

The state of child development in Canada: Are we moving toward, or away from, equity from the start?

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Young children have a remarkable capacity for developmental plasticity in response to the environments where they grow up, live and learn. In recognition of this capacity, the World Health Organization International Commission on the Social Determinants of Health recommended in 2008 that “governments build universal coverage of a comprehensive package of quality early child development programs and services for children, mothers, and other caregivers, regardless of ability to pay”. Yet, in its recent report card on early learning and care, the United Nations Children’s Fund revealed that Canada met only one out of 10 benchmarks, tying for last place with Ireland out of 26 wealthy countries. Not surprisingly, in Canada, large socioeconomic disparities emerge early in life in children’s physical, social/emotional and language/cognitive development, which are largely attributable to systematic differences in the nature of their early environments. Moreover, there is evidence of decline in the state of early child development in Canada in recent years, concurrent with increasing economic and time pressures on families. To date, Canada has had the weakest public policy response (among the wealthy countries) to the emerging understanding of the importance of the early years. If recent activities and initiatives in Ontario, Quebec, the Canadian Senate and several other provinces are fully realized, Canada will begin to close the gap between what we know and what we do in the early childhood years.

Key Words: *Early child development; Environmental health; Social determinants*

EQUITY FROM THE START

In 2008, the World Health Organization International Commission on the Social Determinants of Health issued its final report, “Closing the gap in a generation: Health equity through action on the social determinants of health” (1). The report was designed to help the global community understand how it could achieve health equity through action on the social determinants of health. Chapter five of the report, called “Equity from the Start”, was devoted to early child development. Its overarching recommendation was that all 194 World Health Organization member countries “commit to and implement a comprehensive approach to early life, building on existing child survival programs and extending interventions in early life to include social/emotional and language/cognitive development”. More specifically, the Commission recommended that “governments build universal coverage of a

L’état du développement de l’enfant au Canada : Nous rapprochons-nous ou nous éloignons-nous de l’équité dès le début?

Les jeunes enfants ont la capacité remarquable d’adapter leur développement aux milieux dans lesquels ils grandissent, vivent et apprennent. Pour cette raison, la Commission des déterminants sociaux de la santé de l’Organisation mondiale de la santé a fait la recommandation suivante en 2008 : que « les gouvernements établissent une couverture universelle de sorte que tous les enfants, toutes les mères et toutes les personnes qui s’occupent d’enfants bénéficient d’un ensemble complet de programmes et de services de développement du jeune enfant de bonne qualité, indépendamment de la solvabilité des bénéficiaires. » Pourtant, dans son récent bilan sur les services de garde et d’éducation des jeunes enfants, le Fonds des Nations Unies pour l’enfance a révélé que le Canada ne respecte qu’un des dix points de référence établis, ce qui le met en dernière place des 26 pays riches à l’étude, à égalité avec l’Irlande. Ainsi, comme il fallait s’y attendre, au Canada, d’importantes disparités socioéconomiques émergent tôt dans la vie physique, sociale et affective des enfants, de même que dans leur développement langagier et cognitif, ce qui est largement attribuable aux différences systématiques dans la nature de leurs premiers environnements. De plus, selon certaines données probantes, l’état du développement de la petite enfance accuse un recul au Canada ces dernières années, conjointement avec l’accroissement des pressions économiques et des contraintes de temps que subissent les familles. Jusqu’à présent, le Canada a réagi à la compréhension émergente de l’importance des premières années par les politiques publiques les plus faibles (parmi les pays riches). Si les récentes activités et initiatives de l’Ontario, du Québec, de plusieurs autres provinces et du Sénat canadien se réalisent pleinement, le Canada commencera à corriger l’écart entre ce que nous connaissons et ce qu’il faut faire au cours de la petite enfance.

comprehensive package of quality early child development programs and services for children, mothers, and other caregivers, regardless of ability to pay”.

Despite the fact that Canada was the primary contributor of knowledge to the chapter on equity from the start (1), we are one of the wealthy countries that is investing the least in the early childhood years (2). In its recent report card on early learning and care, the United Nations Children’s Fund revealed that Canada met only one out of 10 benchmarks, tying for last place, with Ireland, out of 26 wealthy countries (3). In contrast, Sweden scored 10 out of 10.

The present paper describes what Canadians – clinicians, parents, voters, politicians and policy-makers – should understand about the early childhood years. It will also show that our lack of investment in the early childhood years is currently having negative effects on child development in Canada.

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WHAT CANADIANS NEED TO UNDERSTAND ABOUT THE EARLY CHILDHOOD YEARS

A dense, hierarchically connected series of sensitive periods occur in brain and biological development during the first years of life, which mean that developing children are profoundly influenced by the environments in which they grow up, live and learn (4). Because of this, sensitive periods represent windows of opportunity to improve, or to damage, a child's future life chances.

In Canada, disparities that emerge early in life in children's physical, social/emotional and language/cognitive development are largely attributable to systematic differences in the qualities of their early environments. For example, the number of words a child can recognize and express by three years of age varies by more than threefold among otherwise normally developing children. The reason is that receptive and expressive language skills improve in a 'dose-response' fashion with the number and variety of words spoken directly to them, and the forms in which language is used, during those three years (5). It has been shown that by the time they reach school age, the American child who has heard the most language has actually heard approximately 30 million more words than the child who has heard the least (5). The lesson is that relatively small, day-to-day differences in the child's environment – in this case, how much they are spoken to each day – can have large cumulative effects over the early childhood years. The same principle of dose-response, in relation to early stimulation, applies to physical and social/emotional development.

Through Canada's National Longitudinal Survey of Children and Youth, we know that a child's chances of being vulnerable (ie, being behind where we would like them to be in their physical, social/emotional or language/cognitive development) by the time they reach school age forms a gradient as one goes from the top to the bottom of the spectrum of family income, parental education or the status of parents' jobs (6,7). The nature of the gradient is very important for clinicians and policy-makers alike to understand. The gradient shows that the fraction of vulnerable children gradually increases without a threshold as one goes from the most privileged to the least privileged families. Children in the least privileged families have the greatest chance of being vulnerable, but, from the perspective of society, the largest number (ie, the numerical majority) of vulnerable children is spread more thinly across the (much more numerous) middle class. We have now shown that, in Canada, no specific population can be targeted – by income, ethnicity, immigration, birth weight, gestational age, family psychosocial risk status or adverse neighbourhood circumstances – that will contain a majority of the children who will be developmentally vulnerable by the time they reach school age (8). Thus, a clear implication of the gradient is that improving the state of early development means finding ways to provide access to strong nurturant environments to all children. This may be achieved using different strategies in different contexts; however, the ultimate goal must be universal access to environments that will minimize vulnerability and support healthy child development. This is what 'equity from the start' is all about.

Gradients are also important because, once established, they track forward over the life course. Among the wealthy countries, a gradient (according to parental education) is seen

with respect to achieving the literacy and numeracy skills needed to cope in an information society (9). But, there are important differences among societies. In countries where gradients are the flattest (ie, where outcomes across the socio-economic spectrum are relatively equitable), the proportion of children who do not achieve adequate literacy and numeracy skills is relatively low (as low as 10%), whereas in countries with steep gradients, it is much higher overall (30% to 40%). In other words, pursuing policies that flatten gradients is good for society.

Thanks to a series of birth cohort studies (10) from different countries, we now know a great deal about the influence of the early childhood years on health, well-being, learning and behaviour across the life course. By the second decade of life, experiences in early life are associated with the risk of school failure, antisocial behaviour and teen pregnancy. By the third and fourth decades, they are associated with obesity, high blood pressure and depression; by the fifth and sixth decades, with coronary heart disease and diabetes; and by late life, with premature aging and memory loss.

We are currently on the leading edge of a revolution in the science of early child development. We now know that a process called 'biological embedding' exists, which has the following characteristics: experience gets 'under the skin' and alters human biodevelopment; systematic differences in experience in different social environments lead to different biodevelopmental states; these differences are stable and long term; and they have the capacity to influence health, well-being, learning and behaviour over the life course (11). We now recognize the remarkable capacity for developmental plasticity within each child and, in particular, how early environments can change the way that genes express themselves through epigenetic mechanisms. Epigenesis involves alterations to DNA other than changes in sequence that, nonetheless, can be passed on with cell division over the life course. For instance, when a certain DNA building block (cytosine) is methylated in a promoter region of the genome, this alteration may change the expression of the gene. We now know that methylation at many promoter regions is under environmental influence during pregnancy and early life (12). Most important, it is becoming clear that differences in experience for young children across the social and economic spectrum of wealthy countries is capable of producing different epigenetic expressions. Epigenesis is one mechanism that can help explain biological embedding, but others are sure to follow.

Evidence showing that the early childhood years are more important than we previously understood comes from a wide variety of credible scientific sources, from cell biology to birth cohort studies. But the application of this knowledge to policy and programs has not kept up. In other words, there is a growing gap between what we know and what we do in the early childhood years, which needs to be closed. There is now a credible body of evidence showing that one new dollar spent in the early childhood years on quality learning, development, parenting and care programs has the largest economic return to society (\$4 to \$8 returned per \$1 spent) of any new investment, even after discounting for inflation over the years and decades it takes for children to grow up (13). This return is much greater than one new dollar spent between kindergarten and grade 12 or, for that matter, at the postsecondary level.

MONITORING THE STATE OF EARLY CHILD DEVELOPMENT IN CANADA

We know a great deal about the state of early child development in Canada thanks to the widespread use of the early development instrument (EDI) (14). The EDI is a questionnaire that can be filled out by kindergarten teachers on each of their pupils in approximately one working day. It has five scales that encompass the key domains of children's early development: physical, social, emotional, language/cognitive and communication skills. Each scale now has an established vulnerability cut-off with known predictive validity (15) such that children who are designated 'vulnerable' on one or more EDI scales are, on average, at higher risk of failing to gain benefit from their school years. However, the EDI is not used as an individual diagnostic/intervention tool. When collected on all kindergarten children in a jurisdiction, the EDI provides a population-based assessment of the state of early child development. Currently, more than 400,000 EDI results for Canadian children have been obtained, including full population coverage in British Columbia, Manitoba, Prince Edward Island and Ontario.

Based on analyses at the local neighbourhood level, there are huge variations in the proportion of Canadian children who are developmentally vulnerable. In some Canadian neighbourhoods, as few as 5% of children are vulnerable, whereas in other neighbourhoods, as many as 70% are vulnerable. Overall, between 25% and 30% of children in the provinces with full population EDI coverage score as vulnerable. Yet, we now know that it is possible to bring vulnerability down to the 5% range. At birth, no more than 5% of children have detectable biological or physical limitations to their development. Moreover, we have a diverse range of neighbourhoods across the country where vulnerability is, in fact, at or near the 5% level. Thus, approximately 80% of the vulnerability we observe by school age across whole provinces could have been avoided had we done a better job in the early childhood years. To reinforce the element of avoidability, analyses in British Columbia suggest that approximately one-half of the neighbourhood variability in EDI vulnerability is associated with the gradient (ie, it is attributable to family circumstances that are modifiable, which Canadian programs and policies have not effectively addressed).

British Columbia and Manitoba have collected sufficient data over the past decade to establish time trends in EDI vulnerability. In British Columbia, between wave 1 (2000 to 2004) and wave 2 (2004 to 2007) of data collection, changes in EDI vulnerability were calculated for 56 of the 59 geographical school districts in the province. Despite a great deal of local activity to improve the state of early child development, the trends were, in fact, negative. In 26 of the school districts, EDI vulnerability increased; in seven, it decreased; and in the other 23, it remained approximately the same. Thus, declines led advances by nearly 4:1 (16).

These data have all been mapped and posted on the Human Early Learning Partnership Web site <www.earlylearning.ubc.ca> for public discussion. Although the Manitoba data have not been similarly posted, those with access to it have reported that their trends are negative, as in BC. This observation, although unpublished, is crucial, because it takes the issue from a provincial to a national level. The issue is: Why does

developmental vulnerability seem to be rising in Canada in an era of increased attention to the early childhood years?

Having discovered this trend, we turned our attention to other data sources to determine whether the EDI was picking up signals on child well-being that matched other trends. That investigation revealed the following. First, the positive trend of declining infant mortality in Canada stopped as far back as 1996 with, if anything, slight increases since then (17). Second, under-five mortality in Canada declined rapidly, catching up with the best in the world by the early 1990s, but then went the next 15 years without further improvement (18). Third, starting in 1996, income inequality among Canadian families with children increased rapidly and the increases have been sustained over time (19). Increasingly, families with children are occupying the lowest end of the Canadian income distribution. This is consistent with the fourth observation that since 1996, Canadian parents are having to work more and more hours per year to support their families, taking precious evening and weekend time away from their children (19).

Thus, although we do not have a complete answer to the crucial question raised above, we can say that declines in the state of early child development in Canada are consistent with early child mortality trends; concurrent with increasing economic and time pressures on families; and accompanied by the weakest public policy response among wealthy nations, in terms of an early child development investment strategy.

HOW CAN CANADA DO BETTER?

Perhaps the best way for Canada to do better is to start with those countries that are already doing better, and ask the question: Why not here? If we were to take this approach we might look to Sweden, because it scored at the top of the United Nations Children's Fund report, meeting all 10 benchmarks. The Swedish system will be discussed elsewhere in the present volume but, briefly, it has all the elements envisioned by the "Equity from the Start" chapter of "Closing the gap in a generation: Health equity through action on the social determinants of health". It is a comprehensive system that covers all the bases: high-quality, high-coverage prenatal care associated with lower low birth weight rates than Canada; an income policy that brings virtually all families with young children above the poverty line; up to 18 months paid parental leave with incentives for the father to take some of it; monthly developmental monitoring in the first 18 months of life so that any vision, hearing, speech/language and dental problems are identified and addressed before the child starts school; universal, non-compulsory access to publicly funded high-quality programs of early learning and care (which 80% to 90% of preschool-age children attend), run by university-educated staff, which do not compromise the central role of parents in raising their children; and, finally, a gradual transition from play-based to formal learning at a school age that serves to avoid privileging January-born babies and girls, and disadvantaging December-born babies and boys (Bremberg, pages 677-680).

It is hard to imagine Canada's early child development jumping directly from where it is now to a comprehensive model such as Sweden's. Canada is a complex, diverse and decentralized country that has several competing levels of government responsible for children. The tradition of family

self-reliance in child rearing, with little community responsibility, goes back to the English Poor Laws of 1601 (Williams and Hertzman, pages 649-650). But it is now time for steps to be taken to put Canada on a different track. The most important of these is to establish that access to strong nurturant environments in the early childhood years is every child's right; not a privilege for the lucky. Under the United Nations Convention on the Rights of the Child (1989), Canada has already agreed to such principles (20). These have since been spelled out in detail in a rider to the Convention called "General Comment No. 7: Implementing child rights in early childhood" (2005) (21).

At the time of this writing, Quebec is several years down the road to establishing universality as a right of citizenship, but is still struggling with the quality of care arrangements they provide (Japel, pages 662-663). Ontario has just released and endorsed the Pascal report (22), which envisions an expanded role for school spaces and the public education system as a context for universal access to quality care arrangements for successively younger cohorts of Ontario children. Its

first recommendation is that the Ministry of Education be responsible for the integration of early child development with education and that the people working in the domain of zero-to-eight-year-olds have a common education base. Other provinces, such as British Columbia, are poised to follow suit once the economy starts to recover and provincial revenues allow. If these initiatives, and others proposed to the federal government (23,24), are fully realized, Canada will begin to close the gap between what we know and what we do in early childhood.

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