys' hockey leagues, as enrolment in the girls' game — which prohibits bodychecking — continues to increase in registration, as a result of the expansion of leagues throughout the country.

Hockey Canada officials contend that they've made substantial progress toward reducing the incidence of concussions through measures implemented at the start of the 2011–12 campaign. Those included a "no-tolerance" rule toward contact to the head in all of minor league divisional play. It imposes a two-minute minor penalty for inadvertent contact to an opponent's head, face or neck using any part of the body or equipment, as well as a four-minute double-minor penalty, or a five-minute major penalty and a game misconduct (at the discretion of referees) for all intentional contact to

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"The campaign is certainly bringing awareness to the fact that we should not be making any contact to the head in minor hockey," says Todd Jackson, senior manager of membership services of Hockey Canada. "I call it a campaign because it is much more than just a rule change. … It includes promotion, it includes awareness, and it includes education for everyone involved in minor hockey."

The latter includes online dissemination of concussion awareness resources, as well as specific instruction and training for parents, officials, coaches and players alike. Teams are now required to have a "safety person" at facilities, who must be trained on how to identify concussions, be familiar with risk management protocols and be able to provide treatment. The campaign also includes a six-step process (first established in 1995) for determining when players can return to the ice surface.

In order, the six steps are:

- Complete rest until all symptoms disappear
- Light aerobic exercise such as walking or light stationary cycling but no resistance or weight training
- Hockey specific training, such as skating
- Non-contact drills and light resistance training
- Body contact drills but only after reassessment and clearance from a physician has occurred
- Return to play.

Also introducing new concussion protocols this year was the government of Ontario, which will require teachers, coaches and others in the education system to follow guidelines governing how "a pupil who is suspected of having sustained a concussion is to be removed from or prevented from further participating in intramural or inter-school athletics or any part of the health and physical education curriculum" (www.ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=2584). The legislation compels school boards to follow provincial standards for identifying and managing concussions.

But Therien says such initiatives are inadequate.

"So, what," he says of Hockey Canada's changes. "It's just patchwork. They aren't dealing with the problem at hand."

Therien, whose son Chris had his 12-year NHL career end after a head injury in 2005–06, says Hockey Canada has failed to adequately address safety issues in the game. Citing a study indicating that teams in Alberta minor league hockey which allowed bodychecking experience three times as many injuries as those in Quebec, which do not, (*JAMA* 2010;303[22]:2265-72), Therien says "there are all these evidence-based studies that are showing how unsafe the game is. Hockey Canada doesn't even acknowledge them; they just bury them."

But Hockey Canada counters that it is giving youngsters a choice and has made it a priority to encourage associations to offer noncontact options. "Every association across the country looks at ways to give kids the choice to play with bodychecking or without bodychecking," says Paul Carson, vice-president for hockey development at Hockey Canada. He notes that a league in lower mainland British Columbia will join its counterparts in the rest of the province next season by eliminating bodychecking at the house league level, while Hockey Calgary decided to eliminate bodychecking for the forthcoming season at the peewee level after a poll indicated 73% of parents wanted a change.

Therien says media coverage alone does not explain the decline in hockey registration. Other factors may also be responsible, including the growing variety of sports and recreational activities available to children, as well as the costs associated with playing the game, in comparison to those associated with such sports as soccer and basketball. But he predicts there will be an ongoing exodus from the game as a result of safety concerns, forecasting a registration "free fall" that will result in participation numbers on the order of 200 000 within a decade. — Chris Hemond, Ottawa, Ont.

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The downside of genetic screening

There is universal screening, subpopulation screening and targeted screening. There is screening of embryos, newborns and those within a specific age range. There is screening of people according to their weight, race or family history. There is screening for HIV, genetic abnormalities, various cancers and numerous other illnesses and health risks.

There is, in short, a whole lot of screening happening in medicine. And there will likely be even more happening as genetic testing technologies continue to advance, enabling the discovery of previously undetectable health risks.

On the surface, screening certain populations for health risks seems like a practice with many pros and few cons. It provides benefits in preventive medicine, family planning, medical research, diagnosing illnesses and other areas of health. There is, however, a downside to screening. Identifying risk is one thing. Deciding which course of action to take in view of that risk is a more complicated matter.

"We rarely in medicine do unalloyed good," says Dr. James Evans, editor-in-chief of Genetics in Medicine and Bryson Distinguished Professor of Genetics and Medicine at the University of North Carolina in Chapel Hill. "Some of the tools we employ in modern medicine are blunt. They are primitive. There are mastectomies, and there are drugs with side effects. Because of the bluntness of these tools, you better have great information and a clear-cut situation before you employ them."

Situations often arise in medicine, however, that aren't clear cut, and screening is no exception. For example, screening can detect some types of breast cancer that will progress to invasive cancer in some women but not in others. Prob-