

Ensuring the Best Start in Life

Targeting versus
Universality in Early
Childhood Development

Gillian Doherty



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Introduction

Canada is facing a workforce shortage resulting from low birth rates and increasing numbers of baby boomers retiring over the next two decades. These demographics and the demands of new technologies and the global economy for workers with good people, literacy, numeracy, problem-solving and decision-making skills mean that Canada's future prosperity depends upon increasing the productivity of what will be a much smaller workforce in the future.

Increasing productivity requires public policies supported by adequate levels of government funding to ensure that every child reaches his or her fullest potential (Dodge 2003; Fortin 2006; Lefebvre and Merrigan 2003).

The research evidence is clear; the foundations for good adult physical health, social competence, communication skills, adaptability, literacy, and numeracy are laid down before entry into kindergarten (McCain, Mustard and Shanker 2007). Children who enter school lacking the basic knowledge and skills required to benefit from the school program are more likely to experience social and academic difficulties and drop out prior to graduation (Heckman 2000; Stipek 2001). The costs of failure to graduate from high school are substantial for the individual and for society. The individual faces decreased employability and earning potential and an increased likelihood of lifelong levels of poorer physical and mental health (Canadian Council on Learning 2006; Keating and Hertzman 1999). Society faces decreased workforce productivity, decreased government revenue and increased demands for social assistance and health services. For instance, adults with less than a high school diploma – 19 percent of the population – contribute 9 percent of income taxes while consuming 35 percent of government income transfers such as employment insurance and social assistance (Canadian Council on Learning 2006).

Recognizing the need to give all Canadian children the best possible start in life, the First Ministers established the Federal-Provincial-Territorial Council of Ministers on Social Policy Renewal in 1996 to review existing social programs, engage in broad public consultation and develop a comprehensive strategy to support the development of young children. The result, known as the National Children's Agenda (NCA), articulates a vision of Canada as a country where all children have the opportunity to reach their full potential as adults and a policy framework for intergovernmental initiatives to support young children and their families¹ (Federal-Provincial-Territorial Council of Ministers on Social Policy Renewal 1999). The NCA was followed in 2000 by the federal-provincial-territorial Early Childhood Development (ECD) Agreement under which the federal government committed to transfer \$500 million annually by 2007-08 to the provinces and territories to fund the promotion of healthy pregnancy, birth and infancy; parenting and family support; child development programs; and strengthening community supports (Canadian Intergovernmental Conference Secretariat 2000). In practice, only a small proportion of these funds was used for providing direct services to children.

The subsequent Multilateral Framework Agreement on Early Learning and Child Care announced in 2003 focused specifically on children's programs. Through it, the federal government undertook to transfer \$900 million to the provinces and territories over five years for services in settings such as child care programs and nursery schools (Human Resources Development Canada 2003). The 2004 Speech from the Throne signalled the federal government's wish to develop, in cooperation with the provinces and territories, a pan-Canadian early childhood education and care (ECEC) system based on the principles of quality, universality, accessibility and child development (Government of Canada 2004). In the following year, the federal budget committed \$1 billion annually for five years to support the development of such a system (Government of Canada 2005a). During the next few months, bilateral agreements were signed with each of the 10 provinces and initial federal funding transferred to them. These agreements and their related federal funding laid a foundation for the establishment of universal ECEC services across the whole country.

The election in 2005 resulted in a change of government and the announcement that the recently signed bilateral ECEC agreements and their future funding would be terminated effective April 1, 2007.

As a replacement, the new government instituted the Universal Child Care Benefit (UCCB), a taxable payment of \$100 a month to all families for each child under age six, and allocated \$250 million annually beginning in 2007 to create new child care spaces (Government of Canada 2006). The UCCB has been criticized as being insufficient to make regulated child care more affordable for most parents and failing to address the need to expand child care availability. Subsequently, the government promised in the March 2007 budget to provide additional annual funding of \$250 million to provinces and territories for the creation of child care spaces (Government of Canada 2007a). The promise of this additional funding in 2007, in combination with the \$250 million announced in 2006, still represents a substantial cut to the \$1 billion committed by the previous government in 2005.

During the discussions leading up to and following the NCA, there was little debate about targeted initiatives for children deemed vulnerable to poor developmental outcomes or their role in an overall ECEC system. Yet such initiatives have been government-funded in Canada for over 15 years. By 1990, Nova Scotia was supporting 30 part-time programs based on the American Head Start program for preschoolers living in low-income families and Quebec was funding *maternelles quatre ans* in low-income urban communities and *maisons maternelles* in targeted rural areas (Doherty 1991). In 1990, the Ontario government created Better Beginnings, Better Futures as a 25-year project to explore the potential of targeted programs to prevent developmental problems among children living in economically disadvantaged neighbourhoods (Peters et al. 2000). The federal government's Community Action Program for Children (CAPC) began in 1993 (Boyle and Willms 2002). Subsequently, additional government money has been invested to continue and/or expand some of these programs and to fund new targeted initiatives such as the federal Aboriginal Head Start programs for on- and off-reserve children, Manitoba's Families First program, Quebec's Services intégrés en périnatalité et pour la petite enfance à l'intention des familles vivant en contexte de vulnérabilité (SIPPE) and Saskatchewan's KidsFirst program.

Currently, targeted ECEC initiatives receive in excess of \$260 million from various sources, of which \$145 million comes from the federal government and \$99 million from provincial and territorial governments (see table 7, page 28). Given the limited

funding available for services to young children, it is important to examine what we know about the cost-effectiveness of targeted programs and engage in a debate about whether they provide the largest social return for the ECEC money they receive.

Objectives

This paper seeks to identify the most promising strategies for enhancing the development of vulnerable children and to contribute to the debate about how best to achieve the NCA goal of ensuring that all children in Canada have the best possible start in life.

It begins by describing Canadian early intervention programs for vulnerable children and what we know about their impact on children's development. Since the body of Canadian evaluations is extremely small, Canadian findings are supplemented with American findings from similar initiatives. Concern is often and appropriately expressed about the validity of using American experience to inform Canadian policy development because of the differences between the two countries in factors such as the availability of universal health care and the extent of the social safety net. Nevertheless, it is the only option, given that few evaluations of early intervention strategies have been conducted in countries other than the United States. All Canadian evaluations are reported regardless of the rigour of their methodology and the extent to which it isolates the effect of the intervention from other influential factors. However, only American evaluations with rigorous methodological designs that have been reported in a peer-reviewed journal or conducted by a research organization such as the National Institute for Early Education Research at Rutgers University are cited.

The paper then considers four specific policy issues: the relative efficiency of a targeted versus a universal approach for assisting vulnerable children; the conditions required for high-quality ECEC; the benefit/cost ratios associated with different types of early childhood interventions; and what is required to support the healthy development of all Canada's children. In conclusion, the paper identifies a need to rethink the current targeted approach to enhancing the development of vulnerable children.

Scope

Willms uses the term "vulnerable children" to denote young children susceptible to poor developmental outcomes as a result of their environmental circumstances and states that this does not include children whose

susceptibility is associated with physical or mental disabilities or health problems (2002). Consistent with Willms's definition, this paper focuses on interventions for children prior to school entry who had a normal birth weight and do not exhibit indications of a disability or evidence of conditions such as fetal alcohol syndrome (FAS) but do have developmental problems. Thus, the paper does not include discussion of the Canada Prenatal Nutrition Program (CPNP) and similar provincial or territorial targeted initiatives to improve the nutrition of the fetus or services for special needs children.

Two broad community development initiatives targeting areas where children are deemed vulnerable because their neighbourhood has a high concentration of low-income families or families of Aboriginal ancestry are excluded. The first – 1,2,3 Go! – does not provide any direct interventions but instead responds to issues of concern to the community by mobilizing community members to work together to address them (Centraide of Greater Montreal 2007). The second, Brighter Futures for First Nations and Inuit Communities, provides funds that may be used for a wide variety of purposes such as community mental health promotion; public awareness and prevention activities related to family violence or suicide; improving birth outcomes; parent education; and/or cultural activities (Government of Canada 2007b). While some of these activities directly or indirectly address children's vulnerability to developmental problems, the broad mandate and emphasis on culturally appropriate approaches has resulted in initiatives that are very community-specific. This makes it difficult to tease out which strategies are appropriate for replication in other communities. However, CAPC, another broad community initiative, is discussed. CAPC funding is specifically tied to services for children under age six and their families and is intended to enhance the children's development (Government of Canada 2007b) Almost every site provides direct services to children and/or parenting education and supports parents in their parenting role (Beaudoin and Turcotte 2002).

The National Longitudinal Survey of Children and Youth (NLSCY), the Étude longitudinale du développement des enfants du Québec (ELDEQ) and the federal government's Aboriginal Children's Survey (ACS) support and inform the development and implementation of initiatives for vulnerable children by identifying how child, family and community factors influence child development and expanding our understanding of child vulnerability. Other initiatives, such as the federal government's Understanding the Early Years Project and

the Early Child Development Mapping Project being undertaken by the Human Early Learning Partnership in British Columbia, support and inform initiatives in specific communities. Their provision of information about a community's socio-economic and demographic characteristics, the availability and location of resources within it, and the developmental level of its child population assist communities to address resource gaps and monitor the effect of actions taken. Neither longitudinal surveys nor community mapping engage in direct service provision and further discussion of them is outside the scope of this paper. Additional information about these initiatives and their findings can be found in Kershaw et al. (2005) and McCain, Mustard and Shanker (2007).

Identification of targeted initiatives

Canadian initiatives to enhance vulnerable children's development directly by working with the children and/or indirectly through parent education were identified through the federal government's report on its early childhood activities (Government of Canada 2007b); federal, provincial and territorial government Web sites; and leads provided by individuals. Specific information about program design and child outcomes was collected from material posted on Web sites, documents provided by the programs, published research and data obtained through personal communication. In order to keep the length of the report reasonable, the discussion of American initiatives for vulnerable children and their outcomes is limited to initiatives similar to those existing in Canada. Comparable American initiatives were identified through the comprehensive reviews undertaken by Gormley (2006) and Karoly, Kilburn and Cannon (2005); these also provided some information about the outcomes of these initiatives. Additional information on child outcomes was sought through a keyword search of the University of Toronto Library catalogue. The findings from single-site demonstration initiatives such as the Carolina Abecedarian and the High/Scope Perry Preschool projects are not included in the report because they were extremely expensive; for example, it cost \$15,270 per child per school year in 2003 dollars for the Perry Preschool Project (Aos et al. 2004). Such expenditures would not be feasible to replicate on a large-scale basis. Information on the outcomes of demonstration projects such as the High/Scope Perry Preschool is summarized in Anderson et al. (2003), Aos et al. (2004) and Karoly, Kilburn and Cannon (2005).

Targeted Initiatives: What Do We Know?

A robust body of Canadian research documents that children living in a low-income family, a family that is Aboriginal, and/or a family whose home language is other than that used in the community at large are less likely to enter school with the skills required to take advantage of what it offers (Doherty 2007). Each of these three family characteristics can be viewed as a marker indicating children's increased vulnerability to poor developmental outcomes. The existence of such easily identifiable markers makes a persuasive case for targeting the provision of initiatives intended to enhance young children's development to communities with relatively large proportions of such families.

Targeted initiatives to promote the development of children deemed vulnerable to poor developmental outcomes exist in all parts of Canada. They may be fully funded by the federal and/or a provincial government or rely on a combination of government funds, donations and their own fundraising. The types of activities engaged in depend upon the premise on which the initiative is based. When the basic premise is that children's development is best enhanced by working directly with them, the primary focus is on group programming for children. Initiatives that focus on providing parenting education and support are based on the premise that the child's development can be best enhanced by changing parenting behaviour and the home environment.² Other initiatives operate on the premise that changing vulnerable children's developmental trajectories requires working with both the parent and the child and, to a greater or lesser extent, these initiatives provide both programs for children and education and support for parents.

In an effort to provide information in the most useful way for policy development, commentators in both Canada and the United States have adopted the convention of discussing initiatives operating under the same premise as a single group, using a three-part categorization scheme of parent-focused, child-focused and two-generation programs. In reality, not all initiatives fit neatly into this categorization; for example, Head Start focuses on children's programming but also provides some parent supports including assisting parents to access other community resources. Nevertheless, the three-part categorization

scheme is a useful policy tool in that it enables consideration of the relative effectiveness of focusing on children, focusing on parents, or providing an intervention that combines parent and child services.

This section provides an overview of each category of intervention, beginning with parent-focused initiatives and concluding with two-generation programs. Each of the three categories is organized as follows: (1) Canadian initiatives; (2) evaluations of Canadian initiatives; (3) evaluations of comparable American initiatives; and (4) discussion. A summary table is provided for each of the Canadian initiatives in each category, indicating the target population, services provided, duration of intervention and approach to staffing. Table 7 (page 28), provides the best available information on federal and provincial/territorial funding for targeted initiatives to promote the development of vulnerable children and the number of children/families receiving assistance.

Parent-focused initiatives

Parent-focused initiatives seek to enhance the child's development indirectly by changing parental behaviour and enhancing the home environment; they provide parents with information about child development and effective parenting strategies and teach them how to engage in educational activities with their children. The service is usually delivered through home visits but may be provided through group or individual parent meetings in an agency's office. Home visiting has the advantage of enabling linguistic and cultural matching between staff and family, may be less threatening for some parents, and eliminates the need for the parent to travel in order to receive the service. The home visitor focuses on the parent during the home visit; direct contact between visitor and child is limited to modelling how an activity should be done.

There are five Canadian parent-focused initiatives: Manitoba's Families First program, Quebec's Services intégrés en périnatalité et pour la petite enfance à l'intention des familles vivant en contexte de vulnérabilité (SIPPE), Saskatchewan's KidsFirst program, the Home Instruction for Parents of Preschool Youngsters (HIPPY) Program and the Parent-Child Mother Goose Program. Table 1 provides basic information about each of these five initiatives.

As illustrated in the table, all the initiatives provide parents with information on child development, effective parenting and activities to stimulate children's development and all but Mother Goose deliver their interventions primarily through home visits.

However, they vary on two other important dimensions: the intensity of the intervention and the background of the person who delivers the program. At one end of the intensity continuum, Quebec's SIPPE and Saskatchewan's KidsFirst initiatives begin working with the mother when she is pregnant and parents may continue in the program until the child is five; they also provide assistance that goes beyond parent education. Mother Goose and HIPPY are at the other end of the continuum: both focus solely on teaching parents how to stimulate their child's development through either weekly group meetings or biweekly home visits for a 30-week period. The Manitoba, Saskatchewan and HIPPY programs rely on paraprofessionals for service delivery while the programs operated by SIPPE and Mother Goose are staffed by people who have a professional degree.

Manitoba's Families First program

Families First, part of the provincial Healthy Child Manitoba initiative created in 2000, operates in each of the regional health authorities in the province and is delivered by them. As of March 31, 2006, the program had the capacity to provide home visits to 1,581 families using a 2005-06 budget of \$9,486,000 (Government of Manitoba 2006; Darlene Girard, Healthy Child Manitoba, personal communication, March 20, 2007). It is important to note that this budget includes funding for the province's universal screening of every family with a newborn in Manitoba as well as an in-depth assessment of families identified as possibly vulnerable to determine whether they should be referred to Families First.

In addition to providing assistance in accessing other community services, Families First uses a home-visiting program to deliver a specific parenting and child development curriculum that addresses basic care, health and safety; child development; parenting issues such as discipline; and strategies to enhance family functioning. Home visitors create an individual binder of activities and information that is left with the family and discuss with parents ways to incorporate their new learning into their daily routine. There is no formal requirement that parents work with the materials between visits and families choose the level, intensity and duration of involvement. As indicated in table 1, home visitors receive preservice training through the Manitoba Curriculum for Training Home Visitors; this includes modules in child development and parenting, safety and well-being and the materials used in the program (*Creating Great Kids* and *Growing Great Families*). Over

Initiative	Population served	Services provided	Duration	Home visitors or parent education trainers
Manitoba's Families First (part of the Healthy Child Manitoba initiative)	Families identified anywhere in the province as needing support through Manitoba's universal screening of all new births and a subsequent follow-up by a public health nurse. Parent may receive service until the child is age five	<ul style="list-style-type: none"> • Home visits every week for 9 to 12 months, then as indicated by family progress and desire • Assistance in accessing other community resources • Parenting education • Information on and suggestions for enhancing child development • Training to enhance family functioning, e.g. goal-setting, problem solving 	Depends on family needs and parent desire. No data on average length of participation	<p>Paraprofessionals with a minimum of grade 12 or equivalent and recent relevant experience such as working with families</p> <p>Two weeks of pre-service training and ongoing in-service training</p>
Quebec's Services intégrés en périnatalité et pour la petite enfance à l'intention des familles vivant en contexte de vulnérabilité (SIPPE)	<p>Women in any part of the province referred by a hospital or social service who are pregnant and under age 20, and/or living in severe poverty, and/or have immigrated to Canada within the previous five years</p> <p>Family may receive service from the twelfth week of pregnancy until the child reaches age five</p>	<ul style="list-style-type: none"> • Supports to vulnerable pregnant women • Home visits every two weeks during pregnancy, then weekly until the child is age six weeks, every second week until age one, then monthly until age five • Parenting education • Information on and suggestions for enhancing child development • Counselling to enhance parent and family functioning, e.g. goal setting, problem solving, budgeting • Assistance obtaining other community services such as child care • Activity groups for parents and their children 	Depends on family needs and parent desire. No data on average length of participation	<p>Typically a nurse, although people with other post-secondary education in fields such as social work or psychology may be employed</p> <p>In-service training. Materials for use by the local service delivery agencies have been developed by the province</p>
Saskatchewan's KidsFirst	Off-reserve families with a child under age five identified through screening of all new births and a subsequent in-depth assessment who are living in any of the nine communities deemed to have the largest concentration of vulnerable families	<ul style="list-style-type: none"> • Supports to vulnerable pregnant women • Home visits every week initially, then every two weeks or less frequently depending on family progress • Dedicated mental health and addictions services • Assistance obtaining other community resources • Access to dedicated regulated child care spaces while parent pursues further education, works or is in need of respite child care • Parent support groups 	Depends on family needs and parent desire. No data on average length of participation	<p>Paraprofessionals, typically people who have raised their own children</p> <p>In-service training in the materials used in the program</p>
HIPPY	Low-income families with a child aged three to five living in any of six areas in BC or in the areas of Montreal and Toronto with a HIPPY program	<ul style="list-style-type: none"> • Biweekly home visits 15 times over a 30-week period during the school year • Biweekly parent groups over the same period 	30 weeks a year for each of two years	<p>Paraprofessionals, typically members of the community who are HIPPY graduates</p> <p>Both pre- and in-service training</p>
Parent-Child Mother Goose Program	Low-income and/or immigrant families with a child under age four	<ul style="list-style-type: none"> • Out-of-home group meetings for parents once a week for 30 weeks 	Parents may take a 30-week session when their child is under age two and then a second 30-week session when the child is aged two to four	<p>Staff from an agency that provides services for vulnerable children and their families</p> <p>People providing the program are required to take a two-day training workshop and then participate in a practicum experience for 30 sessions in an existing program</p>

Sources: Government of Manitoba (2006); Government of Saskatchewan (2005, 2006); Quebec, Ministère de la Santé et des Services sociaux (2004); Home Instruction for Parents of Preschool Youngsters (HIPPY) Canada (2006, undated); Parent-Child Mother Goose Program (2007); personal communications: Darlene Girard, Government of Manitoba; Gail Russell, Government of Saskatchewan; Louise Therrien, Quebec Ministère de la Santé et des Services sociaux; Debbie Bell, HIPPY Canada; Dorota Dziong, Parent-Child Mother Goose Program.

the subsequent 18 months, they take additional training in areas such as domestic violence (Darlene Girard, personal communication, March 20, 2007).

Quebec's Services intégrés en périnatalité et pour la petite enfance à l'intention des familles vivant en contexte de vulnérabilité (SIPPE)

SIPPE, which targets women who are pregnant and under age 20 and/or living in extreme poverty and/or are recent immigrants, is provided right across the province through regional Centres de santé et des services sociaux. The mother and the father may continue to participate in the program until the child is five (Quebec, Ministère de la Santé et des Services sociaux 2004). Participants are referred by hospitals, other health services and social services. In 2006-07, SIPPE served 5,240 women, an estimated 56 percent of the eligible population, and had an annual budget of \$48 million (Louise Therrien, Quebec, Ministère de la Santé et des Services sociaux, personal communication, September 12, 2007).

Participants are provided with a variety of supports including home visits lasting 60 to 90 minutes every second week beginning in the twelfth week of pregnancy, information about good nutrition and health practices, food coupons and prenatal vitamins. After the birth, there are weekly home visits until the child is six weeks old, then every second week until age twelve months and monthly until age five. The home visitor's activities are tailored to the needs and aspirations identified by the family and may include the provision of information about child development, child nutrition, effective parenting strategies and educational activities to do with the child; budgeting and other life-skill counselling; assistance in accessing other services such as child care and job training; and accompanying a parent to an appointment. Generally, the home visitor is a nurse, although sometimes the individual may have another post-secondary professional credential, for example, in social work. The ministry has designed materials to help the regional centres provide in-service training. As an employee of a Centre de santé et des services sociaux, the home visitor has access to consultation with and can refer a client to a broad interdisciplinary team including nutritionists, social workers, psychologists, speech and language therapists, and medical doctors. Home visits are supplemented by group activities for parents and their children and parents are encouraged and assisted to enrol their preschool-aged child in regulated child care as a means of providing a group educational

experience. An evaluation of SIPPE was started in 2005 and is ongoing (Quebec, Ministère de la Santé et des Services sociaux 2004; Louise Therrien, personal communication, September 12, 2007).

Saskatchewan's KidsFirst program

Saskatchewan's KidsFirst program, initiated by the government in 2001, operates in the nine communities across the province deemed to have the greatest concentration of vulnerable families. It is delivered by community agencies operating under the supervision of a KidsFirst Management Committee, with either a local school division or health region being the partner responsible to the province. At the end of March 2006, home visits were being made to 1,150 families and the program maintained 128 dedicated regulated child care spaces for its clients (Gail Russell, Early Learning and Child Care Branch, personal communication, March 12, 2007). The 2006-07 budget for KidsFirst was \$14,033,000 (Government of Saskatchewan 2006). It is important to note that the budget includes not only the services listed in table 1 but also \$2,185,000 granted to community child care services across the province to improve their program quality (Government of Saskatchewan 2006).

KidsFirst includes the provision of nutritional supplements and prenatal education to vulnerable pregnant women; home visiting after the birth of the child with the delivery of a specific parenting and child development curriculum that addresses basic care, health and safety, child development and parenting issues such as discipline; dedicated mental health and addictions services for parents; and assistance in accessing other community resources such as literacy training. Initially, home visits occur once a week and then gradually decrease as the family's capabilities progress; parents are expected to work with their children between home visits using the suggestions and materials provided by the home visitor.

There are also 128 regulated child care spaces operated by other organizations in the community dedicated for the use of KidsFirst parents to support them while they attend school, take skills upgrading, seek work or require respite. A space may also be used to provide an enhanced developmental opportunity for a child. KidsFirst may cover the whole or part of the child care fee, depending on the family's situation. The mix of services received by a family is tailored on a case-by-case basis to provide only those supports needed to address its needs, with the goal that the family will be linked with services and support networks

within the community and develop the necessary level of self-sufficiency and stability to leave the program. As indicated in table 1, home visitors are typically paraprofessionals who have raised their own children and are given training related to the program (Government of Saskatchewan 2005; Gail Russell, personal communication, March 12, 2007).

Home Instruction for Parents of Preschool Youngsters (HIPPY)

HIPPY Canada is a nonprofit organization that receives its revenue from the federal government, donations and its own fundraising. In 2005-06, 385 low-income families were served, for an expenditure of \$206,299 through six sites in British Columbia, one site in Montreal and one site in Toronto (HIPPY Canada 2006). Five of the HIPPY sites in British Columbia serve Aboriginal families. One of these sites is operated by an Aboriginal consortium and serves five First Nations, three other sites each serve a First Nation on-reserve community, and the remaining site serves Aboriginal families living in Vancouver (Debbie Bell, Executive Director, HIPPY Canada, personal communication, March 12, 2007).

Children enter the program at age three and families are required to make a two-year commitment to participate in the program for 30 weeks during the school year. The HIPPY program is very structured and is implemented across sites in the same way using a standard curriculum and standard materials. These include HIPPY storybooks for parents to read with their children and materials designed to assist children develop visual-motor, language, discrimination and problem-solving skills. All of the parent instructional materials are prepared at a grade three level and are available in a number of languages. HIPPY Canada has modified the standard HIPPY program for its Aboriginal sites by replacing some of its storybooks with First Nations titles and developing a language enrichment program to support the transmission of the first language of the communities involved. HIPPY Canada has also contracted with Let's Talk Science, a national organization that develops learning programs to improve science literacy, for the development of five different age-appropriate science activities to be included in the HIPPY standard age four curriculum in all its programs (HIPPY Canada 2006).

The family is visited at home every second week by a HIPPY home visitor who brings a packet of materials to be used in activities with the child and spends about an hour reviewing the materials with

the parent, using role-playing. Between visits, parents are expected to spend a minimum of 15 minutes a day doing activities with their child (HIPPY Canada undated). There is a group meeting at a community centre or school every other week where parents may discuss their progress, ask questions or seek advice. The home visitors are parents from the community who have participated in HIPPY and receive preservice training related to the implementation of the HIPPY program and ongoing weekly training sessions for an average of 140 training hours in their first year (HIPPY Canada 2006; Debbie Bell, personal communication, March 12, 2007).

The Parent-Child Mother Goose program

The Mother Goose Program (Programme la Mère l'Oie pour parents et enfants) is a nonprofit organization that operates in eight provinces and the Yukon. It receives funding through provincial and municipal government grants, fees that agencies pay to obtain training for their staff and be permitted to use the Mother Goose programming materials and overall approach, and donations. Two versions of Mother Goose are available: one targets children under age two; the other, children between the ages of two and four. Each version provides a one-hour group experience for parents/caregivers and their children for 30 consecutive weeks.

The actual program is delivered by staff from agencies working with vulnerable children in an out-of-home setting such as the agency's office rather than by Mother Goose employees. There is not a specific curriculum, such as exists in HIPPY. Instead, parents/caregivers receive demonstrations and education on how to use interactive rhymes, stories and songs with their child to enhance the child's language and communication skills. Printed versions of the rhymes and songs are supplied to participants for use at home but there is no requirement that parents work with their child between sessions. The person leading the program is required to have participated in a two-day Mother Goose training workshop and obtained hands-on experience in a mandatory practicum under the supervision of a fully trained person for a minimum of 30 sessions. Additional training workshops are available for staff members who wish to participate in them (Parent-Child Mother Goose Program 2007; Dorota Dziog, Parent-Child Mother Goose Program, personal communication, September 10, 2007).

In 2005-06, the Mother Goose national organization and its largest provincial organization, in Toronto, had a combined budget of \$27,595. Mother Goose organizations operating in other jurisdictions and/or the agencies delivering the program may obtain additional funds for this purpose. Nationally, the agencies delivering the program reported having served a total of 1,649 adults (Dorota Dziong, personal communication, September 25, 2007).

Evaluations of Canadian parent-focused initiatives

The three Canadian parent-focused initiatives that have been evaluated are Families First in Manitoba, KidsFirst in Saskatchewan and one of the HIPPY sites in British Columbia. Manitoba and Saskatchewan both use data obtained from all the families that participated in the NLSCY in 1998-99, 2000-01 and 2002-03 as performance indicators for their parent-focused programs (Government of Manitoba 2006; Government of Saskatchewan 2005).

Manitoba reports changes in parental behaviour and family function across the period but no information about changes in children's development levels. However, American research indicates that successfully influencing parenting style or the frequency of parents' engagement in educational activities with their children is not always associated with enhanced child development (Gomby 2005). Saskatchewan reports reductions in the percentage of behaviour problems and improvement in average scores measuring cognitive development for children in the total sample of NLSCY families in the province between 1998-99 and 2002-03. However, it is difficult to know what this means without knowing what the changes were among children in the subsample of NLSCY families with similar demographic and socio-economic characteristics to those of the participants in the intervention program. Saskatchewan has recently obtained a grant from the Canadian Population Health Institute for a three-year evaluation of its KidsFirst program (Gail Russell, Saskatchewan Early Learning and Child Care Branch, personal communication, March 12, 2007). This evaluation should enable the provision of more specific information.

A quasi-experimental evaluation has been conducted in a single HIPPY site in British Columbia involving 14 children whose parents participated in HIPPY for two years and two comparison groups of children who were individually matched with the

HIPPY children on gender, ethnicity and family socio-demographic variables but whose parents had not participated in HIPPY (LeMare and Audet undated).³ All the children in one comparison group had attended a centre-based preschool program while the 14 children in the other comparison group did not have any preschool experience. At the end of the kindergarten year, the HIPPY children outperformed the children in the comparison groups on standard measures of knowledge of concepts, overall cognitive development, and degree of comfort with the school situation and were rated higher by their kindergarten teacher on a standard measure of school adjustment and peer relationship skills. This pattern of results is positive; however, none of the differences was statistically significant. The lack of significance may reflect the small sample size, a factor that decreases the likelihood that statistical analyses will detect even moderate-sized effects (Karoly, Kilburn and Cannon 2005).

Evaluations of comparable American parent-focused initiatives

Quebec's SIPPE and Saskatchewan's KidsFirst initiatives appear to owe much of their design to the Nurse-Family Partnership (NFP) program pioneered in Elmira, New York, by David Olds and his colleagues over 20 years ago. The initial program targeted pregnant women with no previous live births who met one of the following eligibility criteria: under age 19; unmarried or living in poverty. The women received home visits by public health nurses lasting 75 to 90 minutes starting in the prenatal period and continuing until the child's second birthday. The frequency of the visits varied according to the needs of the mother, with a mean of 9 during pregnancy and 23 after the child's birth. The intent was to improve the women's prenatal health, and thus birth outcomes, reduce the incidence of neglect and abuse of the children, and improve the women's life situations. The nurses followed detailed visit-by-visit protocols, implemented specific interventions and assisted participants to access other health and human services (Olds et al. 1998; Olds et al. 1999). According to the NFP Web site, the program is now operating in 23 states.

The original Elmira program has been subject to a longitudinal evaluation and also replicated and evaluated through randomized trials in Memphis, Tennessee, and Denver, Colorado.⁴ Fifteen years after entry into the Elmira program, participants who had been unmarried and living in poverty had longer gaps between the births of subsequent children, received welfare for significantly fewer months and had fewer arrests by the

police and fewer incidents of verified child neglect or abuse (Olds et al. 1998; Olds et al. 1999). The Memphis and Denver sites also report that participants had longer gaps between births. Memphis also found lower use of welfare than found in the comparison group two years after leaving the program, although Denver did not find any between-group differences on this variable (Olds et al. 1999, 2004b).

The NFP's original goals did not include a focus on enhancing child development or school-readiness and the results in these areas vary across sites and among families, with different characteristics within a site. Results are available for children up to age four for Denver, age six for Memphis and age fifteen for Elmira. At age four, children in the Denver site whose parents had received home visits by nurses obtained higher scores on a language test and on a test measuring their capacity for focused attention and self-regulation than did children in the comparison group (Olds et al. 2004b). However, four-year-old participants in the Elmira program had no better ability to remain focused or to self-regulate than the comparison children; language skills were not measured in this site (Olds et al. 2004b). At age six, the total sample of participating children in the Memphis program obtained higher scores on tests of intellectual functioning and language skills than those in the comparison group and were rated by parents and by teachers as having fewer behaviour problems. In addition, the children of mothers who were considered to have mental health problems obtained higher scores on tests of arithmetic skills and verbal expressive ability than did the remaining group of participant children (Olds et al. 2004a). At age 15, there were no differences between the total Elmira sample and the comparison group children in teacher reports of problem behaviour, incidence of suspensions from school or reports related to delinquency. However, the subgroup of children of poor, unmarried mothers had lower rates of arrests, convictions and violations of parole than children in the comparison group (Olds et al. 1999).

The Canadian HIPPPY program is based on the American HIPPPY program and uses the same approach and most of the same materials. The American program began operating in 1984 and currently has 167 sites nationally (Gomby 2005). Nevertheless, only two evaluations of its effectiveness using a comparison group have been reported in peer-reviewed journals and these present mixed results. The first evaluation was a quasi-experimental study involving 515 children whose parents had completed two full years of HIPPPY and 516 demographi-

cally similar children selected at the time of follow-up, some of whom had received another type of preschool experience while others had no preschool experience. In grade three and again in grade six, the HIPPPY children performed better on reading and language achievement tests than children in either comparison group, although the difference was very modest. There was no significant difference between the groups in achievement in mathematics, level of grade repetition or placement in special education classes (Bradley and Gilkey 2002).

In the second study, the effect of HIPPPY on children's cognitive development, school achievement and classroom adaptation was assessed at the end of kindergarten and again at the end of first grade for two sequential cohorts of children whose parents had been enrolled in HIPPPY for two years in each of two different sites. One site involved a randomized trial for both cohorts, the "gold standard" for evaluation, while the other site used a quasi-experimental design (Baker, Piotrkowski and Brooks-Gunn 1999). No clear pattern of results emerged. Children in the first cohort benefited on different measures and/or at different times across the two sites. There was no difference between HIPPPY and comparison children in the second cohort in one site, while at the other site the comparison children were rated higher than the HIPPPY children on school-readiness and school achievement at the end of kindergarten, although there were no other differences at either point. The researchers report that the inconsistent results could not be explained by any differences in the characteristics of the cohorts at either site or in the way that the HIPPPY program was implemented between cohorts.

Parents as Teachers (PAT) is another home-visiting program with similar goals to HIPPPY. Like HIPPPY, it employs paraprofessionals and uses a relatively prescriptive curriculum and the provision of materials for the parent to use at home with the child. It was originally designed for use with middle-class families, and little research has examined its effectiveness for disadvantaged populations. Two randomized trials with low-income families in California both found small and inconsistent effects on parenting knowledge and behaviour and minimal impact on children's cognitive, communication, social and self-help skills for the participating group as a whole. However, further analyses indicated that children living in Spanish-speaking Latino homes made small but statistically significant gains in receptive vocabulary and social skills (Wagner and Clayton 1999).

Early Head Start, a federally funded program that began in 1995, serves children from birth to age three and their families. It permits its 700 sites to provide a primarily home-visiting program focusing on the parent, supplemented by two parent-child group activities a month, a centre-based program for children, or a “mixed-approach program” in which home-visiting, and/or centre-based developmental programming is provided to different families or in combination to families either simultaneously or at different times. Seventeen Early Head Start sites across the country recruited twice as many eligible families as they could serve and randomly assigned them to participate in the program (1,513 families) or to be part of the comparison group (1,488 families). At age three, there was no significant impact on children’s cognitive or language development in programs using the primarily home-visiting approach (Love et al. 2005).

Discussion

Several commentators have concluded that generally the use of primarily parent-focused initiatives as a sole strategy has minimal or no effect on vulnerable children’s development (Barnett 2002; Farran 2000; Gomby 2005; Gormley 2006). Two hypotheses have been suggested to account for these disappointing results. The first is that interventions concentrating on parenting education fail to address the contextual factors influencing parenting style. They do nothing to address the immediate problems of inadequate income levels, substandard housing, and high rates of unemployment and are unlikely to address the high incidence of parental depression among parents living in poverty (Farran 2000). Yet we know that parental depression saps psychological energy and is associated with lack of engagement in educational activities with children and a hostile rather than supportive parenting style (Brooks-Gunn, Duncan and Britto 1999).

The relatively low levels of intensity of many parent-focused initiatives and/or actual exposure to the intervention is the second explanation for the disappointing results obtained with this approach. The effect of targeted interventions on child development is closely related to the intensity of the intervention (Barnett 2002; Gomby 2005; Gormley 2006; Ramey et al. 1995). Some parent-focused programs, such as HIPPI, provide their services for only a short time. Sustaining parent involvement also is an issue; it is essential for success because parents, not staff, provide the programming for the children. Obtaining sustained involvement from parents living in poverty and facing

the various challenges associated with their situation has proven to be very difficult. In the United States, the rates of attrition prior to the intended length of the program are typically between 45 and 60 percent (Gomby 2005; Wagner and Clayton 1999). Even when parents remain in the program for its full duration, research indicates that many of them miss in-home visits, fail to attend out-of-home parent meetings and/or fail to work with their child using the program materials between home visits (Gomby 2005; Wagner and Clayton 1999).

The educational background of the person providing the intervention also may influence its success. Home-visiting programs targeting very low socio-economic neighbourhoods need visitors who can establish and maintain good rapport with parents and have the knowledge and skills to respond to family crises as they arise (Gomby 2005). These are not minimal skills, yet many parent-focused programs rely on paraprofessionals. Overall, the research indicates that programs employing paraprofessionals tend to be least successful (Gomby 2005). A study that compared the effectiveness of the Nurse-Family Partnership program when delivered by nurses with a BSN degree and by paraprofessionals with no college education found that at age four the children whose families had been visited by a nurse had better language, cognitive and self-regulation skills than those whose parents had been visited by a paraprofessional (Olds et al. 2004b). These results do not necessarily imply that nurses make the best home visitors, but they do suggest the value of post-secondary education in a discipline related to the provision of human services. In summary, the benefits to children’s development obtained through parent-focused initiatives are inconsistent and usually negligible. The inconsistency may reflect differences in the planned intensity of the initiative, the actual amount of intervention received by the parent and/or the educational level of the person delivering the program.

Child-focused initiatives

Child-focused initiatives are based on the premise that the children’s home environment is unable to adequately support their optimal development and that direct work with the children is required in order to make a real difference in their developmental trajectory. The five Canadian child-focused initiatives are the federal government’s Aboriginal Head Start Program and targeted prekindergarten in Alberta, Manitoba, Quebec and Saskatchewan. Table 2 provides basic information on each of these initiatives.

Initiative	Population served	Services provided and duration	Staffing
Federal Aboriginal Head Start in Urban and Northern Communities	First Nations, Inuit and Métis children up to age six and their families living off-reserve	<ul style="list-style-type: none"> • Half-day group program for children aged three to five for five days a week throughout the school year • Promotion of child and family health and nutrition • Assistance to parents in accessing other community resources • Many provide parenting education 	Teaching staff are required to have the same level of early childhood education (ECE) required in child care centres by the jurisdiction in which the program operates. In most cases, the lead teacher has at least a one-year college ECE credential
Federal Aboriginal Head Start on Reserve	First Nations children up to age six and their families living on-reserve		<p>Preference is given to hiring Aboriginal staff.</p> <p>Elders are encouraged to take an active part in the program</p>
Manitoba's preindergarten	Four-year-olds living in two specific school districts	<ul style="list-style-type: none"> • Part-day program, five days a week during the school year 	Each classroom has a certified teacher and a teaching assistant who often has a college ECE credential
Quebec's pré-maternelle for four-year-olds	Four-year-olds in low-income, inner city neighbourhoods, primarily in Montreal	<ul style="list-style-type: none"> • Part-day program, four or five days a week during the school year 	Each classroom has a certified teacher
Saskatchewan's prekindergarten	Three- and four-year-old children living in low-income neighbourhoods throughout the province	<ul style="list-style-type: none"> • Part-day program, 5 days a week during the school year 	Each classroom has a certified teacher and a teaching assistant who often has a college ECE credential
ABC Head Start	Children aged three and a half to five living in low-income neighbourhoods in Edmonton	<ul style="list-style-type: none"> • Part-day program, 4 days a week during the school year • Vision, hearing, speech and general development screening • Weekly parent education groups • Assistance to parents in accessing other community resources 	<p>Each group in the children's program is staffed by a certified teacher and two teaching assistants</p> <p>Screening by a primary health team consisting of two public health nurses, a nursing assistant and a dental hygienist. Follow-up, if required, arranged through the Glenrose Hospital Preschool Assessment Services Outreach Program</p>

Sources: Government of Canada (2007b); Public Health Agency of Canada (2004); Winnipeg School Division (2006); Quebec, Ministère de la Famille, des Aînés et de la Condition féminine (2007); Saskatchewan Learning (2006); ABC Head Start (2006a, 2006b); personal communications: Joanna Blais, Government of Manitoba; Kathy Abernethy, Government of Saskatchewan; Kathy Lenihan, ABC Head Start.

As illustrated in the table, all five initiatives provide part-day, out-of-home programs. Two initiatives, Aboriginal Head Start and ABC Head Start in Alberta, also provide parents with assistance accessing other community resources. In addition, ABC Head Start provides weekly parenting education sessions and vision, hearing, speech and general development screening for children. To the extent that they are available in the community, Aboriginal Head Start programs hire staff who have a college early childhood education credential. The children's group programs in the other initiatives are staffed by certified teachers.

Aboriginal Head Start

The Aboriginal Head Start Program consists of Aboriginal Head Start in Urban and Northern Communities, established in 1995, and Aboriginal

Head Start on Reserve, established in 1998. Both are completely funded by the federal government through financial transfers to Aboriginal nonprofit community groups or bands/First Nations that are responsible for designing and operating the service. Aboriginal Head Start in Urban and Northern Communities (AHSUNC) targets First Nations, Inuit and Métis children up to age six and their families living off-reserve, with a primary emphasis on children aged three to five; Aboriginal Head Start on Reserve (AHSOR) targets children of the same ages living on-reserve. In 2005-06, the total government expenditure for AHSUNC was \$31,214,712 for a total of 4,500 children served across 131 sites; the total for AHSOR was \$50,165,212, with 9,101 children served in 354 sites (Government of Canada 2007b).

There are Head Start sites in every territory and province. The federal government requires that all sites provide the following components: (1) promotion of school-readiness through a structured part-day preschool program for children age three to five during the school year; (2) promotion of Aboriginal culture and language in the preschool program; (3) promotion of child and family health and nutrition; (4) assistance to families in accessing other community resources; and (5) opportunities for parent participation on parent councils or other governing bodies and in classroom activities (Public Health Agency of Canada 2004). There is no required curriculum or curriculum approach and each site determines how best to provide the required components in its community context. To the extent that they are available, teaching staff in the preschool program are required to have the same level of training as required for child care centres in the jurisdiction in which the Head Start site operates (Government of Canada 2005b). In most cases, the lead teacher working with a group of children has probably a one-year college early childhood education credential (Lynne Robertson, Public Health Agency of Canada, personal communication, February 19, 2007).

Prekindergarten

Targeted prekindergarten programs are operating in four provinces: Alberta, Manitoba, Quebec and Saskatchewan. A nontargeted four-year-old junior kindergarten program is also provided in Ontario. Alberta's prekindergarten was initiated and developed by nonprofit organizations that operate Head Start-like group programs targeting children aged three and a half to five living in low-income neighbourhoods and also provide some parent supports. These organizations supplement provincial grants for the provision of kindergarten, which can be used for children younger than age five under certain circumstances, with funds from other sources such as the federal government, donations and their own fundraising activities. The largest, ABC Head Start in Edmonton, has 12 sites and operates 19 half-day classes four days a week during the school year. These classes have 16 to 18 children each and are staffed by a certified teacher and two assistants. Most children attend for a single year only and then transfer to kindergarten. ABC Head Start also provides vision, hearing, speech and general development assessments through partnerships with other community agencies; weekly parenting education groups,

each with its own social worker; parent counselling and assistance in accessing other resources; and in-home visits to families whose children have special needs to assist parents in implementing educational activities to reinforce the classroom curriculum. In 2005-06, ABC Head Start served 304 children and their families and had a budget of \$3,062,317, of which \$2,580,942 came from the province (ABC Head Start 2006a, b; Kathy Lenihan, Executive Director, ABC Head Start, personal communication, February 6, 2007).

Two Manitoba school divisions, one in Winnipeg and the other in a northern part of the province with a high proportion of families who live on-reserve, have established targeted nursery (prekindergarten) programs for children age four. These programs do not receive provincial funding; the Winnipeg program is financed through an education levy on property taxes while the other program has been able to obtain federal funding (Joanna Blais, Manitoba Education and Youth, personal communication, February 12, 2007). In September 2005, the Winnipeg program was operating part-day classes in 58 schools and had an enrolment of 1,785 children. The cost to operate the program is expected to be approximately \$4.1 million in the 2006-07 school year (Winnipeg School Division 2006). Similar information is not available for the program operating in the northern part of the province.

In Quebec, *prématernelle* for four-year-olds provides a part-day program operated by the local school board for four or five days per week over 36 weeks for children living in disadvantaged neighbourhoods. In 2006-07, the program served 4,881 children (Dannie Giguère, Quebec, Ministère de l'Éducation, du Loisir et du Sport, personal communication, November 29, 2007). The estimated cost per child was \$2,146 (Quebec 2007, 9). No new *prématernelles* for four-year-olds have been opened since 1997, but the existing ones continue to be funded (Friendly et al. in press). This "freeze" reflects two important government initiatives. The first initiative was the 1996 reform of the education system, which included a provision for four-year-old children living in disadvantaged neighbourhoods without a *prématernelle* to attend a regulated child care program without charge for 23.5 hours a week, with the express purpose of enabling them to participate in an educational experience (Quebec, Ministère de l'Éducation 1996). The second important initiative was the adoption of a specific and mandatory educational program for use in all regulated child care settings, *Jouer, c'est magique*, which was inspired by the American High/Scope Education Approach, along with the rapid

expansion of regulated child care spaces (Tougas 2002). Currently, children deemed vulnerable to developmental problems because they are living in a very low-income or refugee family or have been identified by a social service can attend a regulated child care program for five half-days a week without charge (Government of Quebec 2007).

Saskatchewan's targeted prekindergarten program was started by the provincial government in 1993 as a pilot project in two communities. In 2006-07, there will be 119 provincially funded programs with an anticipated enrolment of approximately 1,900 children. School divisions decide if and where they want to operate targeted prekindergarten and receive \$48,346 for each program regardless of the number of children enrolled. Many divisions augment the provincial grant with funds from other sources. There is also some provincial funding available in the first year of operation for start-up expenses. Classes have a maximum enrolment of 16 children in a mixed age grouping of three- and four-year-olds and operate half-days, five days a week during the school year. The province has produced a set of program guidelines that emphasizes the use of direct concrete experiences and play to facilitate children's development. Staffing consists of a certified teacher and a teaching assistant who often has a college certificate in early childhood education (ECE). Parents are encouraged to work in the classroom and/or sit on a parent council, and some programs also provide home visiting (Government of Saskatchewan 2006; Kathy Abernethy, Saskatchewan Learning, personal communication, February 22, 2007).

Evaluations of Canadian child-focused programs

The Canadian child-focused early intervention initiatives with child outcome evaluations are Aboriginal Head Start in Urban and Northern Communities, which has been evaluated twice, the ABC Head Start program in Edmonton, and the targeted prekindergarten operated by Regina Public School District No. 4. Table 3 provides an overview of their evaluation approach, outcome measures and outcomes.

Aboriginal Head Start in Urban and Northern Communities (AHSUNC)

The National AHSUNC Evaluation, the report of which is yet to be released, involved nine sites across the country. Over a two-year period in the program,

all the children apparently made gains in their overall physical health and social skills and 38 percent also exhibited enhanced literacy and numeracy skills (Lynne Robertson, Public Health Agency of Canada, personal communication, February 19, 2007). These results appear promising but unfortunately the evaluation lacked a comparison group of similar Aboriginal children who did not attend Head Start. This makes it impossible to isolate the effect of the program from other factors such as child maturation.

The Western Arctic Aboriginal Head Start Council (WAAHSC) is a network of eight AHSUNC programs in the Northwest Territories. One program has conducted two evaluation studies. The first compared the school-readiness of 31 AHSUNC children at entry into kindergarten and again in first grade with a comparison group of Aboriginal children from the same community, matched on socio-economic status, family structure and home language, who had not attended the program. On both occasions, the AHS children obtained significantly higher scores on school-readiness skills as measured by the Brigance Preschool Screen and Kindergarten Screen (Brigance 1998). In the second study, the achievement level in reading, spelling and mathematics, as measured by the WIAT-II (Wechsler Individual Achievement Test II) (Wechsler 2001), was assessed for 50 AHS children and a comparison group when both groups of children were eight to ten years old. The comparison group in this study also consisted of Aboriginal children who had been matched on socio-economic status, family structure and home language with the AHS children. Again, the AHS children obtained significantly higher achievement scores (WAAHSC 2007; Jennifer Chalmers, Evaluator, personal communication, February 20, 2007).

Prekindergarten

ABC Head Start is the largest in a network of prekindergarten programs in the Edmonton area, all of which evaluate the effectiveness of their children's programs through pre- and post-tests using a standard tool to measure children's social/emotional, cognitive, motor and language skills and their general knowledge (Kathy Lenihan, Executive Director, ABC Head Start, personal communication, February 6, 2007). ABC reports that 265 children assessed just before their entry into kindergarten showed a 25 percent increase overall in their abilities in all four developmental areas (ABC Head Start 2006a).

Table 3
Research Approach, Outcome Measures and Outcomes: Targeted Child-Focused Initiatives

	Study	Approach and sample	Outcome measures	Outcomes
Aboriginal Head Start in Urban and Northern Communities (AHSUNC)	National AHSUNC Evaluation	Comparison of children's level of development over a two-year period. No comparison group	Standard classroom observational tool and interviews with parents and kindergarten teachers	All children apparently made gains in their overall physical health and social skills and 38 percent made gains in literacy and numeracy skills
	Western Arctic Aboriginal Head Start Council (WAAHSC); two studies in the same community	Study 1: comparison of school-readiness of 31 children who had attended Head Start and 31 comparison children at entry into kindergarten and again at grade one Study 2: comparison of achievement levels of 50 Head Start children and 50 comparison children in reading, spelling and mathematics when they were between ages eight and ten	<ul style="list-style-type: none"> • Brigance Preschool Screen and Kindergarten Screen • WIAT-II 	<p>Children with Head Start experience obtained significantly higher scores on both the Brigance Preschool and Kindergarten scales</p> <p>When between ages eight and ten, children with Head Start experience obtained significantly higher scores on the WIAT-II scales for reading, spelling and mathematics</p>
Prekindergarten	ABC Head Start	Pre-post comparison of 265 children's level of development after a single year of program participation. No comparison group	<ul style="list-style-type: none"> • Measure of development in social/emotional, cognitive, motor and language skills 	25 percent increase in post- over pre-test scores on social/emotional, cognitive/general knowledge, motor skills and language for the group as a whole
	Regina Public School District No. 4 prekindergarten	Follow-up of 48 children who had participated in the prekindergarten program and 43 comparison children	<ul style="list-style-type: none"> • Merrell School Social Behaviour Scales • Measures of reading and mathematics skills developed by the school division 	No statistically significant between-group differences at entry into kindergarten or at the end of either grade one or grade two
Sources: Western Arctic Aboriginal Head Start Council (2007); ABC Head Start (2006a); Krentz, Mensch and Warkentin (2004a, 2004b, 2005, 2006); personal communications: Lynne Robertson, Aboriginal Head Start Program, Public Health Agency of Canada; Jennifer Chalmers, WAAHSC Evaluator; Kathy Lenihan, ABC Head Start.				

Unfortunately, the lack of a comparison group makes it impossible to isolate the effect of the program from other influential factors such as maturation.

Regina Public School District No. 4 recently completed a longitudinal study that started in kindergarten with 48 children who had attended prekindergarten and 43 comparison children selected by their kindergarten teachers as the best match possible in the particular classroom to a prekindergarten graduate in terms of cultural and family background. In some cases, teachers determined that a match was not possible, resulting in slightly fewer comparison children. In October, a slightly higher proportion of the prekindergarten children was rated by the kindergarten teachers as having highly developed communication and/or social/emotional skills and a slightly lower proportion

as having poor cognitive skills; there was little difference in ranking between the two groups on literacy skills. None of the between-group differences was statistically significant (Krentz, Mensch and Warkentin 2004a).

In first grade, 43 of the prekindergarten children and 23 of the comparison children were assessed at the end of the school year using the School Social Behaviour Scales (Merrell 2002) and on mastery of the first-grade curriculum using tools created by the Regina School Division. A higher proportion of the prekindergarten children obtained high or average scores on social competence, both groups obtained very similar overall average scores on antisocial behaviour and mastery of mathematics but most of the children reading below grade level were from the prekindergarten group. Again, there were no statistically significant differences

between the groups (Krentz, Mensch and Warkentin 2004b). By the end of the second grade, only 15 comparison children were available for testing. At that time, a slightly higher proportion of the comparison children obtained high or average scores on social competence while a slightly higher number of prekindergarten children were rated as disruptive. The comparison children obtained slightly higher average mathematics scores and as a group exhibited higher levels of reading skills (Krentz, Mensch and Warkentin 2005). By grade three, only five comparison children were available (Krentz, Mensch and Warkentin 2006).

No clear pattern emerges from this study concerning significant between-group differences. However, a degree of caution must be exercised in interpreting these findings. First, the extent to which the two groups of children were similar to each other on salient characteristics such as family socio-economic status is unknown, as is whether some or all of the comparison children had received some sort of group preschool experience. Second, sample sizes, especially in grade two, are small – a factor that decreases the likelihood that statistical analyses will detect even moderately sized effects.

Evaluations of comparable American child-focused programs

Head Start

Head Start targets three- and four-year-olds living in poverty and is required by the federal government to provide: (1) a centre-based structured program for the children; (2) child health screening and referral; (3) hot meals that provide at least a third of children's daily nutritional needs; and (4) social and mental health services for both the child and the family. The children's group program may be offered on a part- or full-day basis and most children attend for two years.

Head Start has been extensively evaluated since its inception; unfortunately, however, many of the early studies lacked a comparison group, as did the more recent federally funded Family and Child Experiences (FACES) study, which compared Head Start children with national norms for all children (Zill et al. 2003). As a result, the effects of the program cannot be isolated from other factors that might influence children's development. The early evaluations also tended to use small samples from a specific site or community, thereby raising the question of whether they were representative of Head Start sites in general.

More recent evaluations have used larger, samples from various sites across the country. Two such stud-

ies have compared siblings in an attempt to address the issue of differences in parents who do or do not participate in voluntary programs; this strategy is possible because Head Start is consistently over-subscribed. One study used data from the National Longitudinal Survey of Youth to compare 927 Head Start graduates with siblings who had not attended the program and found that participation closed about a third of the gap in vocabulary test scores at age five. The benefit of Head Start faded out for African American children after three or four years but was maintained by the other Head Start graduates and was associated with a 47 percent decrease in likelihood of repeating a grade in either elementary or high school. The positive effect of Head Start for all children exceeded that of enrolment in any other preschool program (Currie and Thomas 1995). Another study compared 489 adults from different parts of the country who reported having attended Head Start with siblings who reported that they had not. It found that White children who had attended Head Start were significantly more likely to complete high school and attend college but this did not hold true for African American graduates. They were, however, significantly less likely to have been booked or charged with a crime than siblings without Head Start experience (Garces, Thomas and Currie 2002).

The apparent fade-out of benefits for African American children found in the two above-mentioned studies may reflect the children's elementary school experience, not the effectiveness of Head Start. Two studies examined the quality of the elementary school attended by children from similar low-income families who had or had not participated in Head Start. Both found that the elementary schools attended by the Head Start graduates were of much poorer quality in terms of variables such as safety, teacher-student relations and the academic climate than those attended by other children from similar low-income backgrounds (Currie and Thomas 2000; Lee and Loeb 1995). Currie and Thomas found that the difference in school quality between Head Start and non-Head Start children was greater for African American children. A subsequent elementary school experience that fails to support children's development adequately may erode the benefits of Head Start.

Sibling studies do not take into account the possibility that family poverty may be deeper when one sibling is a preschooler than when another is, with the result that the two siblings may have different home

environments and experiences. Random assignment of eligible applicant children to Head Start or to a comparison group increases the credibility of the findings by increasing the probability that both groups are comparable at the beginning of the study. This approach has been used in two studies. In the first study, an identification number was randomly assigned to each eligible child applicant and the children were then randomly divided into 80 Head Start and the 41 comparison group children. Assessments of all the children and family background data collected prior to the beginning of the study found no statistically significant differences between the groups in parental education levels, family structure, or child receptive vocabulary or early literacy skills. Child assessment after nine months of participation in Head Start found a significantly greater improvement among the Head Start children in receptive vocabulary and ability to recognize and make the sounds related to letters but not print awareness or social skills (Abbott-Shim, Lambert and McCarty 2003).

In 2002, the US federal government initiated the longitudinal Head Start Impact Study. In so doing, it recognized the need for a large nationwide sample, randomized assignment of equally eligible children from the same neighbourhood to participate in Head Start or not, and follow-up in elementary school. The evaluation involves 2,449 children aged three and 2,108 aged four drawn from 23 communities (Office of Planning, Research and Evaluation, US Department of Health and Human Services 2007). The results of the first evaluation, based on data obtained nine months after the children's enrolment, show significantly though modestly higher scores for Head Start participants on letter-word identification, prereading tests, prewriting tests and vocabulary tests and reduced behaviour problems among children who entered at age four. No significant between-group differences were found for mathematics skills (Puma et al. 2005).

Overall, the American findings on Head Start from the more recent, larger and methodologically more rigorous studies are encouraging and data on the longitudinal federal evaluation now underway will eventually enable a firm conclusion. Meanwhile, several researchers agree that Head Start has the potential to benefit vulnerable children's development and enhance their school-readiness (Currie 2005; Garces, Thomas and Currie 2002; Gormley 2006; Hustedt and Barnett 2005; Zigler and Styfco 1996).

Prekindergarten

In 2005-06, 39 states funded prekindergarten programs for a total of 950,000 children, an increase of 40 percent in the number of four-year-olds being served since 2001-02, which meant that prekindergarten now served a larger number of children than Head Start. Most state-funded prekindergartens target children living in families with a very low income although four states now have universal prekindergarten (Barnett et al. 2006).

The National Institute for Early Education Research at Rutgers University has conducted evaluations of state-operated targeted prekindergarten in four states. All four studies employed a regression-discontinuity design⁵ to obtain a comparison group. This design addresses the two problems of possible selection bias and increased skills due to maturation alone. All the studies also used random selection procedures to obtain the group of children who had participated in prekindergarten and the comparison children without this experience. The number of children with prekindergarten experience in the four studies varied from 1,170 to 384 (Hustedt et al. 2007; Lamy, Barnett and Jung 2005a, b, c).

Statistically significant outcome differences between the children with and without prekindergarten experience were found in all four evaluations. The increase in vocabulary over the year attributable to attending the preschool varied from 24 to 42 percent and the increase in prereading skills from 42 to 64 percent. The three studies that assessed premathematical skills reported an increase in skills of between 24 and 64 percent. None of the four studies found significant between-group differences in children's ability to recognize, sound out or blend the sounds associated with letters. It is important to note that the comparison groups included children who had attended other types of group early childhood programs such as Head Start and child care. Thus the results isolate the effects of a specific type of intervention rather than the influence of any group program prior to entering kindergarten.

A study using data from the US National Early Childhood Longitudinal Study on a nationally representative sample of 10,224 children and controlling for a wide variety of family and neighbourhood characteristics compared reading and premathematical skills at entry into kindergarten between children who had one of the following types of nonparental experience: (1) prekindergarten; (2) Head Start; (3) another group preschool experience such as child care or nursery school; and (4) care from a relative or nanny. Prekindergarten participation was associated with higher scores on measures of reading and mathematical skills just after

entry into kindergarten than were obtained for the programs categorized as other group preschool experience, but other group preschool experience programs, in turn, yielded greater benefits than did Head Start or relative or nanny care. Kindergarten teachers, however, assessed children with prekindergarten or other group preschool experience as presenting more classroom behaviour problems such as poor self-regulation. Behavioural concerns were not identified for the subsample of prekindergarten children who had attended a school-operated program. The researchers suggest that behaviour problems “are not a necessary consequence of pre-kindergarten” (Magnuson, Ruhm and Waldfogel 2007, 50). Instead, they may reflect lack of exposure to school classroom behavioural expectations among children whose prekindergarten program was not operated by a school. The pre-academic benefits from prekindergarten were greater for children whose parents had low educational levels and/or lived in poverty than for the full sample. The positive associations between prekindergarten and academic achievement scores had largely dissipated for the sample as a whole by the spring of first grade, but the fade-out was less for disadvantaged children (Magnuson, Ruhm and Waldfogel 2007).

The findings from the prekindergarten studies discussed above are very encouraging except for the indication in the Magnuson, Ruhm and Waldfogel study that achievement score differences between children who had and had not participated in public prekindergarten fade quickly. A similar pattern of fade-out related to achievement test scores has been observed in the Chicago Child-Parent Centers program, which includes a prekindergarten component and is discussed in the next subsection. Nevertheless, longitudinal follow-up found that children who had participated in the program still had significantly higher rates of high school completion at age 20 than individuals in the comparison group and lower rates of grade repetition and use of remedial education (Reynolds et al. 2002).

Discussion

The more recent, more rigorous evaluations of American Head Start and the evaluations of the Canadian Western Arctic Aboriginal Head Start and American prekindergarten programs have consistently found that centre-based preschool group programs enhance vulnerable children’s school-readiness at entry into kindergarten. The evaluation of the Regina preschool program is an exception. The findings are

in the positive direction, but not significant. The lack of significance may reflect the small sample sizes and/or the possibility that the participant and comparison groups were not comparable, a possibility that cannot be confirmed due to the lack of socio-demographic information on the two groups.

There is some indication that the American Head Start program may have less of an effect on the development of its participants in relation to that of comparison children than its prekindergarten counterparts. This seems counterintuitive given that Head Start, unlike prekindergarten, provides a variety of health and social services for participating children that would not be available to the majority of comparison children. Several researchers have suggested that Head Start has lower overall quality than the prekindergarten programs operated by school boards (Hustedt and Barnett 2005; National Institute for Early Education Research [NIEER] 2003). Research shows that preschool programs of any type produce the strongest effects on child development when teachers are well qualified, and that those with a BA in early childhood education are the most effective (Ackerman and Barnett 2006; NIEER 2003; Whitebook 2003). Only about one-third of all lead teachers in the American Head Start program have this level of post-secondary education and in some states less than 15 percent of them do (NIEER 2003). On average, American Head Start teachers earn about half the salary of a kindergarten teacher in the same state, a factor likely to contribute to high teacher turnover rates in that program (NIEER 2003). In most states, teachers in prekindergarten programs receive the same compensation package as kindergarten teachers in the same jurisdiction (Barnett, Lamy and Jung 2005; Hustedt et al. 2007). The crucial role in enhancing children’s development played by contributors to quality such as staff training and the number of children for whom an adult is responsible is discussed further in the following section.

Two-generation initiatives

Two-generation initiatives are based on the premise that changing vulnerable children’s developmental trajectories requires addressing the multiple issues contributing to their vulnerability and that this necessitates providing services to both the child and the parents. They typically have three components: a group program for children; a parenting education program intended to enhance parenting style and encourage parental involvement with the child in

Table 4
Descriptions of Targeted Two-Generation Initiatives

Initiative	Population served	Services provided	Duration	Staffing
Community Action Program for Children (CAPC)	Children from birth to age six living in low-income and/or teenage-parent families, or who are neglected or abused or have developmental delays or social/behavioural problems	One or more of: <ul style="list-style-type: none"> • Parenting education • Group programs for children with or without their parents • Individual programming for children • Literacy and job skills training • Provision of information about other community resources • Community development 	Families may participate for as long as they wish if they have a child under age six	Varies across sites depending on the mix of services
Ontario's Better Beginnings, Better Futures	Children from birth to age four living in communities whose characteristics may put them at risk, along with their families	One or more of: <ul style="list-style-type: none"> • Home visits • Group parenting education • Supervised children's playgroups • Parent/child drop-in programs • Provision of information about other community resources • Community development 	Families may participate for as long as they wish if they have a child under age four	Varies across sites depending on the mix of services
Toronto Parenting and Family Literacy Centres	Children from birth to age five living in low-income, culturally diverse neighbourhoods	<ul style="list-style-type: none"> • Group program for children • Parenting education, primarily through modelling with courses if specifically requested by parents • Lending library of books in the home languages used in the community • Provision of information about other community resources • Numeracy and literacy courses for adults, if requested 	Families may participate for as long as they wish if they have a child under age five	Staff working in the children's group program have a minimum of a two-year post-secondary credential in early childhood education

Sources: Government of Canada (2007b); Public Health Agency of Canada (2004); Peters et al. (2000); personal communications: Helen Hodgson, Ontario Ministry of Children and Youth; Ruth Sischy, Toronto Parenting and Family Literacy Centres.

educational activities; and adult programs, such as literacy and job skill training, intended to improve parents' life chances. The degree of focus on each component varies across initiatives. Some focus more of their attention on enhancing child development either directly through group programming or indirectly through parent education than they do on adult services such as debt counselling. Others put much of their energy into adult programs and/or broad community development and much less into children's programming. Canada has three initiatives that can be considered two-generation programs: the federal government's Community Action Program for Children (CAPC); the Ontario government's Better Beginnings, Better Futures Program; and the Parenting and Family Literacy Centres operated by the Toronto District School Board. Table 4 provides an overview of the approach in each of these initiatives.

As illustrated in the table, all three initiatives provide group programs for children, parenting education, adult education and information about other community resources. However, the extent to which a site focuses on a particular type of service provision varies: the Toronto Parenting and Family Literacy

Centres have the most intense focus on children's programming and CAPC probably the least.

The Community Action Program for Children (CAPC)

The federal government's CAPC program provides long-term funding to community-based groups and coalitions to develop and implement programs for children from birth to age six and their families living in situations that may hinder children's development. It targets children living in low-income and/or teenage-parent families, children experiencing developmental delays and/or with social/behavioural problems, and neglected and abused children.

In a typical month in 2005-06, approximately 440 projects served 67,884 different participants. The CAPC expenditure through Health Canada in 2005-06 was \$60,867,980 (Government of Canada 2007b). Historically, CAPC projects also have obtained funds from other sources such as other departments in the federal government; provincial, territorial, regional and municipal governments; donations; and their own fundraising. In 2004-05, these other sources contributed \$22,946,537 (Public Health Agency of Canada 2006).

Depending on the project, program components include one or more of: (1) parenting education through home visiting or group courses; (2) group programs for children and their parent or caregiver; (3) group programs for children only; (4) individual programs for children with developmental delays; (5) adult literacy and job skills training; (6) information about community resources; and (7) community outreach and development. CAPC projects are encouraged to deliver the mix of components that best addresses the needs and preferences of their community. As a result, there is no single CAPC model.

Ontario's Better Beginnings, Better Futures program

Better Beginnings, Better Futures, which began operation in 1994, is a 25-year longitudinal demonstration project targeting children living in communities whose characteristics may put them at risk for developmental delay. There are eight sites, each in a different community; five focus on children from birth to age four and the other three on children age four to eight. In 2005-06, the Ministry of Children and Youth Services' (MCYS) expenditures for all eight sites were \$4.1 million, with an additional \$800,000 provided by the Ministry of Education (Helen Hodgson, MCYS, personal communication, April 11, 2007). The five sites serving children up to age four served a total of 1,952 families and 2,667 children (Helen Hodgson, MCYS, personal communication, April 11, 2007).

Rather than requiring specific program components, the Ontario government encourages each site to develop the types and mix of services best suited to the community. The sites serving children from birth to age five provide an example of the resultant variation; one site puts much of its emphasis on direct programming with children while another has a strong emphasis on broad community development. Home visiting is provided in all five sites targeting children under age four but there is between-site variation in the background and training of the home visitors, the frequency of home visits and the age up to which visits were made (Doherty 2001).

Toronto Parenting and Family Literacy Centres

The Toronto District School Board operates 54 Parenting and Family Literacy Centres, each of which is located in a high-density, low-income, culturally diverse neighbourhood and is open to any family with a child under age five. All centres operate five days a week during the school year from 9 a.m. to

2:30 p.m. On average, families attend two or three times a week, often starting when the child is an infant, and stay for two to three hours each time. The budget in fiscal 2005-06 was \$2.8 million and over the year just over 10,500 children and close to 9,000 adults attended one of the centres (Ruth Sischy, Toronto District School Board, personal communication, March 6, 2007).

Each centre provides the same mix of services: (1) a group program for children, with parents/caregivers required to participate along with their child; (2) parenting education, primarily through modelling by staff during the group program, supplemented by parenting workshops when specifically requested by parents; (3) information about other community resources; (4) a lending library with books in the home languages used in the neighbourhood; and (5) adult literacy and numeracy courses when requested by participating adults. The children's group activities are provided by staff with at least a two-year post-secondary credential in early childhood education, most of whom also have prior experience working with families (Ruth Sischy, Toronto District School Board, personal communication, March 6, 2007).

Evaluations of Canadian two-generation initiatives

Evaluations have been conducted on all three Canadian two-generation programs. Table 5 provides a summary of the evaluation approach and sample, outcome measures and outcomes.

Better Beginnings, Better Futures

Individual sites in Ontario's Better Beginnings, Better Futures program vary in the mixture of services provided and the emphasis placed on each service within a given site. The discussion in this report focuses on the findings from the evaluation of the five sites serving children under age four and their families. The researchers used two quasi-experimental designs. The first, a "baseline-focal design," involved a comparison between baseline data collected on children age 48 months and their families in each of the five sites before the local program became operational and then five years after the program started on a different group of four-year-olds and their families in the same neighbourhood. The second approach, a "longitudinal comparison site design," involved recruiting a group of infants and their families in each of the five target sites and in three comparison neighbourhoods without a Better Beginnings, Better Futures program plus a

Initiative	Approach and sample	Outcome measures	Outcomes
Better Beginnings, Better Futures ¹	Two approaches: (1) comparison of data collected on four-year-olds and their families in each of the five sites before the program was operational with data obtained five years later from other four-year-old children who had participated in the program at the same sites; and (2) comparison of data from children from each of the five sites with children from four neighbourhoods without a Better Beginnings, Better Futures program E ² = 700 from 5 sites C ³ = 350 from 3 sites	Ratings from junior kindergarten teachers on the children's overall school-readiness, social skills and evidence of behaviour or emotional problems. Testing of visual and auditory attention and memory and ability to process and follow instructions Parent's report of overall development and behaviour Data on both the E and C children collected at 3, 18, 44 and 48 months of age	Higher levels of fine-motor skills, auditory attention and memory, nonverbal problem solving and lower levels of parental reports of behaviour problems were obtained for the sample as a whole Outcome patterns varied across the sites. One site reported higher levels of overall school-readiness, motor skills, auditory attention and memory and decreased evidence of emotional problems. Another reported significantly higher motor and expressive language skills. The greatest benefit occurred when children participated in children's group programs
Community Action Program for Children (CAPC)	A longitudinal comparison between a probability sample of families who enrolled in CAPC during 1995 and 1996 and a comparison of families participating in the first wave (1994) and two-year follow-up (1996) of the NLSCY E = 1,000 children C = 1,651 children from NLSCY families matched with the sample on household income, family structure and parental education level	Measures of child motor and social development; indications of child behavioural or emotional problems; parents' parenting style; indications of maternal depression; and indications of family dysfunction Testing at the time of program entry and at 9 and 24 months thereafter	After statistical adjustments for baseline differences between the experimental and comparison groups on the outcome measures, the gains over the two-year period between the two groups were no different There was significant variation in outcomes across CAPC sites. Activities in which the child participated were associated with the greatest effect on children's development
Toronto Parenting and Family Literacy Centres	Comparison of graduates from the program with peers from the same school who had not received it at the beginning of junior kindergarten E and C each = 108 children 71 percent in both groups had a home language other than English	The Early Development Instrument (EDI) administered just after entry into junior kindergarten (when the child was four)	At the beginning of junior kindergarten, the children who had participated in the program had substantially higher EDI ratings on social, language and communication skills and general knowledge and somewhat higher ratings on emotional maturity

Sources: Peters et al. (2000); Boyle and Willms (2002); Palacio-Quinton (2002); Yau (2005).

¹ In Ontario, junior kindergarten is open to any four-year-old living in the school district and is provided by almost every school board in the province. Five-year-olds attend senior kindergarten.

² E = experimental (intervention) group.

³ C = comparison group.

fourth other community. Data on the children and their families were collected repeatedly between 1994, when the children were three months of age, and 1998 to determine whether there were any changes resulting from living in a Better Beginnings, Better Futures neighbourhood; data were also collected from children, families and teachers in the other four sites without the program (Peters et al. 2000).

The greatest benefit to children's development occurred in two sites: Kingston and Walpole Island. In the Kingston site, the baseline focus design found a significant decrease in neighbourhood children's behavioural problems and increases in their

prosocial behaviour and school-readiness, as assessed by junior kindergarten teachers between 1993-94 and 1997-98. The longitudinal comparison site design found that Walpole Island children obtained higher scores than children in any other Better Beginnings, Better Futures site in relation to the comparison site in motor skills and expressive language. As noted earlier, each site chose its own mix of programs and focus. The Kingston site invested extensive program resources in child care, both by enriching local child care centres in the neighbourhood and also by providing a large number of informal group programs for children from birth on.

The Walpole Island community had what the researchers classified as a high-quality child care facility that was attended by over 50 percent of the children participating in the research at age 48 months (Peters et al. 2000, 31). Children in the other three sites had less exposure to direct intervention through group programs as a result of those three sites' putting more emphasis on community development and home visiting than direct programming with children. The researchers concluded that "short-term outcomes were greatest in the area of program focus, with child-focused programs affecting child outcomes, parent/family focused programs affecting parent and family outcomes" (Peters et al. 2000, 56).

CAPC

The CAPC National Evaluation involved 1,000 families from 141 different sites across Canada and a comparison group of 1,651 NLSCY families matched on level of household income, family structure and parental education. Interviews with families who enrolled in CAPC in 1995 or 1996 and interviews with families participating in the first cycle of the NLSCY in 1994 provided baseline data. Both the CAPC and the NLSCY parents were reinterviewed two years later. The outcome measures used related to three areas: (1) child motor and social development and indication of emotional/behavioural problems; (2) parenting skills, specifically the extent of positive support and of negative engagement with the child; and (3) the extent of maternal depression and family dysfunction. At the 24-month follow-up, there were no statistically significant differences in the health and functioning of the CAPC families and the NLSCY families (Boyle and Willms 2002).

CAPC sites vary in their primary objectives, the mix of services they provide and the degree of emphasis they put on each service. The initial statistical analyses did not look for associations between the types of services children had actually received and child outcome, but this has been done in a subsequent analysis of the same data (Palacio-Quinton 2002). Programs in which children participated, either on their own or with their parents, were associated with enhanced child development and decreases in family dysfunction; programs for adults only had the least effect on children's development. These results are similar to those of Better Beginnings, Better Futures in their finding that involving children in direct programming had the greatest effect on their development.

The Toronto Parenting and Family Literacy (PFL) Centres Data were collected from 108 children who had participated in one of 10 different centres prior to school entry and 108 comparison children, randomly selected from the same schools, who had not attended a PFL centre. When the children were assessed at age four, just after entry into junior kindergarten, using the Early Development Instrument (EDI) (Janus and Offord 2007), 55 percent of the comparison children received a low score on social competence, 51 percent received a low score on language/cognitive development and 54 percent received a low score on communication skills/general knowledge. In comparison, no more than 30 percent of the children who had participated in the program received a low score on any of these three scales. The between-group scores on each scale are statistically significant (Yau 2005). Seventy-one percent of the children in each of the experimental and comparison groups had a home language other than English (Yau 2000).

Evaluations of comparable American two-generation initiatives

Reviews of American two-generation initiatives note that, while several have reported effects on parents, very few have demonstrated any effects on children (Barnett 2002; Farran 2000; St. Pierre, Layzer and Barnes 1998). Differences in child outcomes among these initiatives appear to be related to the extent to which the intervention provides direct services to children. This is illustrated by comparing the Chicago Child-Parent Centers and the Comprehensive Child Development Program, as is done below.

The Chicago Child-Parent Centers

The Chicago Child-Parent Centers, established in 1967, serve children aged three to nine and their families through home visiting, parenting education, helping parents to access other community resources, child health screening and remediation such as speech therapy, a half-day preschool five days a week during the school year when the child is aged three and four, a six-week summer program between the two years of prekindergarten, and a primary grade program up to and including grade three through which the children are enrolled in classes of reduced sizes a teacher's aide in each class, extra instructional supplies and ongoing staff development (Reynolds, Miedel and Mann 2000).

A follow-up on 934 children who participated in the program and a nonrandomized matched

comparison group of 504 children from similar socio-demographic areas without a center found that when the individuals were age 21 there was a 41 percent reduction in receipt of special education, a 40 percent reduction in grade retention and a 49.7 percent higher rate of high school completion among the participants (Reynolds, Miedel and Mann 2000). Although 95 percent of the participants were African American, the fade-out of developmental gains experienced by African American participants in Head Start, as noted above, did not occur in this program. The kindergarten and probably higher-quality grade one to three classrooms provided by the Chicago Child-Parent Centers may be a factor in this difference.

The Comprehensive Child Development Program

The Comprehensive Child Development Program (CCDP) targeted low-income children from birth through age five and their families. Parents received biweekly home visits by a case manager who assessed parental needs, referred families to other services, obtained specific services for parents such as adult literacy education, vocational training or employment counselling and sometimes provided counselling themselves. Parenting education was provided through biweekly home visits by an early childhood specialist between the child's birth and age three; these visits focused on the parent and did not include direct work with the child. The program was mandated to ensure that all children aged three to five received developmentally appropriate early childhood education. Some sites operated their own centre-based programs, while others relied on community child care programs.

Overall, the average participation in group early childhood education programs was two days a week. Thus most children had relatively little exposure to direct programming. At the beginning of the study, CCDP sites recruited twice as many eligible families as they could serve and then randomly divided the families into a group that would receive the program and a comparison group. The evaluation conducted at the end of the five-year program involved 2,213 participating children and 2,197 comparison children. At that time, there were no statistically significant between-group differences in child cognitive, language, emotional and prereading or arithmetic skills or in parenting style or employment status (Goodson et al. 2000).

Early Head Start

Early Head Start sites are permitted to choose whether to provide a primarily home-visiting program, a structured, centre-based child development program, or a "mixed-approach program" in which home-visiting and/or centre-based developmental programming is provided to different families or in combination to families either simultaneously or at different times. Seventeen Early Head Start sites across the country recruited twice as many eligible families as they could serve and randomly assigned them to participate in the program (1,513 families) or be part of the comparison group (1,488 families).

At age three, when the intervention ended, there were no significant differences in child outcomes between children who had attended a site using a centre-based approach and children in the comparison group, but children who had attended mixed-approach sites obtained significantly higher scores on a measure of receptive language than the comparison group. It is important to note that in practice children from a site using a centre-based approach and children from a mixed-approach site had obtained almost identical amounts of group programming; an average of 1,400 hours in mixed-approach sites and 1,391 hours in centre-based approach sites. This occurred because 30 percent of families in mixed-approach sites received Early Head Start Center care and other families used community child care services that worked with the Early Head Start program. Parents in the mixed-approach sites received an average of two to three home visits a month while those in the centre-based approach sites had a minimum of two home visits a year (Love et al. 2005). The researchers note that there were only four centre-based sites in the evaluation and that a small sample size reduces the likelihood that statistical analysis will detect even moderate effects.

This evaluation supports the importance of direct programming for children and does not provide sufficient evidence to indicate that the addition of home visits significantly increases an intervention's ability to enhance vulnerable children's development. A follow-up of the children at age five found that the Early Head Start children were significantly less likely to exhibit behaviour problems and significantly more likely to have a positive approach to learning. The greatest effects were found among five-year-olds who had experienced both Early Head Start and a formal group program such as Head Start, prekindergarten or centre-based child care at ages four and five (Administration for Children and Families 2006).

Discussion

Two-generation initiatives vary considerably in the proportion of resources they dedicate to parental or child interventions. Those associated with the greatest child developmental gains – some CAPC sites; two of the Better Beginnings, Better Futures sites; the Toronto Parenting and Family Literacy centres; and the Chicago Child-Parent Centers – provide the greatest amount of direct programming for children. The Chicago Child-Parent Centers project used hierarchical linear modelling (HLM) to determine the relative impact of different components of its program and concluded that preschool participation was more important than any of the other factors (Clements, Reynolds and Hickey 2004).

The same conclusion was reached by Project CARE, a second-generation abecedarian project involving the addition of a family education component to the center-based intervention. In this project, families received an average of 2.7 home visits a month, starting in the children's infancy, and monthly workshops on child development continuing until the children were on average age four and a half. At this age, the children from families that had received both home visits and centre-based programming obtained significantly higher scores than children in the comparison group on standard tests of language and cognitive skills but the two-generation intervention was no more successful in enhancing children's development than the original centre-based program had been (Ramey et al. 1985).

The relative effectiveness of targeted initiatives

The relative effectiveness of parent-focused, child-focused and two-generation interventions in enhancing vulnerable children's development is a key issue for governments and service providers. A "statistically significant" difference between the children who had received an intervention and their comparison group indicates that the association between program participation and child outcome did not occur by chance, but it does not enable one to compare different intervention approaches in terms of their relative effectiveness. This requires converting the outcome findings from different interventions into a standard measure called the "effect size." An effect size is the difference in means for an intervention and comparison group on an outcome variable divided by the standard deviation. By convention, effect sizes under 0.20 are considered negligible, those between 0.20 and 0.49 are

considered small and those between 0.50 and 0.79 are medium (Karoly, Kilburn and Cannon 2005, 64).

Table 6 summarizes the effect sizes that have been calculated for the American interventions discussed above. The effect size for each program was calculated on the basis of the evaluations cited in this report – that is, the effect size for HIPPY is based on the evaluations conducted by Bradley and Gilkey (2002) and Baker, Piotrkowski and Brooks-Gunn (1999). When reviewing table 6, it is important to note that the effect sizes were all calculated on the basis of tests administered immediately after the conclusion of the program so, while informative, they do not indicate long-term effectiveness. Also, variations in the way the child outcomes were measured mean that the effect sizes may not be strictly comparable; nevertheless, they do provide a sense of relative effectiveness.

The Comprehensive Child Development Program, unlike the other two-generation programs, had a minimal child-focused component. Its lack of impact reinforces the evidence of the effect sizes associated with child-focused programs, that vulnerable children's development is best enhanced through participation in a group program. The table also underlines the difference in level of effectiveness between Head Start and prekindergarten even though both provide structured, centre-based programs with the specific goal of enhancing children's development and preparing them for school. The effectiveness difference is hypothesized to be associated with Head Start's chronic underfunding, its poor levels of staff training related to child development and how to promote it, and its low compensation levels which are associated with high staff turnover rates and, as a result, lack of long-term relationships between staff and children (Hustedt and Barnett 2005; National Institute for Early Education Research 2003). No calculations of effect size for Canadian initiatives were found.

The cost and coverage of Canadian targeted initiatives

Table 7 (see page 28) provides the best available information on federal and provincial/territorial expenditures for targeted initiatives to promote the development of vulnerable children and the number of children/families receiving assistance. The data pertain to the fiscal year 2005/06 except for SIPPE, Quebec's *prématernelle*, the two Saskatchewan programs and the expenditures for CAPC from sources other than Health Canada; in each of these cases, the relevant fiscal year is indicated on the table. As the table shows, the federal and provincial/territorial

Table 6
Effect Sizes, Targeted Interventions¹

Type of initiative	Program	Cognitive development	Receptive vocabulary	Prereading skills	Pre-mathematics skills	Prewriting skills	Age at follow-up (years)
Parent-focused	HIPPY	0.12	Effect sizes not calculated				5
	PAT	0.06					3
	Early Head Start (sites using primarily home visiting)	0.10	0.09	n.a. ²			3
	Nurse-Family Partnership	0.18*	Effect sizes not calculated ³				6
Child-focused	Head Start ⁴	See scores for receptive vocabulary, an outcome often used as an approximate measure of cognitive development	0.12*	0.24* 0.19*	n.s. ⁵	0.13*	4
			n.s.	0.22* 0.24*	n.s.	0.16*	5
	Pre-Kindergarten (PK) Arkansas		0.36*	0.76*	0.25*	n.a.	5
	Pre-K Michigan		0.21*	0.96*	0.44*	n.a.	5
	Pre-K New Jersey		0.26*	0.47*	0.18*	n.a.	5
	Pre-K South Carolina		0.35*	0.71*	n.a.	n.a.	5
	Two-generation		Chicago Child-Parent Centers	0.35*	Effect sizes not calculated		
Comprehensive Child Development Program		- 0.06	Effect sizes not calculated but no significant between-group differences				5
Early Head Start ("mixed-approach" sites with a strong child group program component)		0.11	0.23*	n.a.	n.a.	n.a.	3

Sources: Aos et al. (2004); Barnett, Brown and Shore (2004); Husted et al. (2007); Karoly, Kilburn and Cannon (2005); Lamy, Barnett and Jung (2005a, b, c); Love et al. (2005); Puma et al. (2005).

¹ Effect sizes under 0.20 are negligible, those between 0.20 and 0.49 are small, those between 0.50 and 0.79 medium and those over 0.80 large (Karoly, Kilburn and Cannon 2005).

² n.a. = no assessments were done to measure these skills.

³ Significant benefit to child cognitive development has only been found in one of the three Nurse-Family Partnership sites where child outcomes were evaluated.

⁴ The first cohort in the Head Start evaluation cited consisted of a group of children age three and a second group age four at the time of entry, hence there are data for both four- and five-year-olds. Each of receptive vocabulary, prereading skills and pre-mathematics skills was measured by two tools; reporting of a single effect size indicates that a significant between-group difference was only found on one measure.

⁵ n.s. = no significant differences between children who received the intervention and comparison group children.

* $p < 0.05$ or better

Type of initiative	Initiative	Participants	Federal expenditures	Provincial and territorial expenditures	Funds from other sources	Totals, all funding sources
Parent-focused	Manitoba's Families First (2005-06)	Capacity to provide home visits to 1,581 families as of March 31, 2006	None (other than ECD Agreement funds)	\$9,486,000 ¹	None	\$63,520,726
	Quebec's SIPPE (2006-07)	5,240 women and their children	None	Allocation of \$48,000,000	None	
	Saskatchewan's KidsFirst (2006-07)	Capacity to provide home visits and health and additions services to 1,150 families as of March 31, 2006	None (other than ECD Agreement funds)	Allocation of \$5,753,174 ²	None	
	HIPPY (2005-06)	385 families	\$56,551	None	\$149,748	
	Mother Goose Parent-Child Program (2005-06)	1,649 adults (parents or child's regular nonparental caregiver)	None	\$5,206 ³	\$22,389 from regional or municipal governments plus \$47,658 from other sources	
Child-focused	Aboriginal Head Start (2005-06)	AHSOR – 9,415 children AHSUNC – 4,500 children	AHSOR – \$50,165,212 AHSUNC – \$31,214,712 ⁴	None	None	More than \$104,770,041
	Manitoba's prekindergarten, Winnipeg only (2006-07)	1,785 children (2005-06) ⁵	None	None	\$4,100,000 from Winnipeg school division	
	Quebec's <i>pré-maternelle</i> for four-year-olds (2006-07)	4,881 children	None	Estimated \$10,474,626	None	
	Saskatchewan's prekindergarten (2006-07)	Estimated 1,900 children	None (other than ECD Agreement funds)	Allocation of \$5,753,174	Unknown amount from school divisions	
	ABC Head Start ⁶ (2005-06)	304 children and their families	\$168,683 (other than ECD Agreement funds) ⁷	\$2,580,942	\$312,692	
Two-generation	Community Action Plan for Children (2005-06)	67,884 children and parents/caregivers in a typical month in 2005-06	\$60,867,980 (CAPC funds) in 2005-06 and \$2,074,013 (other federal funds) 2004-05 estimate	\$11,588,382 (2004-05 estimate)	\$4,160,745 regional or municipal governments plus \$5,123,397 from other sources (both 2004-05 estimates)	More than \$91,514,517
	Ontario's Better Beginnings, Better Futures (2005-06)	2,667 children under age four	No (other than ECD Agreement funds transferred to the province)	\$4,900,000 for total program (8 sites, only 5 of which serve preschoolers)	Yes, amount unknown	
	Toronto Parenting and Family Literacy Centres (2005-06)	Approximately 9,000 parents or children's regular nonparental caregivers and 10,500 children	None	None	\$2,800,000	
Totals		Accurate statistics not available	\$144,547,151	\$98,541,504	More than \$16,716,629	More than \$259,805,284

Sources: *Parent-focused initiatives*: Darlene Girard, Government of Manitoba; Louise Therrien, Quebec Ministère de la Santé et des Services sociaux; Gail Russell, Government of Saskatchewan; (HIPPY) Canada (2006); Dorota Dziong, Parent-Child Mother Goose Program. *Child-focused initiatives*: Government of Canada (2007b); Winnipeg School Division (2006); personal communication: Dannie Giguère, Ministère de l'Éducation, du Loisir et du Sport, November 29, 2007. *Two-generation initiatives*: Government of Canada (2007a); Helen Hodgson, Ontario Ministry of Children's and Youth Services; Ruth Sischy, Toronto Parenting and Family Literacy Centres.

¹ Manitoba's Families First expenditures also cover the cost of universal screening of every family with a newborn in the province and follow-up assessment of families deemed vulnerable.

² Saskatchewan's KidsFirst program includes \$2,185,000 granted to community child care centres for program improvements.

³ The Mother Goose program is not delivered by Mother Goose employees but by employees of a variety of social services agencies. These agencies may obtain additional funds specifically to cover the cost of staff time used in Mother Goose.

⁴ The AHSUNC statistic for number of participants is from 2004-05; the comparable statistic for 2005-06 is not available.

⁵ Manitoba also has a second prekindergarten initiative operating in a northern school district but statistics on the number of participants and the amount of expenditures were not available.

⁶ ABC Head Start is the largest of several similar programs in Alberta that also receive provincial funding, but it is the only one for which information was available.

⁷ The expenditure on Ontario's Better Beginnings, Better Futures initiative is not available as separate amounts for the programs serving children under age four and those serving children aged four to eight.

governments combined contributed approximately \$243 million to targeted initiatives. Additional funds were obtained from other sources such as municipal governments, donations and school boards.

Only two initiatives have developed estimates of the extent to which they reach their target population. Manitoba's Families First calculates that it serves 81 percent of eligible women who agree to participate in the program (Marianne Chartier, Healthy Child Manitoba, personal communication, September 25, 2007); Quebec's SIPPE estimates that it serves 56 percent of its target population (Louise Therrien, Quebec, Ministère de la Santé et des Services sociaux, personal communication, September 12, 2007). Both of these initiatives are two-generation programs. Estimating the probable coverage by targeted initiatives as a group is impossible given the data available. Some programs have specific eligibility requirements over and above having a child under age six and living in the targeted low-income neighbourhood; others are open to all families with an age-eligible child but target only specific low-income neighbourhoods within a low-income community.

Lessons learned

This section has focused on large, community-based targeted early childhood initiatives to enhance the developmental trajectories of children deemed vulnerable to poor development for environmental reasons. In so doing, it does not present the findings of small demonstration models such as the Perry Preschool Project or interventions with low-birth-weight infants or children with physical disabilities or conditions such as Down's Syndrome or fetal alcohol syndrome (FAS).

Sufficient longitudinal, rigorous research has been accumulated to build confidence in the following conclusions:

1. Positive effects on vulnerable children's development are best achieved from initiatives that target children directly with structured, centre-based programs (Gomby 2005; Ramey et al. 1995; St. Pierre, Layzer and Barnes 1998).
2. Although parent/family-focused interventions may benefit parents by, for example, increasing self-confidence, targeting children's development indirectly through attempts to change parenting style and/or improve parental education and/or parental employability generally has negligible effects on children's development (Barnett 2002; Farran 2000; Gomby 2005; Gormley 2006; Ramey et al. 1995).

3. Quality matters. The effectiveness of group programming for children depends upon its quality – the extent to which staff understand child development and can translate this knowledge into effective programming, are not responsible for too many children and thus can provide individualized attention, and engage children in appropriate levels of linguistic and cognitive stimulation (Ackerman and Barnett 2006; Sylva et al. 2004; Vandell 2004; Wylie et al. 2006).
4. The characteristics of the child's elementary school matter. In the Chicago Child-Parent Centers, children who participated in the preschool and kindergarten components and then in the classes with the reduced sizes, fewer children per teacher and extra instructional supplies for grades one through three had significantly higher achievement scores on reading and mathematics and lower levels of grade retention at the end of grade five than children who received the same preschool and kindergarten programs but were not enrolled in the supported grade one to three classes. The difference could not be explained by greater school stability among the children in the supported classes (Reynolds 1994).
5. Intensity matters. Group programs are more effective in enhancing children's development when they are half-day, five-days a week than when they are half-day, twice a week; a full-day group program is more effective than a half-day program provided for the same number of days per week (Barnett 2002; Gomby 2005; Gormley 2006; Ramey et al. 1995).

All the initiatives discussed in this section focus or focused on children living in low socio-economic neighbourhoods. It is only recently that research has documented the fact that many children living in middle- and upper-middle-income communities are vulnerable to developmental problems as a result of the parenting style they experience and/or the extent of parental involvement in educational activities with them. The implications of this finding are discussed in the following section, which looks at: (1) who Canada's vulnerable children are; (2) the efficiency and effectiveness of universal programs; (3) the implications of the current low quality of Canada's child care; and (4) conditions enabling high-quality early childhood education and care.

Universal Early Childhood Education and Care (ECEC): What Do We Know?

It has long been evident that children living in low socio-economic environments are more vulnerable to health problems, behavioural disorders and poor school careers than children from more affluent families. Recognition of this reality led President Johnson to declare a war on poverty in 1964 and to create the American Head Start program in 1965 (Zigler and Styfco 1996). Over the next decades, a plethora of targeted initiatives for low-income children prior to school entry, along with their families, followed. Now, however, policy analysts and governments in the United States are beginning to question the value of targeting and some states have moved from targeted to universal prekindergarten for four-year-olds (Barnett, Brown and Shore 2004).

In Canada, federal and most provincial/territorial government decisions continue to be dominated by the assumption that the majority of vulnerable children live in low-income families and therefore that child vulnerability is best addressed by targeted programs. Recent Canadian research challenges these assumptions. "In actual numbers, the NLSCY data show that more than 70 percent of vulnerable children in Canada live in non-poor families" (McCain, Mustard and Shanker 2007, 77). Research also shows that low-income children make substantial developmental gains when they receive nontargeted ECEC services (Caughy, DiPietro and Strobino 1994; Gormley et al. 2005; Kohen, Hertzman and Willms 2002; Loeb et al. 2004; Magnuson, Ruhm and Waldfogel 2007).

This section explores two policy questions. First, should publicly funded programs to enhance children's school-readiness target children living in families with the lowest incomes, as is currently the practice in Canada, or be universally available to all families wishing to use them? Second, what conditions are necessary to obtain the greatest benefit from ECEC programs? The following section examines the benefit/cost ratios associated with targeted and universal ECEC.

Who are Canada's vulnerable children?

The majority of children in Canada are born healthy, reach developmental milestones at the expected time

and enter school with the level of physical, social, language, self-regulation and cognitive skills required to benefit from the school program (Canadian Council on Learning 2007). Nevertheless, five large Canadian studies have reported that 25 to 30 percent of five-year-olds in the general population are developmentally delayed at school entry in one or more of these crucial school-readiness skills (Doherty 2007).⁶ Such children are referred to as vulnerable children. Research indicates that children who live in an Aboriginal family may be even more vulnerable than those in the general population. A study of 4,226 Aboriginal five-year-olds in British Columbia found that 40 percent of them received a score indicating a lack of school-readiness on at least one scale of the Early Development Instrument (EDI) (Jennifer Lloyd, Human Early Learning Partnership, University of British Columbia, personal communication, October 31, 2006).⁷

All types of health and social outcomes appear as a gradient when plotted against the social and economic status of the population studied, a phenomenon known as the socio-economic gradient (Keating and Hertzman 1999). Consistent with this general finding, the incidence of poor developmental outcomes in the general population at age five is highest among children living in poverty. The prevalence of vulnerability is lower among children living in middle-income families and lowest in the most affluent families. However, there are fewer children living in poverty or in affluent families than in middle-income families, a group that in Canada represents about 75 percent of the total population (McCain, Mustard and Shanker 2007, 46). Targeting initiatives to enhance children's development to children living in the lowest-income families excludes a large number of vulnerable children and provides special programming to children whose school-readiness is not at risk. If our aim is to enhance the school-readiness of all children, this approach may not represent the most cost-effective use of public money.

Universal approach to address vulnerability

The alternative to targeting is a universal ECEC system. There is sometimes confusion about the meaning of "universal" in this context. It does not mean a program in which all age-eligible children must participate. It does mean a service that is widely available and affordable for all families wishing to use it. Examples of universal ECEC systems are found in Belgium, Italy and France, where virtually 100 percent of all three- and four-year-olds partici-

pate (OECD 2006, 78). The only jurisdiction in Canada that comes anywhere close to having universal ECEC is Quebec. In 2006, there were 204,114 regulated child care spaces in that province, including those in family child care settings (Quebec, Ministère de la Famille, des Aînés et de la Condition féminine 2007), for almost 380,000 children (Institut de la statistique 2006). Low parent fees, as a result of high government subsidization, and the government's waiver of parent fees for very low-income parents make the available spaces affordable for the majority of families.

While the initial cost is higher for a universal than for a targeted program, a universal approach is an attractive alternative for two reasons. First, a higher proportion of vulnerable children would be reached (Belfield 2006a).

Support for believing that more vulnerable children would be reached by a nontargeted program comes from three sources: Europe, Argentina and the United States. Most European countries provide universal, publicly funded or highly subsidized ECEC for three- and four-year-olds. Participation by three-year-olds in these programs is virtually 100 percent in France, Italy and Belgium and over 70 percent in Germany, Denmark, Hungary, Norway and Sweden (OECD 2006, 78). Argentina's expansion of government-funded preschool was associated with a jump in preschool enrolment from 49 to 64 percent (Berlinski, Galiani and Gertler 2006). Similarly, American states with universal government-funded prekindergarten programs report that they are used by 60 percent or more of age-eligible children (Committee for Economic Development 2006). The high rates of usage associated with affordable, widely available early childhood education programs increases their ability to reach a higher proportion of vulnerable children not living in poverty than services targeted to low-income neighbourhoods.

Second, there is clear evidence from Argentina, Britain, New Zealand, Sweden and the United States that the school-readiness of children from *all* socio-economic backgrounds and their subsequent academic success can be enhanced by participation in early childhood education, whether it is prekindergarten or ordinary child care. In addition, as is the case for targeted programs, the returns to the public purse from universal ECEC services outweigh their costs (see table 10, page 35).

Two longitudinal British studies have documented the beneficial effect of participation in nontargeted

ECEC, whether it was child care, preschool/nursery school or a formal regularly scheduled playgroup, for children from *all* socio-economic backgrounds. The sample in the first study was drawn from all the children born in the United Kingdom in a single week in April 1970 (Osborn and Milbank 1987). When 6,261 children were assessed at age ten on five standard achievement tests, including 2,468 children who had not had any type of ECEC experience, there was a statistically significant difference on each test in favour of the children who had participated in ECEC. Similarly, the longitudinal Effective Provision of Preschool Education (EPPE) study of 2,793 children found that those who had participated in any type of ECEC entered school with higher levels of cognitive skills than those without this experience (Sammons et al. 2002). The beneficial effects of participation in ECEC on children's reading and mathematical skills found at age five continued to be evident at age seven (Silva et al. 2004). By age ten, the impact of the quality⁸ of the ECEC became more important than whether or not the child had ECEC experience. Children who had participated in high-quality ECEC continued to exhibit a statistically significantly better reading ability and slightly better mathematical skills than children who had attended a low-quality ECEC program or children without ECEC (Sammons et al. 2007).

The importance of high-quality services

While these studies collapsed various types of ECEC into a single entity, other research has focused specifically on the effect of participation in either child care or prekindergarten. Longitudinal studies conducted in both Sweden and the United States comparing children who have or have not participated in child care report an association between such participation and more successful school careers (Andersson 1992; Broberg et al. 1997; Burchinal et al. 1995; Caughy, DiPietro and Strobino 1994). However, this is not always the case. Other studies have found no between-group differences or a negative association between participation in child care and children's elementary school performance (Vandell and Wolfe 2000).

A review of the last 20 years of child care research concluded that whether or not child care promotes children's development depends upon its quality – the extent to which the interactions between adults and children are warm and supportive and the children have ample opportunities to engage in activities that provide linguistic and cognitive stimulation (Vandell 2004).

The importance of the level of child care quality for children's development has been demonstrated by large

longitudinal studies in both New Zealand and the United States. The New Zealand study followed children to age 14 and found that the associations noted at age eight between child care quality and level of mathematical skills and reading comprehension persisted (Wylie et al. 2006).

In an American study, children whose child care was rated in the highest third of quality levels obtained higher scores on tests of preacademic skills and language at age four-and-a-half than did children whose child care was rated in the lowest third. The difference in effect on children's skills related to experiencing child care in either the highest or lowest third of quality was 0.39 for preacademic skills and 0.29 for language skills (National Institute for Child Health and Human Development [NICHD] Early Child Care Research Network 2002). At the end of grade three, and with factors related to elementary school experience controlled, children who had participated in higher-quality child care obtained significantly higher scores on standardized tests of mathematical skills, vocabulary and memory than children who had participated in poorer-quality child care (NICHD Early Child Care Research Network 2005). A significant positive association between child care quality and vocabulary score persisted even at the end of grade six (NICHD Early Child Care Research Network 2007).

Similarly, a second American study, Cost, Quality and Child Outcomes, found that the effect size of level of child care quality just prior to entry into kindergarten was 0.56 for sociability, 0.43 for cognitive skills and 0.18 for language skills. Participation in a higher- rather than lower-quality program was associated with higher scores on measures of vocabulary and mathematical skills and teacher ratings of the children's sociability at the end of grade two (Peisner-Feinberg et al. 2001).

Attending Argentina's universal prekindergarten for children from age three to five is associated with higher scores on achievement tests in Spanish and mathematics in grade three, with an estimated increase of 8 percent for each year of preschool attendance (Berlinski, Galiani and Gertler 2006). Two evaluations of Oklahoma's universal prekindergarten program both found higher levels of school-readiness just prior to kindergarten among children who had participated in the program in comparison to children without this experience (Gormley et al. 2005; Lamy, Barnett and Jung 2005d). Lamy and her

colleagues report that the increase in school-readiness attributable to participation in prekindergarten was 88 percent for prereading skills, 44 percent for premathematical skills and 28 percent for vocabulary. Similar positive results have been found for West Virginia's universal prekindergarten with the increase attributable to the program being 121 percent for prereading skills, 63 percent for premathematical skills and 30 percent for vocabulary (Lamy, Barnett and Jung 2005e).

Conditions enabling high-quality early childhood education and care

Studies exploring the characteristics of those ECEC programs that are the most successful at promoting children's development have reported remarkably consistent findings whether the program is targeted or nontargeted and regardless of what it is called. The adults responsible for a group of children have a university degree and specialized training in early childhood education and are well compensated, the group sizes and children-to-adult ratios allow for individualized attention and support, and the children receive a planned, purposeful, developmentally appropriate daily program (Ackerman and Barnett 2006; Sylva et al. 2004; Vandell and Wolfe 2000; Wylie et al. 2006). Effective ECEC programs also have a physical environment and materials that support good programming practices, provide regular professional development for staff and engage in ongoing self-evaluation (Ackerman and Barnett 2006).

The characteristics noted above are important enablers of high-quality programming inasmuch as they establish conditions that permit and encourage such programming. Post-secondary education and specialized training related to child development increase the probability that an adult will understand how young children develop, will respond sensitively to them and will also provide stimulating, developmentally appropriate experiences that promote their development. A purposeful, planned daily program increases the probability that children will engage in developmental activities rather than aimlessly wandering about. Smaller group sizes and fewer children per adult enable a greater number of individual interactions between adults and children and the tailoring of activities to the particular needs of each child. Adults who earn enough to live on and feel their compensation reflects their level of education

and responsibility are more likely to stay. This results in more stable adult-child relationships and a greater sense of security for the children and gives the adults a better understanding of each child's developmental level. Indoor and outdoor spaces that are safe, child-friendly, pleasant to be in, large enough to permit a variety of activities and accessible to people with disabilities support good programming, as does the availability of appropriate and sufficient materials.

The relative effectiveness of universal programs

Table 8 summarizes the data available on effect sizes for universal prekindergarten and for universal ECEC programs of all types combined. The only data located on effect sizes for child care relate to the differences in the effect on children's development directly associated with differences in program quality level (National Institute for Child Health and Human Development [NICHD] Early Child Care Research Network 2002, 2005; Peisner-Feinberg et al. 2001) or estimates of child outcome gains that would be achieved for specific increments in program quality (NICHD Early Child Care Research Network and Duncan 2003). There may be some reluctance to publish effect sizes for child care based on combining data from all the child care programs that participated in a specific evaluation due to the generally poor quality of the child care programs evaluated. For example, only 14 percent of the centres in the Cost, Quality and Child Outcomes study were rated on a standard

observational tool as providing a program consistent with supporting children's development rather than just providing custodial care (Helburn 1995). Calculating effect sizes based on a sample with few high-quality programs would underestimate child care's potential to enhance children's development.

Benefit/Cost Ratios

Many of the benefits derived from ECEC programs that enhance children's development can be translated into dollar figures and compared with program costs to calculate a benefit/cost ratio. The standard methodology and economic equation used to perform a benefit/cost analysis, and thus determine the ratio, is described in detail by Aos and his colleagues (2004, appendix D).

When considering benefit/cost estimates, it is essential to recognize that they are not the final word although they can provide a sense of the relative differences across approaches. Benefit/cost analyses vary in the benefits and costs included in the calculation and across jurisdictions as a consequence of differences in factors such as the relative costs of personnel and facilities and whether the proposed program is full day or part day. For example, if a prekindergarten program yields the same economic returns in two jurisdictions but wage levels are higher in one, the benefit/cost ratio in that jurisdiction will be lower. Sometimes a benefit/cost ratio is projected beyond the age of final follow-up by estimating lifetime differences on the basis of experience in the general population such as the greater employability

Table 8
Effect Sizes, Universal ECEC, Various Jurisdictions¹

Initiative	Jurisdiction	Receptive vocabulary	Prereading skills	Premathematics skills	Prewriting skills	Age (years)
Prekindergarten	Oklahoma ²	n.s. ³	0.79*	0.38*	0.64*	5
	Oklahoma	0.24*	0.62*	0.29*	n.s.	
	West Virginia	0.27*	0.93*	0.41*	n.s.	
Any type of centre-based ECEC experience	Britain	0.44*	0.28*	0.44*	n.a. ⁴	5

Sources: Gormley et al. (2005); Lamy, Barnett and Jung (2005d, 2005e); Sammons et al. (2002).

¹ Effect sizes under 0.20 are negligible, those between 0.20 and 0.49 small, those between 0.50 and 0.79 medium and those over 0.80 large (Karoly, Kilburn and Cannon 2005).

² The two evaluations of the Oklahoma initiative used different methodologies.

³ n.s. = no significant difference between the children who had participated in the program and the comparison group children.

⁴ n.a. = no assessments were done to measure this skill.

*p < 0.05 or better

of people who have completed high school in comparison with those who have not, and the lower probability that they will use social assistance.

Targeted programs

Benefit/cost analyses for targeted programs start by using the statistically significant findings related to different outcomes between a participant and comparison group. In the case of the benefit/cost estimates reported in table 9, this information came from the specific program evaluations cited earlier. The benefits are based on a number of variables, the mix of which varies depending on what was measured by the researchers. The possible variables include reduced expenditures for grade repetition and use of remedial education services; increased likelihood of high school graduation; savings to one or more of the child welfare, social assistance or child and/or adult criminal justice systems; and increases in government revenue through increased income tax. The Chicago Child-Parent Centers benefit/cost ratio also includes benefits not accruing to government such as the half-day reduction in the cost of child care for employed parents. Because benefit/cost ratios do not include other potential benefits that were not measured in the program evaluation, such as stronger national economic competitiveness as a result of improvements in the

educational attainment of the future workforce, benefit/cost estimates are likely to be conservative (Karoely, Kilburn and Cannon 2005).

The benefit/cost ratios presented in table 9 show a benefit of \$1.23 to \$7.14 for every dollar of public funds spent. The Chicago Child-Parent Centers yield the greatest return, with very clear benefits to the child's school career. Although it is a two-generation program, its primary emphasis is child-focused and it includes additional support for the elementary school classes used by participants up to and including grade three as well as health and nutrition services. The Arkansas prekindergarten program, which provides a lower benefit, provides solely a classroom experience. Of the three parent-focused initiatives, the greatest benefit to the public purse comes from the Nurse-Family Partnership. This benefit primarily reflects savings to the child welfare, social assistance and child and adult criminal systems and greater likelihood of maternal employment. The NFP program was not designed to enhance children's school-readiness or school career and does not provide the same level of benefit in these areas as do child-focused programs (see table 6, page 27). No benefit/cost analysis for Head Start is included in either of the two documents located that review benefit/cost ratios for several initiatives.

Type of initiative	Initiative	Actual cost per participant (dollars)	Year in which dollars are denominated	Duration	Estimated benefit for every dollar spent (dollars)
Parent-focused	HIPPY (US)	1,250	2004	Average 1.5 years	1.80 (at age 5)
	Nurse-Family Partnership (NFP) ¹	3,659	2002	Average 2.5 years	2.88 (at age 15)
	PAT	1,450	2004	Average 2.5 years	1.23 (at age 3)
Child-focused	Arkansas Pre-K	4,400	2006	1 school year	2.32 (projected upward to age 65)
Two-generation	Chicago Child-Parent Centers (preschool plus parent support and education, does not include grades-one-to-three component)	6,692	1998	9 months for each of 2 years	7.14 (projected upward to age 65)
	Comprehensive Child Development Program	10,849	1994	Average 3 years	0.00
	Early Head Start (all sites combined)	11,892	2002	Average 22 months	0.23 (at age 3)

Sources: Aos et al. (2004); Belfield (2006a); Reynolds et al. (2002).
¹ Most of the benefits from the Nurse-Family Partnership come from decreased government expenditures for the child welfare, social assistance and juvenile/adult criminal justice systems and increased income tax revenue from increased maternal engagement in paid employment.

Universal prekindergarten

No benefit/cost analysis appears to have been done for any of the four existing American universal prekindergarten programs. However, six other states have estimated the likely benefit/cost ratios if they implemented universal prekindergarten. The methodology used was similar to that used to determine benefit/cost ratios for targeted early childhood intervention but also included the need, in some states, to improve program inputs so that they are similar to those in the Chicago Child-Parent Centers – bachelor degree lead teachers with a specialization in early childhood education who receive the same compensation packages as those received by other teachers in the system, a maximum class size of 20 and no more than 10 children to every adult (Belfield 2005, 2006b; Karoly and Bigelow 2005). As illustrated in table 10, a positive return on investment was estimated for each state, with benefits ranging between \$2.62 to \$1.18 for every dollar spent. The Committee for Economic Development (CED) has estimated the likely benefit/cost ratio for a nationwide prekindergarten program in the United States as at least \$2 for each dollar of public funds. The CED report addresses the substantial initial additional expenses that would be

incurred in implementing a universal prekindergarten program by suggesting various ways to fund it (2006).

Universal child care

Analyses of the benefits/costs of universal child care have been done in both Canada and Switzerland. In Canada, two economists from the University of Toronto estimate that a nationwide high-quality universal child care system for children aged two to five with parent fees geared to income would yield \$2 for every dollar of public money spent. Their methodology, detailed in appendix B of their report, took into account factors such as costs not incurred for special education and grade repetition and increased income taxes as a result of increased parental workforce participation (Cleveland and Krashinsky 1998).

As indicated by table 10, the estimated cost per participant per year for universal child care is greater than for the American universal prekindergarten programs, even taking into account the exchange rate. There are two reasons for this difference. First, the child care day is longer than the standard eight-hour work day, resulting in a need for additional staff to cover the beginning or the end of the day. Second, some children participating in child care would be younger than age three.

Table 10
Benefit/Cost Estimates for Universal ECEC, Various United States and Canada

Type of initiative	Jurisdiction	Estimated cost per participant per year (dollars)	Year in which dollars are denominated	Duration	Estimated benefit for every dollar spent (dollars) ¹
Prekindergarten ²	Arkansas	4,865	2005	2 school years, full day	1.58 (projected upward to age 65)
	California	4,339	2003	1 school year, part day	2.62 (projected upward to age 65)
	Louisiana	6,418	2003	1 school year, length of day not stated	2.25 (projected upward to age 65)
	Massachusetts	6,500	2003	2 school years, full day	1.18 (projected upward to age 65)
	Ohio	5,900	2003	1 school year, length of day not stated	1.64 (projected upward to age 65)
	Wisconsin	6,445	2003	1 school year, length of day not stated	1.62 (projected upward to age 65)
Child care	Canada-wide	8,500 ^{3, 4}	1997	Up to 3 full years, 7:00 a.m. to 6:00 p.m.	2.00

Sources: Belfield (2005, 2006b); Cleveland and Krashinsky (1998); Karoly and Bigelow (2005).

¹ Estimated benefit/cost ratios differ across states for pre-kindergarten because of differences in factors such as whether the program would be part day or full day,

² Prekindergarten estimates are in US dollars; child care estimates are in Canadian dollars.

whether children would attend for one or two years and estimated costs to bring current quality levels in line with those associated with effective targeted programs.

³ The estimated cost per participant for child care is more expensive than for prekindergarten since the program operates year-round, not just for the school year, and for a longer period each day.

⁴ The costs for implementing universal child care include the assumption of parent fees geared to income, with parent fees, overall, covering 20 percent of the actual costs.

Desirable children per adult ratios are smaller for younger children, with the result that each adult working with younger children should not be responsible for as many as an adult working with three- and four-year-olds. In spite of the higher cost per child, the estimated benefit compares favourably with the estimated benefits for the prekindergarten programs.

Using annual data from Statistics Canada's Survey of Labour and Income Dynamics, a study in Quebec calculated that implementation of the five-dollar-a-day child care program, now seven dollars a day, was associated with a 21 percent increase in maternal paid employment outside the home and additional tax income that offset about 40 percent of the cost of the program (Baker, Gruber and Milligan 2006). Similar findings are reported from Switzerland where public investment of CHF 18 million in child care by the city of Zurich is estimated to be offset by at least CHF 29 million from additional tax revenue and reduced spending on social assistance (OECD 2006).

Discussion

Tables 9 and 10 demonstrate that the benefits to society of both targeted and universal large-scale ECEC initiatives are greater than is their cost to the public purse. Such findings support the strong consensus among economists, biologists and social scientists that public investments in the early childhood period provide greater returns than at any other period in life (Lefebvre and Merrigan 2003; McCain, Mustard and Shanker 2007). In fact, a group of American economists has estimated that, "a dollar invested in early childhood [development] yields three times as much as for school-aged children and eight times as much as for adult education" (McCain, Mustard and Shanker 2007, 136). This is not surprising. Development is sequential and cumulative and it is during the preschool period that the foundation is laid for the individual's lifelong physical and mental health, the child's degree of success in school, and the adult's life skills and employability. The human capital built through enhancing young children's development assists in creating and maintaining a prosperous society and a prosperous society encourages tolerance and social stability.

Policy Implications and Discussion

Canada is facing a workforce shortage resulting from demographic factors. This reality, and the demands of new technologies and the global economy for workers with good people, literacy, numeracy, problem-solving and decision-making skills, means that Canada's future prosperity depends upon ensuring that every child reaches his or her fullest potential (Dodge 2003; Fortin 2006; Lefebvre and Merrigan 2003). The need to do this is so critical that one economist has suggested that "our most pressing task as a nation...is to foster basic skills such as literacy and numeracy" (Fortin 2006, 5).

Successful acquisition of literacy and numeracy depends upon a foundation of competencies developed prior to entry into kindergarten, yet 25 percent of children in Canada enter school lacking one or more of the essential foundation skills (McCain, Mustard and Shanker 2007). In 1999, Margaret McCain and Fraser Mustard raised the alarm about the extent of child vulnerability to developmental problems in Canada and urged governments to make a major effort to improve the opportunities for optimal early childhood development for *all* children. Nearly a decade later, the response of Canada's federal, provincial and territorial governments to the need to promote every child's development is woefully inadequate in both approach and degree.

Federally, provincially and territorially funded initiatives to assist the development of children vulnerable to poor developmental outcomes are limited to programs targeting children living in low socio-economic neighbourhoods and to Aboriginal children. However, vulnerable children live in families across all income levels and in both the Aboriginal and non-Aboriginal populations. Although the incidence of vulnerability is highest among children living in poverty, the largest number of children, approximately 75 percent, live in middle-income households (McCain, Mustard and Shanker 2007, 46). Restricting publicly funded early-intervention initiatives for vulnerable children to low-income and Aboriginal families misses the majority of children who are vulnerable.

We also know that positive effects on vulnerable children's development are best achieved with interventions that target children directly with structured, centre-based group programs. Yet, as table 7 shows, over 50

percent of federal/provincial/territorial early intervention funds are directed to parent-focused and two-generation initiatives. While such interventions can yield benefits to the individual parent, such as increased self-confidence and job skills, and to society by reducing the need for social assistance, they provide negligible benefit to children's development (see table 5).

Finally, programs targeted on low-income families do not even reach their intended clientele. Only two initiatives have developed estimates of the extent to which they reach their target population. Manitoba's Families First reports that it serves 64 percent of eligible women, that 22 percent decline and that 14 percent are not served for other reasons (Marianne Chartier, Healthy Child Manitoba, personal communication, September 25, 2007). Quebec's SIPPE estimates that it serves 56 percent of its target population (Louise Therrien, Quebec, Ministère de la Santé et des Services sociaux, personal communication, September 12, 2007). Both of these initiatives are parent-focused programs that do not provide direct programming for children. In 2001, the most recent date for which information is available, 415,655 children under age six were living in poverty (Canadian Council on Social Development 2007, table A-1). In the intervening period, child poverty levels have only been reduced consistently in each year in Quebec, whereas in other jurisdictions change has been variable or poverty rates have increased (Campaign 2000 2006, 2). The participant statistics provided in table 7 indicate that approximately 23,000 children under age five across the whole of Canada received child-focused targeted group programs.

The realities of child care in Canada

Child care plays a significant role in the lives and thus the development of many Canadian children under age five. In 2005, 52 percent of children under age three and 54 percent of those between age four and five regularly received some form of nonparental care while their parents engaged in paid work or furthered their education; they spent, on average, 27 hours a week in that care (Bushnik 2006). Yet, 38 percent of children who receive regular nonparental care in Canada receive it in unregulated settings that do not have to meet even basic health and safety standards (Bushnik 2006). This reflects the reality that, in 2006, there were regulated child care spaces for only 21 percent of children under age five (Friendly et al. in press). While participating in regulated child care protects health and safety, only about a third of such programs provide the type and amount of program-

ming that promotes children's social, language and cognitive development (Doherty et al. 2006; Drouin et al. 2004; Goelman et al. 2006; Japel, Tremblay and Côté 2005).

As discussed in the previous section, the adults responsible for a group of children in the kinds of ECEC services proven to promote children's development have a university degree and specialized training in early childhood education, are well compensated and provide a planned, purposeful, developmentally appropriate daily program. But in 2001, the most recent year for which data are available, the majority of people working directly with children in Canadian child care had a one-year community college certificate or a two-year diploma; less than 15 percent had a bachelor's degree or higher qualification (Beach et al. 2004, 16). Salary levels were low and remain so. On average, staff in child care centres who had a degree earned \$21,023 in contrast to the \$47,146 earned by an elementary school teacher with the same level of education (Beach et al. 2004, 25). This large discrepancy does not encourage degree-holders to remain in the child care field. Unlike the situation in kindergarten, where all the provinces and territories require the provision of a specific curriculum or types of activities in every program, only Quebec requires all regulated child care settings to use a specific curriculum.

The characteristics associated with effective ECEC are expensive but necessary. Yet outside of Manitoba and Quebec, child care programs have to rely on fees paid by parents for an average of almost 50 percent of their budget (OECD 2004, 57). However, parent fees cannot be sufficiently high to cover the true cost of providing high-quality ECEC – for example, to cover the cost of staff compensation that reflects the desirable level of training. Raising ECEC fees to increase compensation levels is not an option since it would reduce access. Instead, as noted by the OECD (2004, 72) in its report on its evaluation of services in Canada for children under age six, public funding of ECEC must be substantially increased.

As a matter of comparison, child care in Europe is generally of high quality and generously subsidized by government. Parent fees for children under age three in countries such as Finland, Norway and Sweden range between 9 and 15 percent of the cost; fees are about 25 percent of the cost in the rest of Continental Europe. In most European countries at least part-day fully subsidized ECEC is provided for all three- and four-year-olds (OECD 2006, 78).

Poor-quality child care is not simply a missed developmental opportunity; it is known to be detrimental to

all children's development regardless of their socio-economic background or the extent to which their parents engage in developmental activities with them (Howes 1990; Peisner-Feinberg and Burchinal 1997; Vandell and Corasaniti 1990).

Given the large number of children under age five regularly participating in child care, Canada cannot continue to treat this service as simply a safe place for children to stay while their parents work. It must be recognized as a developmental opportunity for children and an investment in Canada's future productivity. Doing so would require higher regulatory standards, especially in the area of staff training, and much higher levels of public funding than currently provided outside of Quebec to enable the sort of compensation that encourages people to complete the required level of training and remain in the field.

What needs to be done?

Addressing the current high levels of lack of school-readiness in an effective fashion requires:

1. accepting that vulnerability to poor developmental outcomes occurs across all income levels and, as a result, interventions must be universal since there is no easily observable neighbourhood marker to identify all vulnerable children;
2. developing a nontargeted, evidence-based, cost-effective strategy; and
3. providing the level of government funding required and other resources for the strategy to be effective.

This is a tall order but doable, although it will take time, and it is affordable.

Factors to consider

When considering the type of group ECEC program that would be the most effective, attention must be paid to: (1) the high workforce participation by women who have a child under age five; (2) the approach that would work best for the child and family; (3) the need for complementary services such as developmental screening prior to entry into kindergarten; and (4) the provision of additional supports for those with unique needs.

The percentage of women in the paid workforce who have at least one child under age five has increased each year since 1976. By 2006, 64.3 percent of women whose youngest child was under age three engaged in paid employment, as did 69.4 percent of those whose youngest child was age three to five (Statistics Canada 2007, table 5). Most of these

women worked full time and, increasingly, a grandmother is not available to provide care. In fact, the labour force participation of women aged 55 to 64 has sharply increased since the mid-1970s from 32 to 51 percent (Marshall and Ferrao 2007, 6). Therefore, many parents must find reliable nonrelative care.

The second factor to consider is how best to meet the needs of both child and family. Young children thrive when they experience stable relationships with a minimal number of transitions from place to place during the course of a day and are engaged in a daily program of interesting activities that stimulate their linguistic and cognitive development. Working parents' primary needs are affordability, a convenient location and a service that operates for the hours required to cover the time the parent is out of the home. Access to government-funded part- or full-day prekindergarten programs for three- and four-year-olds would lessen the cost of alternative care for employed parents and, being located in the local school, such programs would probably be convenient. However, parents who work full time require alternative care for longer than the traditional 9 a.m. to 3 p.m. school day. Currently in Canada, the need for care beyond the traditional school hours is addressed by "wrap-around" child care provided before and after the prekindergarten program either in another room in the school or in a nearby location, with the child being transported back and forth. In this situation, the child experiences one set of adults providing "care" and another set providing "education" and several transitions to different physical locations within the course of the day. Other countries have adopted the philosophy that care and education are indivisible for young children and should be provided by the same group of adults in a program that blends educational and care activities throughout. Following this philosophy, several European countries provide universal ECEC programs operating for 10 hours a day that incorporate play-based learning activities throughout the whole day delivered by adults with three or four years of specialized post-secondary training to equip them to implement the underlying philosophy (Cameron 2004). This level of training is consistent with the pan-Canadian requirement, except in Prince Edward Island,⁹ that kindergarten teachers, whether working with four- or five-year-olds, have a four-year B.Ed. or a three-year BA and one year of specific teacher training (Doherty, Friendly and Beach 2003).

Early identification and remediation of visual or hearing impairments or speech impediments enhances the child's chances for optimal development.

Currently, in some parts of Canada, the first universal opportunity to participate in developmental screening after infancy occurs when the child enters kindergarten. At that point, undetected hearing and visual impairments or mild speech impediments may already have had a negative effect on the child's development.

Finally, the provision of universally available ECEC does not necessarily mean equal funding per child; the Canadian health system is universal but also recognizes that some citizens have unique needs that require additional services (Brownell et al. 2006). A case can be made that the principle of additional supports for those with unique needs may apply to two specific groups of young children – those living in Aboriginal families and those whose home language is not that of the local school.

British Columbia's province-wide EDI study reports that 40 percent of Aboriginal children obtain scores indicating a lack of school-readiness on one or more scales, with the lowest scores being obtained on the language/cognitive development and general knowledge/communication skills scales (Jennifer Lloyd, Human Early Learning Partnership, personal communication, October 30, 2006).

A Toronto study found that when a group of low-income five-year-olds, 71 percent of whom had a home language other than English, were assessed by the EDI, just over half of the children obtained scores suggesting a lack of school-readiness in one or more of the social competence, language and cognitive development, or communication skills/general knowledge scales, a much higher average than found in the population as a whole (Yau 2005, 2).

The adjustment to and later success in school of both these groups of children might be enhanced not only by early exposure to the language used in the local school but also by assistance in understanding and adapting to its norms and experiences that promote early literacy and numeracy skills. The provision of additional services might include additional government financial support to ECEC programs operating in neighbourhoods with a high proportion of families whose home language is neither English nor French or of Aboriginal families, so that the programs can operate with fewer children per adult and the staff receive specific training related to addressing each group's unique needs.

An example of what might be done

The recent follow-up to the 1999 *Early Years Study* proposes a universal system of early child development and parenting centres that would be affordable and widely available to pregnant women and families with a child under age six (McCain, Mustard and Shanker 2007). Each centre would incorporate pre- and postnatal supports, parenting education, developmental screening, child care and kindergarten and report to a single local authority that would be administratively responsible for the group of centres. Ontario's Best Start Initiative, announced in 2004, is already moving in this direction. Three pilot projects in three very different parts of the province are developing community hubs through formal coordination and collaboration among existing organizations so that families have a single entry point to a continuum of ECEC services and other services such as developmental screening. Currently, there are 24 such hubs (Ontario, Ministry of Children and Youth Services 2007a). Best Start's ultimate goal is full integration of child care and kindergarten into a single ECEC service that works in close partnership with the local public health unit and other community organizations to provide all their services in a single location. As noted by the province, achieving this goal will require a transformation of the way in which services are planned, funded, managed and delivered. A detailed timetable including 15 measurable goals, each with its own set of tasks and target dates, has been developed to guide the transformation (Ontario, Ministry of Children and Youth Services 2007b). Meanwhile, Ontario is addressing the immediate need to improve the quality of regulated child care.

The bottom line

What would it cost the public purse to do what needs to be done? Is the cost affordable? Taking into account the services that already exist and are publicly funded, McCain and her colleagues estimate that their suggested model would require about \$8 billion in new spending (McCain, Mustard and Shanker 2007, 142). This includes improved workforce training and compensation, both of which should also improve program quality and thus child outcomes, and the assumption that parents would contribute to the cost through fees geared to income. As noted in tables 9 and 10, the American experience indicates that the benefit of ECEC programs to the public purse outweighs their cost. In Canada, approximately 40 percent of the cost of Quebec's seven-dollar-a-day child care program is being recovered through additional income tax revenue

from increased maternal engagement in the paid workforce (Baker, Gruber and Milligan 2006). The steady decline in child poverty associated with increased maternal employment has also meant a steady decrease in the use of social assistance in Quebec (Campaign 2000 2006). Thus Quebec is already receiving significant benefits from its ECEC expenditures and stands to recoup more of its investment in the future through increased rates of high school completion and a workforce that is better able to compete successfully in the global economy.

Conclusion

Canada's future prosperity depends upon its ability to develop the knowledge and skills of what will be a smaller workforce in the coming decades (Brownell et al. 2006; Dodge 2003; Fortin 2006; Lefebvre and Merrigan 2003). The research is clear: the foundation for school success and adult well-being and competency is laid down during the years prior to school entry (McCain, Mustard and Shanker 2007). The implication is also clear: Canada must do all it can to ensure the optimal development of every child. While the incidence of children vulnerable to developmental problems is highest in the lowest socio-economic group, the largest number of children overall live in middle- and upper-middle socio-economic families and this is the group where most vulnerable children are found (McCain, Mustard and Shanker 2007). Restricting early intervention initiatives to low-income neighbourhoods misses the majority of vulnerable children. Failing to address the reality that over 50 percent of children under age four regularly receive out-of-home child care, most of which provides insufficient activities to support their development, puts many children at risk for vulnerability who might not be so otherwise. It is time to recognize that supporting the development of all children requires a system of high-quality ECEC that is available and affordable to all families wishing to use it and to act on this recognition.

The OECD suggests that 1 percent of the gross domestic product (GDP) is the minimum requirement for an ECEC system of sufficiently high quality to enhance children's development and be affordable and available to all families who wish to use it. Currently Canada's annual expenditures on ECEC are about 0.3 percent of its GDP ((2006, 105).¹⁰ The cost

to Canada of spending 1 percent of its GDP for ECEC for children under age six would be about \$10 billion (McCain, Mustard and Shanker 2007, 142). Universal ECEC provides greater benefits to society than it costs in public expenditures. Canada can afford this expenditure; Canada cannot afford the inevitable consequences for its future prosperity of failing to implement a universal ECEC system.

Notes

- 1 Quebec agrees with the objectives of the National Children's Agenda. However, the Government of Quebec has decided not to participate in its development because it wishes to assume full control over programs aimed at family and children within its territory (Federal-Provincial-Territorial Council of Ministers on Social Policy Renewal 1999, 1).
- 2 Research consistently shows that how the parent interacts with the child has a strong influence on the child's development and later school career. Warm, responsive and supportive parents who set clear behavioural limits but allow children to have a voice in what happens are associated with positive school outcomes; in contrast, children who experience highly controlling and harsh parenting are less likely to do well in school. Children's development is also associated with the extent and type of verbal and other stimulation, such as opportunities to play with manipulative toys, available in the home. Parent-focused programs encourage parents to be warm, supportive and consistent with their children and provide them with information about how to support and stimulate their child's development.
- 3 A quasi-experimental evaluation involves comparing the outcomes of two groups of people, one that participates in an intervention and the other that does not, matched with each other on salient characteristics such as age and socio-economic status. The intent is to reduce the extent to which differences in outcomes between the two groups reflect differences between them other than whether or not they received the intervention.
- 4 A randomized trial is one in which individuals from the same population pool, such as all eligible applicants for a targeted intervention program, are randomly assigned to the intervention or nonintervention group. This is considered to be the "gold standard" for any intervention evaluation, since it minimizes the possibility that differences in outcome will reflect something other than the effect of the intervention.
- 5 This design compares two groups of children whose application was accepted by the program by using the age cut-off for enrolment eligibility to define the groups, one that had recently completed prekindergarten and the other a group of children about to begin the program at the same time. The concept may be easier to understand by taking the extreme case, that of two children who differ only in that one was born the day before the date of cut-off and the other born the day after. When both are about to turn age five, the slightly younger child will be about to enter prekindergarten while the other child will be about to enter kindergarten. If the two children's achievement scores are assessed on the same day, their closeness in age will mean that their maturation levels are virtually the same with the result that any differences in achievement scores reflect the effect of the prekindergarten program. In practice, the approach is applied to a wider age range around the cut-off.
- 6 Four studies measured school-readiness with the Early Development Instrument (EDI) which was developed by a consortium of Canadian researchers and early childhood experts in the late 1990s and has subsequently been validated (Janus and Offord 2007). The fifth study used the *Peabody Picture Vocabulary Test – Revised* as its measure (Dunn and Dunn 1981).
- 7 The EDI measures five components of school-readiness: physical health and well-being; social knowledge and competence; emotional maturity and ability to self-regulate; language and cognitive development; and general knowledge and communication skills.
- 8 ECEC quality was measured by trained observers while the child was in his or her ECE program using the *Early Childhood Environment Rating Scale – Revised* (Harms, Clifford and Cryer 1998) and the Caregiver Interaction Scale (Arnett 1989). A further discussion of what is meant by "quality" is provided later in this section.
- 9 Prince Edward Island is an exception. In that province, practitioners with a two-year college ECEC credential are permitted to work in either child care or kindergarten and some child care centres deliver the kindergarten curriculum to age-eligible children as part of their child care program (Friendly et al. in press).
- 10 The expenditure on ECEC calculated for each of the 14 countries compared was derived from information provided by each country. Given the strong provincial/territorial role in child care in Canada, and the role of municipalities in Ontario, the information provided to the OECD presumably included funds from all three levels of government.

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Edited by Jeremy Leonard, Christopher Ragan and

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Dans le cadre du débat sur la nécessité d'adopter un système de services de garde et d'éducation de la petite enfance, on avance souvent qu'il faut plutôt affecter les ressources disponibles aux enfants qui en ont le plus besoin. Or nous en savons très peu sur l'efficacité des initiatives ciblées actuellement en place au Canada et auxquelles sont alloués plus de 260 millions de dollars par année. Dans cette étude, Gillian Doherty analyse les effets de ces programmes et se demande s'ils produisent le rendement social escompté par rapport aux investissements publics qui leur sont consacrés. Ce qui l'amène à s'interroger plus généralement sur la meilleure des deux approches, universelle ou ciblée, pour assurer aux enfants le meilleur départ possible dans la vie.

Elle passe tout d'abord en revue les programmes d'intervention précoce destinés aux enfants vulnérables susceptibles de vivre des problèmes de développement et ce que nous savons de leur incidence sur le développement des enfants. Elle examine 13 initiatives canadiennes de trois types : centrées sur les parents, sur les enfants et sur les deux générations. Elle analyse pour chacune la population cible, les services fournis, la durée de l'intervention, le nombre d'enfants/familles bénéficiaires, la formation du personnel, de même que les sommes investies par les gouvernements.

Elle examine également l'efficacité relative de ces programmes en ce qui concerne le développement des enfants et, à la lumière des résultats tirés de recherche menées au Canada et aux États-Unis, elle conclut que :

- Les initiatives qui ciblent directement les enfants et qui sont offerts en institution avec un programme structuré produisent les effets les plus positifs sur le développement des enfants vulnérables.
- Bien que les interventions centrées sur les parents avec l'objectif d'améliorer les aptitudes parentales, la formation ou l'employabilité puissent profiter aux parents, notamment en raffermissant leur confiance en soi, ils ont des effets négligeables sur le développement des enfants.
- L'efficacité des programmes pour enfants dépend de leur qualité, c'est-à-dire qu'il sont donné par un personnel bien formé et dispose d'une programmation et d'un ratio éducateur/enfant adéquats.
- L'efficacité des programmes dépend également de leur durée.

L'auteure note que les programmes de soutien aux enfants vulnérables sont peu nombreux au Canada et qu'ils ne touchent qu'un petit nombre des enfants visés. En fait, comme la plupart de ces programmes ne font l'objet d'aucune évaluation ou suivi, il est impossible d'établir dans quelle mesure ils atteignent leur clientèle cible. Qui plus est, 60 p. 100 des sommes investies dans ces pro-

grammes sert au financement d'initiatives qui ont une incidence négligeable sur le développement des enfants.

L'auteure examine ensuite les données internationales sur les avantages d'une approche universelle pour aider les enfants vulnérables. Elle conclut que, malgré son coût initial plus élevé, l'approche universelle est plus prometteuse que l'approche ciblée pour deux grandes raisons.

Premièrement, elle permet de rejoindre un plus grand nombre d'enfants vulnérables. Doherty rappelle que si le risque de connaître des problèmes de développement est plus élevé chez les enfants vivant dans les familles les plus démunies, de récentes enquêtes ont révélé qu'il existe des enfants vulnérables dans tous les groupes socio-économiques et que plus de 70 p. 100 des enfants vulnérables au Canada sont en fait issus de familles qui ne vivent pas dans la pauvreté. Ceci signifie que les programmes ciblés sur les enfants issus des familles les plus pauvres revient à priver de soutien la majorité des enfants qui éprouvent des difficultés. L'expérience de plusieurs pays montre que des programmes d'éducation pour la petite enfance abordables et accessibles suscitent une forte participation ce qui, du même coup, permet de rejoindre un plus grand nombre d'enfants qui ne vivent pas dans des familles pauvres.

Deuxièmement, les données internationales indiquent que la maturité scolaire des enfants de tous les milieux socio-économiques et leurs chances de réussite à long terme se trouvent améliorés par des programmes universels de qualité, que ce soit en prématernelle ou en garderie. Elle examine finalement les analyses coût-bénéfices des initiatives ciblées et des programmes universels, pour en conclure que les deux approches peuvent produire pour la société des avantages supérieurs à leurs coûts.

En terminant, l'auteure analyse les implications de ces résultats pour les politiques canadiennes en matière de petite enfance. Puisque qu'environ 25 p. 100 des enfants canadiens de cinq ans manquent de maturité scolaire, que les programmes ciblés sont relativement inefficaces et que l'accès et la qualité des services de garde à l'échelle du pays sont présentement fort limités, elle estime qu'il nous faut reconnaître que (1) le risque de connaître des problème de développement s'observe dans les familles de tous les niveaux de revenu ; (2) aucun repère observable n'est infail- lible pour ce qui est d'identifier tous les enfants vulnérables. Aussi, recommandent-elles que les services de garde et d'éducation de la petite enfance doivent être universelle- ment accessibles à toutes les familles qui désirent en profiter. À son avis, il est impératif d'adopter une stratégie efficace, non ciblée, fondée sur les résultats de la recherche et qui dispose des ressources et du financement publics nécessaires à sa réussite.

Summary

Ensuring the Best Start in Life
Targeting versus Universality in Early Childhood Development
by Gillian Doherty

In the ongoing debate about the need for a pan-Canadian early childhood education and care (ECEC) system, one of the arguments often raised is that available public resources should instead be targeted to children most in need. Yet we know very little about the effectiveness of the targeted initiatives currently in place, which receive more than \$260 million per year. In this paper Gillian Doherty looks at the impact of these programs and whether they provide the highest social return in terms of public investment. This discussion leads to the larger question of whether a universal or targeted approach in ECEC is the best way to ensure that all children have the best possible start in life.

The author begins by reviewing Canadian early-intervention programs for children vulnerable to poor developmental outcomes and what we know about their impact on children's development. She reviews 13 initiatives, including parent-focused, child-focused and two-generation programs. For each, she examines the target population, services provided, duration of intervention, number of children/families receiving assistance and approach to staffing, as well as federal and provincial/territorial funding. She also assesses the relative effectiveness of these programs in terms of child development.

Based on her review of the research and evidence from Canada and the United States related to targeted programs, the author concludes that:

- Initiatives that target children directly with structured and centre-based programs have the most positive effect on vulnerable children's development.
- Although parent/family-focused interventions that attempt to improve parenting skills, education and/or employability may benefit parents by, for example, increasing their self-confidence, their effect on children's development is generally negligible.
- The effectiveness of group programs depends on their quality – that is, having well-trained staff, effective programming and appropriate staff-child ratios.
- The effectiveness of group programs also depends on the duration of intervention.

More generally, the study indicates that programs designed to assist vulnerable children are relatively few in number, and that they reach only a small number of children. Moreover, of the money invested in targeted programs, 60 percent is spent on initiatives that do not provide developmental programming and therefore have a negligible impact on the development of the children. And

since most programs are neither monitored nor evaluated, it is not even possible to determine whether they are reaching their intended clientele.

The author then examines the international evidence on the benefits of adopting a universal approach to assisting vulnerable children. She concludes that while the initial costs involved are higher than those for targeted programs, a universal approach is an attractive alternative for two reasons.

First, it would reach a higher proportion of vulnerable children. Doherty notes that while the incidence of vulnerability to poor developmental outcomes is highest among children living in the poorest families, recent research shows that children from all socio-economic groups can be vulnerable. Indeed, more than 70 percent of vulnerable children in Canada do not live in poor families. This means that programs for vulnerable children that are restricted to the lowest-income group fail to provide support to the majority of children experiencing difficulties. Experience in several countries shows that having affordable, widely available early childhood education programs results in high participation rates, which ensures that a higher proportion of vulnerable children not living in poverty are reached.

Second, the international evidence suggests that participation in nontargeted, high-quality ECEC, whether it is prekindergarten or ordinary child care, enhances the school-readiness of children from *all* socio-economic backgrounds and their subsequent academic success. The author also examines benefit/cost ratio estimates associated with targeted initiatives, universal prekindergarten and universal child care, and concludes that both targeted and universal ECEC initiatives can provide greater benefits to society than they cost.

Finally, Doherty assesses the implications of these results for Canada's policy on early childhood education. Given the lack of school-readiness of approximately 25 percent of five-year-olds, the relative ineffectiveness of targeted ECEC programs and the limited availability of high-quality child care services, she concludes that we need a change of strategy. In her view, we need to acknowledge that: (a) vulnerability to poor developmental outcomes occurs across all income levels, and that (b) there are no easily observable markers to identify all vulnerable children. Therefore, if the goal is to reach as many vulnerable children as possible, then ECEC programs must be universally available to all families who wish to use them. What is required is a nontargeted, evidence-based, cost-effective strategy and the necessary government funding and resources to make it work.