

MAY 2014

Primary Prevention of Childhood Obesity

Second Edition



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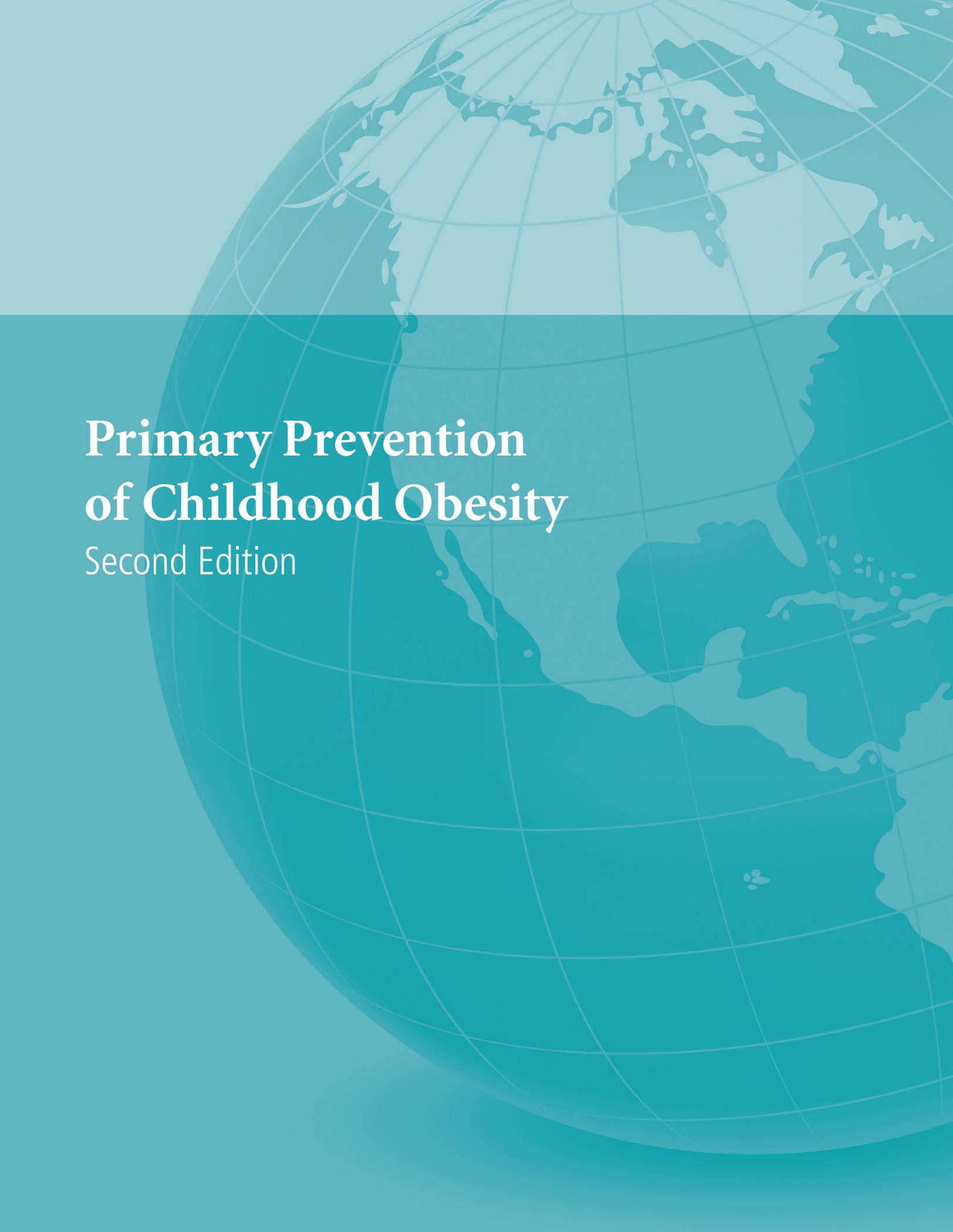
Registered Nurses' Association of Ontario. (2014). *Primary Prevention of Childhood Obesity (2nd ed.)*. Toronto, ON: Registered Nurses' Association of Ontario.

This work is funded by the Ontario Ministry of Health and Long-Term Care.

Contact Information

Registered Nurses' Association of Ontario
158 Pearl Street, Toronto, Ontario M5H 1L3

Website: www.rnao.ca/bestpractices



Primary Prevention of Childhood Obesity

Second Edition

Greetings from Doris Grinspun,

Chief Executive Officer, Registered Nurses' Association of Ontario



The Registered Nurses' Association of Ontario (RNAO) is delighted to present the second edition of the clinical best practice guideline *Primary Prevention of Childhood Obesity*. Evidence-based practice supports the excellence in service that health professionals are committed to delivering every day. RNAO is delighted to provide this key resource.

We offer our heartfelt thanks to the many stakeholders who are making our vision for best practice guidelines a reality, starting with the Government of Ontario, for recognizing RNAO's ability to lead the program and for providing multi-year funding. Dr. Irmajean Bajnok, Director of the RNAO International Affairs and Best Practice Guidelines Centre, and Dr. Monique Lloyd, the Associate Director, provide their expertise and leadership. I also want to thank the co-chairs of the expert panel, Carol Timmings (Director, Healthy Living and Chief Nursing Officer at Toronto Public Health) and Lorraine Telford (Manager, Clinical Programs at LAMP and Mississauga Community Health Centres) for their exquisite expertise and stewardship of this Guideline. Thanks also to RNAO staff Grace Suva, Diana An, Megan Bamford, Anastasia Harripaul, Tasha Penney, Laura Sykes, and Sarah Xiao for their intense work in the production of this second edition. Special thanks to the members of the expert panel for generously providing time and expertise to deliver a rigorous and robust clinical resource. We couldn't have done it without you!

Successful uptake of best practice guidelines requires a concerted effort from educators, clinicians, employers, policy-makers, and researchers. The nursing and health-care community, with their unwavering commitment and passion for excellence in patient care, have provided the expertise and countless hours of volunteer work essential to the development and revision of each best practice guideline. Employers have responded enthusiastically by nominating best practice champions, implementing guidelines, and evaluating their impact on patients and organizations. Governments at home and abroad have joined in this journey. Together, we are building a culture of evidence-based practice.

We ask you to be sure to share this Guideline with your colleagues from other professions, because we have so much to learn from one another. Together, we must ensure that the public receives the best possible care every time they come in contact with us – making them the real winners in this important effort!

A handwritten signature in black ink that reads "Doris Grinspun". The signature is stylized and includes a long horizontal flourish at the end.

Doris Grinspun, RN, MSN, PhD, LLD (Hon), O. ONT.
Chief Executive Officer
Registered Nurses' Association of Ontario

Table of Contents

How to Use this Document	5	BACKGROUND
Purpose and Scope	6	
Summary of Recommendations	9	
Interpretation of Evidence	13	
RNAO Expert Panel	14	
RNAO Best Practice Guideline Program Team	16	
Stakeholder Acknowledgement	17	
Background	20	
Guiding Framework	23	

Practice Recommendations	27	RECOMMENDATIONS
Education Recommendations	52	
System, Organization and Policy Recommendations	56	
Research Gaps and Future Implications	63	
Implementation Strategies	65	
Evaluating and Monitoring this Guideline	66	
Process for Update and Review of the Guideline	72	

REFERENCES	Reference List	73
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APPENDICES	Appendix A: Glossary of Terms	90
	Appendix B: Guideline Development Process	94
	Appendix C: Process for Systematic Review and Search Strategy	95
	Appendix D: Individual & Family Assessment Tools & Resources	99
	Appendix E: Nutrition Guidelines	105
	Appendix F: Canadian Physical Activity Guidelines	118
	Appendix G: Canadian Sedentary Behaviour Guidelines	120
	Appendix H: School Environment Assessment Tools & Resources	122
	Appendix I: Community Assessment Tools & Resources	125
	Appendix J: Tools & Resources to Evaluate Healthy Public Policies	126
	Appendix K: Additional Resources	129
	Appendix L: Indicators & Resources to Measure Socio-Economic Status	137
	Appendix M: Description of the Toolkit	138

ENDORSEMENTS	Endorsement	139
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How to Use this Document

This nursing Best Practice Guideline^G (BPG) is a comprehensive document that provides resources for evidence^G-based nursing practice, and should be considered a tool, or template, intended to enhance decision making for individualized care. The Guideline is intended to be reviewed and applied in accordance with both the needs of individual organizations or practice settings and the needs and wishes of the child/family/community/system/society. In addition, the Guideline provides an overview of appropriate structures and supports for providing the best possible evidence-based care.

Nurses, other health-care professionals, and administrators who lead and facilitate practice changes will find this document invaluable for developing policies, procedures, protocols, educational programs and assessments, interventions, and documentation tools. Nurses in direct care will benefit from reviewing the recommendations and the evidence that supports them. We particularly recommend practice settings adapt these guidelines in formats that are user-friendly for daily use.

If your organization is adopting the guideline we recommend you follow these steps:

- a) Assess your nursing and health-care practices using the Guideline's recommendations,
- b) Identify which recommendations will address needs or gaps in services, and
- c) Develop a plan for implementing the recommendations. (Implementation resources, including the Registered Nurses' Association of Ontario's *Toolkit: Implementation of Best Practice Guidelines (2nd ed.)* (RNAO, 2012a) are available on our website, www.RNAO.ca)

We are interested in hearing how you have implemented this Guideline. Please contact us to share your story.

* Throughout this document, terms marked with a superscript G (^G) can be found in the Glossary of Terms ([Appendix A](#)).



Purpose and Scope

Purpose

Best practice guidelines are systematically developed statements to assist nurses and the interprofessional team to make decisions about appropriate health care (Field & Lohr, 1990). The purpose of this Guideline is to provide nurses across all practice settings with evidence-based practice, education, system, organization and policy recommendations for the primary prevention^G of obesity in infants, preschool, and elementary-school-aged children. In this Guideline, *practice recommendations*^G refer to comprehensive interventions in settings where children gather (such as schools and child-care centres), whereas *education recommendations*^G support the development and maintenance of nursing competency in the primary prevention of childhood obesity. Finally, *system-level, organization and policy recommendations*^G address the importance of supportive practice environments for the implementation and evaluation of high-quality, evidence-based nursing care targeting the prevention of obesity in childhood.

Scope

Primary prevention refers to widespread interventions that, “aim to reduce the average risk in the whole population” (National Public Health Partnership, 2006, p. 4). Specifically, the goal of primary prevention is to, “eliminate or reduce the causes or determinants of departures from good health, control exposure to risk, and promote factors that are protective of health” (National Public Health Partnership, 2006, p. 4). Primary prevention differs from secondary and tertiary prevention in that secondary prevention focuses on early disease detection and intervention and tertiary prevention aims to control established disease (National Public Health Partnership, 2006).

Health promotion^G empowers individuals with the knowledge and skills they need to control and improve their well-being (Public Health Agency of Canada [PHAC], 2010b). However, individual capacity must be supported by an environment conducive to health improvement (PHAC, 2010b). Thus, health promotion also involves interventions that create positive changes in a community’s political, economic, and social circumstances (PHAC, 2010b; Alberta Coalition for Healthy School Communities, 2006). In general, population-based approaches to childhood obesity are used in primary prevention and health promotion activities because of their greater impact on public health^G (PHAC, 2010b; Public Health Agency of Canada & the Canadian Institutes of Health Information [PHAC & CIHI], 2011). As such, children who are non-overweight, non-obese, and otherwise healthy are the main focus of this Guideline.

The *treatment* of obesity is not within the scope of the recommendations. Readers who are interested in information about treatment should consult the National Institute for Health and Care Excellence guideline *Managing Overweight and Obesity Among Children and Young People: Lifestyle Weight Management Services* (2013).

The expert panel identified the importance of the social determinants of health^G to the prevention of childhood obesity. Therefore, the recommendations should be approached from a social-environmental perspective. This means that interventions to reduce the risk of childhood obesity should give consideration to the children who are the focus of the intervention and the environment in which those children spend their time.

Health equity is another important dimension through which to view the risk conditions for childhood obesity. Health equity means that all people can achieve their full health potential and not be disadvantaged from achieving this potential because of their social position or other socially determined circumstance (Whitehead & Dahlgren 2006). Health inequities^G are health differences that are socially produced (and therefore modifiable), systemic in their

distribution across the population, and unfair (Whitehead & Dahlgren 2006). One stark example in the Canadian context of health inequity is that Aboriginal peoples (First Nations, Inuit, and Métis) have higher infant mortality and lower life expectancy compared to non-Aboriginal Canadians (National Collaborating Centre for Aboriginal Health, 2012). Therefore, higher obesity rates among Aboriginal adults compared to their non-Aboriginal counterparts must be understood in terms of intermediate determinants such as material circumstances (including poverty impacting living and working conditions, food availability) as well as ‘upstream’ structural determinants such as colonialism, racism, social exclusion, and self-determination (Reading & Halseth, 2013; Reading & Wien 2009). Although it is beyond the scope of this Guideline, to outline the differential influences of the social determinants of health on sub-populations, nurses and health-care providers must conduct their health practice with children, families and populations using a health equity lens.

The focus of this Guideline was narrowed over the course of its development. Its initial purpose was to provide primary-prevention recommendations targeting children and youth aged 0-18 years. However, the systematic review^G revealed that, with respect to obesity, the majority of the most effective primary-prevention interventions occur in the earliest stages of a child’s growth and development (birth to 12 years of age). In contrast, there was less literature focused on adolescents, and interventions with adolescents reported less-successful outcomes. The expert panel identifies adolescence as a period of time during which healthy behaviours learned as a child may be sustained for the primary prevention of obesity. Moreover, specific interventions directed toward childhood health differ from the peer-based approach endorsed in best practice guidelines for healthy adolescence. Thus, the expert panel recommended that this Guideline prioritize the primary prevention of obesity in infants, preschool, and elementary-school-aged children up to 12 years of age. For a more comprehensive review of practice recommendations that support adolescent engagement and health, please refer to the RNAO BPG *Enhancing Healthy Adolescent Development* (2010).

In addition, within the large body of literature on childhood obesity, the expert panel did not find enough evidence in our systematic review on effective interventions for certain perceived risk or protective conditions, as published in other literature (Ontario Ministry of Health and Long-Term Care, 2012b). For example, mental health did not emerge as a focus in primary-prevention interventions for childhood obesity. There was also inconsistent evidence to link insufficient sleep to unhealthy childhood weights. In the few studies that explored this association, conflicting results emerged. One study reported that less sleep was associated with higher body mass index^G (BMI) measures (O’Dea, Dibley, & Rankin, 2012), while others failed to demonstrate a link between sleep and childhood (Hiscock, Scalzo, Canterford, & Wake, 2011; Wake, Price, Clifford, Ukoumunne, & Hiscock, 2011). In addition, there was insufficient evidence on pre-natal/preconception interventions in our systematic review to warrant a primary-prevention intervention focus on maternal behaviours during pregnancy (such as smoking and prenatal care) to prevent childhood obesity. Moreover, Health Nexus (2013) states in their document *Obesity in Preconception and Pregnancy* that, “it remains unclear if maternal physical activity and nutrition counseling interventions reduce the incidence of childhood obesity” (executive summary, para. 4). Although the recommendations in this Guideline do not extend to these topics, the expert panel does recognize that sleep, mental well-being and pre-natal care are important contributing factors to child health. As such we fully support interventions that promote adequate sleep, mental wellness and pre-natal care to overall healthy child development. The expert panel would also like to highlight these topics as subject areas for future research and guideline consideration with respect to their specific association to the primary prevention of childhood obesity.

Unless otherwise stated, the level of evidence supporting each recommendation in this Guideline consists of studies supporting primary-prevention and health promotion efforts with non-obese, non-overweight children. It should be noted that this topic does not permit the extensive use of the randomized controlled trial^G (RCT) design, often considered the gold standard of research methodology. The RCT is not well suited to childhood obesity because of the diverse risk and socio-economic conditions for this issue; RCTs, by design, eliminate these contextual factors.

Although we did not exclude studies of any particular design in our literature searching, the majority of the evidence cited in this Guideline is based on observational research and studies addressing childhood-obesity prevention from a lifestyle and social-environmental perspective. The observational design cannot determine causation (i.e., because researcher does not assign the intervention and the outcomes evaluated are associated with interventions that are already occurring in clinical practice), but the study designs used do more appropriately answer the questions that informed the search for effective primary-prevention strategies for childhood obesity in the preparation of this Guideline.

Nurses and the Interprofessional Health-Care Team

It is important to acknowledge that personal preferences, unique needs, and the resources available must always be considered in the delivery of primary-prevention interventions. This document is intended to assist nurses and other members of the interprofessional team to focus on evidence-based strategies in the context of the relationship between the health-care provider and the child/family/community/system/society. This Guideline is also designed to assist nurses in all domains of nursing practice – including clinical, education, organization, policy, system and administration – to apply best practices when working with children, families, and communities to prevent childhood obesity.

In addition to knowing and being able to apply strategies for assessing and preventing childhood obesity, it is important that nurses, in collaboration with the interprofessional team and stakeholders^G, work with children, their families, and the community to develop such strategies. Effective primary prevention depends on coordinated interprofessional care^G that emphasizes ongoing communication among health-care professionals and clients^G. Within the context of this Guideline, the term “client” refers to individuals, families, groups or communities (College of Nurses of Ontario, 2006).

Our Reference List and Appendices (including a glossary, a description of how the guideline was developed and details on our literature search) follow the main Guideline. See [Appendix A](#) for a glossary of terms. See [Appendices B and C](#) for the guideline development process and the process for systematic review/search of the literature. The remaining appendices include a range of supportive resources identified in the expert panel’s work and the stakeholder review process.

Terminology

In this Guideline, the term “obesity” is used to refer to both overweight and obese children. Overweight and obesity^G are defined as, “abnormal or excessive fat accumulation that may impair health” (WHO, 2013, para. 2).

As well, we use the following terms to refer to the following age ranges:

- “Infant” is used to refer to children less than 1 year of age,
- “Toddler” is used to refer to children aged 1-2 years,
- “Preschool-aged” is used to refer to children aged 3-4 years, and
- “Elementary-school-aged” is used to refer to children aged 5-12 years (adapted from Canadian Society for Exercise Physiology, 2012).

Summary of Recommendations

This Guideline is a new edition of, and replaces, *Primary Prevention of Childhood Obesity* (RNAO, 2005).

We have used these symbols for the recommendations:

- ✓ No change was made to the recommendation as a result of the systematic review evidence.
 - +
- The recommendation and supporting evidence were updated with systematic review evidence.

NEW A new recommendation was developed based on evidence from the systematic review.

PRACTICE RECOMMENDATIONS		LEVEL OF EVIDENCE	
1.0 Assessment	<p>Recommendation 1.1:</p> <p>Routinely assess children’s nutrition, physical activity, sedentary behaviour, and growth according to established guidelines, beginning as early as possible in a child’s lifespan.</p>	IV	+
	<p>Recommendation 1.2:</p> <p>Assess the family environment for factors (e.g. parenting/primary caregiver influences and socio-cultural factors) that may increase children’s risk of obesity.</p>	IV	NEW
	<p>Recommendation 1.3:</p> <p>Collaborate with school leaders to assess elementary-school environments for risk and protective conditions that influence childhood obesity, including:</p> <ul style="list-style-type: none"> ■ student demographics, ■ school policies, and ■ food and physical activity environments. 	IV	NEW
	<p>Recommendation 1.4:</p> <p>Assess neighbourhoods for community-level risk and protective conditions that influence childhood obesity.</p>	IV	NEW

PRACTICE RECOMMENDATIONS		LEVEL OF EVIDENCE	
2.0 Planning	<p>Recommendation 2.1:</p> <p>Engage community stakeholders when planning primary-prevention interventions for childhood obesity.</p>	IIb	NEW
	<p>Recommendation 2.2:</p> <p>Develop interventions that are:</p> <ul style="list-style-type: none"> ■ universally applied, as early as possible, ■ targeted toward multiple behaviours, ■ implemented using multiple approaches, ■ inclusive of parents/primary caregivers and the family, and ■ implemented simultaneously in multiple settings. 	Ia – IV	+
3.0 Implementation	<p>Recommendation 3.1:</p> <p>Support exclusive breastfeeding for the first six months of life followed by breastfeeding and complementary feeding up to two years of age or beyond.</p>	III	+
	<p>Recommendation 3.2:</p> <p>Provide education and social support to help parents/primary caregivers to promote healthy eating and physical activity in infants and toddlers.</p>	Ib	+
	<p>Recommendation 3.3:</p> <p>Collaborate with parents/primary caregivers, educators and support staff (e.g. teachers, child care providers, school leaders) to promote healthy eating and physical activity in all settings where preschool children gather.</p>	Ib	NEW
	<p>Recommendation 3.4:</p> <p>Collaborate with school communities to promote regular physical activity among elementary-school children.</p>	IIb	+
	<p>Recommendation 3.5:</p> <p>Facilitate and support the integration of health and nutrition education into elementary-school programs and support the improvement of the school food environment.</p>	IIa – III	+

PRACTICE RECOMMENDATIONS		LEVEL OF EVIDENCE	
4.0 Evaluation	<p>Recommendation 4.1:</p> <p>Monitor and evaluate the effectiveness of the family’s approach to healthy eating and physical activity.</p>	IV	+
	<p>Recommendation 4.2:</p> <p>Evaluate the effectiveness and sustainability of school- and community-based primary-prevention initiatives.</p>	IV	NEW
	<p>Recommendation 4.3:</p> <p>Advocate and support the evaluation of an organization’s compliance with healthy public policies, and the impact of such policies on childhood eating behaviours and physical activity.</p>	III	NEW

EDUCATION RECOMMENDATIONS		LEVEL OF EVIDENCE	
5.0 Education	<p>Recommendation 5.1:</p> <p>Incorporate foundational primary-prevention curricula based on this Guideline into the undergraduate education of nurses and other health-care providers.</p>	IV	+
	<p>Recommendation 5.2:</p> <p>Health-care professionals should participate in continuing education to enhance their ability to support the positive behavioural and environmental changes for children, families, and communities recommended in this Guideline.</p>	IV	+

SYSTEM, ORGANIZATION AND POLICY RECOMMENDATIONS		LEVEL OF EVIDENCE	
6.0 System, Organization and Policy	<p>Recommendation 6.1:</p> <p>Collaborate with organizations to develop, promote, and implement comprehensive and enforceable healthy public policies that impact healthy eating and physical activity in all childhood settings.</p>	III	NEW
	<p>Recommendation 6.2:</p> <p>Collaborate with organizations to establish, or critically examine and work to improve, healthy public policies that address children’s physical activity and built environments.</p>	IV	NEW
	<p>Recommendation 6.3:</p> <p>Collaborate with organizations to establish, or critically examine and work to improve, healthy public policies that address the school food environment and the marketing of unhealthy food and beverages to children.</p>	IV	NEW
	<p>Recommendation 6.4:</p> <p>Collaborate with organizations and the broader community to establish, or work to improve, healthy public policies that address the barriers to health equity.</p>	IV	NEW
	<p>Recommendation 6.5:</p> <p>Advocate for the establishment of a comprehensive population-level surveillance system to monitor risk and protective conditions for childhood obesity, including:</p> <ul style="list-style-type: none"> ■ prevalence of healthy weights, ■ physical activity and healthy eating, ■ socio-economic factors such as the prevalence of poverty, and ■ prevalence and duration of breastfeeding and exclusive breastfeeding. 	IV	NEW

Interpretation of Evidence

Levels of Evidence

Ia	Evidence obtained from meta-analysis or systematic reviews of randomized controlled trials.
Ib	Evidence obtained from at least one randomized controlled trial.
IIa	Evidence obtained from at least one well-designed controlled study without randomization.
IIb	Evidence obtained from at least one other type of well-designed quasi-experimental study, without randomization.
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies, and case studies.
IV	Evidence obtained from expert committee reports, opinions, and/or clinical experiences of respected authorities.

Adapted from “Sign grading system 1999-2012,” by the Scottish Intercollegiate Guidelines Network (SIGN), 2012, in *SIGN 50: A Guideline Developer’s Handbook*. Available from <http://www.sign.ac.uk/guidelines/fulltext/50/index.html>



Registered Nurses' Association of Ontario Expert Panel

Lorraine Telford, RN, MN, CCHN(C)

Expert Panel Co-Chair

Manager, Clinical Programs
LAMP and East Mississauga
Community Health Centres
Toronto, Ontario

Carol Timmings, RN, MEd

Expert Panel Co-Chair

Director, Healthy Living and Chief Nursing Officer
Toronto Public Health
Toronto, Ontario

Suzanne Biro, BScH, MPH

Foundational Standard Specialist
Chronic Disease and Injury Prevention
Kingston, Frontenac and Lennox &
Addington Public Health
Kingston, Ontario

Nita Chahal, MN, NP-Paediatrics

Nurse Practitioner, Cardiovascular Service
The Labatt Family Heart Centre
The Hospital for Sick Children
Toronto, Ontario

Michael Creek

Director of Strategic Initiatives
Working for Change
Toronto, Ontario

Meni Didimos-Bryant, RN, BScN

Professional Practice Specialist
Provincial Services Team
Ontario Nurses' Association
Toronto, Ontario

Gary Goldfield, PhD, C. Psych

Clinical Scientist, Healthy Active Living
& Obesity Research
Children's Hospital of Eastern Ontario –
Research Institute
Associate Professor of Pediatrics,
Psychology and Human Kinetics
University of Ottawa
Ottawa, Ontario

**Elvenia Gray-Sandiford, MA, CDE
(Community Development and Engagement)**

Director
TransformNation Inc.
Mississauga, Ontario

Liz Helden, RN, BSN, MEd

Nurse Co-ordinator, Growing Healthy Pediatric
Weight Management Program
McMaster Children's Hospital
Hamilton, Ontario

Ellen Lakusiak, RD, BASc, MSc

Public Health Nutritionist
Ottawa Public Health
Early Years Nutrition
Ottawa, Ontario

Amy McPherson, PhD, CPsychol, AFBPsS

Scientist, Participation & Inclusion
Bloorview Research Institute, Holland Bloorview
Kids Rehabilitation Hospital
Assistant Professor, Dalla Lana School of Public Health
& Graduate Department of Rehabilitation Science
University of Toronto
Toronto, Ontario

Registered Nurses' Association of Ontario Expert Panel ...con't

Alex Munter

President and Chief Executive Officer
Children's Hospital of Eastern Ontario
Ottawa, Ontario

Judith Nyman, MEd

Director of Program Policy
Ontario Public School Boards' Association
Toronto, Ontario

Janice Piper, BHEc, MPH

Public Health Nutritionist
Thunder Bay District Health Unit
Thunder Bay, Ontario

Rebecca Truscott, MHSc, RD

Manager, Prevention Policy & Stakeholder Engagement
Cancer Care Ontario
Toronto, Ontario



Declarations of interest and confidentiality were made by all members of the Registered Nurses' Association of Ontario expert panel.

Further details are available from Registered Nurses' Association of Ontario.

Registered Nurses' Association of Ontario Best Practice Guideline Program Team

Grace Suva, RN, MN

Guideline Development Lead

Registered Nurses' Association of Ontario
Toronto, Ontario

Diana An, RN, MSc

Nursing Research Associate

Registered Nurses' Association of Ontario
Toronto, Ontario

Megan Bamford, RN, MScN

Nursing Research Associate

Registered Nurses' Association of Ontario
Toronto, Ontario

Anastasia Harripaul, RN, MSc(A)

Nursing Research Associate

Registered Nurses' Association of Ontario
Toronto, Ontario

Monique Lloyd, RN, PhD

Associate Director, Guideline Development,
Research and Evaluation

Registered Nurses' Association of Ontario
Toronto, Ontario

Tasha Penney, RN, MN

Nursing Research Associate

Registered Nurses' Association of Ontario
Toronto, Ontario

Laura Sykes, BA

Project Coordinator

Registered Nurses' Association of Ontario
Toronto, Ontario

Rita Wilson, RN, MN

eHealth Program Manager

Registered Nurses' Association of Ontario
Toronto, Ontario

Sarah Xiao, RN, MScN

Manager, Research and Evaluation

Registered Nurses' Association of Ontario
Toronto, Ontario

Acknowledgement of contribution:

Danielle Ferreira, MN (student)

(September 2013 – November 2013)

Ryerson University

Toronto, Ontario

Stakeholder Acknowledgement

Stakeholders representing diverse perspectives were solicited for their feedback, and the Registered Nurses' Association of Ontario wishes to acknowledge the following individuals for their contribution in reviewing this Nursing Best Practice Guideline.

Barbara Bartle, BAsC, RD

Public Health Dietitian
Ontario Society of Nutrition Professionals
in Public Health
Fergus, ON

Joanne Beyers, MA, RD

Foundational Standard Specialist
Sudbury & District Health Unit
Sudbury, ON

Julie Charlebois, BAsC, MHsC, RD

Health Promotion Consultant
Toronto Public Health
Toronto, ON

Carol Craig, RN, BScN

Public Health Nurse
Sudbury & District Health Unit
Sudbury, ON

Yvette Dalrymple, RN(EC), MN, CPHON, NP-Pediatrics

Program Coordinator
North Durham Family Health Team
Port Perry, ON

Lorette C. Dupuis, RN, BN, MPH, CCHN (C)

Family Health Specialist
Ottawa Public Health
Ottawa, ON

Nicola Eynon-Brown, RN(EC), BNSc, MN, NP-Pediatrics

Professor
School of Baccalaureate Nursing
Laurentian University Collaborative BScN Program
Brockville Campus, St. Lawrence College
Brockville, ON

Susan Fairservice, RN(EC), HBScN, NP-PHC, MPH

Nurse Practitioner
North Shore Family Health Team
Schreiber, ON

Joyce Fox, RN, BScN, MHS

Director, Healthy Living Service
Simcoe Muskoka District Health Unit
Barrie, ON

Melissa Goheen, RN, BScN

Public Health Nurse
The Regional Municipality of York
Newmarket, ON

David Groulx, RN, BScN, MPH

Acting Director, Health Promotion Division
Sudbury & District Health Unit
Sudbury, ON

Virginia Gunn, RN, MN, BA, PhD Student

Health Promoter
Region of Peel/Public Health – Chronic Disease and
Injury Prevention Division
Mississauga, ON

Cheryl Jackson, B.A., B. Journalism

Communications and Engagement
Centre for Addiction and Mental Health (CAMH)
Toronto, ON

Hanna Janiec, RN, BScN

Public Health Nurse
Thunder Bay District Health Unit
Thunder Bay, ON

Denise Kall, RN, BN, MPH

Professor
St. Lawrence College
Laurentian University/St. Lawrence College
Collaborative BScN Program
Brockville, ON

Shannon Labre, RD

Public Health Dietitian
Sudbury & District Health Unit
Sudbury, ON

Natalie Lapos, RN, BScN, MN

Analyst, Research and Policy (acting)
Peel Public Health
Mississauga, ON

Tim Lenartowych, RN, BScN

Special Projects Manager
Registered Nurses' Association of Ontario
Toronto, ON

Lynn Anne Mulrooney, RN, MPH, PhD

Senior Policy Analyst
Registered Nurses Association of Ontario
Toronto, ON

Michelle Paterson, RN, BSc, BA Psyc

Supervisor
Region of Peel Public Health Department
Mississauga, ON

Sumit Rai

Social Service Worker
Assistant Coordinator
TransformNation Inc.
Brampton, ON

Roxane Ramdeen

Third Year Bachelor of Nursing Student
Humber College/University of New Brunswick
(collaborative)
Brampton, ON

Chelsea Rose Meixner

Nursing Student, BScN SN 4
University of Windsor
Windsor, ON

Alysha Savji, RN, BScN

Registered Nurse
University Health Network
Toronto, ON

Penny Sutcliffe, MD, MHSc, FRCPC

Medical Officer of Health and CEO
Sudbury & District Health Unit
Sudbury, ON

Hilda Swirsky, RN, BScN, MEd

Registered Nurse
Mount Sinai Hospital
Toronto, ON

Lanae Sylva

Third Year Bachelor of Nursing Student
Humber College/University of New Brunswick
(collaborative)
Toronto, ON

May Tao, RN, BScN, MScN(c)

Consultant Health Promotion
Toronto Public Health
Toronto, ON

Stephanie Tiffin, RN, BScN

Registered Nurse
University Health Network-Toronto General Hospital
Toronto, ON

Ashleigh Townley, BSc, MA

Knowledge Broker
Holland Bloorview Kids Rehabilitation Hospital
Toronto, ON

Evelyn Vaccari, MHSc, RD

Consultant, Nutrition Promotion
Toronto Public Health
Toronto, ON

Tracey Weatherbe, RD

Manager
Sudbury & District Health Unit
Sudbury, ON

Judi Wilkie, MHSc, RD

Manager, Healthy Living
Toronto Public Health
Toronto, ON

Winnie Wong, RN

Registered Nurse
University Health Network
Toronto, ON

YMCA Ontario

Toronto, ON

Sylvia Young, RN, BScN, BSc

Registered Nurse and Clinic Nurse
The Hospital for Sick Children
Toronto, ON

Colleen Zorzit, RN, BScN, CCHN(C)

Public Health Nurse
The Regional Municipality of York
Markham, ON

Background

Childhood Obesity in Canada

The prevalence of obesity in children has increased rapidly in recent years and is associated with many negative health consequences. In Canada, the prevalence of obesity has doubled in the last 25 years and, according to the World Health Organization (WHO), one in three Canadian children is overweight or obese (Public Health Agency of Canada, 2011a). More specifically, between the years 1978 and 2004, the combined prevalence of overweight and obesity among those aged two to 17 years nearly doubled from 15 percent to 26 percent (PHAC, 2011a).

Changes to the Guideline Since 2005

Since the publication of the Registered Nurses' Association of Ontario's *Primary Prevention of Childhood Obesity* in 2005 there has been a shift in the approach to the primary prevention of unhealthy childhood weights. Recent literature and clinical expertise suggest that the most effective strategies focus on infants and children from birth to 12 years of age and emphasize a social-environmental approach. To address this public health issue using best available evidence, it is first necessary to identify and understand the conditions that either protect against or place children at risk for obesity.

Risk and Protective Conditions for Childhood Obesity

In general, the risk and protective conditions for childhood obesity fall into one of the following three categories:

1. Societal/structural conditions, or
2. Obesogenic^G environmental conditions, or
3. Individual-level conditions.

Societal/structural conditions refer to the inequitable distribution of resources, money and power, which according to the WHO are the “structural drivers of the conditions of daily life” (WHO, 2008, p. 2). For instance, there is evidence that socio-economic status is associated with differential opportunities for healthy food and physical activity amongst communities (Merchant, Dehghan, Behnke-Cook, & Anand, 2007). Thus, the inequitable societal structures that perpetuate poverty in marginalized populations compared to others (e.g. Aboriginal people, racialized people, new immigrants, people with disabilities etc.) are important to address as a facet of childhood obesity. The interventions needed to address poverty must include both individual level interventions to assist specific families as well as structural changes that address income security, income inequalities, fair employment and decent work, social safety nets, health equity in systems, programs and policies, financing to address the social determinants of health and social inclusion (WHO, 2008).

The obesogenic environment is characterized by the presence of environmental conditions that promote sedentary or less active lifestyles and the overconsumption of high-fat, high-calorie foods (RNAO, 2005). A number of environmental conditions both within and outside a child's home increase the likelihood that a child will consume unhealthy foods. Within the home, pressures related to school, work, and family obligations create time constraints that can adversely affect parents'/primary caregivers' ability to purchase and provide healthy food options for their families (Ontario Ministry of Health and Long-Term Care, 2012b). Moreover, lower-income families are less able to access and afford healthy meals (Merchant et al, 2007). Outside of the home, children's food choices are negatively influenced by

the marketing^G of unhealthy foods and by public policies that do not ensure healthy eating in child-care centres and schools (Boles, Dilley, Dent, Elman, Duncan, & Johnson, 2011; Han-Markey, 2012; Harris, 2010; Kubik, Wall, Shen, Nanney, Nelson, & Laska, 2010; Matthews, Nelson, Kaur, Rayner, Kelly, & Cowburn, 2011; Phillips, Raczynski, West, Pulley, Bursac, & Gauss, 2010; Potvin, Dubois, & Wanless, 2011a; Seo & Lee, 2012).

Environmental conditions within and outside the home also influence children's physical activity levels and time spent in sedentary activities. Within the home, parents/primary caregivers often rely on cars, as opposed to walking, as a preferred means of transportation for their family (Ontario Ministry of Health and Long-Term Care, 2012b). In addition, children are spending an increasing amount of time in front of computers and other screens (Ontario Ministry of Health and Long-Term Care, 2012b). Outside of the home, physical activity requirements in schools and other child-care settings either do not exist or are not sufficiently enforced (Anderson, Aycok, Mihalic, Kozlowski, & Detschner, 2013; Benjamin, Cradock, Walker, Slining, & Gillman, 2008; Kim, 2012; Phillips et al., 2010; Vanderloo, Tucker, Ismail, & van Zandvoort, 2012). Barriers to physical activity are more pronounced in lower-income neighbourhoods, which are less likely to be designed to support physical activity and where safety concerns may deter individuals from engaging in healthy outdoor activities (Merchant et al., 2007). Where play areas exist, they may not be accessible to all children, especially those with mobility limitations.

In addition to the environmental conditions described above, various individual-level conditions may protect children from or increase the risk of obesity in children. Individual-level conditions refer to the biological influences on childhood weight. For example, exclusive breastfeeding for six months following birth is supportive of childhood health and may be positively associated with healthy childhood weights (August et al., 2008; Obesity Canada Clinical Practice Guidelines Expert Panel, 2006; Garcia et al., 2010; Scottish Intercollegiate Guidelines Network [SIGN], 2010). According to other literature additional risk factors for childhood obesity may include insufficient sleep, maternal smoking and mental health (Ontario Agency for Health Protection and Promotion [Public Health Ontario], 2013; Ontario Ministry of Health and Long-Term Care, 2012b). Although interventions for the primary prevention of obesity that address sleep, mental health and pre-natal/preconception did not emerge as being effective in our systematic review, the expert panel fully supports their importance in child health. Please see *No Time to Wait: The Healthy Kids Strategy* (Ontario Ministry of Health and Long-term Care, 2012b) to further inform nursing practice for health promotion with children.

Genetics and human physiology may place children at risk for unhealthy childhood weights. According to the Wellcome Trust Sanger Institute (2008), a cluster of genes that control satiety and the consumption of fatty, energy-rich foods may interact with children's environments and increase children's predisposition to obesity. Moreover, humans are driven to eat by hardwired neurological functions that are triggered not only by hunger but also by the availability of an abundance of food (Goldstone et al., 2009). Thus, biological functions originally intended for human survival are now contributing to childhood obesity (Ontario Ministry of Health and Long-Term Care, 2012b).

Consequences of Childhood Obesity

Childhood obesity causes both immediate and long-term health consequences and is strongly associated with a number of chronic diseases (PHAC, 2011a). The negative health outcomes listed in *Primary Prevention of Childhood Obesity* (RNAO, 2005) still apply today. These are listed in Table 1.

Table 1. Physical, Emotional Health and Social Consequences of Obesity in Childhood and Adolescence

PHYSICAL	EMOTIONAL HEALTH	SOCIAL
<p>Metabolic</p> <ul style="list-style-type: none"> ■ Glucose intolerance and insulin resistance ■ Type 2 Diabetes ■ Dyslipidemia ■ Polycystic Ovary Disease ■ Menstrual abnormalities <p>Pulmonary</p> <ul style="list-style-type: none"> ■ Obstructive Sleep Apnea ■ Asthma <p>Gastroenterological</p> <ul style="list-style-type: none"> ■ Non-Alcoholic Steato-Hepatitis ■ Cholelithiasis <p>Musculoskeletal</p> <ul style="list-style-type: none"> ■ Impaired balance ■ Joint pain ■ Back pain ■ Slipped Capital Femoral ■ Epiphyses ■ Tibia Vara 	<ul style="list-style-type: none"> ■ Low self-esteem ■ Depression 	<ul style="list-style-type: none"> ■ Stigmatization ■ Teasing and other forms of bullying ■ Social marginalization ■ Discrimination ■ Risk behaviours (e.g. smoking, alcohol and other drug use)

Adapted from “Primary Prevention of Childhood Obesity” (p. 17), by Registered Nurses’ Association of Ontario, 2005, Toronto, ON: Registered Nurses’ Association of Ontario.

Depending on the number of chronic obesity-linked diseases that are included in the estimate, the Public Health Agency of Canada estimates that the annual Canada-wide costs of obesity are between \$4.6 billion and \$7.1 billion (PHAC, p. 37, 2011a). It is clear that the physical, psychosocial, and economic burden of childhood obesity is extremely high, and action is required early in a child’s life to avoid chronic diseases and obesity in adulthood (Ontario Ministry of Health and Long-Term Care, 2012b).

Guiding Framework

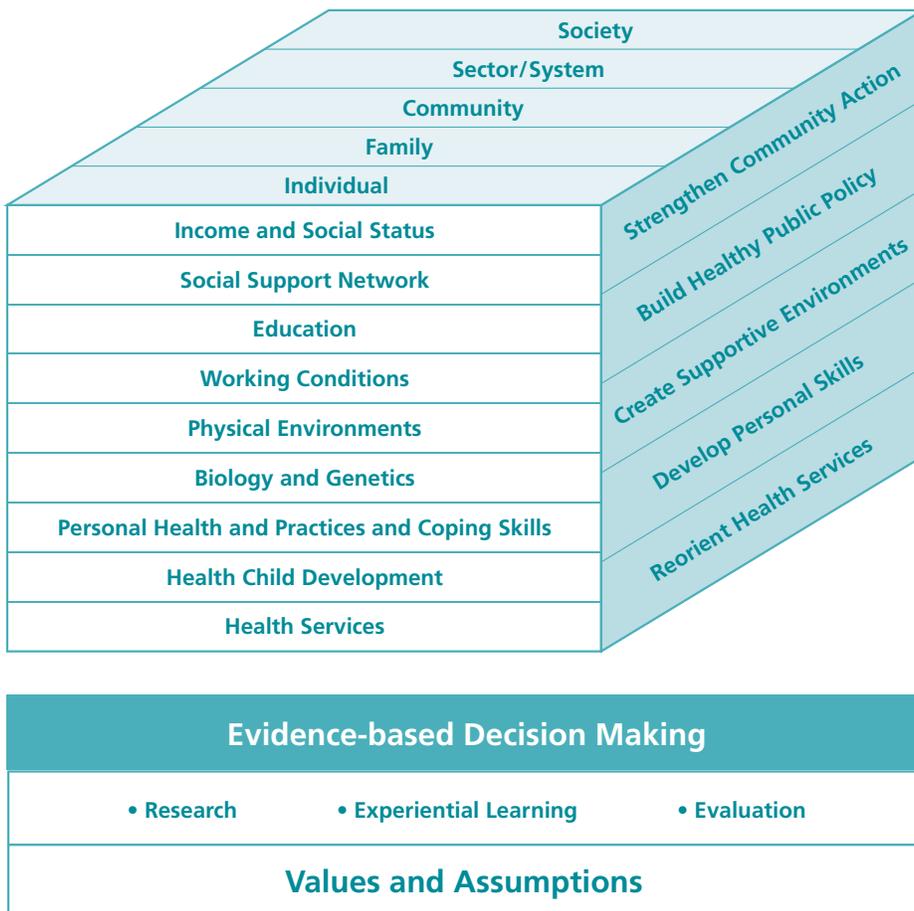
Population Health Promotion Model and Childhood Obesity

The *Population Health Promotion Model*⁶, proposed by Hamilton and Bhatti (1996), is used as a framework for intervention in this Guideline (see Figure 1). The model consists of three major components, each of which is represented on one of the visible sides of the cube:

1. Social determinants of health (shown on the front facing side),
2. Comprehensive action strategies (shown on the right side), and
3. Levels of action (shown on the top side).

These components resonate with the main intent of the primary-prevention interventions recommended in this Guideline. Each component is discussed in more detail below.

Figure 1. Population Health Promotion Model



Population Health Promotion Model

From, “Population Health Promotion: An Integrated Model of Population Health and Health Promotion,” by Hamilton & Bhatti, 1996, Public Health Agency of Canada. Copyright 2014 by the Public Health Agency of Canada. Reprinted with permission.

Social Determinants of Health

According to WHO (WHO, 2014a, para. 1), the social determinants of health are, “the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities – the unfair and avoidable differences in health status seen within and between countries.” As seen in the front facing side of Figure 1, the model lists these determinants as:

- Income and social status,
- Social support network,
- Education,
- Working conditions,
- Physical environments,
- Biology and genetics,
- Personal health and practices and coping skills,
- Healthy child development, and
- Health services.

Within the Canadian context, certain social determinants of health may help explain why some Canadians are healthier than others (Mikkenon & Raphael, 2010). They are:

- Aboriginal status,
- Disability,
- Early childhood development,
- Education,
- Employment and working conditions,
- Food insecurity^G,
- Health services,
- Gender,
- Housing,
- Income and income distribution,
- Racialized status,
- Social exclusion,
- Social safety net, and
- Unemployment and job security.

The root causes of childhood obesity are strongly associated with many of these determinants of health. In Canada in particular, the social determinants of health are largely influenced by economic status (Barnes, 2012). Children are particularly vulnerable to the environmental conditions associated with poverty, such as food insecurity, inadequate housing, and social marginalization, and there is a clear positive association between socio-economic status and childhood obesity (Barnes, 2012; Mikkenon & Raphael, 2010). Strategies, programs, and policies that do not acknowledge and address socio-economic status risk the following outcomes: poorer health, a higher likelihood of obesity, and greater social and health inequities among children (Barnes, 2012).

Comprehensive Action Strategies

Comprehensive action strategies implemented by health-care providers in collaboration with stakeholders that address the social determinants of health are instrumental to influencing the health of a population and diminishing health inequities (Alberta Coalition for Healthy School Communities, 2006; Hamilton & Bhatti, 1996; PHAC & CIHI, 2011). In the Population Health Promotion Model (see right side of Figure 1), these strategies, informed by the WHO *Ottawa Charter for Health Promotion* (1986) include:

- Strengthening community action,
- Building healthy public policy⁶,
- Creating supportive environments,
- Developing personal skills, and
- Reorienting health services.

The strategies include (a) interventions that equip individuals and communities with the knowledge and skills required to improve their health, and (b) population-level strategies that create supportive environments for health improvement (Hamilton & Bhatti, 1996).

At the health-care-provider level, professional competencies reflect the strategies in the Population Health Promotion Model. For example, the core competencies set by Community Health Nurses of Canada (2011) for nurses working in community health provide that nurses are responsible for:

- Integration of health promotion, prevention, and health protection in nursing practice;
- Integration of health maintenance, restoration, and palliation into nursing practice;
- Connecting with others to establish, build, and nurture professional relationships that promote maximum participation and self-determination of the individual, family, group, community, or population;
- Building individual and community capacity by actively involving and collaborating with individuals, families, groups, organizations, populations, communities, and systems;
- Facilitating access and equity by working to make sure that resources and services are equitably distributed throughout the population and reach people who most need them; and
- Demonstrating responsibility and accountability as a fundamental component of their professional and autonomous practice.

Levels of Action

The Population Health Promotion Model identifies five levels at which effective action strategies occur: (a) the individual, (b) the family, (c) the community, (d) sector/system, (e) and society (see top side of Figure 1). The model further emphasizes the importance of interventions informed by evidence. Evidence-based action strategies incorporate health research, experiential knowledge, and evaluation studies of policies and programs (Hamilton & Bhatti, 1996).

We used the Population Health Promotion Model as a framework in developing this Guideline to ensure that our recommendations account for the range of social determinants of health and include a focus on community- and population-based strategies in addition to individually targeted interventions. As such, we consider comprehensive programs to be multi-component, population-based interventions that target multiple behaviours across various settings. Because obesity is influenced by the social determinants of health, the obesogenic environment, and

individual behaviours, effective primary-prevention interventions must be inter-sectoral and cross-governmental in nature (Ontario Agency for Health Protection and Promotion [Public Health Ontario], 2013).

Nurses across all health-care settings can be influential in the prevention of childhood obesity (Canadian Nurses Association, 2013; RNAO, 2012b). The comprehensive action strategies outlined in the Population Health Promotion Model coincide with the competencies required of nurses who practise primary prevention, regardless of their practice setting (RNAO, 2012b).



Practice Recommendations

1.0 ASSESSMENT

RECOMMENDATION 1.1:

Routinely assess children’s nutrition, physical activity, sedentary behaviour, and growth according to established guidelines, beginning as early as possible in a child’s lifespan.

Level of Evidence = IV

Discussion of Evidence:

It is important for nurses to routinely assess the physical growth and development of children, including eating habits and physical activity, so that the presence of risk and protective conditions that influence children’s weight can be identified as early as possible. It is recommended that routine assessments start at birth and occur during well-baby/well-child visits in a clinical setting (e.g. immunization visits) (Fitch et al., 2013). The expert panel recommends nurses establish baseline measures of these factors as early as possible in a child’s lifespan (i.e. starting at birth) and track them over time to evaluate intervention effectiveness. Using established guidelines as a reference provides nurses and health-care providers with the information necessary to measure behaviours and development appropriately, interpret results, and intervene early.

The following assessment targets and tools apply to children up to 12 years of age and their families. Most often, data from children in this age group are collected from parents/primary caregivers during routine health visits (Fitch et al, 2013). Population-based information may also be collected in school or public health settings for the purposes of obtaining aggregate data prior to implementing school- or community-based primary-prevention initiatives. In every case, it is critical that assessments be tailored to the child’s age, growth, and development. For a more detailed list of tools, please see [Appendices D, E, F, and G](#).

Nutrition and Eating Habits

Because healthy eating is associated with healthy weights, information about children’s feeding practices and nutrition should be collected as early as possible in their growth and development (Ontario Agency for Health Protection and Promotion [Public Health Ontario], 2013). Dietary assessments should be conducted by a qualified health-care provider, and dietitians should be involved and consulted whenever possible (Obesity Canada Clinical Practice Guidelines Expert Panel, 2006). The expert panel recommends that nurses assess children for nutrition and healthy eating according to the following established guidelines, as age appropriate:

- For infants up to six months of age, *Nutrition for Healthy Term Infants: Recommendations from Birth to Six Months*, a joint statement by Health Canada, the Canadian Paediatric Society, Dietitians of Canada, and Breastfeeding Committee for Canada, provides infant feeding recommendations for optimal nutrition intake, immunologic protection, growth, and development of infants and toddlers (Health Canada, 2014a; see [Appendix E](#)).

- For children aged six months to two years, *Nutrition for Healthy Term Infants: Recommendations from Six to 24 Months*, jointly created by the Canadian Paediatric Society’s Nutrition and Gastroenterology Committee, Dietitians of Canada, Breastfeeding Committee for Canada, Public Health Agency of Canada and Health Canada, provides feeding recommendations on continued breastfeeding, complementary feeding, food preparation and responsive feeding practices (Health Canada, 2014b; see [Appendix E](#)).
- For children up to six years of age, the *Pediatric Nutrition Guidelines for Primary Health Care Providers* provide age-appropriate developmental and nutrition indicators to help health-care providers identify nutrition risks (Ontario Society of Nutrition Professionals in Public Health – Family Health Nutrition Advisory Group, 2011; revision anticipated in 2014; see [Appendix E](#)).
- For children two to 12 years of age, *Eating Well with Canada’s Food Guide* provides information on selecting foods from various groups to meet daily nutrient needs (Health Canada, 2011b; see [Appendix E](#)).
- For Aboriginal, Inuit and Métis children two to 12 years of age, *Eating Well with Canada’s Food Guide First Nations, Inuit and Métis* provides culturally specific information on choosing foods from the recommended food groups to meet daily nutrient requirements (Health Canada, 2007; see [Appendix E](#)).

Nurses can collect baseline and follow-up nutrition data from parents/primary caregivers using age-appropriate questionnaires and tools. It is important that health-care providers be trained on how to use and interpret age-appropriate assessment tools (e.g. the relevance of percentile information for an individual child). More importantly, the results of the assessment should be communicated to parents/primary caregivers in a sensitive and non-judgemental manner (Healthy Active Living and Sports Medicine Committee, 2012). It is the responsibility of the nurse to empower and educate parents/primary caregivers by using the assessment results to tailor positive, healthy messages to families (Fitch et al., 2013).

Although the best practice is to use validated assessment tools and questionnaires, few currently exist. One such tool is the Parent-Child Interaction (PCI) Feeding & Teaching Scales (NCAST Programs, 2014). The PCI is a valid and reliable tool that can be used by health-care professionals on children of all ages. It assesses parent-/caregiver-child interactions and behaviours in a variety of feeding and teaching situations (NCAST Programs, 2014). Another tool recommended by the expert panel is NutriSTEP®, a valid and reliable questionnaire about eating habits in preschoolers and toddlers 18 months to five years of age that can differentiate between children who are at nutrition risk and those who are not. NutriSTEP® assesses “children’s food and nutrient intake, physical growth, developmental and physical capabilities, physical activity, food security and the feeding environment” (Sudbury & District Health Unit, Janis Randall Simpson, Heather Keller, and the Nutrition Resource Centre, 2014). NutriSTEP® tools are recommended for use in a variety of settings where nurses work. The tools can be completed in less than five minutes by the parent/primary caregiver. The tools enable nurse’s to calculate a risk score that can be easily interpreted so that timely advice and support can be given to a family regarding additional nutrition knowledge and skills (Sudbury & District Health Unit et al., 2014). Another version of the NutriSTEP® tools are available on the Dietitians of Canada (2014) website for use by parents/primary caregivers – it does not provide a risk score but offers general tips, sources of support and education. Details on how to access NutriSTEP® (Sudbury & District Health Unit, Janis Randall Simpson, Heather Keller, and the Nutrition Resource Centre, 2014), NutriSTEP® (Dietitians of Canada, 2014) and the Parent-Child Interaction (PCI) Feeding & Teaching Scales from the NCAST Programs website are provided in [Appendix D](#).

In instances where a brief nutrition assessment tool is necessary, the expert panel recommends nurses use the 5-2-1-0 framework from the Let’s Go! program for preventing childhood obesity (Tucker et al., 2011). The framework is intended to promote consistent messaging among teachers, doctors, parents/primary caregivers, child-care providers, and community organizations about healthy habits, and recommends that children two to 18 years of age be assessed for healthy eating and physical activity according to the following standards:

- Eats fruits and vegetables at least five times per day,
- Restricts screen time^G to two hours or less per day,
- Participates in at least one hour or more of moderate physical activity every day and 20 minutes of vigorous activity at least three times per week, and
- Avoids soda and sugar-sweetened sports drinks and limits fruit drinks (Maine Center for Public Health, n.d.).

While outlining the details of specific assessments is beyond the scope of this Guideline, we have provided information on how to access these tools and references in [Appendix D](#).

Physical Activity and Sedentary Behaviour

Daily physical activity influences childhood weight and should form part of an assessment prior to implementing primary-prevention interventions (Obesity Canada Clinical Practice Guidelines Expert Panel, 2006). Sedentary behaviour^G, or engaging in activities that require very little movement and use very little energy while seated or lying down, is also a significant variable for healthy weights (Ontario Agency for Health Protection and Promotion [Public Health Ontario], 2013). A related concern is screen time, defined as the time spent in front of a television, computer, electronic device, or other screen – an increasingly common activity among both children and adults today, and another contributing factor to childhood obesity.

The expert panel recommends that nurses assess children for physical activity and sedentary behaviour according to the age-appropriate *Canadian Physical Activity Guidelines* (Canadian Society for Exercise Physiology, 2014a; Canadian Society for Exercise Physiology, 2014b) and the *Canadian Sedentary Behaviour Guidelines* (Canadian Society for Exercise Physiology, 2014c; Canadian Society for Exercise Physiology, 2014d) (see [Appendices F](#) and [G](#)). These guidelines recommend that children from birth to four years of age engage in a total of 180 minutes of physical activity of any intensity throughout the day, including:

- a variety of activities in a variety of settings,
- activities that develop movement skills, and
- development toward 60 minutes of energetic play daily by age five.

The guidelines for children aged five to 11 years recommend engaging in a minimum of 60 minutes of moderate-to-vigorous physical activity every day, including:

- three days of vigorous intensity activities, and
- three days of muscle- and bone-strengthening activities.

Screen time is not recommended for children under two years of age. Daily screen time for children aged two to four years should not exceed one hour, and for children aged five to 11 should not exceed two hours. Sedentary time (e.g., time spent sitting, in a stroller, in motorized transport, etc.) should be minimized for children in all age groups.

To assess whether children are meeting these requirements, nurses should collect information from parents/primary caregivers regarding the amount and intensity of a child's physical activity and the type of activities the child is involved in at home and at school, as part of a baseline assessment that will allow the child's progress to be tracked over time (Fitzgibbon et al., 2010; Story et al., 2012). Assessments may be done through questionnaires, accelerometers, parental reports on the frequency and intensity of their children's physical activity, and school reports regarding the amount of physical activity provided (Fitzgibbon et al., 2005; Robinson et al., 2010; Story et al., 2012; Tomlin, et al., 2012). To assess screen time, nurses should ask parents/primary caregivers to report on the amount of time a child spends on the computer, playing a passive video game, and watching television, compared to how much time the child spends engaging in physical activity (e.g., playing outdoors), as well as whether there is a television in the child's bedroom (Birken et al., 2012; Wen et al., 2012).

A variety of questionnaires are available to assess physical activity levels (e.g. Physical Activity Questionnaire for Children). The guideline requirements may also be accessed using self-report tools, such as daily activity logs, to assist with physical activity assessment (see [Appendices D, F, and G](#) for more information).

Anthropometric Measures

Anthropometric measures^G are objective measures of a person's weight and include body mass index (BMI), waist circumference, percent body fat, and skinfold thickness. These measurements are important for tracking a child's growth and development over time. For objective measurement of growth and development in children, the expert panel recommends nurses use the WHO growth charts^G adapted for Canada, and only for children over the age of two years. For details on accessing growth charts as well as a tool to assess a child's growth and development (e.g. Nipissing District Developmental Screen, 2011), see [Appendix D](#).

The expert panel cautions that anthropometric measures should be collected with sensitivity for their potential psychosocial impact on children (e.g., self-esteem; body image; labeling). While our systematic review found very few studies that measured the psychosocial outcomes of growth and development assessment in the context of obesity prevention in children, we urge health-care providers to be mindful of the potential for these unintended consequences, seek appropriate training on how to sensitively collect data from children and accurately interpret the corresponding growth charts (Van Wijnen, Wendel-Vos, Wammes, & Bemelmans, 2009). These measures should be included as part of a comprehensive assessment in a clinical encounter that includes monitoring of nutrition, physical activity, screen time, and other sedentary behaviour.

RECOMMENDATION 1.2:

Assess the family environment for factors (e.g. parenting/primary caregiver influences and socio-cultural factors) that may increase children's risk of obesity.

Level of Evidence = IV

Discussion of Evidence:

The family environment exerts a strong influence on children with respect to the practice and modelling of health behaviours, and it is therefore important that nursing interventions assess and target this environment. In particular, it is important for nurses and other health-care providers to assess family factors, such as parental practices and the socio-cultural characteristics of the family environment, prior to the implementation of individual or population-based family-oriented primary-prevention interventions. Family assessments may begin when the child is born and could be conducted during well-baby or well-child visits in a clinic setting or in the family's home (Fitch et al., 2013). Parents or primary caregivers of younger children can influence their children's health to a large degree by positively influencing their children's eating habits, nutrition intake, and opportunities for physical activity. The assessment of social and cultural factors provides a context to the family's eating behaviours, nutrition intake, and physical activity habits. This assessment in turn enables nurses and health-care providers to create and support realistic primary-prevention interventions that can be sustained by the family.

Family Environment

Parenting/Primary Caregivers

Because parents/primary caregivers of younger children can positively influence their children’s eating habits, nutrition intake, and opportunities for physical activity, assessing parenting/primary caregiver behaviours is an important component of an ongoing, comprehensive assessment (Ostbye et al., 2012). Parents/primary caregivers shape their children’s eating and physical activity behaviours (Fitch et al., 2013). Furthermore, it is well established that overweight mothers tend to have overweight children (Llague et al., 2011; Plachta-Danielzik et al., 2007). Parents’/primary caregivers’ influence of their child’s eating habits and their support of opportunities for their child to engage in physical activity and exercise are significantly correlated with the child’s ability to regulate food intake and engage in physical activity (Birken et al., 2012; Campbell et al., 2013; Centers for Disease Control and Prevention, 2011; Chen, Weiss, Heyman, & Lustig, 2010; Golley, Hendrie, Slater, & Corsini, 2011; Ostbye et al., 2012; Puder et al., 2011; Reilly et al., 2006; Waters et al., 2011; Wen et al., 2012). Based on these findings, the expert panel recommends that nurses assess parental/primary caregiver behaviours prior to an intervention and during follow-up to determine the following:

1. How much influence parents/primary caregivers have with regard to what and when their children eat;
2. Whether parents/primary caregivers encourage their children to consume a variety of foods;
3. Whether parents/primary caregivers engage in emotional feeding or the use of food to pacify children;
4. Whether parents/primary caregivers engage in instrumental feeding, or the use of food as a reward;
5. Whether parents/primary caregivers permit meals and snacks to be eaten in front of a television (Ostbye et al., 2012);
6. Whether meals are frequently eaten together as a family;
7. How often a family goes out to eat “fast food” (e.g. fast food restaurants);
8. Whether an infant is breastfeeding;
9. Whether sugar-sweetened beverages are consumed on a regular basis;
10. Whether children eat a healthy breakfast daily;
11. Whether children’s portion sizes follow nutrition guidelines (see Recommendation 1.1); and
12. Whether children are permitted to self-regulate their meals (Fitch et al., 2013).

The above list provides examples of the types of influences parents/primary caregivers have on children’s feeding practices. More importantly, the intent of collecting this information is not to ‘blame’ parents/primary caregivers for the child’s current feeding practices, but to collect data on some of the influencing factors within the family environment on children’s healthy lifestyles. Thus, nurses should be trained on how to collect information in a non-judgmental and sensitive manner that empowers families and supports positive behavioural changes (Healthy Active Living and Sports Medicine Committee, 2012; Fitch et al., 2013).

While it is beyond the scope of this Guideline to outline the details of the tools that may be used to assess parenting/primary caregiver behaviours and parent-child interaction, [Appendix D](#) lists a number of tools discussed in the

literature and recommended by the expert panel, including the Parenting Stress Index (Abidin, n.d.), Personal Environment Assessments tools (PEAs) (NCAST Programs, 2014) and Family Assessment Instrument (FAI) (Child and Youth Development Branch Strategic Policy and Planning Division Ministry of Children and Youth Services, 2012).

Socio-cultural Conditions

Nurses should assess the family environment for socio-cultural conditions known to impact the nature and availability of interventions used for childhood obesity. These include the family’s ethnicity, the level of education of the parents/primary caregivers, geography (e.g. rural or urban neighbourhood), and gender of the family members. Thus, nurses are in the position to practice culturally competent care. Cultural competence refers to, “the ability to provide care with a client-centered orientation, recognizing the significant impact of cultural values and beliefs as well as power and hierarchy often inherent in clinical interactions, particularly between clients from marginalized groups and health care organizations” (RNAO, 2007b, p.70). For additional information on how to care for diverse populations, please review the RNAO BPG *Embracing Cultural Diversity in Health Care: Developing Cultural Competence* (2007b).

As socio-economic status directly influences the type of foods and the physical activity opportunities to which the family has access, nurses should assess this as well (Veugelers, Sithole, Zhang, & Muhajarine, 2008). It is important to be mindful that children live in poverty because their families do, and those who are socially excluded are most at risk for living in poverty. Child poverty rates are highest among marginalized communities: one in two children of immigrants, one in three racialized children, and about one in four Aboriginal children living on reserve live in poverty (Campaign 2000, 2013b). Children with disabilities are also significantly more likely to live in poverty than their non-disabled peers (Parish & Cloud, 2006).

The expert panel recommends assessing these socio-cultural factors prior to implementing interventions and during routine follow-ups with the family. The assessment of economic, social and cultural influences on the family enables nurses to do the following:

1. Identify families at risk of poverty in order to provide appropriate information and referrals to resources that will increase income. For example, the simple question: “Do you have difficulty making ends meet at the end of the month?” may be a portal for supporting families to gain access to financial resources such as the Child Benefit, tax rebates, and other government benefits including those related to disability, Aboriginal status, and refugee status (Raza, Bloch, & ter Kulie, 2013; Morinis & Feller 2013; Green, Labelle, & Vien, 2013). For additional information on the clinical tools to assess poverty please refer to the “Health Providers Against Poverty” website found in [Appendix D](#).
2. Identify and address conditions that may either hinder or facilitate healthy eating and physical activity practices over time. For example, the neighbourhood within which the family lives will have an impact on the foods and physical activities available to family members (Veugelers et al., 2008).
3. Support positive behavioural changes within the context of resources that are available to the family. For example, the income status of the family influences the types of foods that the family can realistically afford to support healthy eating (Kimbrow & Rigby, 2010).
4. Customize healthy eating and physical activity interventions to the family’s personal preferences. Thus, knowledge of the ethnicity that the family strongly identifies with may influence the types of foods and physical activities preferred by the family.

We are not aware of many validated tools to assess a family’s socio-cultural conditions. However, examples of assessment tools found in the research literature include acculturation scales, migrant parentage, and self-report of

ethnicity (Burgi et al., 2012; Chen et al., 2010; Chen, Weiss, Heyman, Cooper, & Lustig, 2011; Fitzgibbon et al., 2005; Robinson et al., 2010). Acculturation scales capture data related to the degree of a parent's/primary caregivers' identification with a specific culture, whereas migrant parentage captures the ethnicity of the parents/primary caregivers (Chen et al., 2010). The Family Assessment Instrument (FAI) (Child and Youth Development Branch Strategic Policy and Planning Division Ministry of Children and Youth Services, 2012) and Personal Environment Assessments tools (PEAs) (NCAST Programs, 2014) can also be used to comprehensively assess children and their families within the context of their family environment. Please refer to **Appendix D** for further information on these assessment tools.

Influences Outside of the Family Environment

More importantly, there are a variety of factors outside of the family environment that are not within the 'control' of the family, but influence their ability to optimize healthy eating and physical activity habits. In spite of a family's best efforts, contextual influences can either support or hinder primary prevention interventions. Please refer to Recommendations 1.3 and 1.4 on how to assess school, neighbourhood and community level influences on childhood obesity.

RECOMMENDATION 1.3:

Collaborate with school leaders, to assess elementary-school environments for risk and protective conditions that influence childhood obesity, including:

- student demographics,
- school policies, and
- food and physical activity environments.

Level of Evidence = IV

Discussion of Evidence:

The expert panel recommends that comprehensive assessments of factors known to be associated with childhood obesity be conducted in schools in collaboration with the school community, both prior to school-based primary-prevention interventions and at regular intervals during and after implementation. A school assessment includes a review of student demographic characteristics, school policies related to food and physical activity, the food options available to students, and the physical activity environment. Moreover, this school evaluation should be conducted within a broader comprehensive school program assessment for health. In order to mitigate the potential unintended consequences of childhood obesity interventions (e.g. the unhealthy adoption of weight-based practices), a comprehensive school-based program should also address mental health and emphasize healthy child growth and development (Garcia et al., 2010).

The expert panel recommends that children's risks and protective conditions for obesity be conducted as early as possible in a child's growth and development. Consequently, school assessments should be conducted at the earliest grades possible, and no later than Grade 5. This recommendation is supported the Canadian Paediatric Society (Lipnowski, S., LeBlanc, C.M.A., Canadian Paediatric Society Healthy Active Living and Sports Medicine Committee, 2012), Canadian Medical Association (Obesity Canada Clinical Practice Guidelines Expert Panel, 2006), and the Centers for Disease Control and Prevention

(Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, 2011). The frequency of school assessments will depend on the nurse, the school (e.g. collaboration with school leaders such as principals, directors of education, superintendents), and available resources. School assessments should be comprehensive and should include an assessment of the before-, during-, and after-school programs offered in the school environment.

To date, only a few school assessment tools have been formally evaluated for their validity. The expert panel recommends that validated assessment tools or tools informed by public health or clinical practice be used wherever possible, and we mention applicable tools in the discussion below. **Appendix H** provides a list of tools and resources recommended by the expert panel.

Demographic Characteristics

The assessment of a school's demographic characteristics should include a general assessment of socio-economic status; parent/primary caregiver education levels; and individual students' physical activity levels, eating habits, and nutrition intake. This information will help nurses, in collaboration with other health-care providers and stakeholders (e.g., school staff), tailor and prioritize school-based primary-prevention strategies to best address the needs of students and to make the most effective use of the available financial and human resources.

Any school, regardless of its demographic characteristics, may face challenges with respect to student activity levels and nutrition. Students in socio-economically disadvantaged schools are at higher risk for childhood obesity, and such schools are associated with lower levels of parental education and income, higher parental BMI, neighbourhoods that are less walkable, and families who report higher levels of junk food^G consumption and screen time (Merchant et al., 2007). In contrast, children of more highly educated parents/primary caregivers report drinking artificially sweetened drinks less frequently; are more likely to have been breastfed, to eat breakfast, and to participate in organized sports; and are less likely to have a computer or television in their bedroom (Moraes et al., 2012). While it has been shown that children who attend schools marked by higher socio-economic status may be at a decreased risk for obesity, other challenges may exist. For example, in one study such schools cited a dependence on fundraising and experienced parental/primary caregivers' resistance to changes in the nutrition environment, suggesting some possible barriers to positive changes in these settings (Walton, Waiti, Signal, & Thomson, 2010).

Taken collectively, aggregate school demographic characteristics provide useful information on the risk status of the school with respect to childhood obesity and identifies potential barriers to interventions that seek to promote healthy eating and physical activity.

Policies

School policies affect the promotion of healthy eating and physical activity, and should be assessed for their impact on primary prevention opportunities prior to the implementation of such interventions (Garcia et al., 2010). Policies may be created by school districts themselves or mandated by governments. For example, the Ontario Ministry of Education has issued Daily Physical Activity (PPM 138) and School Food and Beverage (PPM 150) policies, with which school boards are legally required to comply. Moreover, nurses in collaboration with the school community have a role in advocating for the implementation and enforcement of high quality school policies both at the local and provincial levels.

The expert panel recommends that assessment of school policies include an examination of the following:

1. The comprehensiveness of the school policy (Taber, Chriqui, Powell, & Chaloupka, 2012b);
2. The strength of the policy language used (Belansky et al., 2009; Kubik et al., 2010; Taber, Chriqui, & Chaloupka, 2012a);
3. The existence of monitoring procedures for the integration and enforcement of the school policy (Forshee, Storey, & Ginevan, 2005; Probart, McDonnell, Jomaa, & Fekete, 2010; Sanchez-Vaznaugh, Sanchez, Rosas, Baek, & Egerter, 2012);
4. The impact of the school policy on the school's food and physical activity environments – for example, the amount of physical activity required of students during school hours and the food choices offered in the cafeteria (Garcia et al, 2010; Kim, 2012; Matthews et al., 2011; Mullally et al., 2010; Taber et al., 2012a; Taber et al., 2012b).

In addition, nurses should assess the barriers and facilitators to the creation, implementation, and enforcement of high quality healthy school policies. Research has shown that the effects of policies on actual school environments are inconsistent and that the reasons why schools do not adhere to policies vary. Most prominent in the literature is the fact that such policies are not consistently implemented, enforced, and monitored (Barroso et al., 2009; Probart et al., 2010; Sanchez-Vaznaugh et al., 2012). This is due in large part to the following:

1. Financial constraints (Agron, Berends, Ellis, & Gonzalez, 2010; Belansky et al., 2009; Belansky et al., 2010; Coffield, Metos, Utz, & Waitzman, 2011; Nanney, Bohner, & Friedrichs, 2008; Prelip, Slusser, Lange, Vecchiarielli, & Neumann, 2010);
2. Lack and instability of human resources (Kubik, Farbaksh, & Lytle, 2011; Naylor, Macdonald, Reed, & McKay, 2006);
3. Limited knowledge or training of staff (Belansky et al., 2010; Brown et al., 2004; Langille & Rodgers, 2010; Masse & de Niet, 2013);
4. Lack of leadership (Gladwin, Church, & Plotnikoff, 2008); and
5. Environmental barriers, such the inconsistent availability of healthy food options in school cafeterias (Bauer, Patel, Prokop, & Austin, 2006; Devi, Surender, & Rayner, 2010).

By taking into account the potential policy barriers and facilitators within particular schools, nurses can work in partnership with school leaders to develop strategies aimed at overcoming challenges and leveraging schools' strengths. Environmental and societal barriers outside of schools may also diminish the positive effects of healthy interventions and messages to students, such as a family's limited access to nutritious food for meals in the home (e.g. due to family income); the availability of fast-food restaurants and convenience stores within the school neighbourhood; and the influence of children's exposure to unhealthy foods and beverages through advertisements (Batada & Wootan, 2007; Hanratty, 2012; Kimbro & Rigby, 2010; Merchant et al., 2007; Veugelers et al., 2008).

The expert panel recommends that policy assessments be conducted using the validated School Health Index (Centers for Disease Control and Prevention – Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, 2011) (see [Appendix H](#)).

Food and Physical Activity Environments

Positive changes in the food environment promote healthy eating and, in turn, healthy weights. The expert panel recommends that an assessment of a school's food environment consider the quality of breakfast programs offered at the school, the food served in the cafeteria, snacks and beverages offered in vending machines, the proximity of other food sources (e.g., restaurants) to the school, and student eating habits and attitudes (Marcus et al., 2009). These factors should be assessed before, during, and in follow-up to school-based primary-prevention initiatives.

A school's physical activity environment includes the playground and recreational facilities, as well as opportunities for physical activity throughout the school day, such as at recess and in extended physical education classes (Charlebois, Gowrinathan, & Waddell, 2012). Enhanced opportunities for physical activity in the school environment increase the likelihood that children will meet their daily physical activity requirements. Moreover, policies that enforce changes to the school's physical activity environment in tandem with changes in the food environment promote child health and healthy weights (Phillips et al., 2010).

The expert panel recommends that a school's physical activity environment be assessed for opportunities for physical activity, including physical education programs and students' access to free play (Obesity Canada Clinical Practice Guidelines Expert Panel, 2006); the condition of the school's recreational facilities; and the quality and accessibility of the playground. Opportunities for physical activity should be available for all students. Methods to assess these factors include measurements of students' rates of moderate-to-vigorous physical activity and the duration of physical activity, and questionnaires administered to students by qualified evaluators (Dobbins, Husson, DeCorby, & LaRocca, 2013; Fung et al., 2012).

Various tools exist to assess schools' food and physical activity environments. To inform the assessment of a school's food environment, we recommend the *Eating Well With Canada's Food Guide* (Health Canada, 2011) and the Nutrition Tools for Schools® resource by the Ontario Society of Nutrition Professionals in Public Health (2011) (see [Appendices E](#) and [H](#) respectively). *Eating Well With Canada's Food Guide* (Health Canada, 2011) can be used to determine healthy food options and age-appropriate serving sizes that should be offered in schools. The Nutrition Tools for Schools® website offers tips, tools, and public health support to create a healthier food environment for students. More specifically, it provides “action guides” for interventions, suggesting ways in which school personnel can encourage healthier snacks and foods (e.g., increase milk consumption, improve foods offered in vending machines), teach nutrition in classrooms, model positive behaviour for students, and create a school food policy (Ontario Society of Nutrition Professionals in Public Health, 2011).

The Ontario Physical and Health Education Association's (OPHEA, n.d.) Healthy Schools Healthy Communities website offers tools and resources to assist health care providers, schools, families and community stakeholders to assess, create and support healthier school environments. The Ontario Ministry of Education's (2012) Healthy Schools: Foundations for a Healthy School chart is another useful resource that may be used to assess the health status of schools according to the quality of the school's instruction and programs, physical environment, supportive social environment and community partnerships. Moreover, the School Health Environment Survey (SHES), which uses the principles of the Healthy Schools: Foundations for a Healthy School document, may be used to assess the school environment (University of Waterloo, n.d.). For instructions on accessing these tools and resources, please see [Appendix H](#).

RECOMMENDATION 1.4:

Assess neighbourhoods for community-level risk and protective conditions that influence childhood obesity.

Level of Evidence = IV

Discussion of Evidence:

A variety of community characteristics and factors place children at risk for obesity. Assessing a neighbourhood's characteristics allows nurses to: (a) identify the presence of risk and protective factors, (b) recognize potential facilitators and barriers to the implementation of primary prevention interventions, and (c) identify and leverage existing community resources for primary-prevention interventions.

The risk of childhood obesity is tied to the socio-economic status of the neighbourhood where a child lives.

A neighbourhood assessment could also consider:

- safety (e.g. crime),
- walkability (e.g. sidewalks),
- housing (e.g. the condition of stairwells, well lit walking paths, structurally sound housing),
- accessible opportunities for play for all children, including access to recreation centres and parks, and
- access to stores that offer healthy food options.

Alternatively, nurses should consider using existing community level data to inform their neighbourhood assessment. Examples of sources include social planning councils and pre-existing neighbourhood safety and walkability reports.

Research shows that children are more likely to be obese if they live in neighbourhoods that are unsafe, that have few or no sidewalks, and where there is more litter relative to other areas (Singh, Siahpush, & Kogan, 2010). The risk of obesity also increases in neighbourhoods characterized by substandard housing conditions and a high proportion of children living in public housing and in neighbourhoods that do not contain or offer convenient access to parks, recreation centres, and stores, including grocery stores (Singh et al., 2010). Children living in neighbourhoods that offer easier access to stores are more likely to eat fruits, vegetables, and low-fat dairy products compared to children living in areas with poor access to stores; those who live in areas with playgrounds and parks are more likely to participate in organized sports and spend less time in front of a screen compared to children with less access to these amenities (Veugelers et al., 2008).

Socio-economically disadvantaged communities often display the neighbourhood risk characteristics described above (Bammann et al., 2013; Drewnowski, Rehm, Kao, & Goldstein, 2009; Jones, Price, Okely, & Lockyer, 2009). The socio-economic status of a neighbourhood affects children's access to healthy food and opportunities for physical activity (Bammann et al., 2010; Drewnowski, Rehm, Kao, & Goldstein, 2009; Jones, Price, Okely, & Lockyer, 2009; Singh et al., 2010). Children who live in socio-economically disadvantaged neighbourhoods are less physically active and are more likely to watch television or play on the computer for more than two hours per day compared to children in more socio-economically advantaged neighbourhoods (Singh et al., 2010). The collection of this type of information (e.g. barriers such as financial constraints, safety) provides health-care providers with the context within which primary-prevention interventions will be implemented (Fitch et al., 2013). Feasible interventions should leverage existing resources available in a community to improve children's eating and physical activity. Moreover, interventions that assist individuals and families to

increase their socio-economic status as well as collective interventions that increase socio-economic status through improvements to healthy public policy such as increasing political will for federal and provincial poverty reduction strategies are needed.

Health-care providers use a variety of tools to assess a community's needs and resources prior to implementing primary-prevention interventions. For example, a windshield survey allows a health-care provider to collect data on the location, condition and use of public spaces, housing, businesses, public buildings, and the safety of a neighbourhood. The Community Assessment Tool Kit (Work Group for Community Health and Development, University of Kansas, 2013) website listed in [Appendix I](#) contains a number of suggested tools for completing a community assessment.

2.0 PLANNING

RECOMMENDATION 2.1:

Engage community stakeholders when planning primary-prevention interventions for childhood obesity.

Level of Evidence = IIb

Discussion of Evidence:

Nurses and other health-care providers need to involve community stakeholders when developing practice and policy interventions targeting healthy eating and physical activity. Stakeholders refer to an individual, group, or organization with a vested interest in the decisions and actions of organizations that may aim to influence decisions and actions (Baker et al., 1999). Relevant stakeholders include school staff, administration and students, childcare workers, government officials and community members. The active involvement of stakeholders in the planning phases has been shown to shift social norms in support of children's health and contribute to the successful implementation of primary-prevention interventions, including healthy public policies (Kirk, Sim, Hemmens, & Price, 2012; Langille & Rodgers, 2010; Trudnak, Melton, Simpson, & Baldwin, 2012). Systematic review evidence demonstrates that stakeholder involvement builds community capacity and creates interventions that are tailored to the community's needs, which in turn increases support, improves program and policy delivery, and sustains momentum (Garcia et al., 2010; Krishnaswami, Martinson, Wakimoto, & Anglemeyer, 2012).

Engaging community stakeholders across multiple settings, such as in schools, childcare centers and in the broader community, ensures consistency and the reinforcement of messages used in the intervention (de Silva-Sanigorski et al., 2010). The inclusion of a wide range of stakeholders not only allows for input from parents/primary caregivers, families, community members, health-care professionals, schools, businesses, and government, but also fosters societal support and acceptance of new policies and practices (Dodson et al., 2012; Langille & Rodgers, 2010; McCarron et al., 2012). Additionally, the inclusion and support of stakeholders at the local level in the planning stages enhances the comprehensiveness of the resulting interventions. In schools, local wellness policies^G are more comprehensive – and more likely to be enforced effectively – when students and a variety of experts within and outside of the school setting are invited to participate on school policy committees (Belansky et al., 2009; Jomaa et al., 2010; Kubik et al., 2010).

Successful interventions are also attributed to the engagement of community members who recognize the need for multiple strategies across sectors to promote healthy childhood weights and who are able to identify barriers to implementation during planning (McCarron et al., 2010). When capacity is jointly planned and built through school and community engagement, the positive effects of an intervention can extend beyond the original setting. For example, the APPLE school intervention, a three-year intervention launched in ten Alberta schools in 2008, is an example of an effective public health initiative that engaged a school facilitator and community stakeholders to encourage healthy eating and active living initiatives among students. The planning process resulted in the successful development of walk-to-school days, healthy breakfast and lunch school programs, extracurricular activities, and community gardens (Fung et al., 2012).

There are a variety of strategies that nurses and health-care providers may use to engage and organize stakeholders in the planning of primary-prevention initiatives. Successful school-based planning has included consultation with administrators (e.g. superintendents, principals, directors of education), custodians, cafeteria staff, and teachers (Coleman, Shordon, Caparosa, Pomichowski, & Dzewaltowski, 2012). Community forums held to understand community needs, interests, and resources – such as town meetings and active membership on councils, as well as workshops conducted to help develop the aims, goals, and strategies of intervention programs – have also been shown to facilitate successful implementation (Belansky et al., 2009; Chomitz, et al., 2010; Kubik et al., 2010; McCarron et al., 2010; Millaret et al., 2011).

Educating community constituents is another effective means of gaining stakeholder support and engagement. Public education has been successfully used to provide accurate information about childhood obesity; share potential solutions; and influence public support, political motivation, and policy decisions (Dodson et al., 2009). In particular, education during the planning process can engage stakeholders who may otherwise pose a barrier to policy implementation later on. For example, during the implementation of a breastfeeding policy in Nova Scotia, educating health-care professionals was critical to changing the unsupportive culture with respect to breastfeeding in hospitals (Kirk, Sim, Hemmens, & Price, 2012).

Nurses and health-care providers can use situational assessments to evaluate and address concerns raised by stakeholders related to the intervention objectives during the planning stages of a primary prevention initiative. Conducting such assessments involves gathering, analyzing, summarizing, and reporting data, which is then used in planning interventions (Public Health Ontario, 2014). Situational assessments can determine the level of stakeholder buy-in, evaluate the existing physical and food environments, identify barriers to behaviour change, and review the effects of local policies on the built environment^G (Coleman et al., 2012; Garcia et al., 2010; Zenzen & Kridli, 2009).

The expert panel recommends nurses review Chapter 2B: “Stakeholders,” in the RNAO BPG *Toolkit: Implementation of Best Practice Guidelines (2nd ed.)* (2012a) for further strategies. As well, nurses and health-care providers are encouraged to refer to Public Health Ontario’s on-line Planning Workbook (Ontario Agency for Health Protection and Promotion, 2014) (see [Appendix I](#)).

RECOMMENDATION 2.2:

Develop interventions that are:

- universally applied, as early as possible (Level of Evidence = IV),
- targeted toward multiple behaviours (Level of Evidence = IV),
- implemented using multiple approaches (Level of Evidence = IIa),
- inclusive of parents/primary caregivers and the family (Level of Evidence = IIa), and
- implemented simultaneously in multiple settings (Level of Evidence = IIa).

Discussion of Evidence:

Early and Universal Implementation

Nurses should plan interventions that target families and children as early as possible in their lifespan (Fitch et al, 2013). Although the prevalence of obesity has increased among all age groups, early childhood is a critical period for growth and development (Hesketh & Campbell, 2010; Lloyd-Williams, Bristow, Capewell, & Mwatsama, 2011). Prior to starting school, healthy eating is particularly important to a child's health and risk for obesity (Lloyd-Williams et al., 2011). Moreover, preschool children can learn to adopt healthy eating and lifestyle patterns that will persist into later life (Lloyd-Williams et al., 2011). Given the impact of the early years on children's health, the expert panel recommends that primary-prevention interventions target preschool and elementary school children (Golley et al., 2011; Hendrie et al., 2012).

It is important that primary-prevention interventions be applied universally, to overweight as well as non-overweight children. Interventions universally applied to overweight and non-overweight children have been shown effective in achieving healthy weights (Khambalia, Dickinson, Hardy, Gill, & Baur, 2012; Pascal, 2009). These results are further supported by a meta-analysis, which concluded that broadly applied interventions performed in school and general-population settings aimed at reducing sedentary behaviour were successful in preventing obesity and reducing sedentary time, whether single or multiple health behaviour interventions were used (van, Ezendam, Paulis, van der Wouden, & Raat, 2012).

Multiple Behaviours

Primary-prevention interventions that target nutrition, physical activity, and family behaviours are more effective in achieving healthy weights among children than strategies that target nutrition or physical activity alone (Khambalia et al., 2012). Therefore, the expert panel recommends that nurses plan primary-prevention interventions that simultaneously target children's eating habits, nutrition intake, and physical activity.

Multiple Approaches

Effective primary-prevention interventions utilize multiple behavioural strategies to improve the nutrition and physical activity behaviours of children. Thus, nurses should incorporate into their plan a number of behavioural change techniques targeted to children's physical activity and eating behaviours to support healthy weights. One review found that effective outcomes were evident in primary-prevention programs that implemented ten behavioural change techniques in the school, home, or community setting (Hendrie et al., 2012). In this review, the most effective behavioural change techniques used to engage families were applied simultaneously and included: (a)

providing information on the link between health and behaviours, (b) encouraging the practice of healthy habits, and (c) the planning and provision of social support (Hendrie et al., 2012). These approaches are most effective in preventing childhood obesity when applied over the longer term (six months or more), and have been shown to be more likely to sustain positive behavioural changes than other approaches (Summerbell et al., 2005).

In planning the approaches to primary-prevention interventions, the impact of a child's gender on the effectiveness of interventions to prevent childhood obesity must also be considered (Doak, Visscher, Renders, & Seidell, 2006; Haynos & O'Donohue, 2012; Kropki, Keckley, & Jensen, 2008; Shofan, Kedar, Branski, Berry, & Wilschanski, 2011; Summerbell et al., 2005). Research reviews have found that educational interventions with a social learning foundation may be more effective with girls, while interventions that change the environment to enable physical activity may be more effective with boys (Kropki, Keckley, & Jensen, 2008; Summerbell et al., 2005). This may be attributed to gender differences in children's cognitive and physiological development and should be taken into account when planning implementation approaches (Kropki et al., 2008).

Multiple approaches to support healthy eating and physical activity also involve creating supportive environments for families. Nurses and other health-care providers should advocate for improvements in the built environment, day care, pre-school and school environments and healthy public policies such as those that address poverty. Advocacy at the environmental and systemic levels have the capacity to support healthy lifestyle changes and provide equitable access to healthy food and physical activity opportunities for all families. For additional information on these components, please refer to the Recommendations 6.1 thru to 6.5.

Parent/Primary Caregiver and Family Engagement

Because strategies to prevent childhood obesity are more effective when combined with parental/primary caregiver and family involvement, implementation of primary-prevention interventions for childhood obesity should aim to involve parents/primary caregivers and families (Hendrie et al., 2012). Specifically, home-based interventions that involve all family members have demonstrated success in improving physical activity and healthy eating (Hendrie et al., 2012). Successful families set common goals and engage in activities together. It is therefore important that nurses help parents/primary caregivers plan to implement and be actively involved in obesity-prevention interventions and activities that will enhance healthy behaviours within their family (Golley et al., 2011). Parents/primary caregivers can also play an important role in reinforcing healthy behaviours children learn in other settings, such as at school (Hendrie et al., 2012).

To develop a family-centred approach to childhood obesity, the nurse must establish and maintain a therapeutic relationship with the child, parents/primary caregivers, and family. A therapeutic relationship is a goal-directed relationship between the nurse and the child, parents/primary caregivers, and family that aims to advance the best interest and outcome for clients (RNAO, 2006). The needs of the parents/primary caregivers and the family should always be the focus of the therapeutic relationship, and nurses must remain empathetic and caring in these interactions (CNO, 2009). Furthermore, therapeutic relationships must be based on trust, respect, intimacy, and the suitable use of power (CNO, 2009). For additional information on the principles of establishing and maintaining therapeutic relationships, please refer to the RNAO BPG *Establishing Therapeutic Relationships* (2006).

Multiple Settings

Primary-prevention interventions that target multiple settings simultaneously have a greater potential to modify unhealthy eating and physical activity behaviours among children than those applied in single settings (Hendrie et al., 2012). The most common settings where children gather are in the home, in community settings, and in schools, and implementation across all settings provides an opportunity to reinforce the positive messages about healthy eating and physical activity that children may be exposed to in any one individual setting.

In the home environment, for example, parents/primary caregivers can play an influential role in modelling healthy behaviours, monitoring eating habits, and providing opportunities for physical activity (Hendrie et al., 2012). School-based interventions can positively influence children's eating and sedentary behaviours through student education and positive role modelling (Riediger, 2012). Interventions that support schools and parents/primary caregivers to provide consistent information and healthy practices have demonstrated positive outcomes on children's eating behaviours (Hendrie et al., 2012). Because behavioural techniques applied across multiple settings complement each other and increase the likelihood of positive outcomes, the expert panel recommends that interventions be planned for implementation within two or more settings where children gather.

3.0 IMPLEMENTATION

The implementation recommendations in this section are intended to assist nurses and other health-care providers to help families achieve healthier lifestyles and childhood weights by following healthy eating guidelines and by meeting the age-appropriate standards set by the *Canadian Physical Activity Guidelines* (Canadian Society for Exercise Physiology, 2014a; Canadian Society for Exercise Physiology, 2014b) and the *Canadian Sedentary Behaviour Guidelines* (Canadian Society for Exercise Physiology, 2014c; Canadian Society for Exercise Physiology, 2014d) (see [Appendices F and G](#)). The following interventions are most effective when applied within the context of a population-based approach. However, they can be adapted for implementation at the individual level by nurses who practice in settings other than public health.

RECOMMENDATION 3.1:

Support exclusive breastfeeding for the first six months of life followed by breastfeeding and complementary feeding up to two years of age or beyond.

Level of Evidence = III

Discussion of Evidence:

The recommendation to encourage mothers to breastfeed for the first six months of life followed by breastfeeding and complementary feeding up to two years of age or beyond is echoed by others (August et al., 2008; Obesity Canada Clinical Practice Guidelines Expert Panel, 2006; Garcia et al., 2010; SIGN, 2010; WHO, 2014b; RNAO, 2007a; Health Canada, 2012). Breastfeeding refers to providing infants with no food or drink other than breast milk, not even water (however, medicines, vitamins, etc. are permitted) (WHO, 2014b, para. 2). Some studies have shown that breastfeeding has a protective effect on childhood obesity. In cross-sectional studies, infants who were exclusively breastfed had lower weight and length gains, were more likely to have a leaner body shape at age five, and were less likely to be overweight between the ages of nine

and 14 (Hanicar, Mandic, & Pavic, 2009; Mayer-Davis, et al., 2007; Michels et al., 2007). There is also evidence to suggest that successful interventions by nurses to promote breastfeeding result in statistically significant reductions in BMI at age two (Wen et al., 2012).

Although there is evidence to support the protective effects of breastfeeding against childhood obesity, these effects may diminish over time as exclusive breastfeeding declines. In other words, the longer and more exclusively infants are breastfed, the less likely they are to become overweight or obese as they grow and develop (Grummer-Strawn, Mei, & Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System, 2004; Mayer-Davis et al., 2006; Weyermann, Rothenbacher, & Brenner, 2006).

Given the overall positive health effects of breastfeeding on infant and child health, the expert panel recommends that nurses support mothers to provide exclusive breastfeeding for the first six months of life. If a mother is unable to breastfeed, it is recommended that nurses provide guidance and support with regard to appropriately meeting an infant's nutritional needs (Health Canada, 2014a). Moreover, nurses should advocate and support a breastfeeding friendly environment by supporting the principles endorsed in the Baby Friendly Initiative (Health Canada, 2014). For further discussion and more detailed information about the benefits of breastfeeding and recommendations to promote exclusive breastfeeding, we encourage you to consult the RNAO BPG *Breastfeeding Best Practice Guidelines for Nurses* (2007a). For additional information on how to support mothers who are unable to or have decided not to breastfeed their infant, please refer to the guidance document, *Nutrition for Healthy Term Infants Recommendations from Birth to Six Months* (Health Canada, 2014a) (see [Appendix E](#)).

RECOMMENDATION 3.2:

Provide education and social support to help parents/primary caregivers promote healthy eating and physical activity in infants and toddlers.

Level of Evidence = Ib

Discussion of Evidence:

The first few years of a child's life are critical for developing health-promoting behaviours that will last a lifetime (Campbell et al., 2013; Campbell & Hesketh, 2007; Hesketh & Campbell, 2010; Monasta et al., 2011; Wen et al., 2012). In the home environment, parents/primary caregivers play an essential role in modelling and helping shape these behaviours in their infants and toddlers (Bond, Wyatt, Lloyd, & Taylor, 2011). Parental engagement is also critical to increasing the success and effectiveness of early interventions to prevent childhood obesity (Bond et al., 2011; Hesketh & Campbell, 2010; Safron, Cislak, Gaspar, & Luszczynska, 2011). Parents/primary caregivers should be responsible for participating in and implementing obesity-prevention interventions, and should be highly involved in activities that enhance healthy family behaviours (Golley et al., 2011).

Successful interventions influence parental/primary caregiver knowledge, skills and competencies (Campbell et al., 2013; Hesketh & Campbell, 2010; Wen et al., 2012). Therefore, the implementation of an obesity prevention plan requires nurses to educate and support parents/primary caregivers of infants, toddlers, and preschool children to promote healthy eating and physical activity. Parents/primary caregivers can also be encouraged to use positive parenting to reinforce healthy behaviours learned by their children in other settings (Hendrie et al., 2012).

The implementation of comprehensive approaches that target parental/primary caregiver knowledge, skills, and social support around feeding, physical activity, and sedentary behaviour increases the likelihood that interventions will be effective. In a randomized controlled trial examining the effectiveness of home visits to mothers and their infants, community health nurses delivered a staged, home-based intervention that included the “promotion of breastfeeding, appropriate timing of the introduction of solids, ‘tummy time’ and active play, family nutrition and physical activity” (Wen et al., 2012, p. 2). The intervention resulted in significantly lower mean body mass indices of children at age two compared with children in the control group, who received the usual childhood nursing community service. Another randomized controlled trial examining the effectiveness of a comprehensive approach to childhood obesity also targeted parents/primary caregivers. The intervention group received six, 2-hour sessions taught by dietitians on, “parental knowledge, skills, and social support around infant feeding, diet, physical activity, and television viewing” over 15 months (Campbell et al., 2013, p. 652). In contrast, the control group received six newsletters that did not include any childhood-obesity content (Campbell et al., 2013). Both the intervention and control groups received routine nursing care services (Campbell et al., 2013). The study demonstrated that the infants and toddlers exposed to the intervention consumed fewer grams of sweet snacks and viewed fewer daily minutes of television compared to children in the control group (Campbell et al., 2013).

Nurses should include parents/primary caregivers and families in planning for effective interventions with infants and toddlers by teaching them how to reinforce healthy habits through food selection, meal timing, and physical activity. The type of education families require will depend on the child’s stage of growth and development. For example, in infants, education and social support is required for breastfeeding, role modelling, infant feeding practices, and family physical activity (Bond et al., 2011; Campbell et al., 2013; Wen et al., 2012). Parents/primary caregivers and families of preschool children need education on reducing screen time, ensuring age-appropriate levels of physical activity, and promoting healthy eating (Burgi et al., 2012; Haines et al., 2013; Puder et al., 2011; Zask, Adams, Brooks, & Hughes, 2012).

Various education methods may be used to effectively instil the knowledge and skills of healthy eating and nutrition in families. Teaching methods can be carried out in a range of settings and should encompass a variety of educational strategies focusing on multiple obesity-related behaviours. In particular, high-intensity interventions (interventions that employ a variety of education delivery methods, such as group sessions, written materials, and tailored feedback) are more effective than low-intensity interventions (passive interventions that use only one education delivery method, such as written materials). Providing parents/primary caregivers with education on key behaviours related to obesity through interactive group discussions and workshops, peer support, individually tailored counselling, and supplemental educational materials such as mailed newsletters has been shown to positively impact screen time, physical activity, healthy eating, and levels of adiposity in children (Burgi et al., 2012; Campbell et al., 2013; Haines et al., 2013; Puder et al., 2011; Zask et al., 2012).

The expert panel recommends that nurses use reputable evidence-based guidelines to inform their practice. For breastfeeding recommendations, we recommend the RNAO BPG *Breastfeeding Best Practice Guidelines for Nurses* (2007a). For age-specific guidelines on healthy eating and physical activity, refer to the nutrition guidelines, *Canadian Physical Activity Guidelines* (Canadian Society for Exercise Physiology, 2014a; Canadian Society for Exercise Physiology, 2014b) and the *Canadian Sedentary Behaviour Guidelines* (Canadian Society for Exercise Physiology, 2014c; Canadian Society for Exercise Physiology, 2014d) in **Appendices E, F and G**, respectively. For specific information on how to educate and support families, refer to the RNAO BPG *Facilitating Client Centred Learning* (2012c).

RECOMMENDATION 3.3:

Collaborate with parents/primary caregivers, educators and support staff (e.g. teachers, child care providers and school leaders) to promote healthy eating and physical activity in all settings where preschool children gather.

Level of Evidence = Ib

Discussion of Evidence:

Evidence suggests that interventions targeting key obesity-preventing behaviours such as screen time, physical activity, and healthy eating in preschool-aged children in structured preschool settings are effective in promoting healthy weight management and preventing childhood obesity (Haines et al., 2013; Puder et al., 2011; Zask et al., 2012). Therefore, the expert panel recommends that nurses in collaboration with parents/primary caregivers, educators and support staff (e.g. teachers, child care providers and school leaders) facilitate the promotion, development, and implementation of interventions in settings where preschool children gather to promote healthy behaviours. Although the supporting evidence is drawn from studies carried out in structured settings outside of the home (such as nurseries, preschools, and day-care centres), we recommend applying these interventions in the home setting as well (Haines et al., 2013).

The intervention techniques employed in the studies varied in terms of content and methods of delivery, making it difficult to draw broad conclusions about the most useful intervention strategies. However, randomized controlled trials of childhood obesity interventions implemented in preschool and day-care settings focused on increasing the amount of physical activity or active play in which children participated, offering or promoting more nutritious meals and snacks, promoting water as a drink of choice, and altering the built environment in and around the preschool class so as to be more conducive to physical activity (Bayer et al., 2009; Burgi et al., 2012; Zask et al., 2012). These interventions significantly increased healthy eating habits and reduced child obesity (Bayer et al., 2009; Burgi et al., 2012; Puder et al., 2011; Zask et al., 2012).

Training and supporting educators and support staff is instrumental to ensuring that healthy public policies are enforced in child-care settings. In the studies, successful interventions offered training and support to staff, which prepared them to implement the intervention programs (Bayer et al., 2009; Burgi et al., 2012; Puder et al., 2011; Zask et al., 2012). For example, child care providers in preschool settings often report barriers such as a lack of easy access to early childhood nutrition guidelines and an absence of adequate healthy eating policies (Lloyd-Williams et al., 2011). Training by qualified professionals teaches educators and support staff how to provide an appropriate food environment conducive to healthy eating (Belansky et al., 2010; Sigman-Grant et al., 2011). Nurses and dietitians can act as resources in these settings by communicating healthy eating and physical activity standards. Training workers and volunteers in food preparation and feeding practices that may help prevent obesity (such as allowing children to serve themselves food) may also be necessary to ensure that they are prepared to comply with regulations and policies (Lipnowski et al., 2009; Sigman-Grant et al., 2011).

Nurses should use evidence-based guidelines to inform their practice when working with parents/primary caregivers, educators and support staff to address sedentary behaviours, physical activity, and eating habits in preschool-aged children. For additional information on the nutrition and physical activity requirements for preschool children, we encourage nurses to refer to the NutriSTEP® (Sudbury & District Health Unit, Janis Randall Simpson, Heather Keller, and the Nutrition Resource Centre, 2014) resources in [Appendix D](#); the *Pediatric Nutrition Guidelines for Primary Health Care Providers* (Ontario Society of Nutrition Professionals in Public Health – Family Health Nutrition Advisory Group, 2011; revision is anticipated in 2014) in [Appendix E](#);

age-appropriate *Canadian Physical Activity Guidelines* (Canadian Society for Exercise and Physiology, 2014a; Canadian Society for Exercise Physiology, 2014b) and the *Canadian Sedentary Behaviour Guidelines* (Canadian Society for Exercise Physiology, 2014c; Canadian Society for Exercise Physiology, 2014d) in **Appendices F** and **G**, respectively.

RECOMMENDATION 3.4:

Collaborate with school communities to promote regular physical activity among elementary-school children.

Level of Evidence = IIb

Discussion of Evidence:

Increasing physical activity while decreasing screen time and other sedentary behaviours reduces the risk of children becoming obese. Nurses in collaboration with school leaders have the opportunity to facilitate the development of a healthier elementary-school environment by, (a) supporting and educating school staff to embed healthy eating and physical activity strategies in the school curriculum within the context of a broader comprehensive school approach (e.g. mental health, growth and development interventions) and, (b) by engaging parents/primary caregivers to support school-based activities (Garcia et al., 2010). Knowledge of tools such as the Physical Education Curriculum Analysis Tool (PECAT) (Centers for Disease Control and Prevention, 2007) and the Health Education Curriculum Analysis Tool (HECAT) (Centers for Disease Control and Prevention, 2012b) can be used by nurses and other health-care providers to support the analysis and implementation of physical activity and health education school curriculum (see **Appendix H**).

Three systematic reviews consisting of RCTs, controlled trials or quasi-experimental studies demonstrated that interventions promoting moderate-to-vigorous physical activity in the school curriculum are effective in preventing childhood obesity (Dobbins, Husson, DeCorby, & LaRocca, 2013; Safron et al., 2011; Waters et al., 2011). From the literature, we found several examples of curriculum-based interventions that significantly improved outcomes, such as BMI, including:

1. 40-minute sessions offered three times per week in which the first 20 minutes were used to provide education to students on healthy eating or exercise and the remaining time was spent on physical activity (Fitzgibbon et al., 2005).
2. Teacher-led sessions consisting of a 5-minute warm-up, 10 minutes of vigorous aerobic activity using a range of approaches (such as “trips to the zoo,” where children pretended to be different animals), and a 5-minute cool-down period (Fitzgibbon et al., 2005).
3. The use of behavioural modification techniques by teachers to teach students self-monitoring, the characteristics of environments that promote sedentary behaviour, intelligent television viewing, and decision-making strategies (Salmon, Ball, Hume, Booth, & Crawford, 2008).
4. Other strategies, such as: providing 20-minute running games in the schoolyard; improving fitness levels; increasing moderate-to-vigorous physical activity after school; banning toys that promote sedentary activity such as hand-held games; implementing monthly physical activity events and; active play during recess (Aryana, Li, & Bommer, 2012; Marcus et al., 2009; Plachta-Danielzik, Landsberg, Lange, Seiberl, & Muller, 2011).

It should be noted that many successful interventions for elementary-school children incorporated a home-based component. For example, one included a home-based intervention to promote physical activity that permitted

children to watch one hour of television if they engaged in an equivalent hour of physical activity, as measured by an accelerometer (Roemmichi, Gurgoli, & Epstein, 2004). Other interventions included providing newsletters to parents/primary caregivers; holding meetings and workshops; and modifying the home environment to reduce the consumption of excess calories, increase physical activity, and reduce sedentary behaviour (Story et al., 2012; van et al., 2012).

RECOMMENDATION 3.5:

Collaborate with school communities to promote regular physical activity among elementary-school children.

Level of Evidence = IIa-III

Discussion of Evidence:

The expert panel recommends nurses collaborate with the school community to integrate comprehensive health and nutrition education into elementary-school programs while supporting schools to improve the food environment. Nurses are uniquely positioned to assist with incorporating accurate, evidence-based information into nutrition education by educating and acting as a resource for school staff. To act effectively in this role, nurses should be familiar with resources such as NutriSTEP® (Sudbury & District Health Unit, Janis Randall Simpson, Heather Keller, and the Nutrition Resource Centre, 2014), Nutrition Tools for Schools® (Ontario Society of Nutrition Professionals in Public Health, 2012), Health Education Curriculum Analysis Tool (HECAT) (Centers for Disease Control and Prevention, 2012), educator resources, and policies such as the Ontario Ministry of Education’s School Food and Beverage Policy (PPM 150) (Ontario Ministry of Education Ontario, 2010). For information on accessing these resources, please refer to [Appendices D](#) and [H](#).

School Curriculum (Level of Evidence = IIa)

Controlled trials and quasi-experimental research has shown that school curricula that focus on healthy eating and body image are effective in preventing childhood obesity (Fitzgibbon et al., 2005; Plachta-Danielzik et al., 2011; Waters et al., 2011). One study demonstrated that classroom sessions that aimed to cultivate “behavioural capability, expectations and self-efficacy” for healthy eating and food selection effectively reduced BMI in elementary student participants (Mihas et al., 2010). The messages provided in these sessions were further promoted through classroom displays and the use of multi-component workbooks that included topics on healthy eating, dental hygiene, and attitudes about food consumption (Mihas et al, 2010). We encourage nurses to refer to [Appendix E](#) for *Eating Well With Canada’s Food Guide* (Health Canada, 2011b) and the related resource *Eating Well With Canada’s Food Guide: A Resource for Educators and Communicators* (see [Appendix H](#)) for more information on the nutritional requirements of children aged four to 13 years (Health Canada, 2011a).

School Food Environment (Level of Evidence = III)

The recommendation that nurses support the improvement of the school food environment in elementary schools for the primary prevention of childhood obesity is in line with the Canadian Medical Association’s (Obesity Canada Clinical Practice Guidelines Expert Panel, 2006) recommendation that the consumption of snacks high in calories, sugar, and fat be reduced in childhood. We found randomized controlled trials of several intervention approaches in the food environment that resulted in positive outcomes (such as reduced BMI), including:

1. Arranging food offerings at lunchtime so that children serve themselves vegetables before the main course (Marcus et al., 2009).
2. Substituting white bread with whole grain options, providing lower-fat dairy products, and eliminating soft drinks and desserts from food offerings at lunchtime. These modifications were also extended to school events such as birthday celebrations, school excursions, and sports days (Marcus et al., 2009).
3. Encouraging families to bring healthy foods to school events (Greening, Harrell, Low, & Fielder, 2011).

Another way to improve the availability of healthier foods and beverages to children (e.g. fruits and vegetables, milk) is to offer nutrition programs in schools (Masse & Niet, 2013). For example, a cross-sectional study in British Columbia (BC) concluded that the availability of fruits was highest in elementary schools that took part in the BC School Fruit and Vegetable Nutritional Program and the BC Milk program (Masse & Niet, 2013). Moreover, a review by a researcher at Toronto's School Nutrition Program revealed that school meal programs are offered as a way to promote healthy eating, prevent hunger and develop healthy eating habits (Nagy, 2011). However, the success of such programs depend on a school's nutritional capacity, resources and ability to minimize the stigma associated with taking part in school meal programs (Masse & Niet, 2013; Nagy, 2011).

Although changing the food environment in schools is important in preventing childhood obesity, the most effective healthy school policies target both healthy eating and physical activity. For additional information on school wellness policies, please refer to the system, organization and policy recommendations in this Guideline.

4.0 EVALUATION

RECOMMENDATION 4.1:

Monitor and evaluate the effectiveness of the family's approach to healthy eating and physical activity.

Level of Evidence = IV

Discussion of Evidence:

Ongoing monitoring of the family's approach to healthy eating and physical activity is essential to determining whether intervention efforts are having a positive impact on eating and physical activity behaviours, and determining whether and when further intervention is required. Effective monitoring should incorporate objective health measures such as growth curve percentiles (where age-appropriate). More importantly, subjective measures such as physical activity, healthy eating, parenting and socio-economic factors should be assessed for factors that place children at increased risk for childhood obesity. The expert panel recommends that nurse's use established guidelines to measure children's nutrition, physical activity, sedentary behaviour and growth (see Recommendation 1.1).

Evaluation of the family's progress toward healthier eating and increased physical activity can occur during regular health visits, home visits, and telephone interviews (Birken et al., 2012; O'Dea et al., 2012; Robinson et al., 2010). These may or may not coincide with the assessment of a child's developmental milestones (Wen et al., 2012). Research has demonstrated that information may be obtained effectively through parental/primary caregiver interviews or through self-report, if

the child is old enough (Child & Adolescent Behavior Letter, 2005; Fitzgibbon et al., 2005; O’Dea et al., 2010; Salmon et al., 2008). Re-assessment should be done using the same age-appropriate tools, and nurses should document progress (a) to inform subsequent encounters with the family, and (b) to facilitate continuity of care among all health-care providers involved.

RECOMMENDATION 4.2:

Evaluate the effectiveness and sustainability of school- and community-based primary-prevention initiatives.

Level of Evidence = IV

Discussion of Evidence:

Evaluation of the effectiveness and sustainability of initiatives to prevent childhood obesity and reporting of results is essential for responsible public health program planning. In fact, WHO recommends that 10 percent of the total financial resources for a health-promotion initiative be allocated to evaluation (WHO European Working Group on Health Promotion Evaluation, 1998). Effective evaluation reveals program deficiencies, such as insufficiently intense interventions, as well as barriers to effective implementation (Dodson, Eyler, Chalifour, & Wintrode, 2012). Furthermore, evaluation may call attention to interventions that are more effective for specific sub-populations. For example, a meta-analysis of randomized and non-randomized trials examining obesity prevention in schools by Cook-Cottone, Casey, Feeley, & Baran (2009) found that children’s age and socio-economic status were moderating factors of program effectiveness. More specifically, prevention programs administered to elementary-school students produced significantly better BMI outcomes than those delivered to middle-school students (Cook-Cottone et al., 2009; Lavie, Church, Milani, & Earnest, 2011). Another study found that the school-based health promotion program being evaluated had a favourable and sustained effect on children’s BMI, but only in students of high socio-economic status (Plachta-Danielzik et al., 2011). In each of these cases, evaluating the effectiveness of the intervention enabled researchers to better explain program outcomes.

Given the complex nature of program evaluation, and to bring the appropriate level of expertise to the evaluation process, nurses must collaborate with professionals from other sectors such as education, recreation, and allied health. Involving other health-care providers and stakeholders in the evaluation process may build loyalty (Millar et al., 2013). It may also mobilize stakeholders to improve results and make necessary adjustments to program delivery (Coleman et al., 2012; Krishnaswami et al., 2012). Evaluation of school- or community-based initiatives must also align with the initial assessment, planning, and implementation objectives of the program, and must consider both process and outcome measures of these objectives.

Process measures are used to evaluate the care provided to patients and their responses to the care they receive (Donabedian, 1988). Process evaluation illustrates which initiatives are working, for whom, and at what cost (Waters et al., 2011). In the context of evaluating the effectiveness and sustainability of school-based primary-prevention initiatives, process measures may focus on determining the extent to which health promotion is integrated into the school curriculum. For example, in a randomized controlled trial researchers used a process evaluation questionnaire to assess how teachers implemented the Ulm Research on Metabolism, Exercise, and Lifestyle Intervention in Children (URMEL-ICE) (Brandstetter et al., 2012). In an evaluation of the implementation of a school-based obesity-prevention program, process measures included, “attendance, outreach, intervention fidelity, and program satisfaction” (Lubans et al., 2012, p. 823).

Outcome measures evaluate the overall effects of the care provided to patients, organizations, or health systems (Donabedian, 1988), helping health-care providers and stakeholders determine the overall effectiveness and sustainability of programs. Outcome measures should be selected at the outset of program implementation and measured over a longer term. In the literature, population-level evaluation data have included such student outcomes as, “health, nutrition, physical activity, lifestyle factors, and measured height and weight among Grade 5 students, and data on the school and home environment among their parents/primary caregivers and school administrators” (Fung et al., 2012, p. 3). Tools like the RE-AIM framework have been recommended for use in the evaluation and improvement of public health programs. This acronym stands for Reach, Effectiveness, Adoption, Implementation and Maintenance (Virginia Polytechnic Institute and State University, 2014). In summary, ‘Reach’ refers to the target population for which the program is directed, ‘Effectiveness’ pertains to the efficacy of the intervention (e.g. negative outcomes, quality of life), ‘Adoption’ refers to the number of people who are involved in the implementation of a program (e.g. staff, settings, organizations), ‘Implementation’ measures the fidelity of an intervention (e.g. delivery, time, cost) and ‘Maintenance’ refers to the impact and incorporation of a program over time (Virginia Polytechnic Institute and State University, 2014). Please refer to [Appendix I](#) for the link to the RE-AIM framework. The Public Health Ontario website is also a valuable resource for information on “evaluation” (see [Appendix I](#)).

RECOMMENDATION 4.3:

Advocate and support the evaluation of an organization’s compliance with healthy public policies, and the impact of such policies on childhood eating behaviours and physical activity.

Level of Evidence = III

Discussion of Evidence:

Monitoring and reporting on the compliance of organizations such as schools, child-care centres, and public health units with healthy public policies is an important step toward being able to measure the effectiveness of these policies on health outcomes (Sanchez-Vaznaugh et al., 2012). Within the context of healthy public policies, the term ‘organization’ refers to settings that implement primary prevention initiatives (e.g. schools), oversee the enforcement of healthy public policies (e.g. school districts, government) and organizations who are responsible for program planning and delivery (e.g. public health units). Such measurement, however, is challenging, and a comprehensive amount of data is needed to fully understand the impact of healthy public policy on health outcomes (Carter & Swinburn, 2004; Sanchez-Vaznaugh et al., 2012). A number of studies state that compliance with healthy public policy is rarely measured, owing in part to barriers including (a) difficulty creating the evaluation metrics, (b) problems capturing data, and (c) the financial expense of monitoring and documenting compliance (Belansky et al., 2009; Probart et al., 2010; Sanchez-Vaznaugh et al., 2012). Despite these barriers, organizations’ compliance with policies should be evaluated whenever possible, because of these policies’ strong potential to impact children’s environments and, subsequently, children’s ability to meet nutrition and physical activity requirements.

For example, a cross-sectional study (Sanchez-Vaznaugh et al., 2012) that investigated whether school-district-level compliance with physical education policies was associated with physical fitness among grade 5 students in California schools found that students in policy-compliant districts were more likely than students in non-compliant districts to meet or exceed physical fitness standards. The authors concluded that the success of health policy mandates for physical activity in schools is likely dependent on compliance (Sanchez-Vaznaugh et al., 2012).

Evaluation of health policy implementation and compliance has been reported in the literature, but assessment tools were developed only recently. Compliance with healthy public policies in the school setting has been evaluated using health assessments of students and the school environment, supported by mandatory reporting and the use of dedicated personnel such as wellness committees (Probart et al., 2010). Alternatively, risk assessment tools (e.g., a risk analysis model of the relationship between the consumption of beverages from school vending machines and the risk of adolescent overweight) provide important risk reduction information, such as hazard identification and risk characterization, that can help inform policy decisions on interventions (Forsheet et al., 2005, p.1122). The Analysis Grid for Environments Linked to Obesity (ANGELO) framework has been proposed as a possible measurement tool (Carter & Swinburn, 2004). The ANGELO framework can be used to measure the environmental factors that contribute to unhealthy weights; however, it provides only a crude measure of compliance because it only indicates the presence or absence of policies (Carter & Swinburn, 2004).

Given the limitations of the current tools for the evaluation of healthy public policy implementation and compliance, it has been recommended that child health metrics and evaluation tools continue to be developed in collaboration with schools, non-profit organizations, child care centres and public health units. Moreover, organizations should be expected to include such metrics as part of program planning and evaluation (e.g. accountability mechanism). Please refer to [Appendix J](#) for a list of the evaluation tools listed above (i.e., risk assessment tool, ANGELO framework).

Regular reports on the number of schools that implement healthy public policies in relation to comprehensive school-based programs (and which include a childhood obesity prevention component) is another feasible and informative way to (a) evaluate the uptake and spread of school-based prevention initiatives; (b) determine schools' general ability and preparedness to implement primary-prevention programming; and (c) identify barriers and facilitators to the further uptake or spread of such programming across a school district, to inform future program planning. The expert panel therefore recommends that nurses report regularly on the number of schools that implement a comprehensive healthy school initiative and related healthy public policies.



Education Recommendations

5.0 EDUCATION

RECOMMENDATION 5.1:

Incorporate foundational primary-prevention curricula based on this Guideline into the undergraduate education of nurses and other health-care providers.

Level of Evidence = IV

Discussion of Evidence:

Professional knowledge on the part of nurses and other health-care providers regarding the social determinants of health, primary prevention, healthy eating and nutrition, physical activity, and growth and development is essential to informing the assessment, planning, implementation, and evaluation of successful primary-prevention initiatives. The expert panel believes that these subject areas require greater emphasis in undergraduate education programs, to strengthen the knowledge and skills related to the prevention of childhood obesity among nurses and health-care providers.

Social Determinants of Health

The expert panel recommends educating students on the social determinants of health and their influence on primary-prevention interventions. As listed in Figure 1, the social determinants of health include income and social status, social support network, education, working conditions, physical environments, biology and genetics, personal health and practices and coping skills, healthy child development, and health services. The Population Health Promotion Model described in the “Guiding Framework” section of this Guideline, is one framework that can be used to facilitate undergraduate instruction on the social determinants of health (Hamilton & Bhatti, 1996). Another framework is the WHO Framework on the Social Determinants of Health and Health Inequities. For additional information on WHO, please refer to the document, “Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health” and RNAO’s website on the Social Determinants of Health (in [Appendix K](#)).

Primary Prevention

It is recommended that undergraduate curricula incorporate the principles of primary prevention. Whilst it is important to understand the root causes of public health issues with knowledge of the social determinants of health, nurses and other health-care professionals should be taught the knowledge and skills to address these issues. Knowledge and skills on community assessment, stakeholder engagement, developing, tailoring and incorporating effective initiatives aimed at clients before they have health issues, are pivotal to effective primary prevention. Students should also be informed about their role in political advocacy at all levels of care. For example, nurses and other health-care professionals can influence healthy public policies with regard to healthier food and built environments and, advocate for changes that prevent health inequities amongst the most marginalized populations.

Healthy Eating, Nutrition, and Physical Activity

The habits learned in childhood influence children's risk of obesity and other negative health consequences later in life (Lloyd-Williams et al., 2011). To prepare them to better aid in the development of healthy childhood habits, health-care providers should receive undergraduate education on age-appropriate healthy eating, nutrition, and optimal physical activity levels within the context of primary prevention. Research suggests that, in the absence of appropriate training in these areas, nurses rarely measure age-appropriate BMI to gauge children's weights, and they lack the competence to recommend interventions needed to promote healthy lifestyle choices (Nauta, Byrne, & Wesley, 2009).

Growth and Development

Undergraduate education should provide instruction on the appropriate interpretation and use of height and weight percentiles (according to age) and other anthropometric measures in the assessment of children's growth and development. In primary prevention, measures of weight should, (a) only be used as a guidance tool, (b) be measured over time and, (c) be taught as part of a comprehensive assessment that includes healthy eating, physical activity, parenting, and socio-cultural/socio-economic factors. More importantly, students should be informed about the unintended psychological consequences of focusing on weight as the sole measure of childhood obesity including mental health disorders (e.g. depression, anxiety), poor body image and lowered self-esteem (Healthy Active Living and Sports Medicine Committee, 2012). In general, topics on weight control and management should not dominate health-care curricula in the primary prevention of obesity in children.

When weight is measured as part of a comprehensive assessment, students should be taught how to appropriately plot BMI for age on percentile growth charts and how to interpret the results based on children's expected growth and development. Several studies showed that nurses, dentists, and physicians did not use age-specific BMI in the calculation of childhood obesity or could not identify the components used to calculate BMI (Braithwaite et al., 2008; Nauta et al., 2009; Rausch, Rothbaum, & Hametz, 2011; Sesselberg, Klein O'Connor, & Johnson, 2010). For access to additional information on the appropriate use of WHO growth charts for use with Canadian children, refer to [Appendix D](#).

RECOMMENDATION 5.2:

Health-care professionals should participate in continuing education to enhance their ability to support the positive behavioural and environmental changes for children, families, and communities recommended in this Guideline.

Level of Evidence = IV

Discussion of Evidence:

Health-care providers should continually update and integrate their knowledge and skills in primary prevention to keep abreast of the most effective ways to promote healthy weights in children. The expert panel recommends training in the following key areas of primary prevention: assessment, tailoring primary prevention initiatives, working with adult influencers^G, and advocacy. Strategies that can be used to support training in these areas include the use of evidenced-based guidelines and tools to guide practice.

Key Learning Areas

Assessments

At the community level, the expert panel recommends that health-care providers be trained on how to conduct a situational assessment. Situational assessments enable health-care providers to identify (a) a community's risk and protective conditions for healthy eating and physical activity in relation to the social determinants of health, and (b) potential barriers and facilitators to the implementation of primary-prevention initiatives.

In addition to the community level, health-care providers should be trained in assessment skills at the individual level. With these skills, health-care providers will be prepared to approach childhood obesity with sensitivity and with full knowledge of how to support healthy habits and a healthy environment when working with children, parents/primary caregivers, and their families. The Health Exercise Nutrition for the Really Young (HENRY) intervention is an example of a training program that teaches health-care providers and others, such as parents/primary caregivers and child-care staff, how to support an optimal environment for infants and preschool children for the prevention of childhood obesity (Rudolf, Hunt, George, Hajibagheri, & Blair, 2010). More specifically, the program asks health-care providers to engage in self-reflection related to how they approach parents/primary caregivers, and teaches them how to assess a family's risks for obesity and provide counsel based on the 5-2-1-0 goals from the Let's Go! framework (Rudolf et al., 2010).

Tailoring Primary Prevention Initiatives

The expert panel recommends that health-care providers receive training on how to tailor primary-prevention initiatives to the needs of particular communities. This includes learning how to build on a community's strengths and how to leverage existing community resources. Among other benefits, tailoring interventions allows health-care providers to account for cultural preferences and neighbourhood characteristics (e.g., walkability of sidewalks, housing and safety) that place children at increased risk for obesity (Spivack, Swietlik, Alessandrini, & Faith, 2010). To tailor initiatives effectively, health-care providers must learn how to identify and engage with community stakeholders. In one study, health-care providers increased their awareness of community resources by participating in a "learning collaborative" that involved uniting with one or more community partners who had the potential to influence healthy lifestyles for children (Young et al., 2010). This strategy was effective in improving health-care providers' ability to provide guidance on resources available to prevent and treat obesity in children (Young et al., 2010).

Working with Adult Influencers

Adult influencers are parents, primary caregivers and other adults who have the potential to influence children's eating habits and physical activity. In the early stages of growth and development, parents, primary caregivers and other adults greatly influence children's health. It is therefore important for health-care providers to first reflect on their own personal values with regard to weight, food, physical activity and childhood obesity. Knowledge and awareness of one's personal biases has the potential to influence the support provided to children, parents/primary caregivers, schools, daycare centres and the community. Adult influencers should also learn how to collaborate effectively with parents/primary caregivers and other adult influencers when planning and implementing primary-prevention initiatives. In one study, an e-learning course was able to successfully train health-care providers to address obesity and lifestyle concerns with parents/primary caregivers of infants and preschool-aged children in a sensitive and effective manner (Rudolf et al., 2010).

Advocacy

Advocacy is a professional standard for nurses (CNO, 2002; Community Health Nurses of Canada, 2011) and an important component of nursing in the primary prevention of childhood obesity. Health-care providers who address public health issues work with stakeholders (e.g., schools leaders and recreational centre administrators) who may be able to support families and communities in meeting their healthy eating and physical activity needs. Thus, health-care providers should be able to advocate effectively for the best interests of children when partnering with interested stakeholders. This includes engaging the community to build political advocacy directed to different levels of government. Advocacy can be taught in a number of ways. In a study of advocacy training, the sessions that health-care providers found most helpful were those that addressed the intersection of obesity and advocacy, defined advocacy within the context of the health-care provider's current practice issue, explained media advocacy^G and defined effective advocacy^G (McPherson, Mirkin, Heatherley & Homer, 2012).

Strategies to Support Training

The expert panel recommends using evidenced-based guidelines to support primary-prevention best practices. Studies show that health-care providers who are more familiar with best practice guidelines implement more effective prevention strategies than those who are less familiar with such guidelines (Klein et al., 2010; Larsen, Mandelco, Williams, & Tiedeman, 2006). For example, in one study, nurse practitioners who were aware of guidelines on childhood obesity were more likely to (a) use change in BMI to identify the rate of excessive weight gain relative to linear growth, (b) encourage parents/primary caregivers to promote physical activity with their children, (c) identify and monitor at-risk children, and (d) monitor children with overweight/obese parents/primary caregivers more than children whose parents/primary caregivers were of normal weight (Larsen et al., 2006).

Health-care providers should also be able to critically appraise public health literature that informs best practices in the primary prevention of childhood obesity to keep current regarding the most effective, up-to-date strategies. In one study, a training session on evaluating evidence resulted in an increased likelihood of school nurses using research to inform health promotion and obesity prevention in their practice (Bernardo, Matthews, Kaufmann, & Yang, 2008).

The expert panel recommends the use of assessment and management tools to support best practices to prevent childhood obesity. Health-care providers who received training on childhood obesity and then received tools to promote weight assessment and management showed significantly improved BMI documentation and counselling at six months (Dunlop, Leroy, Trowbridge, & Kibbe, 2007). In primary prevention, the expert panel supports the use of tools beyond plotting weight according to a child's growth and development. Additional information may be gained through the use of tools that assess a child's eating and physical activity, the parental/primary caregiver and socio-cultural/socio-economic influences on a child's healthy habits, the school environment, the community in which the child lives, and healthy public policies.

System, Organization and Policy Recommendations

6.0 SYSTEM, ORGANIZATION AND POLICY

RECOMMENDATION 6.1:

Collaborate with organizations to develop, promote, and implement comprehensive and enforceable healthy public policies that impact healthy eating and physical activity in all childhood settings.

Level of Evidence = III

Discussion of Evidence:

Organizations, including public health units, schools, and all levels of government, can support nursing best practices by developing and implementing effective healthy public policies⁶ in support of children’s healthy eating and physical activity needs. According to the WHO, “healthy public policy is characterized by an explicit concern for health and equity in all areas of policy and by an accountability for health impact” (WHO, 1998).

To be effective in enforcing changes in children’s obesogenic environments, the healthy public policies that organizations and government develop, implement, and promote must be comprehensive and use strong language. At least one recent study (Belansky et al, 2009) found that many local wellness policies (LWP) did not comprehensively address physical education requirements (e.g., acceptable teacher-to-student ratios, adequate and safe physical activity equipment). Policies should also provide, “specific, measurable goals with identified measurement plans, metrics, and outcomes in order to accurately capture data reflective of the comprehensiveness of the policy” (Probart et al., 2010, p.452). In terms of language, policies outlining healthy eating and physical activity guidelines should incorporate strong wordings, such as “require” or “mandate.” The absence of such language has been shown to contribute to the minimal impact of LWPs on children’s healthy eating and physical activity needs (Belansky et al., 2009). Similar results were found in a study by Kubik et al. (2010), in which the authors concluded that a more strongly worded junk food policy was associated with less junk food in elementary and middle schools. Research also suggests that strong wording in system-level policies (such as at the provincial or national levels) may trickle down to local school district wellness policies (Taber, Chriqui, & Chaloupka, 2012a).

Strong leadership by policy-makers, school employees, health-care providers, and lay representatives in situations involving collaboration with organizations and government on healthy public policy development, promotion, and implementation results in a range of positive outcomes. It brings political awareness to childhood-obesity issues, generates public awareness and builds support for healthy public policies, prioritizes health, and stimulates change in policy development and implementation (Dodson et al., 2009; Kirk et al., 2012; Langille & Rodgers, 2010). For example, at the broader provincial level, collaboration with stakeholders is critical to improving policies and legislation, such as Ontario’s *Day Nurseries Act* (1990), so that enhanced nutrition and physical activity requirements can be consistently mandated throughout the province across a wide variety of settings and environments.

RECOMMENDATION 6.2:

Collaborate with organizations to establish, or critically examine and work to improve, healthy public policies that address children’s physical activity and built environments.

Level of Evidence = IV

Discussion of Evidence:

Physical Activity

Organizations and the government need to support the promotion, development, and implementation of physical activity policies in the preschool and elementary-school environments. Children in the preschool setting are particularly vulnerable to not receiving the required amount of physical activity because many physical activity policies either do not exist in provinces, territories, or states or do not provide child-care workers with sufficient specifications (Benjamin et al., 2008; Vanderloo et al., 2012). In Canada, physical activity legislation is inconsistent. Only eight out of 13 provinces/territories have legislation that states that physical activity is a requirement, but none provides details on the frequency or duration of physical activity required on a daily basis (Vanderloo et al., 2012). Ontario’s *Day Nurseries Act* (1990) is the only provincial legislation that specifies physical activity requirements, but only in relation to outdoor play (Vanderloo et al., 2012). However, as outdoor play may not necessarily equate to physical activity, the Act falls short of providing physical activity standards for preschool children (Vanderloo et al., 2012). Thus, it is important for organizations and the government to advocate for wellness policies and support child-care workers in the interpretation and implementation of both nutrition and physical education guidelines for preschool children. For instance, when the Ontario Ministry of Education assumed full responsibility for child care in 2012, the government proposed that the child care system be modernized in collaboration with relevant stakeholders (Government of Ontario, 2013). Organizations (e.g. pre-school centres, public health units) and health-care providers are in a prime position to influence healthy public policies for pre-school children by actively participating in forums at the provincial level. Please see [Appendix K](#) for additional information on the modernization of the child care system in Ontario (Government of Ontario, 2013).

Similarly, it is essential that organizations and the government support the promotion, development and implementation of physical activity policies in elementary-school environments to optimize child health. In the elementary-school environment, healthy public policies used to increase physical activity among children include hiring teachers who are trained in physical education, implementing policies that require physical activity in physical education programs with team sports, the incorporation of physical education into classrooms (as opposed to just in dedicated physical education classes), and specifying the amount of physical activity required by students per day (Phillips et al., 2010).

Built Environment

The built environment refers to, “the buildings, parks, schools, road systems, and other infrastructure that we encounter in our daily lives” (PHAC, 2010b). In a given area, the built environment is influenced by the socio-economic status of the particular community, and is in turn associated with children’s risk for obesity (Merchant et al., 2007). The characteristics of the built environment in a particular neighbourhood influence the healthy eating and physical activity opportunities of children and families, and should therefore be considered when developing healthy public policies. For example, a

Canadian study found that children who live in neighbourhoods with greater access to shops, recreational facilities, playgrounds, and parks are less likely to be obese, while children who live in areas with limited access to shops eat fewer fruits and vegetables and consume more unhealthy foods (Veugelers et al., 2008). Although families in low-income communities can access food outlets, products are generally unhealthy, limited in selection, and cost more than in higher-income areas (Merchant et al., 2007). As well, poorer neighbourhoods have fewer recreational facilities for physical activity (Merchant et al., 2007). Finally, in addition to varying with the socio-economic status of neighbourhoods, access to healthy food and physical activity opportunities may also vary between rural and urban neighbourhoods (Veugelers et al., 2008).

The expert panel recommends inter-sectoral engagement with municipalities, government, and voluntary organizations to address healthy public policies and actions that improve children’s built environments, including urban planning, transportation, safety, and recreational service policies (August et al., 2008; Garcia et al., 2010). Examples include advocating for neighbourhood designs that actively engage community members (e.g. the promotion of community gardens, safe playgrounds and accessible recreational facilities for families). Moreover, these built environments must be accessible – in terms of costs and transportation – to all children (e.g. children from low income families, children with disabilities). For access to additional information on the built environment, please see [Appendix K](#).

RECOMMENDATION 6.3:

Collaborate with organizations to establish, or critically examine and work to improve, healthy public policies that address the school food environment and the marketing of unhealthy food to children.

Level of Evidence = IV

Discussion of Evidence:

Because many children spend a significant proportion of their time in the school setting, changes to children’s eating and physical activity behaviours should be supported by changes in their school food environment. School nutrition policies applied in elementary, middle, and high schools have been shown to effect positive changes in the school’s food environment and to decrease children’s consumption of junk food and drinks (Boles et al., 2011; Han-Markey, 2012; Kubik et al., 2010; Matthews et al., 2011; Seo & Lee, 2012). Furthermore, schools that implement nutrition policies that change the food environment are more likely to have students who meet nutrition standards (Matthews et al., 2011; Phillips et al., 2010). School districts that participate in provincial or state nutritional programs or align their nutritional policies with regulated provincial or state nutritional guidelines have also been shown to affect student’s food environment in positive ways (Masse & de Niet, 2013).

School districts may collaborate with public health units and health-care providers to implement a range of nutrition policies that (a) restrict the availability of high-fat, high-sugar foods and beverages, and (b) offer healthier food and drink options. These may include:

1. Food policies that prohibit or discourage the sale of junk food during school activities, in cafeterias, and at school-sponsored events, and that offer healthier options such as skim milk and other low-fat alternatives (Phillips et al., 2010).
2. School policies that require the integration of nutrition education into the school’s curriculum (Longley & Sneed, 2009).

3. Vending machine policies that reduce the availability of junk food and provide healthier options (Han-Markey, 2012; Kubik et al., 2010; Matthews et al., 2011). (Vending machines have been cited in the literature as a common contributor to students' consumption of non-nutritious food.)

In addition, the improvement and concurrent implementation of school nutrition policies alongside school physical activity policies supports comprehensive child health. When physical activity and nutrition policies are concurrently implemented, improvements occur in both the food and physical activity environments, and the physical activity and healthy eating habits of students are optimized (Phillips et al., 2010). For additional information on physical activity policies, please refer to recommendation 6.2.

Given the overall benefits of school nutrition policies, the expert panel recommends comprehensive food and beverage policies (i.e. local, provincial, national levels) in schools. Nurses and other health-care providers can advocate for improvements in nutrition policies by facilitating the engagement of community stakeholders at all levels, including school boards, education ministries, professional health-care organizations, parents' associations, youth groups, public health units and family practices. Although many of the nutrition policies studied in the literature occur in school settings, the expert panel believes that healthy public policies are also needed in preschool centres, to provide healthier food environments for preschool-aged children. Other environments where children gather and play (e.g. sports venues, parks, beaches, recreational centres) and the built environment (e.g. community design) should also be taken into consideration as potential areas of influence when supporting and advocating for comprehensive food policies.

Healthy public policies should protect children under 12 years of age from the marketing of unhealthy foods and beverages. Foods and beverages in advertisements aimed at children are generally of poor nutritional quality. Moreover, children's exposure to unhealthy food and beverages in the media has increased over time and continues, in spite of many companies voluntarily pledging to reduce this type of marketing (Batada & Wootan, 2007; Harris, 2010). In the U.S., for example, companies continue to use popular third-party-licensed children's entertainment characters on packages to advertise unhealthy foods (Harris, 2010). Large companies use child-friendly media to market foods that are high in fat, salt, and sugars, while marketing very few grains, vegetables, or fruits (Batada & Wootan, 2007).

Parents/primary caregivers and public health workers find it difficult to counterbalance the effects of children's exposure to junk food and beverage advertising and to execute public health initiatives with food outlets in low socio-economic areas (Batada & Wootan, 2007; Hanratty, 2012). As such, many policy makers, communities, and parents/primary caregivers support more restrictive regulations on the marketing of poor nutritional foods and drinks to children on television, as well as indirectly through sponsorships at public events (Chung et al., 2012; Pettigrew, Pescud, Rosenberg, Ferguson, & Houghton, 2012). The expert panel supports a regulatory ban – as opposed to self-regulation by the marketing industry – on the promotion of unhealthy foods and beverages to children. One Canadian study comparing the effectiveness of a mandatory ban with industry self-regulation concluded that self-regulation in Canada would need to be strengthened and expanded to be effective (Potvin, Dubois, & Wanless, 2011a). This conclusion is supported by the results of another Canadian study involving the Canadian Children's Food and Beverage Advertising Initiative (CAI), a self-regulation initiative that resulted in only a small number of companies committing to ban all advertisements of unhealthy foods to children; aside from this limited commitment, self-regulation did not have a significant impact on the amount of unhealthy foods advertised to children 10-12 years of age (Potvin et al., 2011b).

RECOMMENDATION 6.4:

Collaborate with organizations and the broader community to establish, or work to improve, healthy public policies that address the barriers to health equity.

Level of Evidence = IV

Discussion of Evidence:

Health equity means that all people can achieve their full health potential and not be disadvantaged from achieving this potential because of their social position or other socially determined circumstance (Whitehead & Dahlgren, 2006). Health inequities are health differences that are socially produced (and therefore modifiable), systemic in their distribution across the population, and unfair (Whitehead & Dahlgren, 2006).

Poverty is a serious yet modifiable threat to health across the lifespan, including childhood. Canada is currently ranked 17th in overall child well-being among 29 economically developed countries, with a ranking of 15th for material well-being (UNICEF, 2013). In 1989, the federal House of Commons in Canada passed a unanimous resolution seeking, “to achieve the goal of eliminating poverty among Canadian children by the year 2000” (Campaign 2000, 2013a, p. 1). In 2011, the child poverty rate in Canada was 14.3%, which equals 967,000 children or one in seven children who are living in poverty (Campaign 2000, 2013a). In Ontario, this 2011 statistic is also about one in seven or 371,000 children (Campaign 2000, 2013b). On a positive note, Ontario’s child poverty rate in 2011 was lower at 13.8% than the 15.2% rate in 2008, when Ontario’s first five-year Poverty Reduction Strategy began (Campaign 2000, 2013b).

Given the association of socio-economic status to childhood obesity, nurses and other health-care providers have a responsibility to improve the conditions of daily life for those they are working with, by screening and intervening appropriately to increase income and decrease the harmful impacts of poverty. Individually and collectively, health-care providers also have a responsibility to tackle the inequitable distribution of power, money, and resources, which are the structural drivers of the conditions of daily life (WHO, 2008). Initiatives that could improve the conditions of daily life and address the structural barriers for families living in poverty include advocacy related to, (a) national and regional approaches to addressing poverty, (b) improving income security, (c) social safety nets, (d) increasing minimum wage and, (e) ensuring regulatory protection of precarious workers. Examples of such advocacy by a professional association for registered nurses in a provincial context include support for Ontario’s Poverty Reduction Strategy, increases to the Ontario Child Benefit, increases in the minimum wage, improvements to the Employment Standards Act, and increasing social assistance rates to reflect the actual cost of living (RNAO, 2011). Since 1991, a broad-based civil society coalition in Canada called Campaign 2000, has released federal and provincial report cards on child and family poverty as well as advocates for healthy public policies to address poverty (Campaign 2000, 2013a; Campaign 2000, 2013b).

The expert panel recommends that all healthy public policies created by organizations and governments to improve access to nutritious food and physical activity opportunities for children be assessed for their impact on all children, and especially the most at-risk sub-populations. For example, the Children’s Tax Credit introduced by the Ministry of Finance in 2006 to reimburse physical activity fees could not be used by the poorest of families because organized physical activities are too expensive for them to afford (Block, 2007). The Health Equity Impact Assessment Tool (HEIA) (Ontario Ministry of Health and Long-Term Care, 2012a) is one instrument that can be used to assess programs and policies from a health equity perspective. Please refer to [Appendices J](#) and [K](#) for this tool and other healthy public policy resources.

RECOMMENDATION 6.5:

Advocate for the establishment of a comprehensive population-level surveillance system to monitor risk and protective conditions for childhood obesity, including

- prevalence of healthy weights,
- physical activity and healthy eating,
- socio-economic factors such as the prevalence of childhood poverty, and
- prevalence and duration of breastfeeding and exclusive breastfeeding.

Level of Evidence = IV

Discussion of Evidence:

Canada's collection of childhood obesity measurements at the community level has not been effective in tracking overall rates of childhood obesity. Moreover, a provincial-level surveillance^G system on childhood obesity is lacking. The expert panel recommends that the federal Ministry of Health create a committee to establish a national surveillance system for healthy weight rates, physical activity and healthy eating measures, socio-economic status levels, and breastfeeding prevalence and duration for children at the population level. The national surveillance system could consist of the following:

1. *Use of children's anthropometric measures.* It is recognized that measured height and weight is more accurate than self-reported data (Shields, Connor, & Tremblay, 2008). Therefore, the expert panel recommends that a national surveillance system include, at a minimum, measurements of height and weight so that BMI for age can be calculated for children (Obesity Canada Clinical Practice Guidelines Expert Panel, 2006).
2. *Use of indicators for physical activity and healthy eating.* The expert panel recommends that measures of physical activity and healthy eating (e.g., vegetable and fruit intake, intake of sugar sweetened foods and beverages, breakfast consumption, cost of food, types of physical activity etc.) be collected alongside children's anthropometric measures. In a surveillance system, the combination of anthropometric, physical activity and healthy eating measures provides a more comprehensive assessment of childhood obesity, as well as useful data on the potential risk and protective factors experienced by sub-populations of children. Currently, existing public health databases, such as the provincial measure of the Nutritious Food Basket, which collects information on the costs of foods, could be leveraged as a source of information for a national surveillance system.
3. *A means to monitor changes over time.* At present, estimates of obesity are dependent on cross-sectional data as opposed to longitudinal measurements (RNAO Expert Panel, 2014). One proposed solution is to lobby the federal government to reinstate the Long-Form Census as a means to collect population-level data over time.
4. *Regional-level data.* The collection of regional-level data (e.g. social determinants of health) will allow health-care providers and other stakeholders to assess childhood-obesity rates in relation to local environmental and cultural contexts. Community-level data are also important components of planning and evaluating community and public health promotion initiatives (RNAO Expert Panel, 2014).
5. *Information on socio-economic status.* Socio-economic status is an important, influencing component of the environmental context of childhood obesity. Traditional socio-economic status factors include education,

income, and occupation; in addition to these, the Human Development Index has been identified as another useful measure (Bammann et al., 2013). Additional measures recommended by the expert panel include the Canadian Marginalization Index (Canadian Institute for Health Information, 2014a; McMaster University, 2014) and the Deprivation Index (Canadian Institute of Health Information, 2014b). Currently, Ontario's Poverty Reduction Strategy has chosen to use the Low Income Measure After Tax as the indicator to track progress (with the target of reducing child poverty by 25 per cent between 2008 and 2013) (Government of Ontario, 2008). The 2010 cancellation of the Mandatory Long-Form Census has decreased the ability of researchers to track the experiences of the most marginalized groups in Canadian society in a reliable way. As such tracking is crucial for effective design of poverty reduction initiatives, Campaign 2000 (2013b) is among the groups urging the federal government to reinstate the Mandatory Long-Form Census or a similarly reliable data source. Please refer to [Appendix L](#) for a list of additional information on the Marginalization Index (Canadian Institute for Health Information, 2014a; McMaster University, 2014), Deprivation Index (Canadian Institute of Health Information, 2014b), socio-economic indicators and Ontario's Poverty Reduction Strategy (Government of Ontario, 2008).

6. *Breastfeeding rates.* As described in Recommendation 3.1, breastfeeding is showing promise as a protective factor against childhood obesity. Therefore, assessment of the prevalence and duration of breastfeeding and exclusive breastfeeding are two indicators that can serve as useful monitoring measures. Currently, the provincial government requires health units to collect breastfeeding practice outcome indicators (consistent with the Baby Friendly Initiative [BFI]) including breastfeeding rates in hospitals and community health services (Baby Friendly Initiative, 2014). Data sources from designated BFI organizations can be used to populate a national surveillance system for childhood obesity.

Although the expert panel has not recommended any one tool for the collection of surveillance data, we have pointed out sample tools like the Early Development Instrument to facilitate data collection. Please refer to [Appendix L](#) for information on accessing this tool.



Research Gaps and Future Implications

The Registered Nurses' Association of Ontario (RNAO) expert panel, in reviewing the evidence for this Guideline, identified these priority areas for research (see Table 2). They are broadly categorized into practice, outcome and health-system research.

Table 2. Priority Practice, Outcomes, and Health-System Research Areas

CATEGORY	PRIORITY RESEARCH AREA
Practice research	Continued investigation into effective primary-prevention interventions for infants, preschool, and elementary-school children.
	Effective primary-prevention interventions for populations vulnerable to becoming obese in childhood (e.g., Aboriginal children, children with disabilities, and children with mental illness or whose parents/primary caregivers have a mental illness).
	Role of nurses in the primary prevention of childhood obesity.
	Effect of social media and the internet on food marketing, especially in very young children.
	Practice implications of primary-prevention initiatives on the interprofessional team.
	Continued development of validated age- appropriate assessment tools for use in childhood obesity.
	The effectiveness of screening and counselling programs informed and guided by NutriSTEP® tools and resources and used in a variety of settings.
	Effect of sensitivity training on health-care providers' capacity to promote healthy weights in children and families.
	Translation and interpretation of portion sizes in Canada's Food Guide.

CATEGORY	PRIORITY RESEARCH AREA
Outcome research	Effectiveness of sleep-promoting interventions on decreasing children’s risk of obesity.
	Effectiveness of exclusive breastfeeding on decreasing children’s risk of obesity.
	Effectiveness of prenatal interventions on decreasing children’s risk of obesity.
	Development of obesity outcome measures beyond BMI that are objective, feasible, and non-stigmatizing.
	Long-term surveillance and sustainability outcomes of primary-prevention interventions.
	Establishment of the association between mental health issues in children and/or their parents/primary caregivers within the context of the primary prevention of childhood obesity.
	Impact of primary-prevention education on health-care providers’ practice.
Health-system research	Further investigation into the social determinants of health as a risk condition for childhood obesity.
	Evaluation of the strength, uptake, and enforcement of healthy public policies for the primary prevention of childhood obesity.
	Effect of healthy public policies on the preschool food environment.
	Development of measures or proxies for the surveillance of healthy weights in young children.

This list, though not exhaustive, is an attempt to identify and rank the research needed with respect to the primary prevention of childhood obesity. Many of our recommendations are based on quantitative and qualitative research evidence. Other recommendations are based on consensus^G and expert opinion. Further substantive research is required to validate these expert-informed recommendations. Better evidence will lead to improved practice and outcomes for children at risk for becoming overweight or obese.

Implementation Strategies

Implementing guidelines at the point of care is multi-faceted and challenging; it takes more than awareness and distribution of guidelines to get people to change how they practice, and in the case of a guideline focused on population health, to create a societal shift toward healthy outcomes. Guidelines must be adapted for each practice setting in a systematic and participatory way, to ensure recommendations fit the local context (Harrison, Graham, Fervers, & Hoek, 2013). The Registered Nurses' Association of Ontario's (RNAO) *Toolkit: Implementation of Best Practice Guidelines* (2nd ed.) (2012a) provides an evidence-informed process for doing this.

The Toolkit is based on emerging evidence that successful uptake of best practice in health care is more likely when:

- Leaders at all levels are committed to supporting guideline implementation;
- Guidelines are selected for implementation through a systematic, participatory process;
- Stakeholders for whom the guidelines are relevant are identified and engaged in the implementation;
- Environmental readiness for implementing guidelines is assessed;
- The guideline is tailored to the local context;
- Barriers and facilitators to using the guideline are assessed and addressed;
- Interventions to promote use of the guideline are selected;
- Use of the guideline is systematically monitored and sustained;
- Evaluation of the guideline's impact is embedded in the process; and
- There are adequate resources to complete all aspects of the implementation.

The *Toolkit* (RNAO, 2012a) uses the “Knowledge-to-Action” framework (Straus, Tetroe, Graham, Zwarenstein, & Bhattacharyya, 2009) to demonstrate the process steps required for knowledge inquiry and synthesis. It also guides the adaptation of the new knowledge to the local context and implementation. This framework suggests identifying and using knowledge tools, such as guidelines, to identify gaps and to begin the process of tailoring the new knowledge to local settings.

RNAO is committed to widespread deployment and implementation of our Best Practice Guidelines (BPGs). We use a coordinated approach to dissemination, incorporating a variety of strategies, including the Nursing Best Practice Champion Network®, which develops the capacity of individual nurses to foster awareness, engagement, and adoption of BPGs; and the Best Practice Spotlight Organization® (BPSO®) designation, which supports implementation at the organizational and system levels. BPSOs focus on developing evidence-based cultures with the specific mandate to implement, evaluate, and sustain multiple RNAO BPGs. In addition, we offer capacity-building learning institutes on specific guidelines and their implementation annually (RNAO, 2012a).

Information about our implementation strategies can be found at:

- RNAO Best Practice Champions Network: <http://RNAO.ca/bpg/get-involved/champions>
- RNAO Best Practice Spotlight Organizations: <http://RNAO.ca/a/bpso>
- RNAO capacity-building learning institutes and other professional development opportunities: <http://RNAO.ca/events>.

To access RNAO's nursing order sets^G as a tool to facilitate BPG implementation, please email BNOS@RNAO.ca.

Evaluating and Monitoring this Guideline

As you implement the recommendations in this Guideline, we ask you to consider how you will monitor and evaluate its implementation and impact.

Table 3 is based on a framework outlined in the Registered Nurses' Association of Ontario's *Toolkit: Implementation of Best Practice Guidelines*, (2nd ed.) (2012a) and illustrates some specific indicators for monitoring and evaluating of this Guideline.

TABLE 3. Structure, Process, and Outcome Indicators for Monitoring and Evaluating this Guideline

LEVEL OF INDICATOR	STRUCTURE	PROCESS	OUTCOME
Objectives	To evaluate the supports in the organization that allow nurses and the interprofessional team to design and implement interventions to achieve healthy eating, increased physical activity, reduced screen time and decreased sedentary behaviour in children.	To evaluate the changes in practice that lead to healthy eating, increased physical activity, reduced screen time and decreased sedentary behaviour in children.	To evaluate the impact of implementing the best-practice recommendations.

RECOMMENDATIONS

LEVEL OF INDICATOR	STRUCTURE	PROCESS	OUTCOME
System	<p>Review of best practices associated with designing and implementing primary-prevention interventions for childhood obesity by a system-level committee responsible for quality-of-care across the health-care system.</p> <p>Availability of education resources in academic settings for health-care professional-development programs, which are consistent with best practices for designing and implementing primary-prevention interventions/programs/initiatives for childhood obesity.</p>	<p>Development of systems that encourage health-care organizations to adopt policies and procedures consistent with best practices for designing and implementing primary-prevention interventions/programs/initiatives for childhood obesity.</p> <p>Concrete procedures and processes to ensure academic settings' health-care professional-development programs are updated with best practices for designing and implementing primary-prevention interventions/programs/initiatives for childhood obesity.</p>	<p>Evidence of health-system outcomes associated with effective primary-prevention practices for childhood obesity.</p> <p>Support for health-care professionals to develop core competencies associated with primary prevention practices for childhood obesity.</p>

LEVEL OF INDICATOR	STRUCTURE	PROCESS	OUTCOME
<p>Organization</p>	<p>Review of best-practice recommendations by organizational committees responsible for policies or procedures.</p> <p>Availability of client education resources consistent with the best-practice recommendations.</p> <p>Availability of surveillance systems to capture community-level data and primary-prevention interventions/ programs/initiatives consistent with best practices.</p> <p>Organizational mission statement that includes the support of healthy eating, increased physical activity, reduced screen time and decreased sedentary behaviours in children.</p>	<p>Organizational policies reviewed and modified.</p> <p>Development of systems that encourage surveillance and documentation of community-level data (e.g. socio-economic status, obesity rates, breastfeeding rates) and primary-prevention practices for childhood obesity.</p> <p>Client education resources developed/ acquired/modified to reflect the best-practice recommendations.</p> <p>Concrete procedures that encourage dissemination and uptake of information to educate clients on strategies and resources to prevent childhood obesity.</p> <p>Revision of mission statement to reflect the support of healthy eating, increased physical activity, and reduced screen time and sedentary behaviours in children.</p>	<p>New or updated policies in place and disseminated throughout the organization.</p> <p>System in place for the surveillance and documentation of community-level data and primary-prevention interventions/programs/ initiatives for childhood obesity.</p> <p>Incorporation of strategies to improve healthy eating, increase physical activity, reduce screen time and decrease sedentary behaviours into client education materials.</p> <p>Organizational mission statement reflects a commitment to support healthy eating, increased physical activity, reduced screen time and decreased sedentary behaviours in children.</p>

LEVEL OF INDICATOR	STRUCTURE	PROCESS	OUTCOME
<p>Provider</p>	<p>Percentage of nurses and other health-care professionals who are educated in assessment and counselling strategies to promote healthy eating, increase physical activity, reduce screen time and decrease sedentary behaviours in children.</p> <p>Percentage of nurses and other health-care professionals who are educated in developing primary-prevention programs/initiatives that promote healthy eating, increase physical activity, reduce screen time and decrease sedentary behaviours in children.</p>	<p>Self-assessed knowledge of assessment and counselling strategies to promote healthy eating, increase physical activity, and reduce screen time and sedentary behaviours in children.</p> <p>Average self-reported awareness of community resources and services that promote healthy eating, increase physical activity, reduce screen time and decrease sedentary behaviours in children.</p> <p>Average self-reported awareness of client education resources consistent with the best-practice recommendations.</p> <p>Self-assessed knowledge of the development of primary-prevention programs/initiatives that promote healthy eating, increase physical activity, reduce screen time and decrease sedentary behaviours in children.</p>	<p>Evidence of children assessed for their usual eating, physical activity, and screen time/ sedentary patterns.</p> <p>Evidence of kept records on children who participated in healthy lifestyle interventions/programs/ initiatives consistent with best-practice recommendations.</p> <p>Evidence of nurses/ health-care professionals referring children and families to community resources and services that promote a healthy lifestyle.</p> <p>Evidence of education and dissemination of information to children and families that promote a healthy lifestyle.</p>

LEVEL OF INDICATOR	STRUCTURE	PROCESS	OUTCOME
Client	<p>Percentage of children who are active according to best-practice standards outlined in the Canadian Sedentary Behaviour Guidelines and the Canadian Physical Activity Guidelines (Canadian Society for Exercise Physiology, 2014).</p> <p>Percentage of children who eat healthy foods (e.g., appropriate portions of fruits and vegetables) according to Canada’s Food Guide (Health Canada, 2011).</p>	<p>Percentage of children for whom there is evidence that an individual or family assessment (e.g., anthropometric measures, healthy eating, physical activity, screen time/sedentary behaviours, socio-demographics) was completed using an established or valid/reliable context-specific tool(s).</p> <p>Child and family confidence to achieve healthy eating, increased physical activity, reduced screen time and decreased sedentary behaviours.</p> <p>Percentage of mothers reporting initiation of breastfeeding and percentage of mothers who report exclusive breastfeeding for six months (PHAC, 2011a).</p> <p>Percentage of children and families who received education regarding healthy eating, physical activity, and screen time/sedentary behaviours.</p> <p>Percentage of elementary schools in the organizations catchment area that implement a healthy school initiative.</p> <p>Percentage of children and families accessing community resources.</p> <p>Percentage of parents who report that the public facilities and programs meet their child’s physical activity needs well or very well (PHAC, 2011a).</p> <p>Number of and type of foods and beverage ads children view on TV each month (PHAC, 2011a).</p> <p>Percentage of households with children that report moderate or severe food insecurity (PHAC, 2011a).</p>	<p>Percentage of children who increase fruit and vegetable consumption and decrease high-fat, high-sugar foods and beverages according to Canada’s Food Guide (Health Canada, 2011).</p> <p>Percentage of children who meet daily physical activity requirements according to the Canadian Physical Activity Guidelines (Canadian Society for Exercise Physiology, 2014).</p> <p>Percentage of children who meet the recreational screen time requirements according to the Canadian Sedentary Behaviour Guidelines (Canadian Society for Exercise Physiology, 2014).</p> <p>Percentage of infants, preschool, and elementary-school children who are considered overweight or obese according to international growth and development standards (e.g. World Health Organization adapted for Canada).</p>

LEVEL OF INDICATOR	STRUCTURE	PROCESS	OUTCOME
Financial costs	Provision of adequate financial resources for the level of staffing necessary to implement the recommendations in this Guideline.	<p>Cost related to implementing the recommendations in this Guideline:</p> <ul style="list-style-type: none"> ■ Education and access to on-the-job supports. ■ New surveillance and documentation systems. ■ Support systems. ■ Costs related to the resources and services supporting primary-prevention interventions and programs/initiatives (e.g., assessment tools, education materials, ongoing education of health-care teams). 	<p>Cost efficiency and effectiveness of primary-prevention programs/initiatives.</p> <p>Overall resource use.</p>

RECOMMENDATIONS

Other RNAO Resources for Evaluation and Monitoring of Best Practice Guidelines:

- Nursing Quality Indicators for Reporting and Evaluation (NQuIRE®) were designed for RNAO’s Best Practice Spotlight Organizations® (BPSO®) to systematically monitor the progress and evaluate the outcomes of implementing RNAO best practice guidelines in their organizations. NQuIRE® is the first international quality improvement initiative of its kind consisting of a database of quality indicators derived from recommendations of selected RNAO’s clinical best practice guidelines. Please visit <http://rnao.ca/bpg/initiatives/nquire> for more information.
- Objective evaluation can be done through regular review of nursing order sets (a group of evidence-based interventions that are specific to the domain of nursing) and their effect on the client’s health outcomes. Nursing order sets embedded in clinical information systems simplify this process through electronic data capture. Please visit <http://RNAO.ca/bpg/initiatives/nursing-order-sets> for more information.

Process for Update and Review of the Guideline

The Registered Association of Ontario (RNAO) commits to updating its Best Practice Guidelines as follows:

1. Each nursing BPG will be reviewed by a team of specialists in the topic area every five years following publication of the previous edition.
2. Best Practice Guideline (IaBPG) Centre staff regularly monitor for new systematic reviews, randomized controlled trials, and other relevant literature in the field.
3. Based on that monitoring, staff may recommend an earlier revision period. Appropriate consultation with members of the original expert panel and other specialists and experts in the field will help inform the decision to review and revise the guidelines earlier than planned.
4. Three months prior to the review milestone, the staff commences planning of the review by:
 - a) Inviting specialists in the field to participate on the expert panel. It will be comprised of members from the original expert panel as well as other recommended specialists and experts.
 - b) Compiling feedback received and questions encountered during the implementation, including comments and experiences of Best Practice Spotlight Organizations® and other implementation sites regarding their experience.
 - c) Compiling new clinical best practice guidelines in the field and conducting a systematic review of the evidence.
 - d) Developing a detailed work plan with target dates and deliverables for developing a new edition of the Guideline.
5. New editions of guidelines will be disseminated based on established structures and processes.



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Appendix A: Glossary of Terms

Adult influencers: Adult influencers are parents/primary caregivers and other adults who have the potential to influence children’s eating habits and physical activity (Expert Panel, 2014).

Anthropometric measures: “A set of noninvasive, quantitative techniques for determining an individual’s body fat composition by measuring, recording, and analyzing specific dimensions of the body, such as height and weight; skin-fold thickness; and bodily circumference at the waist, hip, and chest” (Mosby’s Dictionary of Complementary and Alternative Medicine, 2005).

Best practice guideline: Systematically developed statements to assist practitioner and client decisions about appropriate health care for specific clinical (practice) circumstances (Field & Lohr, 1990).

Also called “clinical practice guidelines.”

Body mass index (BMI): “Body mass index is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person’s weight in kilograms divided by the square of his height in meters (kg/m²).

The WHO definition is:

- a BMI greater than or equal to 25 means that a person is overweight
- a BMI greater than or equal to 30 means that a person’s obese” (WHO, 2013, para. 3).

Built environment: “The buildings, parks, schools, road systems, and other infrastructure that we encounter in our daily lives” (PHAC, 2010a, p. 4).

Client: “A client may be an individual, family, group or community” (College of Nurses of Ontario, 2006, p. 4).

Consensus: A process for making policy decisions, not a scientific method for creating new knowledge. Consensus development makes the best use of available information, be that scientific data or the collective wisdom of the participants (Black et al., 1999).

Education recommendations: Statements of educational requirements and educational approaches or strategies for the introduction, implementation, and sustainability of the best practice guideline.

Effective advocacy: Effective advocacy is comprised of 6 outcomes: “collaborative message development, reinforcement of social responsibility, advancement of policy change, giving people a voice, training the community in media skills, and helping communities create long lasting environmental change” (Centers for Disease Control and Prevention, 2003, p. 246).

Evidence: Evidence is information that comes closest to the facts of a matter. The form it takes depends on context. The findings of high-quality, methodologically appropriate research provides the most accurate evidence. Because research is often incomplete and sometimes contradictory or unavailable, other kinds of information are necessary supplements to, or stand-ins, for research. The evidence base for a decision is the multiple forms of evidence combined to balance rigour with expedience while privileging the former over the latter (Canadian Health Services Research Foundation, 2006).

Food insecurity: “The World Food Summit of 1996 defined food security as existing when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. Commonly, the concept of food security is defined as including both physical and economic access to food that meets people’s dietary needs as well as their food preferences” (WHO, 2014c, para. 1).

Growth chart: A tool to “determine the degree to which physiological needs for growth and development are met during the important childhood period” (WHO, 2006, p. 1).

Health inequality: “Differences in health status or in the distribution of health determinants between different population groups” (WHO, 2014d, para. 3).

Health inequity: Health equity means that all people can achieve their full health potential and not be disadvantaged from achieving this potential because of their social position or other socially determined circumstance (Whitehead & Dahlgren, 2006).

Health promotion: “The process of enabling people to increase control over, and to improve their health. It not only embraces actions directed at strengthening the skills and capabilities of individuals, but also action directed toward changing social, environmental, political and economic conditions so as to alleviate their impact on public and individual health” (PHAC, 2010b).

Healthy public policy: “Healthy public policy is characterized by an explicit concern for health and equity in all areas of policy and by accountability for health impact. The main aim of healthy public policy is to create a supportive environment to enable people to lead healthy lives. Such a policy makes health choices possible or easier for citizens. It makes social and physical environments health-enhancing” (WHO, 1988, para. 1).

Interprofessional care: Interprofessional care is the provision of comprehensive health services to clients by multiple health-care providers who work collaboratively to deliver quality care within and across settings. (Health Care Innovation Workgroup, 2012; RAO 2013).

Junk food: “Food that is not good for your health because it contains high amounts of fat or sugar” (Merriam-Webster, 2014a).

Local wellness policy (LWP): “Local wellness policies are school policies that at a minimum include goals for nutrition education and promotion, physical activity, and other school-based activities to promote student wellness, as well as nutrition guidelines for all foods available on campus” (United States Department of Agriculture: Food and Nutrition Service, 2013, p. 2).

Marketing: “Activities that direct the flow of goods and services from producers to consumers” (Merriam Webster, 2014b).

Media advocacy: “Media advocacy is defined as the strategic use of mass media and community advocacy to advance environmental change or a public policy initiative” (Centers for Disease Control and Prevention, 2003, p. 245).

Nursing order set: A nursing order set is a group of evidence-based interventions that are specific to the domain of nursing; it is ordered independently by nurses (i.e., without a physician’s signature) to standardize the care provided for a specific clinical condition or situation (in this case, childhood obesity).

Obesogenic environment: “A social, physical or economic environment that promotes sedentary or less active lifestyles and the overconsumption of food, and in particular, a greater consumption of high-fat, high-calorie foods” (RNAO, 2005, p. 61).

Overweight and obesity: “Abnormal or excessive fat accumulation that may impair health” (WHO, 2013, para. 2).

Population Health Promotion Model: A model that can help guide actions to improve health by asking the following three questions:

1. “On **what** should we take action?”
2. “**How** should we take action?”
- 3 “**With whom** should we act?” (PHAC, 2001, para. 1).

Practice recommendations: Statements of best practice directed at the practice of health-care professionals; ideally, they are based on evidence.

Primary prevention: “Widespread changes that reduce the average risk in the whole population” (National Public Health Partnership, 2006, p.4).

“Measures that eliminate or reduce the causes or determinants of departures from good health, control exposure risk, and promote factors that are protective of health” (National Public Health Partnership, 2006, p. 4).

Public health: “An organized activity of society to promote, protect, improve, and when necessary, restore the health of individuals, specified groups, or the entire population. It is a combination of sciences, skills, and values that function through collective societal activities and involve programs, services, and institutions aimed at protecting and improving the health of all people. The term “public health” can describe a concept, a social institution, a set of scientific and professional disciplines and technologies, and a form of practice. It is a way of thinking, a set of disciplines, an institution of society, and a manner of practice. It has an increasing number and variety of specialized domains and demands of its practitioners an increasing array of skills and expertise” (Public Health Agency of Canada, 2010b).

Randomized controlled trials (RCT): Clinical trials involving at least one test treatment and one control treatment, concurrent enrolment, and follow-up of the test- and control-treated groups, and in which the treatments to be administered are selected by a random process.

Screen time: “Time spent watching television or videos or using a computer or playing video games” (PHAC, 2011b, p. 17).

Sedentary behaviour: “Sedentary behaviours are those that involve very little physical movement while children are awake, such as sitting or reclining:

- in a stroller, high chair or car seat
- watching television
- playing with non-active electronic devices such as video games, tablets, computers or phones” (Canadian Society for Exercise Physiology, 2012, p. 4).

Social determinants of health: “The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities – the unfair and avoidable differences in health status seen within and between countries” (World Health Organization, 2014a, para. 1).

Stakeholder: An individual, group, or organization with a vested interest in the decisions and actions of organizations that may attempt to influence decisions and actions (Baker et al., 1999). Stakeholders include all individuals and groups who will be directly or indirectly affected by the change or solution to the problem.

Surveillance: “Systematic, ongoing collection, collation, and analysis of health-related information that is communicated in a timely manner to all who need to know which health problems require action in their community” (PHAC, 2010b).

System, organization and policy recommendations: Statements of conditions required for a practice setting that enables successful implementation of the best practice guidelines. The conditions for success are largely the responsibility of the organization, although they may have implications for policy at a broader government or societal level.

Systematic review: The Cochrane Collaboration (2011) says, “a systematic review attempts to collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question.” A systematic review uses systematic, explicit, and reproducible methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review (Cochrane Collaboration, 2011).

Appendix B: Guideline Development Process

The Registered Nurses' Association of Ontario (RNAO) has made a commitment to ensure that this Best Practice Guideline is based on the best available evidence. In order to meet this commitment, a monitoring and revision process has been established for each Guideline every five years.

To prepare the second edition of this Guideline, RNAO assembled an expert panel composed of nurses, other health-care professionals, health-care administrators, and community social services workers, some of whom had served on the previous expert panel and some of whom are new members who bring additional expertise in particular practice areas. A systematic review of the evidence took into consideration the scope of the original Guideline (2005) and was supported by three clinical questions. It captured relevant literature between 2004 and 2013 and guidelines published between 2005 and 2013. These are the research questions that guided the systematic review:

1. What are the effective obesity-prevention nursing interventions for children?
2. What education do nurses need to effectively prevent childhood obesity?
3. What organizational or political supports are necessary to provide a supportive practice environment for the implementation and evaluation of high-quality, evidence-based nursing care in childhood obesity?

The expert panel's mandate was to review the original Guideline in light of the new evidence in order to ensure the validity, appropriateness, and safety of the recommendations. Where necessary, sections have been updated to take into account new evidence. This edition is the result of the expert panel's work to integrate the most current and best evidence into the recommendations and supporting evidence from the first edition (where applicable).



Appendix C: Process for Systematic Review and Search Strategy

Guideline Review

The Registered Nurses' Association of Ontario (RNAO) guideline development team's nursing research associate searched an established list of websites for guidelines and other relevant content published between 2005 and 2012. This list was compiled based on knowledge of evidence-based practice websites and recommendations from the literature. Detailed information about the search strategy for existing guidelines, including the list of websites searched and inclusion criteria, is available online at www.RNAO.ca. Guidelines were also identified by members of the expert panel.

Members of the expert panel and two of RNAO's nursing research associates critically appraised 12 international guidelines using the *Appraisal of Guidelines for Research and Evaluation Instrument II* (Brouwers et al., 2010). From this review, the following nine guidelines were selected to inform the review process:

August, G.P., Caprio, S., Fennoy, I., Freemark, M., Kaufman, F.R., Lustig, et al. (2008). Prevention and treatment of pediatric obesity: An Endocrine Society clinical practice guideline based on expert opinion. *Journal of Clinical Endocrinology & Metabolism*, 93(12), 4576-4599.

Centers for Disease Control and Prevention. (2011). *School Health Guidelines to Promote Healthy Eating and Physical Activity*, 60 (No. RR-5), 1-78.

Fitch, A., Fox, C., Bauerly, K., Gross, A., Heim, C., Judge-Dietiz, J. et al. (2013). *Institute for Clinical Systems Improvement: Prevention and Management of Obesity for Children and Adolescents*. Retrieved from <https://www.icsi.org/asset/tn5cd5/ObesityChildhood.pdf>

Garcia, J., Beyers, J., Uetrecht, C., Kennedy, E., Mangles, J., Rodrigues, L., R. Truscott, and the Expert Steering Committee of the Project in Evidence-based Primary Prevention. (2010). *Healthy eating, physical activity, and healthy weights guideline for public health in Ontario*. *Cancer Care Ontario*. Retrieved from <https://www.cancercare.on.ca/common/pages/UserFile.aspx?fileId=64413>

Healthy Active Living and Sports Medicine Committee. (2012). Psychosocial aspects of child and adolescent obesity. *Paediatrics & Child Health*, 17(3), 205-206.

Lipinowski, S., LeBLanc, C.M.A., Canadian Pediatric Society, Healthy Active Living and Sports Medicine Committee. (2012). Healthy active living: Physical activity guidelines for children and adolescents. *Paediatrics & Child Health*, 17 (4), 209-212.

National Institute for Health and Care Excellence (2006) *Obesity: Guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children*. CG43. London, United Kingdom: National Institute for Health and Care Excellence.

Obesity Canada Clinical Practice Guidelines Expert Panel. (2006). *2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children*. Retrieved from <http://www.cmaj.ca/content/176/8/S1.full.pdf+html>

Scottish Intercollegiate Guidelines Network (SIGN). (2010). *Management of obesity. A national clinical guideline*. Edinburgh, Scotland: Scottish Intercollegiate Guidelines Network (SIGN).

Systematic Review

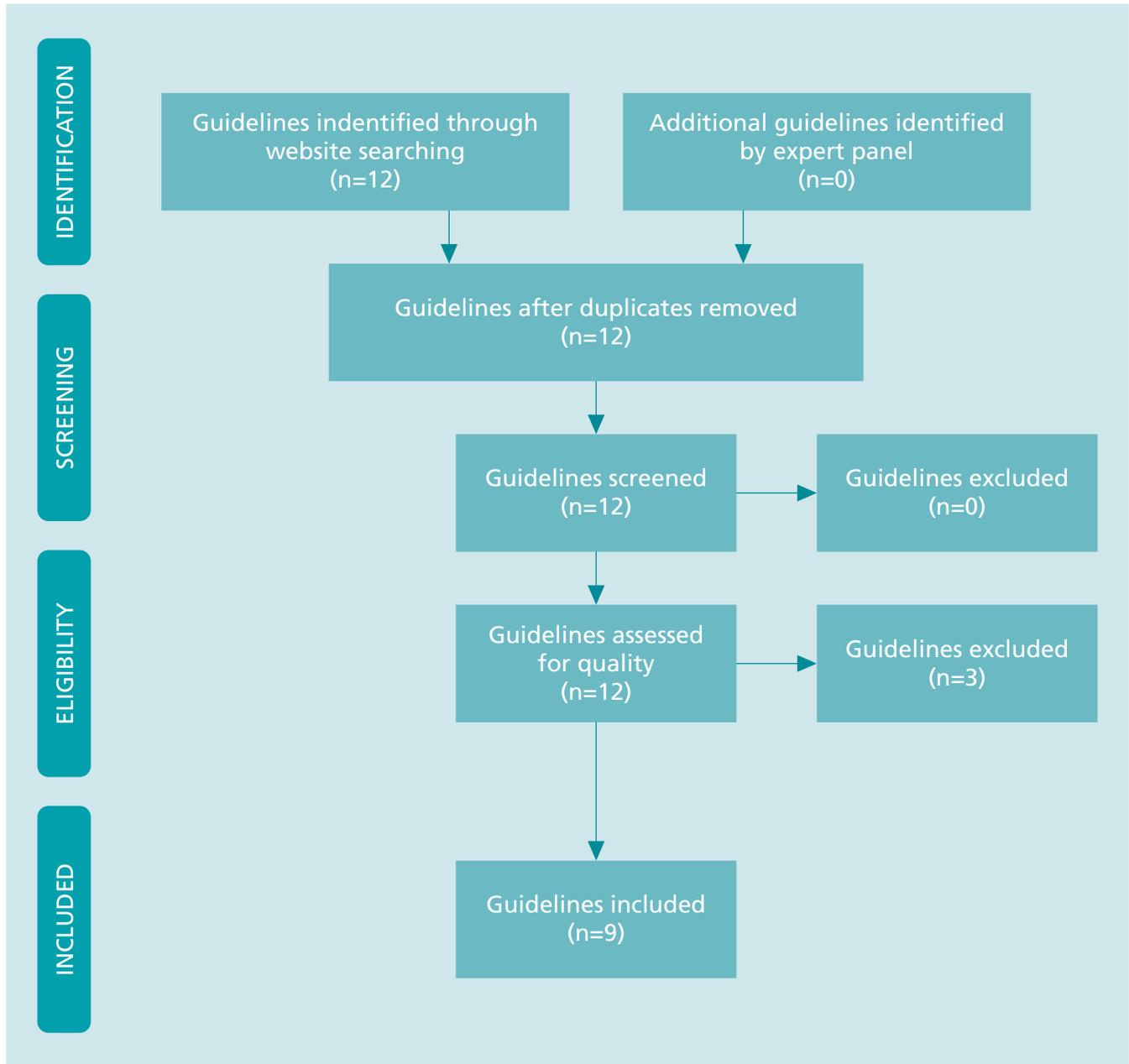
Concurrent with the review of existing guidelines, a search for recent literature relevant to the scope of this Guideline was conducted with guidance from the RNAO expert panel co-chairs. The systematic literature search was conducted by a health-sciences librarian. The search, limited to English-language articles published between 2004 and 2013, was applied to CINAHL, Embase, DARE, Medline, Cochrane Central Register of Controlled Trials and Cochrane Database of Systematic Reviews, ERIC, and PsycINFO databases. Detailed information about the search strategy for the systematic review, including the inclusion and exclusion criteria as well as search terms, is available online at www.RNAO.ca. Four research associates (nurses holding master's degrees) independently assessed the eligibility of studies according to established inclusion and exclusion criteria. RNAO's best practice guideline program manager, working with the expert panel, resolved disagreements.

Quality appraisal scores for 20 articles (a random sample of 10% of articles eligible for data extraction and quality appraisal) were independently assessed by RNAO best practice guideline research associates. Acceptable inter-rater agreement (kappa statistic, $K = GS/DA K = 0.69$; $DA/MB K = 0.69$) justified proceeding with quality appraisal and data extraction by dividing the remaining studies equally between the four research associates (Fleiss, Levin, & Paik, 2003). Validated quality appraisal tools were used to assess all articles included in the systematic review (i.e. AMSTAR, CASP tools, Evaluative Tools for Mixed Method Studies, Cochrane Public Health). A final summary of literature findings was completed. The comprehensive data tables and summary were provided to all RNAO's expert panel members. In September 2013, the expert panel convened to revise and achieve consensus on Guideline recommendations and discussion of evidence based on strong and moderate quality-level evidence where available (i.e. quality appraisal scores).

A review of the most recent literature and relevant guidelines published between 2004 and 2013 resulted in a substantial update of existing recommendations, as well as the inclusion of stronger evidence for new or revised recommendations. The following flow diagrams of the review process for guidelines and articles are presented according to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Mohler, Liberati, Tetzlaff, Altman, & The Prisma Group, 2009).

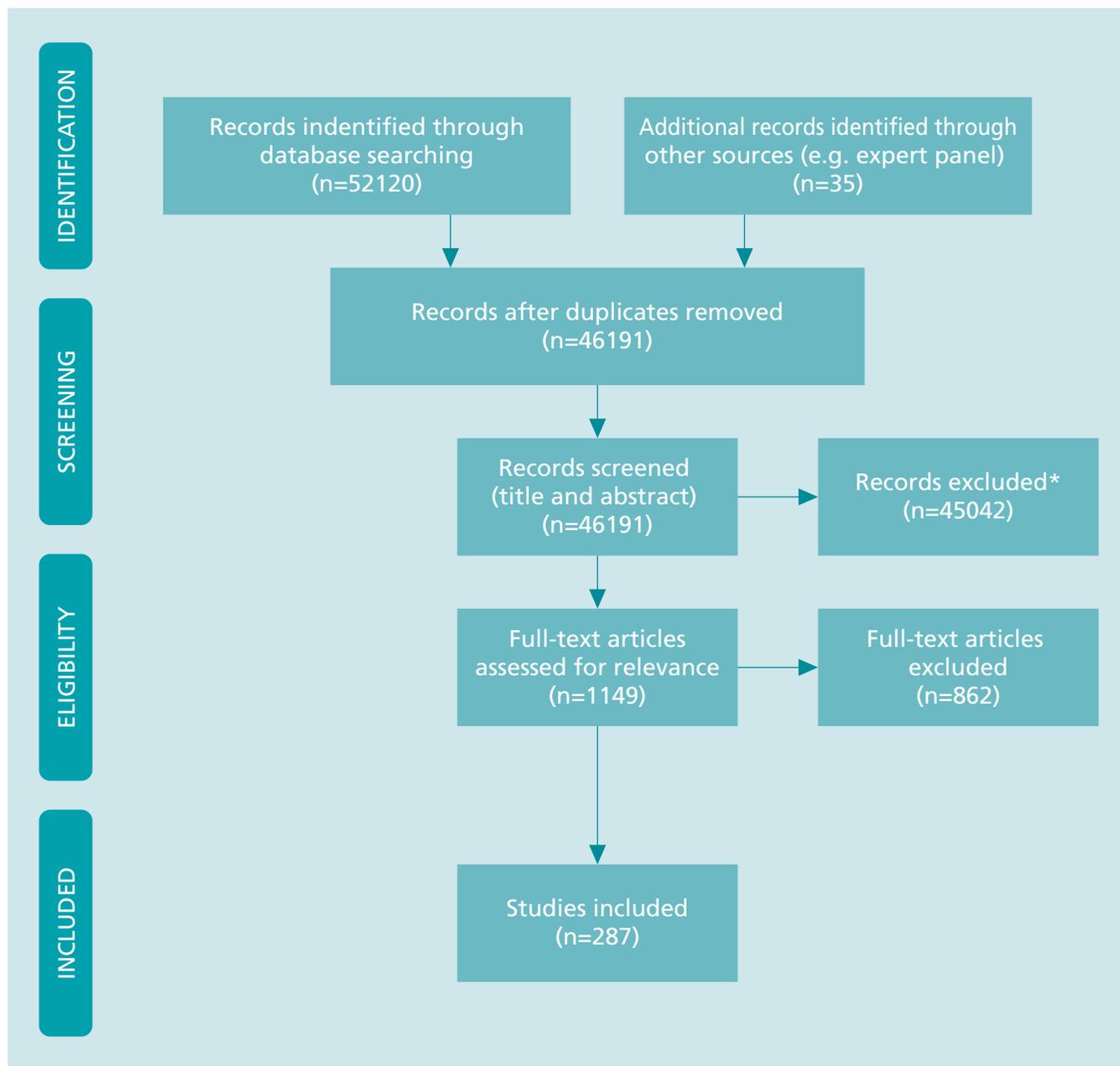
A complete Bibliography of all full text articles screened for inclusion is available at: <http://rnao.ca/bpg/obesity>

Guideline Review Process Flow Diagram



Flow diagram adapted from D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analysis: The PRISMA Statement. *BMJ*, 339, b2535, doi: 10.1136/bmj.b2535

Article Review Process Flow Diagram



*Records excluded: not within scope and due to volume of studies.

Flow diagram adapted from D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analysis: The PRISMA Statement, *BMJ*, 339, b2535, doi: 10.1136/bmj.b2535

Appendix D: Individual & Family Assessment Tools & Resources

NUTRITION SCREEN/ASSESSMENT TOOLS FOR CHILDREN		
RESOURCE	CHARACTERISTICS	CONSIDERATIONS
<p>Parent-Child Interaction (PCI) Feeding & Teaching Scales (all ages)</p>	<ul style="list-style-type: none"> ■ This tool provides a set of observable behaviors that describe caregiver/ parent-child interaction in feeding or teaching situations (NCAST Programs, 2014) 	<ul style="list-style-type: none"> ■ May be used by: Public Health Nurses, Researchers, Social Workers, Psychologists, Early Intervention Workers, Occupational and Physical Therapists, Infant Mental Health Specialists ■ Scale has been reported to be valid and reliable (NCAST Programs, 2014) ■ Available on-line: information on training and how to access the scale http://www.ncast.org/index.cfm?fuseaction=category.display&category_ID=2 ■ Available on-line: access to NCAST Programs http://www.ncast.org/index.cfm?fuseaction=page.display&page_id=24
<p>NutriSTEP® (18-35 months – toddlers) (3-5 years – preschoolers)</p>	<ul style="list-style-type: none"> ■ Asks 17 questions about: food choices, eating habits, physical activity and growth patterns ■ Takes less than 10 minutes to complete ■ Provides immediate feedback to the user ■ Provides the user with resources to support improved eating and physical activity habits (Sudbury & District Health Unit, Janis Randall Simpson, Heather Keller, and the Nutrition Resource Centre, 2014; Dietitians of Canada, 2014) 	<ul style="list-style-type: none"> ■ For use in children 18-35 months and 3-5 years ■ May be used by health-care providers, parents/primary caregivers and other caregivers ■ Evidence of reliability and validity (Sudbury & District Health Unit, Janis Randall Simpson, Heather Keller, and the Nutrition Resource Centre, 2014; Dietitians of Canada, 2014) ■ Available on-line: NutriSTEP® Tool http://www.nutristep.ca/default.aspx ■ Available on-line: Nutri-eSTEP® (on-line version of the tool) http://www.nutritionscreen.ca/

NUTRITION SCREEN/ASSESSMENT TOOLS FOR CHILDREN

RESOURCE	CHARACTERISTICS	CONSIDERATIONS
5-2-1-0 Framework (2-8 years)	<ul style="list-style-type: none"> ■ Asks 9 questions about: consumption of fruits and vegetables, screen time, physical activity, consumption of sugar-sweetened drinks and milk ■ Includes a section for BMI classification (Maine Center for Public Health, n.d.) 	<ul style="list-style-type: none"> ■ For use in children 2-8 years ■ May be filled out by health-care providers, parents/primary caregivers and other caregivers ■ Brief survey (Main Center for Public Health, n.d.) ■ Available on-line: http://www.hsph.harvard.edu/prc/files/2012/11/5210surveywphysstamp-2-8.pdf
5-2-1-0 Framework (9-18 years)	<ul style="list-style-type: none"> ■ Asks 9 questions about: consumption of fruits and vegetables, screen time, physical activity, consumption of sugar-sweetened drinks and milk ■ Includes a section for BMI classification (Maine Center for Public Health, n.d.) 	<ul style="list-style-type: none"> ■ For use in children and youth 9-18 years ■ May be filled out by health-care providers or the child ■ Brief survey (Maine Center for Public Health, n.d.) ■ Available on-line: http://www.hsph.harvard.edu/prc/files/2012/11/5210surveywphysstamp9-18.pdf

ASSESSMENT TOOL FOR PHYSICAL ACTIVITY IN CHILDREN

RESOURCE	CHARACTERISTICS	CONSIDERATIONS
<p>Physical Activity Questionnaire for Children (8-14 years)</p>	<ul style="list-style-type: none"> ■ Asks 10 questions about: general levels of fitness, physical activity, physical well-being and motor skills development ■ Each item is scored on a 5-point scale ■ A summary physical activity score is calculated ■ Takes approximately 20 minutes to complete (Kowalski, Crocker, & Donen, n.d.) 	<ul style="list-style-type: none"> ■ For elementary school children (grades 4-8 i.e. 8-14 years old) ■ Self-administered survey (7-day recall) ■ Can be completed in a classroom setting (Kowalski, Crocker, & Donen, n.d.) ■ High validity, moderate reliability (Richardson, Cavill, Ells, Roberts, 2011) ■ Available on-line: http://www.performwell.org/index.php/find-surveyassessments/outcomes/health-a-safety/good-health-habits/physical-activity-questionnaire-for-children



ASSESSMENT OF GROWTH AND DEVELOPMENT

RESOURCE	CHARACTERISTICS	CONSIDERATIONS
Promoting Optimal Monitoring of Child Growth in Canada: Using the New WHO Growth Charts	<ul style="list-style-type: none"> This document is intended to accompany the use of the 2006 WHO Child Growth Standards for children (birth to five years) and the WHO Growth Reference 2007 (for children five to 19 years of age) (Dietitians of Canada and Canadian Paediatric Society, 2010) 	<ul style="list-style-type: none"> The guidance document is a joint statement by the Dietitians of Canada, Canadian Paediatric Society, The College of Family Physicians of Canada, Community Health Nurses of Canada Available on-line: guidance document http://www.cps.ca/tools/growth-charts-statement-FULL.pdf Available on-line: 2006 WHO Child Growth Standards for children (birth to five years) http://www.who.int/childgrowth/standards/technical_report/en/ Available on-line: WHO Growth Reference 2007 (for children five to 19 years of age) http://www.who.int/growthref/en/
Nipissing District Developmental Screen (NDDS)	<ul style="list-style-type: none"> The screening tool is used to assess the growth and development of children Areas of assessment include: emotional, fine motor, gross motor, social, self-help, communication, learning and thinking skills (NDDS, 2011) 	<ul style="list-style-type: none"> The tool applies to infants up to six years of age The assessment tool can be used by a parent or a health-care professional (NDDS, 2011) Available on-line: http://www.ndds.ca/language.php

FAMILY ENVIRONMENT ASSESSMENT TOOLS		
RESOURCE	CHARACTERISTICS	CONSIDERATIONS
<p>Parenting Stress Index™, 3rd Edition (PSI™-3)</p>	<ul style="list-style-type: none"> ■ Used for the early identification of parenting/primary caregiver and family characteristics that influence normal development and functioning in children, children with behavioral and emotional problems, and parents/primary caregivers who are at risk for dysfunctional parenting ■ Child characteristics assessed include: Distractibility/Hyperactivity, Adaptability, Reinforces Parent, Demandingness, Mood, and Acceptability ■ Parent/Situational characteristics assessed include: Competence, Isolation, Attachment, Health, Role Restriction, Depression, and Spouse ■ Consists of 120 items ■ Should take a parent/primary caregiver approximately 30 minutes to complete (Abidin, n.d.; PAR Inc, 2012) 	<ul style="list-style-type: none"> ■ For parents/primary caregivers of children 1 month to 12 years ■ Empirically validated in diverse populations (Abidin, n.d.; PAR Inc, 2012) ■ Available on-line: for purchase http://www4.parinc.com/Products/Product.aspx?ProductID=PSI ■ Available on-line: for purchase http://www4.parinc.com/Products/Product.aspx?ProductID=PSI-SF (short-form)
<p>Personal Environment Assessments (PEAs)</p>	<ul style="list-style-type: none"> ■ These tools are used to systematically assess the family’s home environment ■ Assessment tools include: Difficult Life Circumstances, Community Life Skills Scale and the Network Survey ■ These tools provide direction with regard to family challenges, the components of their supportive network and their use of community resources (NCAST Programs, 2014) 	<ul style="list-style-type: none"> ■ These tools may be used in a variety of settings (i.e. home, clinic, hospital) ■ These tools are appropriate for all age groups ■ Reported validity and reliability (NCAST Programs, 2014) ■ Available on-line: Information on training and how to access the scale http://www.ncast.org/index.cfm?fuseaction=category.display&category_ID=2

FAMILY ENVIRONMENT ASSESSMENT TOOLS

RESOURCE	CHARACTERISTICS	CONSIDERATIONS
<p>Family Assessment Instrument (FAI)</p>	<ul style="list-style-type: none"> ■ The Family Assessment Instrument is intended to assess a child’s degree of risk for healthy growth and development from birth until the child transitions to school (Child and Youth Development Branch Strategic Policy and Planning Division Ministry of Children and Youth Services, 2012) 	<ul style="list-style-type: none"> ■ Available on-line: starting on p. 93 of <i>Healthy Families Healthy Families Guidance Document</i> (2012) by Child and Youth Development Branch Strategic Policy and Planning Division Ministry of Children and Youth Services http://chd.region.waterloo.on.ca/en/partnersProfessionals/resources/HBHC_GuidanceDocument.pdf ■ Available on-line: Validation study for the Family Assessment Instrument (TNS Canadian Facts, 2014) http://www.tnscanada.ca/recherche_sociale/hbhc.html#instrument
<p>Health Providers Against Poverty</p>	<ul style="list-style-type: none"> ■ This organization recognizes the threat of poverty to the health of individuals ■ Their objectives are to: advocate for universal income and social security; raise awareness of the association between poverty and its health implications; and involve health care providers and individuals who have experienced poverty, in social and political change (HPAP, n.d.) 	<ul style="list-style-type: none"> ■ Available on-line: Poverty – A Clinical Toolkit for Primary Care (HPAP, n.d.) http://www.healthprovidersagainstpoverity.ca/Primary%20Care%20Toolkits ■ Available on-line: Child Poverty – Practice Tool for Primary Care (HPAP, n.d.) http://www.healthprovidersagainstpoverity.ca/node/300

Appendix E: Nutrition Guidelines

Pediatric Nutrition Guidelines for Primary Health Care Providers (birth to 6 years)

The 2011 version of this guideline is currently available through this web-link:

From, “Pediatric Nutrition Guidelines for Primary Health Care Providers.” Ontario Society of Nutrition Professionals in Public Health – Family Health Nutrition Advisory Group, 2011. Retrieved from [http://www.osnp-ph.on.ca/resources/YORK-Pediatric Nutrition Guidelines for Primary Health Care Providers-2011.pdf](http://www.osnp-ph.on.ca/resources/YORK-Pediatric_Nutrition_Guidelines_for_Primary_Health_Care_Providers-2011.pdf)

This guideline will be revised in Spring/Summer 2014. It will be titled, “Evidence-based Pediatric Nutrition Guidelines for Health Professionals: Birth – 6 Years.” To gain access to the latest version of the guideline, please refer to the Ontario Society of Nutrition Professionals for Public Health website at: <http://www.osnp-ph.on.ca/>

Summary: Nutrition for Healthy Term Infants Recommendations from Birth to six Months

PRINCIPLES	RECOMMENDATIONS
Breastfeeding is normal and unequalled method of feeding infants.	Recommend exclusive breastfeeding for the first six months.
Breastfeeding initiation and duration rates increase with active protection, support, and promotion.	Implement the policies and practices of the Baby-Friendly Initiative (BFI) for hospitals and community health services.
Supplemental Vitamin D is recommended for breastfeed infants.	Recommend a daily vitamin D supplement of 10 µg (400 IU) for breastfed infants.
First complementary foods should be iron-rich.	Recommend meat, meat alternatives, and iron-fortified cereal as an infant’s first complementary foods.
Routine growth and monitoring is important to assess infant health and nutrition.	Use the World Health Organization (WHO) Growth Charts for Canada for optimal monitoring of infant growth.

PRINCIPLES	RECOMMENDATIONS
<p>Feeding changes are unnecessary for most common health conditions in infancy.</p>	<p>Explain that feeding changes do little to manage infantile colic.</p> <p>Educate about the wide variation in normal bowel function, noting that true constipation is rare.</p> <p>Reassure that reflux or ‘regurgitation’ is common and rarely needs treatment.</p> <p>Manage mild to moderate dehydration from acute gastroenteritis with continued breastfeeding and oral rehydration therapy.</p>
<p>Breastfeeding is rarely contraindicated.</p>	<p>Recommend an acceptable alternative to breastfeeding for mothers who are HIV-infected.</p> <p>Advise that most medications are compatible with breastfeeding. Take a case-by-case approach when a mother is using medications or drugs.</p> <p>Some infants may not be exclusively breastfed for personal, medical, or social reasons. Their families need support to optimize the infant’s nutritional well-being. The International Code of Marketing of Breast-milk Substitutes (WHO, 1981) advises health professionals to inform parents about the importance of breastfeeding, the personal, social, and economic costs of formula feeding, and the difficulty of reversing the decision not to breastfeed. Individually counsel those families who have made a fully informed choice not to breastfeed on the use of breastmilk substitutes.</p>

From, “Nutrition for Healthy Term Infants: Recommendations from Birth to Six Months,” by Health Canada, 2014a. Copyright 2014 by the Minister of Health. Adapted with permission.

Summary: Nutrition for Healthy Term Infants Recommendations from Six to 24 Months

PRINCIPLES	RECOMMENDATIONS
Breastfeeding is an important source of nutrition for older infants and young children as complementary foods are introduced.	Support sustained breastfeeding for up to two years or beyond, as long as mother and child want to continue.
Supplemental vitamin D is recommended for infants and young children who are breastfed or receiving breastmilk.	Recommend a daily vitamin D supplement of 10 ug (400 IU) for infants and young children who are breastfed or receiving breastmilk.
Complementary feeding, along with continued breastfeeding, provides the nutrients and energy to meet the needs of the older infant.	<p>Recommend gradually increasing the number of times a day that complementary foods are offered while continuing to breastfeed.</p> <p>Recommend iron-rich meat, meat alternatives, and iron-fortified cereal as the first complementary foods. Encourage parents and caregivers to progress to introduce a variety of nutritious foods from the family meals.</p> <p>Ensure that lumpy textures are offered no later than nine months. Encourage progress towards a variety of textures, modified from family foods, by one year of age.</p>
Responsive feeding promotes the development of healthy eating skills.	<p>Encourage responsive feeding based on the child's hunger and satiety cues.</p> <p>Promote offering finger foods to encourage self-feeding.</p> <p>Encourage use of an open cup, initially with help.</p>
Iron-rich complementary foods help prevent iron deficiency.	<p>Continue to recommend a variety of iron-rich foods. Ensure that foods such as meat and meat alternatives and iron-fortified cereal are offered a few times each day.</p> <p>If parents and caregivers are introducing cow milk, advise them to delay until nine to 12 months of age. Recommend limiting cow milk intake to no more than 750 mL per day.</p>

PRINCIPLES	RECOMMENDATIONS
<p>Food for older infants and young children must be prepared, served and stored safely.</p>	<p>Recommend infants and young children always be supervised during feeding.</p> <p>Recommend parents and caregivers avoid offering hard, small and round, or smooth and sticky solid foods. These may cause aspiration and choking.</p> <p>Promote safe food preparation and storage to prevent foodborne illness. Recommend avoiding products that contain raw or undercooked meat, eggs, poultry, or fish; unpasteurized milk or milk products; unpasteurized juice; and cross-contamination between cooked and uncooked foods.</p> <p>Advise parents and caregivers not to give honey to a child under one year of age. This helps to prevent infant botulism.</p>
<p>From one year of age, young children begin to have a regular schedule of meals and snacks, and generally follow the advice in Canada’s Food Guide.</p>	<p>Recommend a regular schedule of meats and snacks, offering a variety of foods from the four food groups.</p> <p>Recommend foods prepared with little or no added salt or sugar.</p> <p>Explain to parents and caregivers that nutritious, higher-fat foods are an important source of energy for young children.</p> <p>Encourage continued breastfeeding, or offering 500 mL per day of homogenized (3.25% M.F.) cow milk.</p> <p>Advise limiting fruit juice and sweetened beverages. Encourage offering water to satisfy thirst.</p> <p>Encourage parents and caregivers to be role models and instil lifelong healthy eating habits.</p>
<p>Recommendations on the use of breastmilk substitutes.</p>	<p>Some infants may not be breastfed for personal, social or rarely, medical reasons. Their families need support to optimize the infant’s nutritional well-being. The International Code of Marketing of Breast-Milk Substitutes (WHO, 1981) advises health professionals to inform parents about the importance of breastfeeding, the personal, social, and economic costs of formula feeding, and the difficulty of reversing the decision not to breastfeed. Individually counsel those families who have made a fully informed choice not to breastfeed on the use of breastmilk substitutes.</p>

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Eating Well with Canada's Food Guide



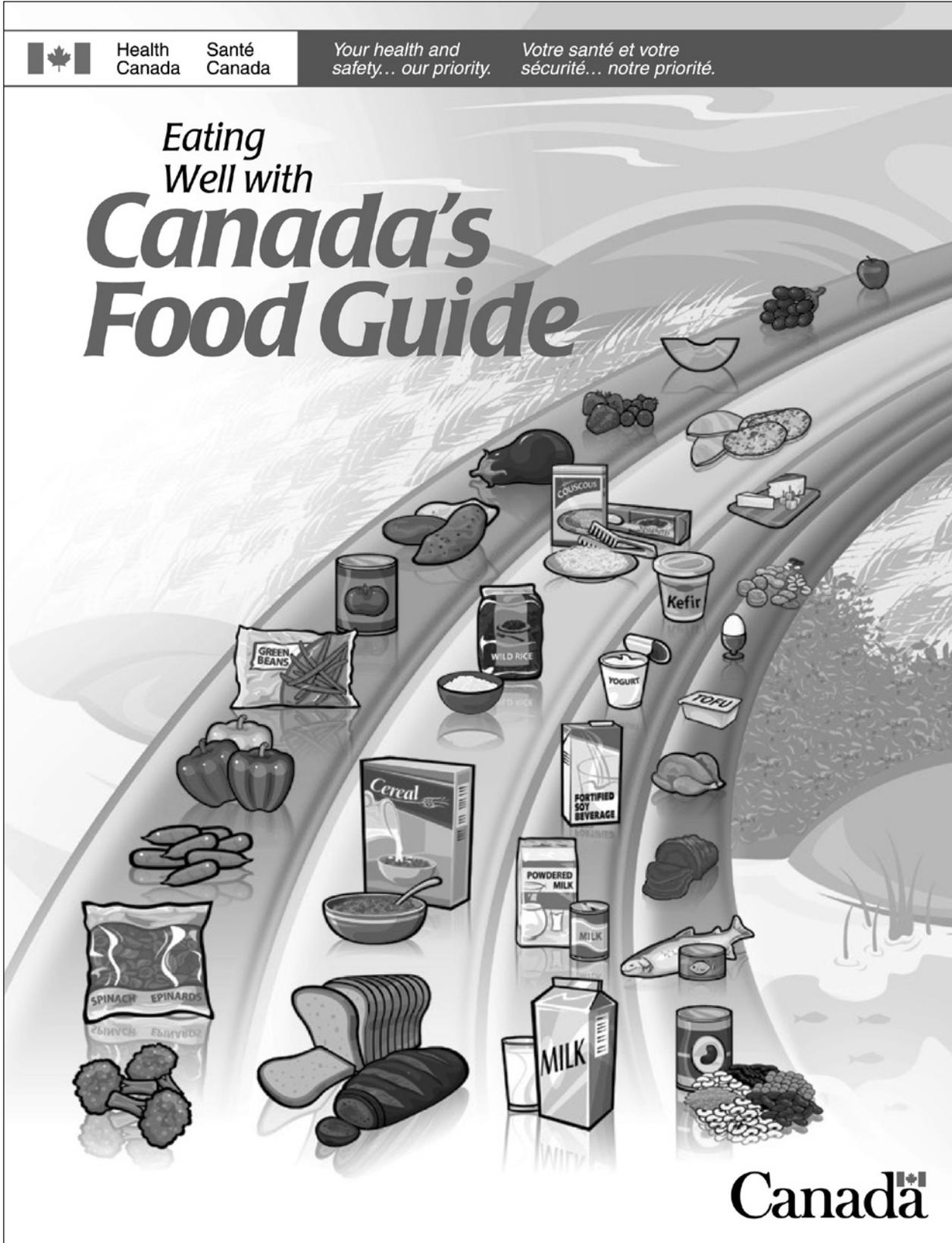
Health
Canada

Santé
Canada

Your health and
safety... our priority.

Votre santé et votre
sécurité... notre priorité.

Eating Well with Canada's Food Guide



Canada

Recommended Number of Food Guide Servings per Day

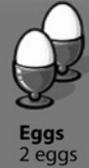
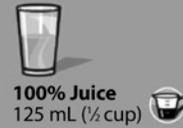
Age in Years	Children			Teens		Adults			
	2-3	4-8	9-13	14-18		19-50		51+	
Sex	Girls and Boys			Females	Males	Females	Males	Females	Males
Vegetables and Fruit	4	5	6	7	8	7-8	8-10	7	7
Grain Products	3	4	6	6	7	6-7	8	6	7
Milk and Alternatives	2	2	3-4	3-4	3-4	2	2	3	3
Meat and Alternatives	1	1	1-2	2	3	2	3	2	3

The chart above shows how many Food Guide Servings you need from each of the four food groups every day.

Having the amount and type of food recommended and following the tips in *Canada's Food Guide* will help:

- Meet your needs for vitamins, minerals and other nutrients.
- Reduce your risk of obesity, type 2 diabetes, heart disease, certain types of cancer and osteoporosis.
- Contribute to your overall health and vitality.

What is One Food Guide Serving? Look at the examples below.



Oils and Fats

- Include a small amount – 30 to 45 mL (2 to 3 Tbsp) – of unsaturated fat each day. This includes oil used for cooking, salad dressings, margarine and mayonnaise.
- Use vegetable oils such as canola, olive and soybean.
- Choose soft margarines that are low in saturated and trans fats.
- Limit butter, hard margarine, lard and shortening.



Make each Food Guide Serving count... wherever you are – at home, at school, at work or when eating out!

▶ Eat at least one dark green and one orange vegetable each day.

- Go for dark green vegetables such as broccoli, romaine lettuce and spinach.
- Go for orange vegetables such as carrots, sweet potatoes and winter squash.

▶ Choose vegetables and fruit prepared with little or no added fat, sugar or salt.

- Enjoy vegetables steamed, baked or stir-fried instead of deep-fried.

▶ Have vegetables and fruit more often than juice.

▶ Make at least half of your grain products whole grain each day.

- Eat a variety of whole grains such as barley, brown rice, oats, quinoa and wild rice.
- Enjoy whole grain breads, oatmeal or whole wheat pasta.

▶ Choose grain products that are lower in fat, sugar or salt.

- Compare the Nutrition Facts table on labels to make wise choices.
- Enjoy the true taste of grain products. When adding sauces or spreads, use small amounts.

▶ Drink skim, 1%, or 2% milk each day.

- Have 500 mL (2 cups) of milk every day for adequate vitamin D.
- Drink fortified soy beverages if you do not drink milk.

▶ Select lower fat milk alternatives.

- Compare the Nutrition Facts table on yogurts or cheeses to make wise choices.

▶ Have meat alternatives such as beans, lentils and tofu often.

▶ Eat at least two Food Guide Servings of fish each week.*

- Choose fish such as char, herring, mackerel, salmon, sardines and trout.

▶ Select lean meat and alternatives prepared with little or no added fat or salt.

- Trim the visible fat from meats. Remove the skin on poultry.
- Use cooking methods such as roasting, baking or poaching that require little or no added fat.
- If you eat luncheon meats, sausages or prepackaged meats, choose those lower in salt (sodium) and fat.



* Health Canada provides advice for limiting exposure to mercury from certain types of fish. Refer to www.healthcanada.gc.ca for the latest information.

Advice for different ages and stages...

Children

Following *Canada's Food Guide* helps children grow and thrive.

Young children have small appetites and need calories for growth and development.

- Serve small nutritious meals and snacks each day.
- Do not restrict nutritious foods because of their fat content. Offer a variety of foods from the four food groups.
- Most of all... be a good role model.



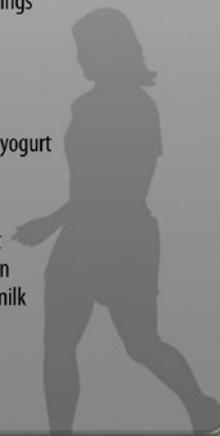
Women of childbearing age

All women who could become pregnant and those who are pregnant or breastfeeding need a multivitamin containing **folic acid** every day. Pregnant women need to ensure that their multivitamin also contains **iron**. A health care professional can help you find the multivitamin that's right for you.

Pregnant and breastfeeding women need more calories. Include an extra 2 to 3 Food Guide Servings each day.

Here are two examples:

- Have fruit and yogurt for a snack, or
- Have an extra slice of toast at breakfast and an extra glass of milk at supper.



Men and women over 50

The need for **vitamin D** increases after the age of 50.

In addition to following *Canada's Food Guide*, everyone over the age of 50 should take a daily vitamin D supplement of 10 µg (400 IU).



How do I count Food Guide Servings in a meal?



Here is an example:

Vegetable and beef stir-fry with rice, a glass of milk and an apple for dessert

250 mL (1 cup) mixed broccoli, carrot and sweet red pepper	=	2 Vegetables and Fruit Food Guide Servings
75 g (2 ½ oz.) lean beef	=	1 Meat and Alternatives Food Guide Serving
250 mL (1 cup) brown rice	=	2 Grain Products Food Guide Servings
5 mL (1 tsp) canola oil	=	part of your Oils and Fats intake for the day
250 mL (1 cup) 1% milk	=	1 Milk and Alternatives Food Guide Serving
1 apple	=	1 Vegetables and Fruit Food Guide Serving

Eat well and be active today and every day!

The benefits of eating well and being active include:

- Better overall health.
- Lower risk of disease.
- A healthy body weight.
- Feeling and looking better.
- More energy.
- Stronger muscles and bones.



Be active

To be active every day is a step towards better health and a healthy body weight.

It is recommended that adults accumulate at least 2 ½ hours of moderate to vigorous physical activity each week and that children and youth accumulate at least 60 minutes per day. You don't have to do it all at once. Choose a variety of activities spread throughout the week.

Start slowly and build up.



Eat well

Another important step towards better health and a healthy body weight is to follow *Canada's Food Guide* by:

- Eating the recommended amount and type of food each day.
- Limiting foods and beverages high in calories, fat, sugar or salt (sodium) such as cakes and pastries, chocolate and candies, cookies and granola bars, doughnuts and muffins, ice cream and frozen desserts, french fries, potato chips, nachos and other salty snacks, alcohol, fruit flavoured drinks, soft drinks, sports and energy drinks, and sweetened hot or cold drinks.

Read the label

- Compare the Nutrition Facts table on food labels to choose products that contain less fat, saturated fat, trans fat, sugar and sodium.
- Keep in mind that the calories and nutrients listed are for the amount of food found at the top of the Nutrition Facts table.

Nutrition Facts	
Amount	% Daily Value
Per 0 mL (0 g)	
Calories 0	
Fat 0 g	0 %
Saturated 0 g	0 %
+ Trans 0 g	
Cholesterol 0 mg	
Sodium 0 mg	0 %
Carbohydrate 0 g	0 %
Fibre 0 g	0 %
Sugars 0 g	
Protein 0 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 0 %

Limit trans fat

When a Nutrition Facts table is not available, ask for nutrition information to choose foods lower in trans and saturated fats.

Take a step today...

- ✓ Have breakfast every day. It may help control your hunger later in the day.
- ✓ Walk wherever you can – get off the bus early, use the stairs.
- ✓ Benefit from eating vegetables and fruit at all meals and as snacks.
- ✓ Spend less time being inactive such as watching TV or playing computer games.
- ✓ Request nutrition information about menu items when eating out to help you make healthier choices.
- ✓ Enjoy eating with family and friends!
- ✓ Take time to eat and savour every bite!



For more information, interactive tools, or additional copies visit *Canada's Food Guide* on-line at: www.healthcanada.gc.ca/foodguide

or contact:

Publications
Health Canada
Ottawa, Ontario K1A 0K9
E-Mail: publications@hc-sc.gc.ca
Tel.: 1-866-225-0709
Fax: (613) 941-5366
TTY: 1-800-267-1245

Également disponible en français sous le titre :
Bien manger avec le Guide alimentaire canadien

This publication can be made available on request on diskette, large print, audio-cassette and braille.

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Eating well with Canada's Food Guide First Nations, Inuit and Métis



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Eating Well with Canada's Food Guide First Nations, Inuit and Métis



Canada

APPENDICES

How to use Canada's Food Guide

The Food Guide shows how many servings to choose from each food group every day and how much food makes a serving.

Eating Well Every Day

Canada's Food Guide describes healthy eating for Canadians two years of age or older. Choosing the amount and type of food recommended in Canada's Food Guide will help:

- children and teens grow and thrive
- meet your needs for vitamins, minerals and other nutrients
- lower your risk of obesity, type 2 diabetes, heart disease, certain types of cancer and osteoporosis (weak and brittle bones).

What is one Food Guide Serving?

Look at the examples below.

1. Find your age and sex group in the chart below.

2. Follow down the column to the number of servings you need for each of the four food groups every day.

3. Look at the examples of the amount of food that counts as one serving. For instance, 125 mL (1/2 cup) of carrots is one serving in the Vegetables and Fruit food group.

	Recommended Number of Food Guide Servings per day	
	Children 2-3 Years old	Teens and Adults (16 years)
Vegetables and Fruit Fresh, frozen and canned.	4	5-6
Grain Products	3	4-6
Milk and Alternatives	2	2-4
Meat and Alternatives	1	1-2

Vegetables and Fruit

Dark green and orange vegetables 125 mL (1/2 cup)

Other vegetables 125 mL (1/2 cup)

Leafy vegetables and mild plants cooked 125 mL (1/2 cup)

raw 250 mL (1 cup)

Fruit 1 fruit or 125 mL (1/2 cup)

Berries 125 mL (1/2 cup)

100% Juice 125 mL (1/2 cup)

Grain Products

Bread 1 slice (35 g)

Ramennoodles 35 g (2" x 2" x 1")

Cold cereal 30 g (one food package)

Hot cereal 175 mL (3/4 cup)

Cooked pasta 125 mL (1/2 cup)

Cooked rice White, brown, wild 125 mL (1/2 cup)

Milk and Alternatives

Milk 250 mL (1 cup)

Powdered milk, mixed 250 mL (1 cup)

Milk 250 mL (1 cup)

Fortified soy beverage 250 mL (1 cup)

Canned milk (evaporated) 125 mL (1/2 cup)

Yogurt 175 g (3/4 cup)

Cheese 50 g (1 1/2 oz.)

Meat and Alternatives

Traditional meats and wild game 75 g cooked (2 1/2 oz./125 mL (1/2 cup))

Fish and shellfish 75 g cooked (2 1/2 oz./125 mL (1/2 cup))

Lean meat and poultry 75 g cooked (2 1/2 oz./125 mL (1/2 cup))

Eggs 2 eggs

Beans - cooked 175 mL (3/4 cup)

Peas and lentils 30 mL (2 tbsp)

When cooking or adding fat to food:

- Most of the time, use vegetable oils with unsaturated fats. These include canola, olive and soybean oils.
- Aim for a small amount (2 to 3 tablespoons or about 30-45 mL) each day. This amount includes oil used for cooking, salad dressings, margarine and mayonnaise.

When cooking or adding fat to food:

- Traditional fats that are liquid at room temperature, such as seal and fish oils, are good sources of omega-3 fatty acids. They can be used as all or part of the F-3 tablespoons of unsaturated fats recommended per day.
- Choose soft margarines that are low in saturated and trans fats.
- Limit butter, hard margarine, lard, shortening and bacon fat.

Health Canada provides advice for limiting exposure to mercury from certain types of fish. Refer to www.healthcanada.gc.ca for the latest information. Consult local, provincial or territorial governments for information about eating locally caught fish.

Health Canada provides advice for limiting exposure to mercury from certain types of fish. Refer to www.healthcanada.gc.ca for the latest information. Consult local, provincial or territorial governments for information about eating locally caught fish.

Respect your body... Your choices matter

Following Canada's Food Guide and limiting foods and drinks which contain a lot of calories, fat, sugar or salt are important ways to respect your body. Examples of foods and drinks to limit are:

- pop
- fruit flavoured drinks
- sweet drinks made from crystals
- sports and energy drinks
- candy and chocolate
- cakes, pastries, doughnuts and muffins
- granola bars and cookies
- ice cream and frozen desserts
- potato chips
- nachos and other salty snacks
- french fries
- alcohol

People who do not eat or drink milk products must plan carefully to make sure they get enough nutrients.

The traditional foods pictured here are examples of how people got, and continue to get, nutrients found in milk products. Since traditional foods are not eaten as much as in the past, people may not get these nutrients in the amounts needed for health.

People who do not eat or drink milk products need more individual advice from a health care provider.



Wild plants, seaweed



Bannock (made with baking powder)



Fish with bones, shellfish, nuts, beans

Women of childbearing age

All women who could become pregnant, and pregnant and breastfeeding women, need a multivitamin with folic acid every day. Pregnant women should make sure that their multivitamin also contains iron. A health care provider can help you find the multivitamin that is right for you.

When pregnant and breastfeeding, women need to eat a little more. They should include an extra 2 to 3 Food Guide Servings from any of the food groups each day.

For example:

- have dry meat or fish and a small piece of bannock for a snack, or
- have an extra slice of toast at breakfast and an extra piece of cheese at lunch.

Women and men over the age of 50

The need for vitamin D increases after the age of 50.

In addition to following Canada's Food Guide, men and women over the age of 50 should take a daily vitamin D supplement of 10 µg (400 IU).

For strong body, mind and spirit, be active every day.



This guide is based on *Eating Well with Canada's Food Guide*.

For more information, interactive tools or additional copies visit Canada's Food Guide at: www.healthcanada.gc.ca/foodguide

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Appendix F: Canadian Physical Activity Guidelines

Canadian Physical Activity Guidelines for the Early Years (0-4 Years)

Canadian Physical Activity Guidelines

FOR THE EARLY YEARS - 0 – 4 YEARS

Guidelines:

For healthy growth and development:

-  Infants (aged less than 1 year) should be physically active several times daily – particularly through interactive floor-based play.
-  Toddlers (aged 1–2 years) and preschoolers (aged 3–4 years) should accumulate at least 180 minutes of physical activity at any intensity spread throughout the day, including:
 -  A variety of activities in different environments;
 -  Activities that develop movement skills;
 -  Progression toward at least 60 minutes of energetic play by 5 years of age.
-  More daily physical activity provides greater benefits.

Being active as an infant means:

- Tummy time
- Reaching for or grasping balls or other toys
- Playing or rolling on the floor
- Crawling around the home

Being active as a toddler or preschooler means:

- Any activity that gets kids moving
- Climbing stairs and moving around the home
- Playing outside and exploring their environment
- Crawling, brisk walking, running or dancing

The older children get, the more energetic play they need, such as hopping, jumping, skipping and bike riding.

All activity counts. Try these tips to get young kids moving:

- Create safe spaces for play.
- Play music and learn action songs together.
- Dress for the weather and explore the outdoors.
- Make time for play with other kids.
- Get where you're going by walking or biking.

***Any way, every day.
Get active together!***



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Canadian Physical Activity Guidelines for Children (5-11 Years)

Canadian Physical Activity Guidelines

FOR CHILDREN - 5 – 11 YEARS

Guidelines



For health benefits, children aged 5-11 years should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily. This should include:



Vigorous-intensity activities at least 3 days per week.



Activities that strengthen muscle and bone at least 3 days per week.



More daily physical activity provides greater health benefits.

Let's Talk Intensity!

Moderate-intensity physical activities will cause children to sweat a little and to breathe harder. Activities like:

- Bike riding
- Playground activities

Vigorous-intensity physical activities will cause children to sweat and be 'out of breath'. Activities like:

- Running
- Swimming

Being active for at least **60 minutes** daily can help children:

- Improve their health
- Do better in school
- Improve their fitness
- Grow stronger
- Have fun playing with friends
- Feel happier
- Maintain a healthy body weight
- Improve their self-confidence
- Learn new skills

Parents and caregivers can help to plan their child's daily activity. Kids can:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Play tag – or freeze-tag! | <input checked="" type="checkbox"/> Play an active game at recess. |
| <input checked="" type="checkbox"/> Go to the playground after school. | <input checked="" type="checkbox"/> Go sledding in the park on the weekend. |
| <input checked="" type="checkbox"/> Walk, bike, rollerblade or skateboard to school. | <input checked="" type="checkbox"/> Go "puddle hopping" on a rainy day. |

60 minutes a day. You can help your child get there!



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Appendix G: Canadian Sedentary Behaviour Guidelines

Canadian Sedentary Behaviour Guidelines for the Early Years (0-4 Years)

Canadian Sedentary Behaviour Guidelines

FOR THE EARLY YEARS - 0 – 4 YEARS

Guidelines:

-  For healthy growth and development, caregivers should minimize the time infants (aged less than 1 year), toddlers (aged 1–2 years) and preschoolers (aged 3–4 years) spend being sedentary during waking hours. This includes prolonged sitting or being restrained (e.g., stroller, high chair) for more than one hour at a time.
-  For those under 2 years, screen time (e.g., TV, computer, electronic games) is not recommended.
-  For children 2–4 years, screen time should be limited to under one hour per day; less is better.

The Lowdown on the Slowdown: what counts as being sedentary

Sedentary behaviours are those that involve very little physical movement while children are awake, such as sitting or reclining:

- in a stroller, high chair or car seat
- watching television
- playing with non-active electronic devices such as video games, tablets, computers or phones

Spending less time being sedentary can help young kids:

- Maintain a healthy body weight
- Develop social skills
- Behave better
- Improve learning and attention
- Improve language skills

So cut down on sitting down. To reduce young children's sedentary time, you can:

- Limit use of playpens and infant seats when baby is awake.
- Explore and play with your child.
- Stop during long car trips for playtime.
- Set limits and have rules about screen time.
- Keep TVs and computers out of bedrooms.
- Take children outside every day.

***There's no time like right now
to get up and get moving!***



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Canadian Sedentary Behaviour Guidelines for Children (5-11 Years)

Canadian Sedentary Behaviour Guidelines

FOR CHILDREN - 5 – 11 YEARS

Guidelines

For health benefits, children aged 5–11 years should minimize the time they spend being sedentary each day. This may be achieved by



Limiting recreational screen time to no more than 2 hours per day; lower levels are associated with additional health benefits.



Limiting sedentary (motorized) transport, extended sitting and time spent indoors throughout the day.

The lowdown on the slowdown: what counts as being sedentary?

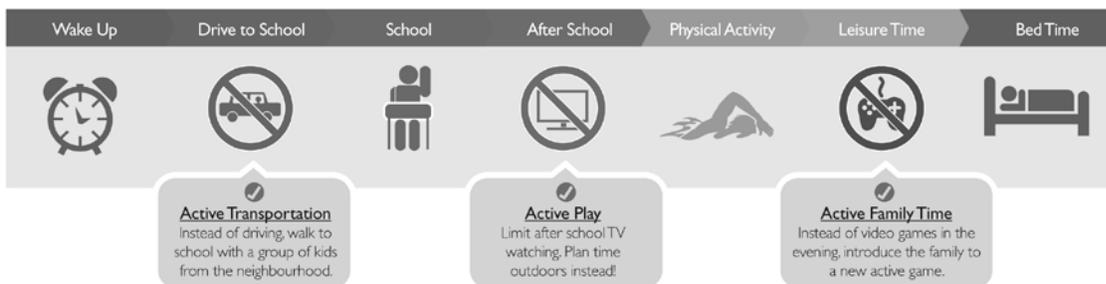
Sedentary behaviour is time when children are doing very little physical movement. Some examples are:

- Sitting for long periods
- Using motorized transportation (such as a bus or a car)
- Watching television
- Playing passive video games
- Playing on the computer

Spending less time being sedentary can help children:

- Maintain a healthy body weight
- Do better in school
- Improve their self-confidence
- Have more fun with their friends
- Improve their fitness
- Have more time to learn new skills

Cutting down on sitting down. Help children swap sedentary time with active time!



There is no time like right now for children to get up and get moving!



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Appendix H: School Environment Assessment Tools & Resources

SCHOOL ENVIRONMENT ASSESSMENT TOOLS AND RESOURCES		
RESOURCE	CHARACTERISTICS	OTHER INFORMATION
Healthy Schools Healthy Communities	<ul style="list-style-type: none"> This website provides comprehensive tools and resources for use in the assessment, planning and intervention of healthy school-based interventions and programs (Ontario Physical and Health Education Association [OPHEA], n.d.) 	<ul style="list-style-type: none"> Ontario Physical and Health Education Association (OPHEA) was created in 1921 and is a non-profit organization Available on-line: http://www.ophea.net/healthy-schools-communities/about-healthy-school-communities
Healthy Schools: Foundations for a Healthy School	<ul style="list-style-type: none"> This website provides a chart that can be used to assess schools according to their quality instruction programs, physical environment, supportive social environment and community partnerships (Ontario Ministry of Education, 2012) 	<ul style="list-style-type: none"> Created by the Ontario Ministry of Education Available on-line: http://www.edu.gov.on.ca/eng/healthyschools/foundations.html
School Health Environment Survey (SHES)	<ul style="list-style-type: none"> The survey addresses the four components that form the basis of the Foundations for a Healthy School: high-quality instruction and programs, a healthy physical environment, a supportive social environment and community partnerships (Propel Center for Population Health Impact at University of Waterloo, n.d.) 	<ul style="list-style-type: none"> Available on-line: SHAPES – School Health Action, Planning and Evaluation System website http://www.shapes.uwaterloo.ca/index.cfm?section=1002&page=1037

SCHOOL ENVIRONMENT ASSESSMENT TOOLS AND RESOURCES		
RESOURCE	CHARACTERISTICS	OTHER INFORMATION
Nutrition Tools for Schools®	<ul style="list-style-type: none"> ■ Site provides action guides that can be used to assess and create a healthier eating environment for children in schools ■ It provides tips and tools on how to meet the Ontario Ministry of Education – School Food and Beverage Policy, Policy/Program Memorandum no. 150 (PPM 150) (Ontario Society of Nutrition Professionals in Public Health, 2011) 	<ul style="list-style-type: none"> ■ Supported by the Ontario Society of Nutrition Professionals in Public Health ■ Available on-line: http://nutritiontoolsforschools.ca/ ■ Available on-line: PPM 150 http://www.edu.gov.on.ca/eng/healthyschools/policy.html
School Health Index	<ul style="list-style-type: none"> ■ An online self-assessment and planning tool that schools can use to improve their health and safety policies and programs (Centers for Disease Control and Prevention, 2012a) 	<ul style="list-style-type: none"> ■ Developed by the Centers for Disease Control and Prevention in collaboration with school staff and administrators, parents/primary caregivers, school health experts, national nongovernmental health and education agencies ■ Used for elementary, middle and high-schools (Centers for Disease Control and Prevention, 2012a) ■ Available on-line: http://www.cdc.gov/healthyouth/shi/
Eating Well With Canada's Food Guide: A Resource for Educators and Communicators	<ul style="list-style-type: none"> ■ This resource provides background information, tips and tools to complement the healthy eating recommendations in Canada's Food Guide ■ The resource enables educators to: write and talk about the importance of eating well, develop or advocate for nutrition policies and create new tools and resources (Health Canada, 2011a) 	<ul style="list-style-type: none"> ■ Developed by Health Canada ■ Available on-line: http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/pubs/res-educat-eng.pdf

SCHOOL ENVIRONMENT ASSESSMENT TOOLS AND RESOURCES		
RESOURCE	CHARACTERISTICS	OTHER INFORMATION
Physical Education Curriculum Analysis Tool (PECAT)	<ul style="list-style-type: none"> ■ A self-assessment and planning guide designed to help school districts and schools conduct an analysis of physical education curricula, based upon national physical education standards (Centers for Disease Control and Prevention, 2007) 	<ul style="list-style-type: none"> ■ Available on-line: http://www.cdc.gov/healthyyouth/PECAT/
Health Education Curriculum Analysis Tool (HECAT)	<ul style="list-style-type: none"> ■ This tool helps school districts and schools conduct an analysis of health education curricula based on the National Health Education Standards and Centers for Disease Control and Prevention’s Characteristics of an Effective Health Education Curriculum (Centers for Disease Control and Prevention, 2012b) 	<ul style="list-style-type: none"> ■ Available on-line: http://www.cdc.gov/healthyyouth/HECAT/index.htm



Appendix I: Community Assessment Tools & Resources

SCHOOL ENVIRONMENT ASSESSMENT TOOLS AND RESOURCES		
RESOURCE	CHARACTERISTICS	OTHER INFORMATION
Community Assessment Tool Kit	<ul style="list-style-type: none"> One chapter of this resource provides information about: how to assess community needs and resources, get community issues on the public agenda, and how to choose relevant strategies for action <p>(Work Group for Community Health and Development, University of Kansas, 2013)</p>	<ul style="list-style-type: none"> Created by the Work Group for Community Health and Development at the University of Kansas Available on-line: http://ctb.ku.edu/en/table-of-contents/assessment
Public Health Ontario's Planning Workbook	<ul style="list-style-type: none"> Provides instruction on the program planning process including: managing the planning process, conducting a situational assessment, setting goals/audiences and outcome objectives, choosing strategies and resources, developing indicators and reviewing your plan <p>(Ontario Agency for Health Protection and Promotion, 2014)</p>	<ul style="list-style-type: none"> Provided by the Ontario Agency for Health Protection and Promotion Available on-line: http://www.PUBLICHEALTHONTARIO.ca/ (go to Service and Tools → Online Health Program Planner)
RE-AIM Framework	<ul style="list-style-type: none"> The overall goal of the framework is to provide a tool for the evaluation of the key components of public health programs (e.g. external validity) which can be used improve the sustainable adoption and implementation of effective and generalizable, evidence-based interventions <p>(Virginia Polytechnic Institute and State University, 2014)</p>	<ul style="list-style-type: none"> The link provides examples of the use of the RE-AIM framework within the context of childhood obesity interventions (see the 'publications' tab on the website) Available on-line: http://www.re-aim.org/index.html

Appendix J: Tools & Resources to Evaluate Healthy Public Policies

TOOLS AND RESOURCES TO EVALUATE HEALTHY PUBLIC POLICIES		
RESOURCE	CHARACTERISTICS	CONSIDERATIONS/ OTHER INFORMATION
Risk analysis model	<ul style="list-style-type: none"> ■ The article provides an example of how a risk analysis model is applied to assess the potential impact of a nutrition policy ■ Components of a risk analysis include: hazard identification, dose-response assessment, exposure assessment and risk characterization 	<p>Example of the use of a risk analysis model can be found in the following journal article:</p> <p>Forshee, R. A., Storey, M. L., & Ginevan, M. E. (2005). A risk analysis model of the relationship between beverage consumption from school vending machines and risk of adolescent overweight. <i>Risk Analysis</i>, 25(5), p.1121 -1135.</p>
ANGELO framework	<ul style="list-style-type: none"> ■ The article provides an example of how the ANGELO framework was adapted to assess the obesogenic environment ■ The components of the ANGELO framework include: microenvironment, macroenvironment (e.g. school setting), physical environment (e.g. what is available), economic environment (e.g. financial factors), policy (e.g. what are the rules and socio-cultural (e.g. attitudes, beliefs) 	<p>Example of the application of the ANGELO framework:</p> <p>Carter, M.-A., & Swinburn, B. (2004). Measuring the 'obesogenic' food environment in New Zealand primary schools. <i>Health Promotion International</i>, 19(1), 15-20.</p>

Health Equity Impact Assessment Tool

HEIA

Health Equity Impact Assessment

HEIA is a flexible and practical assessment tool that can be used to identify and address **potential unintended health impacts** (positive or negative) of a policy, program or initiative on specific population groups.

Note: The *HEIA Template* is designed to be used alongside the accompanying *HEIA Workbook*, which provides definitions, examples and more detailed instructions to help you complete this template.

Date:	
Organization:	
Name and contact information for the individual or team that completed the HEIA:	
Project Name:	
Project Summary:	
Objective for Completing the HEIA: (e.g., to determine where to best invest resources in a new policy, program, or initiative?)	
Note: This section to be filled in after completing the following HEIA template.	
Conclusions: (e.g., what decisions were made following completion of the HEIA tool?)	



HEIA Template

The numbered steps in this template correspond with sections in the HEIA Workbook. The workbook with step-by-step instructions is available at www.ontario.ca/healthequity.

Step 1. SCOPING	Step 2. POTENTIAL IMPACTS	Step 3. MITIGATION	Step 4. MONITORING	Step 5. DISSEMINATION
a) Populations* Using evidence, identify which populations may experience significant unintended health impacts (positive or negative) as a result of the planned policy, program or initiative.				
b) Determinants of Health Identify determinants and health inequities to be considered alongside the populations you identify.				
Aboriginal peoples (e.g., First Nations, Inuit, Métis, etc.)				
Age-related groups (e.g., children, youth, seniors, etc.)				
Disability (e.g., physical, D/deaf, deafened or hard of hearing, visual, intellectual/developmental, learning, mental illness, addictions/substance use, etc.)				
Ethno-racial communities (e.g., racialized or cultural minorities, immigrants and refugees, etc.)				
Francophone (including new immigrant francophones, deaf communities using LSQ/LSF, etc.)				
Homeless (including marginally or under-housed, etc.)				
Linguistic communities (e.g., uncomfortable using English or French, literacy affects communication, etc.)				
Low income (e.g., unemployed, underemployed, etc.)				
Religious/faith communities				
Rural/remote or inner-urban populations (e.g., geographic/social isolation, under-served areas, etc.)				
Sex/gender (e.g., male, female, women, men, trans, transsexual, transgendered, two-spirited, etc.)				
Sexual orientation (e.g., lesbian, gay, bisexual, etc.)				
Other: please describe the population here.				

*Note: The terminology listed here may or may not be preferred by members of the communities in question and there may be other populations you wish to add. Also consider intersecting populations (i.e., Aboriginal women).

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Appendix K: Additional Resources

The expert panel, with input from external reviewers and other key stakeholders, has compiled a list of organizations, websites, and other resources that may be helpful for promoting healthy eating and physical activity with children, families, schools, communities, or populations.

Links to websites that are external to the RNAO are provided for information purposes only. The RNAO is not responsible for the quality, accuracy, reliability, or currency of the information provided through these sources. Further, the RNAO has not determined the extent to which these resources have been evaluated. Questions related to these resources should be directed to the source.

RESOURCE	WEB-LINK
MUNICIPAL, PROVINCIAL & FEDERAL	
Government of Canada	http://healthycanadians.gc.ca/kids-enfants/obesity-obesite/index-eng.php
Calgary Health Region	www.calgaryhealthregion.ca
Government of Ontario	http://www.ontario.ca/welcome-ontario
Ontario Public Health Units	www.health.gov.on.ca/english/public/contact/phu/phuloc_mn.html
Health Canada <ul style="list-style-type: none"> ■ Public Health Agency ■ Physical Activity Unit 	www.hc-sc.gc.ca
Physical Activity Guides for Children and Youth	www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/index.html
Ottawa Public Health	http://ottawa.ca/en/residents/public-health
Toronto Public Health	http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=a253ba2ae8b1e310VgnVCM10000071d60f89RCRD

RESOURCE	WEB-LINK
MUNICIPAL, PROVINCIAL & FEDERAL	
Region of Peel	https://www.peelregion.ca/health/obesity https://www.peelregion.ca/health/obesity/resources/websites.htm
Alberta Health	http://alberta.ca/home/googlesearch/searchpage.aspx?client=pub_goa&site=pub_goa&output=xml_no_dtd&proxystylesheet=pub_goa&num=10&sort=&as_sitesearch=health.alberta.ca&as_q=childhood+obesity
British Columbia Health	http://www.health.gov.bc.ca/public-health/pdf/Healthy_Living_Physical_Activity_Healthy_Eating_Evidence_Review.pdf http://www.health.gov.bc.ca/healthyeating
North Bay Parry Sound District Health Unit	http://www.myhealthunit.ca/en/livehealthyandprotectyourhealth/schoolhealth.asp (school health web-link)
Government of Canada	http://healthycanadians.gc.ca/kids-enfants/obesity-obesite/index-eng.php
Actions Taken and Future Directions Curbing Childhood Obesity: A Federal, Provincial and Territorial Framework for Action to Promote Healthy Weights (Public Health Agency of Canada, 2011a)	http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/framework-cadre/2011/hw-os-2011-eng.php
No Time to Wait: The Healthy Kids Strategy by the Healthy Kids Panel (Ontario Ministry of Health and Long-term Care, 2012b)	http://www.health.gov.on.ca/en/common/ministry/publications/reports/healthy_kids/healthy_kids.pdf
Obesity in Canada: A Joint Report from the Public Health Agency of Canada and the Canadian Institute of Health Information (PHAC & CIHI, 2011)	http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/assets/pdf/oic-oac-eng.pdf

RESOURCE	WEB-LINK
NON-PROFIT ORGANIZATIONS	
Dietitians of Canada	www.dietitians.ca
EPODE International Network (Ensemble Prevenons l'Obesite des Enfants – Together Let's Prevent Childhood Obesity)	http://www.epode-international-network.com/
HC Link	http://www.hclinkontario.ca/
Heart and Stroke Foundation of Canada	http://www.heartandstroke.ca/
Canadian Paediatric Society (CPS) – Caring for Kids	http://www.cps.ca/
Practice-Based Evidence Network	http://www.pennutrition.com/
Victorian Order of Nurses (VON)	http://www.von.ca/
The Chronic Disease Prevention Alliance of Canada (CDPAC): Reducing Chronic Disease in Canada	http://www.cdpac.ca/content.php?doc=168
Ontario Healthy Schools Coalition	http://ontariohealthyschools.com/
Childhood Obesity Foundation	http://www.childhoodobesityfoundation.ca/
Healthy Families BC	https://www.healthyfamiliesbc.ca/
Canadian Obesity Network	http://www.obesitynetwork.ca/
Physical and Health Education Canada	http://www.phecanada.ca/
Health Nexus	http://en.healthnexus.ca/about-us
Ontario Physical and Health Education Association (OPHEA) – Healthy Schools Healthy Communities	http://www.ophea.net/
Canadian Diabetes Association	http://www.diabetes.ca/

RESOURCE	WEB-LINK
NON-PROFIT ORGANIZATIONS	
Canadian Cancer Society	http://www.cancer.ca/en/search/?region=on&q=obesity
Wellesley Institute	http://www.wellesleyinstitute.com/?s=childhood+obesity
Metro Green Apple School Program	http://www.croquesante.metro.ca/home.en.html
Guide to Community Preventive Services	http://www.thecommunityguide.org/
Alberta Project Promoting active Living and healthy Eating in Schools (APPLE Schools)	http://cbpp-pcpe.phac-aspc.gc.ca/interventions/alberta-project-promoting-active-living-healthy-eating-schools-apple-schools/
Ontario Public Health Association (OPHA)	https://opha.on.ca/Home.aspx
Association of Local Public Health Agencies (ALPHA)	http://www.alphaweb.org/
Ontario Society of Nutrition Professionals in Public Health (OSNPPH)	http://www.osnpnh.on.ca/
Ontario Society of Physical Activity Promoters in Public Health	http://parc.ophea.net/article/ontario-society-physical-activity-promoters-public-health
Public Health Ontario	<p>Ontario Agency for Health Protection and Promotion (Public Health Ontario). (2013a). <i>Addressing obesity in children and youth: evidence to guide action for Ontario</i>. Toronto, ON: Queen's Printer for Ontario</p> <p>http://www.publichealthontario.ca/en/BrowseByTopic/HealthPromotion/Pages/Addressing-Obesity-in-Children-and-Youth.aspx#.UzHiCM6ImoY</p>

RESOURCE	WEB-LINK
PHYSICAL ACTIVITY	
Alberta Sport, Recreation, Parks and Wildlife Foundation	http://www.everactive.org/
BAM! Body and Mind	http://www.bam.gov/
Canadian Association for the Advancement of Women and Sport and Physical Activity (CAAWS)	http://www.caaws.ca/
Canadian Fitness and Lifestyle Research Institute	http://www.cflri.ca/
Ontario Physical and Health Education Association (OPHEA)	http://www.ophea.net/
Leisure Information Network	http://www.lin.ca/
Active Canada	http://www.activecanada2020.ca/home/active-canada-2020---english
Active Healthy Kids Canada	http://www.activehealthykids.ca/
Physical Activity Resource Centre	http://parc.ophea.net/
Physical & Health Education Canada	http://www.phecanada.ca/about-us
YMCA Canada	http://www.ymca.ca/en/home.aspx
ParticiPACTION	http://www.participaction.com/
BUILT ENVIRONMENT	
Healthy Peel By Design	http://www.peelregion.ca/health/resources/healthbydesign/our-initiatives.htm
Center for Active Design	http://centerforactivedesign.org/resources/
Child and Nature Alliance of Canada	http://childnature.ca/about-alliance

RESOURCE	WEB-LINK
HEALTHY EATING	
Alberta Sport, Recreation, Parks and Wildlife Foundation	http://www.fcpc.ca/news/fcpcs-childhood-obesity
Eat Right Ontario	https://www.eatrightontario.ca/en/default.aspx
Marketing of foods high in fat, salt, sugar to children: update 2012-2013 (WHO, 2013)	http://www.euro.who.int/_data/assets/pdf_file/0019/191125/e96859.pdf
Richmond Food Security Society	http://www.richmondfoodsecurity.org/author/gretchen/
Raising the Bar – Early Childhood Education	http://www.cdrcp.com/rtb/raising-the-bar
Nutrition Resource Centre	http://opha.on.ca/Nutrition-Resource-Centre/Home.aspx
Ellyn Satter Institute (ESI)	http://www.ellynsatterinstitute.org/
HEALTHY PUBLIC POLICIES	
'Health in All Policies' strategy (WHO, 2013)	http://www.healthpromotion2013.org/health-promotion/health-in-all-policies
'Health in All Policies' strategy (Wellesley Institute, 2014)	http://www.wellesleyinstitute.com/health-care/health-equity/realizing-the-potential-of-health-in-all-policies-lessons-from-finland/
Healthy Schools: New School Food and Beverage Policy (Ontario Ministry of Education, 2014)	http://www.edu.gov.on.ca/eng/healthyschools/policy.html

RESOURCE	WEB-LINK
HEALTHY PUBLIC POLICIES	
<p>Child Care Modernization: Day Nurseries Act Regulatory Amendment to Support Child Care Funding Formula (Government of Ontario, 2013)</p>	<p>http://www.ontariocanada.com/registry/view.do?postingId=12262</p> <p>http://www.ontariocanada.com/registry/view.do?postingId=9622&language=en</p>
<p>10 promising practices to guide local public health practice to reduce social inequities in health: Technical briefing (Sudbury & District Health Unit, 2011)</p>	<p>10 Promising Practices Fact Sheets:</p> <p>http://www.sdhu.com/content/search/doc.asp?doc=13088&q=promising&l=&lang=0</p>
<p>Workbook for Influencing Physical Activity Policy (The Physical Activity Resource Centre, 2014)</p>	<p>http://parc.ophea.net/resources/policy-workbook</p>
SOCIAL DETERMINANTS OF HEALTH & HEALTH EQUITY	
<p>Creating Vibrant Communities: RNAO's Challenge to Ontario's Political Parties 2011 Provincial Election (RNAO, 2011)</p>	<p>http://rnao.ca/policy/reports/creating-vibrant-communities</p>
<p>Social Determinants of Health (RNAO, 2014)</p>	<p>http://rnao.ca/policy/projects/social-determinants-health</p>
<p>Health Inequalities and Social Determinants of Aboriginal Peoples' Health (National Collaborating Centre for Aboriginal Health, 2009)</p>	<p>http://www.nccah-ccnsa.ca/docs/social%20determinates/nccah-loppie-wien_report.pdf</p>
<p>Prevent Childhood Obesity in Your Aboriginal Community: A Guide to Service Providers (Health Nexus, 2010)</p>	<p>http://www.beststart.org/resources/hlthy_chld_dev/pdf/Book_Prevent%20Childhood%20Obesity%20in%20Your%20Aboriginal%20Community.pdf</p>

RESOURCE	WEB-LINK
SOCIAL DETERMINANTS OF HEALTH & HEALTH EQUITY	
Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health (WHO, 2008)	http://www.who.int/social_determinants/thecommission/finalreport/en/
National Collaborating Centre for Determinants of Health (National Collaborating Centres for Public Health, n.d.)	http://www.nccdh.ca/
Inclusion Resources (Ontario Physical and Health Education Association [OPHEA], n.d.)	http://www.ophea.net/programs-services/additional-resources/inclusion-resources
EVALUATION & MEASUREMENT	
Health-evidence.ca	www.healthevidence.org
Measuring the Health of Infants, Children and Youth for Public Health Ontario: Indicators, Gaps, and Recommendations for Moving Forward (Public Health Ontario, 2013a)	http://www.nccph.ca/en/home.aspx
Inclusion Resources (Ontario Physical and Health Education Association [OPHEA], n.d.)	http://www.publichealthontario.ca/en/eRepository/Measuring_Health_Infants_Children_2013.pdf
Health Promotion Evaluation: Recommendations to Policy Makers (Report of the WHO European Working Group on Health Promotion Evaluation, 1998)	http://www.euro.who.int/_data/assets/pdf_file/0004/159871/E60706.pdf

Appendix L: Indicators & Resources to Measure Socio-Economic Status

INDICATORS & RESOURCES TO MEASURE SOCIO-ECONOMIC STATUS	
INDICATOR	RESOURCE
Canadian Marginalization Index	<p>Available on-line:</p> <p>Canadian Institute for Health Information (2014a) http://www.cihi.ca/CIHI-ext-portal/internet/en/document/factors+influencing+health/environmental/cphi_marginalization</p> <p>ON-Marg: Ontario Marginalization Index (McMaster University, 2014) http://www.crunch.mcmaster.ca/ontario-marginalization-index</p>
Deprivation in Canadian Cities: An analytical tool	<p>Available on-line:</p> <p>Canadian Institute of Health Information (2014b) http://www.cihi.ca/CIHI-ext-portal/internet/en/document/factors+influencing+health/environmental/cphi_cma_depindex</p>
Summary Measure for Socioeconomic Inequalities in Health	<p>Available on-line:</p> <p>Public Health Ontario (2013b) http://www.publichealthontario.ca/fr/eRepository/Summary_Measures_Socioeconomic_Inequalities_Health_2013.pdf</p>
Measuring the Health of Infants, Children and Youth for Public Health Ontario: Indicators, Gaps and Recommendations for Moving Forward	<p>Available on-line:</p> <p>Public Health Ontario (2013a) http://www.publichealthontario.ca/en/eRepository/Measuring_Health_Infants_Children_2013.pdf</p>
Early Development Instrument (A Population-Based Measure for Communities)	<p>Available on-line:</p> <p>Offord Centre for Child Studies (2012) http://www.offordcentre.com/readiness/EDI_viewonly.html (instrument and guide)</p>
Breaking the Cycle: Ontario's Poverty Reduction Strategy (Government of Ontario, 2008)	<p>Available on-line:</p> <p>http://www.children.gov.on.ca/htdocs/English/breakingthecycle/index.aspx</p>

Appendix M: Description of the Toolkit

Best practice guidelines can only be successfully implemented if planning, resources, organizational, and administrative supports are adequate and there is appropriate facilitation. To encourage successful implementation, an RNAO expert panel of nurses, researchers, and administrators has developed the *Toolkit: Implementation of Best Practice Guidelines*, (2nd ed.) (2012a). The *Toolkit* is based on available evidence, theoretical perspectives, and consensus. We recommend the *Toolkit* for guiding the implementation of any clinical practice guideline in a health-care organization.

The *Toolkit* provides step-by-step directions that individuals and groups involved in planning, coordinating, and facilitating the implementation of any guideline can follow. The steps reflect a process that is dynamic and iterative rather than linear. Therefore, at each phase, preparation for the next phases and reflection on the previous phase is essential. Specifically, the *Toolkit* addresses the following key steps, as illustrated in the “Knowledge-to-Action” framework (RNAO, 2012a; Straus et al., 2009):

1. Identify problem: identify, review, select knowledge (Best Practice Guideline).
2. Adapt knowledge to local context:
 - Assess barriers and facilitators to knowledge use; and
 - Identify resources.
3. Select, tailor, and implement interventions.
4. Monitor knowledge use.
5. Evaluate outcomes.
6. Sustain knowledge use.

Implementing guidelines to effect successful practice changes and positive clinical impact is a complex undertaking. The *Toolkit* is one key resource for managing this process. It can be downloaded at <http://RNAO.ca/bpg>.

Endorsement

Greetings from Vasanthi Srinivasan and Susan Williams, Lead ADMs, Council of the Federation, Clinical Practice Guidelines Working Group



Vasanthi Srinivasan



Susan Williams

At their Council of the Federation meeting in January 2012, provincial and territorial premiers launched a series of new initiatives designed to encourage collaboration and cooperation on health-care innovations across the country. Premiers received the first report from the Health Care Innovation Working Group, co-chaired by PEI Premier Ghiz and Saskatchewan Premier Brad Wall, and directed their ministers of health to come together and work closely with national and regional health-professional organizations

to ensure that Canadians have access to the best-quality health care in the world. While premiers acknowledged that Canada's provinces and territories are pursuing innovation in their own jurisdictions, they recognized that more transformative, lasting change can be achieved together.

As part of this new initiative, premiers asked Ontario and Alberta to co-lead work on accelerating the adoption of key clinical best practice guidelines across the country to ensure that all Canadians benefit from up-to-date, evidence-based guidance regardless of where in Canada it is developed. So, after consulting with government health officials and major health professional groups (including CMA, CNA/RNAO, HEAL, and many other relevant experts), provincial and territorial ministers of health recommended to their premiers the wide adoption of two guidelines for the initial phase of this pan-Canadian work. One of these was the RNAO BPG *Primary Prevention of Childhood Obesity (2nd ed.)*.

Ensuring quality health care requires access to high-quality, regularly updated advice for patient care. The RNAO's Nursing Best Practice Guidelines Program provides premiers with exactly the level of scientific rigour they are looking for, combined with the accessibility and usability needed to quickly spread the guidelines to nursing practitioners and other health professionals across the country.

We would like to thank RNAO for its hard work and leadership in transforming evidence into action. This ongoing commitment is helping to ensure quality health care for all Canadians.

Co-Leads

Clinical Practice Guidelines Working Group,
Health Care Innovation Working Group

Vasanthi Srinivasan
Assistant Deputy Minister
Ontario Ministry of Health and Long-Term Care

Susan Williams
Assistant Deputy Minister
Alberta Health

ia BPG

INTERNATIONAL
AFFAIRS & BEST PRACTICE
GUIDELINES

TRANSFORMING
NURSING THROUGH
KNOWLEDGE

Clinical Best
Practice Guidelines

MAY 2014

Primary Prevention of Childhood Obesity

Second Edition

ISBN 978-1-926944-59-3



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