

Public Health Early Years Group*

HL11.2 Appendix B

Early Child Development - Return on Investment

"Investments in the early years that improve life for Ontarians today and in the future, promote sustainability, and contribute to the growth of the economy". Ontario Early Years Framework (2013)

Issue / Background:

As costs for social programming increase, it is important that early child development policies and programs demonstrate that they are cost efficient, evidence based and result in social and economic benefits to society.

Background

This briefing note is to provide decision makers and key stakeholders with the evidence that supports the social benefits, health benefits and return on investment of early childhood interventions. A rapid review of the literature was conducted to search for research on the most effective interventions and those that provide the highest return on investment. There is a large body of research from multiple disciplines e.g. neuroscience, education, psychology, nursing, economics etc., that all draw the same conclusion – investing in quality early childhood services and programs, especially for those most disadvantaged, results in long term health and socio-economic benefits to the individual and society.

Research validates that comprehensive, high quality services starting prenatally through to age 6 have the biggest impact on healthy child development. It is during this time period that the child's brain is developing rapidly, they are most vulnerable and their health is dependent on the health of their families.

Rates of child vulnerability in Ontario as measured by the Early Development Instrument show variability in improvement, but overall, rates have only slightly improved and it is becoming apparent that many children living in middle income homes are experiencing increased vulnerability.

As the costs of social programs continue to rise, understanding the economics of interventions, known as the Return on Investment (ROI), of early year's services is needed to make informed policy decisions. Investment in prevention is more cost effective in the long term than remediation, which is more costly and not always effective. ROI translates into lower costs to government and better outcomes for the population.

Key Points:

Research shows that positive experiences in the early years result in better social, economic and health outcomes throughout a person's life with benefits seen for the individual and society in the areas of health, education and the criminal justice system (Bonin, Heckman and Garcia). Positive early child development is a key determinant of health. Investment in high quality early years programs and services beginning prenatally and continuing to age six, have a net benefit to *all* children, (with more benefit seen in those most disadvantaged), individuals, society and government. With a return on investment (ROI) of as much as 13 to 1 over the life time of the child (Heckman), investing in the early years should be seen as a positive return on the initial investment. A long term vision beyond the usual four year election cycle is needed to realize the potential of these investments.

Benefits of early intervention

- Cost effective – it is cheaper to prevent health and social problems than it is to remediate, which is costly and often ineffective.
- ROI as high as 13 to 1 has been realized in high quality programs.
- Healthy children grow up to be healthy, happy, successful adults.
- Lasting gains in IQ.
- Reduced crime rates.
- Reduced demand for special education programs.
- Reduced costs in treating chronic diseases in adulthood.
- Social and cognitive skill development builds capabilities of individuals.
- Creates economic stability and growth for society.
- All children benefit, but disadvantaged children benefit the most, as they generally have fewer resources.
- In the long term the whole society benefits.

Characteristics of successful programs

- Programs/services that start prenatally and continue through birth to age 6 (See Appendix I)
- High quality evidence based programs that are comprehensive and combine social skill and cognitive skill development.
- High quality full day kindergarten, childcare, home visiting and positive parenting programs.
- Program staff that are nurturing, skilled professionals.

Additional Detail and Research Findings:

Economist and Nobel Laureate James Heckman calculates a 13 to 1 return on public investment in programs for young children and TD Bank Chief Economist, Craig Alexander, noted in the Ontario Early Years Framework, that the "widespread and long-lasting benefits of early childhood education programs far outweigh the costs". In a UK study that looked at conduct disorders in children, (a significant health issue as the disorder is likely to persist into adulthood in 50% of the cases), Bonin found that parenting programmes reduced the chance that the conduct disorder continued into adulthood and were a cost-saving to the public sector within 5-8 years. Total savings to society over 25 years were estimated at £16,435 per family, which compared to an intervention cost in the range of £952-£2,078. A systematic review of cost savings of parenting interventions (Duncan) concluded that "parenting interventions could save the health service around £2.5k per family over 25 years and could save the criminal justice system over £145k per person over the life course. In light of the escalating costs of remedial services, these potential savings may provide the UK and other governments with a robust incentive to invest in early years parenting interventions".

To realize maximum ROI, studies have identified qualities of early intervention programs that are the most effective in terms of health outcomes for individuals and society. Full day kindergarten, high quality childcare, home visiting, and positive parenting programs that are evidence based and provided by skilled, nurturing professionals provide the best outcomes (Heckman). In addition, the policy paper, "Supporting Ontario's youngest minds: Investing in the mental health of children under 6", identified elements of an effective early years framework which include: universal promotion to reduce risk factors and promote protective factors, early identification and intervention, evidence-informed mental health programs and practices and seeing caregivers and families as key in developing a system of care that meets their children's mental health needs.

The well-known ACEs Study (Adverse Childhood Experiences, Felitti et al 1998) was conducted to assess connections between chronic stress caused by early adversity e.g. exposure to abuse, neglect, domestic violence, parental mental illness or substance abuse, and long-term health. The key findings were: 1. ACEs were common and 2. Children exposed to intense, frequent or sustained stress without the protective factor of a supportive adult

experienced changes in their brains and bodies, including disruption to their learning, behavior, immunity, growth, hormonal systems, immune systems, and even the way DNA is read and transcribed. Children experiencing four or more ACEs were at a higher risk in adulthood of developing heart disease, stroke, cancer, COPD, diabetes, Alzheimers and had higher rates of suicide in adulthood.

References

- Alexander, C. and Ignjatovic, D. 2012. Early Childhood Education Has Widespread and Long Lasting Benefits. TD Economics Special Report. Retrieved from http://www.td.com/document/PDF/economics/special/di1112_EarlyChildhoodEducation.pdf
- Belfield, C., Nores, M., Barnett, S., and Schweinhart, L. 2006. The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Follow up. *The Journal of Human Resources*, 41(1), 162-190. Retrieved from <http://www.jstor.org/stable/40057261>
- Bonin, E-M., Stevens, M., Beecham, J., Byford, S., and Parsonage, M. 2011. Costs and longer-term savings of parenting programmes for the prevention of persistent conduct disorder: a modelling study. *BMC Public Health* 201111:803 <https://doi.org/10.1186/1471-2458-11-803>
- [Campbell, F.](#), [Conti, G.](#), [Heckman, J.J.](#), [Moon, S.H.](#), [Pinto R.](#), [Pungello, E.](#) and [Pan Y.](#) 2014. Early childhood investments substantially boost adult health. *Science*. Mar 28; 343(6178):1478-85. doi: 10.1126/science.1248429.
- Doyle, O., Harmon, C. P., Heckman, J. J., & Tremblay, R. E. 2009. Investing in early human development: timing and economic efficiency. *Economics and human biology*, 7(1), 1-6.
- Duncan, K.M., MacGillivray, S., and Renfrew, M.J. 2017. Costs and savings of parenting interventions: results of a systematic review. *Child Care Health Development*. Nov; 43(6):797-811. doi: 10.1111/cch.12473. Epub 2017 May 30.
- [Felitti, V.J.](#), [Anda, R.F.](#), [Nordenberg, D.](#), [Williamson, D.F.](#), [Spitz, A.M.](#), [Edwards, V.](#), [Koss, M.P.](#), [Marks, J.S.](#) 1998. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. May; 14(4):245-58.
- García, J.L., Heckman, J.J., Ermini Leaf, D., and Prados, M.J. 2018. Quantifying the Life-cycle Benefits of a Prototypical Early Childhood Program. NBER Working Paper No. 23479 Issued in June 2017, Revised in August 2018 NBER Program(s): Children, Economics of Education
- Gomby, D. 2005. Home Visitation in 2005: Outcomes for Children and Parents” Invest in Kids Working Paper No. 7 (Washington, DC: Committee for Economic Development, 2005).
- Hajizadeh, N., Stevens, E.R., Applegate, M., Huang, K.Y., Kamboukos, D., Braithwaite, R.S., Brotman, L.M. 2017. Potential return on investment of a family-centered early childhood intervention: a cost-effectiveness analysis. *BMC Public Health*. Oct 10; 17(1):796. doi: 10.1186/s12889-017-4805-7.
- Heckman, J.J. The Heckman Equation. <https://heckmanequation.org/>
- Heckman, J. 2008. The case for investing in disadvantaged young children. In *First Focus* (Ed.), *Big Ideas for Children: Investing in Our Nation’s Future*. Washington, DC: In Focus. pp. 49–58.
- Herbst, C., & Tekin, E. (2010). Child care subsidies and child development. *Economics of Education Review*, 29(4), 618-638. <https://doi.org/10.1016/j.econedurev.2010.01.002>

Investing in Young Children: New Directions in Federal Preschool and Early Childhood Policy. 2010. Edited by Ron Haskins and W. Steven Barnett, National Institute for Early Education Research.

Masters, R., Anwar, E., Collins B. 2017. Return on investment of public health interventions: a systematic review. *Journal of Epidemiology and Community Health* 71:827-834.

Olds, D.L., Eckenrode, J., Henderson. C.R.1997. Long-term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect: Fifteen-Year Follow-up of a Randomized Trial. *JAMA*; 278(8):637–643.
doi:10.1001/jama.1997.03550080047038

Ontario Centre of Excellence for Child and Youth Mental Health. 2014. Supporting Ontario's youngest minds: Investing in the mental health of children under 6. Prepared by: Dr. Jean Clinton, Angela Kays-Burden, Charles Carter, Komal Bhasin, Dr. John Cairney, Dr. Normand Carrey, Dr. Magdalena Janus, Dr. Chaya Kulkarni, Dr. Robin Williams. (Policy Paper)

Peters, R.D., Petrunka, K., Khan, S., Howell-Moneta, A., Nelson, G., Pancer, S.M., Loomis, C. 2016. Cost-Savings Analysis of the Better Beginnings, Better Futures Community-Based Project for Young Children and Their Families: A 10-Year Follow-up. *Prevention Science* Feb; 17(2):237-47. doi: 10.1007/s11121-015-0595-2.

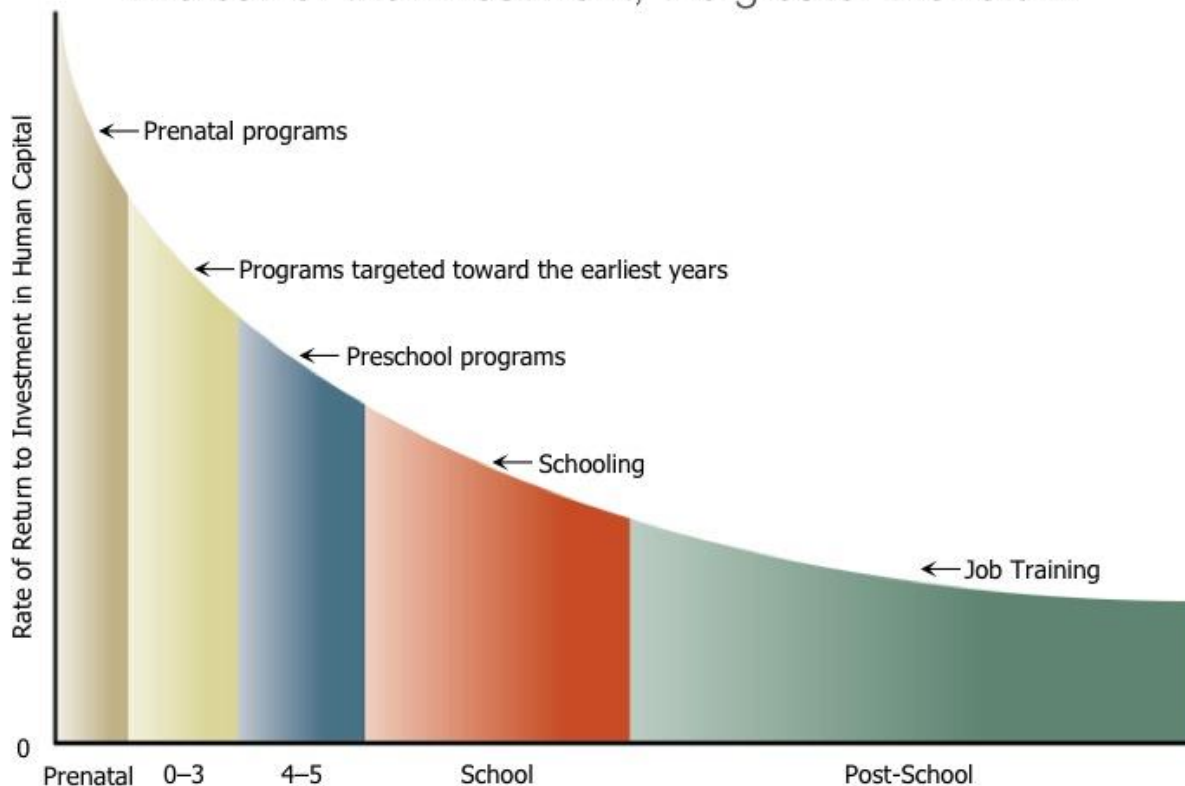
Roberts, G. and Grimes, K. 2011. Return on Investment Mental Health Promotion and Mental Illness Prevention. Canadian Policy Network at the University of Western Ontario.

Silloway, T., Connors-Tadros, L. and Hayes, C.D. 2012. Return on investment can take on the form of lower costs (for government) and/or better outcomes (for clients). *Sharing Risks and Returns: Social Impact Investment to Scale up Effective Programs*. The Finance Project.

Sweet, M.A. and Appelbaum, M.I. 2004. Is Home Visiting an Effective Strategy? A Meta-Analytic Review of Home Visiting Programs for Families with Young Children. *Child Development* 75, no. 5 (2004): 1435-1456.

EARLY CHILDHOOD DEVELOPMENT IS A SMART INVESTMENT

The earlier the investment, the greater the return



Source: James Heckman, Nobel Laureate in Economics

Prepared for PHEY by: Kimberley Swigger, Health Promotion Specialist
Child Health & Development, Toronto Public Health
Kimberley.swigger@toronto.ca

Date: Jan 11, 2019

***Public Health Early Years Group (PHEY)** includes senior management from across Ontario Public Health Units and Public Health organizations. It was established in 2011 as the Public Health Supporting Early Learning group of the Council of Ontario Medical Officers of Health (COMOH). Since 2014 and the establishment of the Healthy Human Development Table (HHD), PHEY serves as an advisory and workgroup, dedicated to improving awareness, understanding, and action related to a critical social determinant of health, early childhood development.