



Background

NutriSTEP® is a parent-administered 17-item questionnaire that covers the nutritional risk constructs for the preschool population (3-5 years): food and nutrient intake, physical growth, developmental and physical capabilities, physical activity, food security and the feeding environment.

Unlike many surveillance and screening tools, NutriSTEP® has been scientifically validated with many multiethnic groups and is available in English and French. More than 1500 preschoolers and their parents from across Canada have been involved in development over the past 10 years. A defined methodological template included the following phases:

- 1) Feasibility: a draft NutriSTEP® with items developed from literature reviews and expert opinion underwent testing with parents at school readiness fairs (n=120);
- 2) Further Item Identification: initial questions were reworked in consultation with parents (n=500) and national, provincial and local nutrition professionals using an iterative process;
- 3) Refinement: NutriSTEP® was refined and assessed for content and cultural appropriateness at both provincial and national levels (n=670); and,
- 4) Validation and Reliability: NutriSTEP® was validated and tested for reliability in Ontario (n=450).

NutriSTEP® as a Surveillance Tool:

It is a fast and simple way to assess eating habits, identify nutrition problems earlier on, including but not limited to growth and overweight issues. The present tool can easily be incorporated into existing population level surveys for surveillance purposes without reporting a nutrition risk score to the parent (which is done when conducting screening). These data can then be used for local and provincial surveillance efforts, to plan programs and identify the implications for further research and practice. The present NutriSTEP® has 17 questions and takes a parent only five minutes to answer. An abbreviated NutriSTEP® tool has been finalized and contains the 13 questions most related to child nutritional risk. Both versions are suitable for surveillance purposes at a population level.

NutriSTEP® as a Screening Tool:

NutriSTEP® has three levels of nutrition risk scores with follow-up guidelines for parents:

- Children whose risk score is less than 20 are low risk and require no immediate follow-up. Parents are encouraged to refer to the educational materials provided with the screening index.
- Parents of children whose risk score is 21-25 are moderate risk and are encouraged to refer to the educational materials provided with the screening index. These parents are also directed to a number of community and provincial programs such as EatRight Ontario (www.eatrightontario.ca) and the provincial toll-free Dietitian Call Centre (1-877-510-510-2) as well as their local public health unit.
- Parents of children whose risk score is 26 or greater are high risk and are encouraged to talk to a health professional such as their child's doctor. The expected prevalence of high risk children is approximately 10% based on the validation research.



When NutriSTEP® is used in the context of screening approximately 10% of the preschool population will potentially be identified as needing some form of primary prevention. This proportion is comparable to other provincial screening initiatives in Dental Health and Healthy Babies, Healthy Children. NutriSTEP® is listed as a valid and reliable tool to be used in the Family/Child Health Program (Requirement # 11) of the Ontario Public Health Standards. The Standards will be released November 2008 with health unit implementation to take place by January 2009. NutriSTEP® will easily dovetail into existing provincial programs and reach at risk preschoolers and their families in locations such as Best Start hubs, parent education programs, school readiness programs, and primary health care settings such as Family Health Teams.

NutriSTEP® has been led by dietitian researchers from the Sudbury & District Health Unit Public Health Research, Education and Development (PHRED) program and the University of Guelph with the financial support of Canadian Institutes of Health Research (CIHR), The Ontario Public Health Research, Education and Development (PHRED) Program, City of Greater Sudbury, Ontario Early Years Challenge Fund, Health Canada (Population Health Fund), and The Ontario Ministry of Health and Long-Term Care.

NutriSTEP® is the copyright of the Sudbury & District Health Unit, Janis Randall Simpson and Heather Keller and must not be used, copied or distributed without a license from the University of Guelph. The Sudbury & District Health Unit is the owner of trademarks used throughout. The distribution rights for NutriSTEP® have been granted to the University of Guelph Business Development Office. The NutriSTEP® questionnaire in English and French and the Implementation Toolkit in English are now available online at *Flintbox Technologies* at: <http://www.flintbox.ca/technology.asp?page=3586>. The French version of the Toolkit will be posted in fall 2008. Currently all materials (questionnaires, toolkits, educational materials) are only available as downloadable files that can be printed and copied for use.

Implementation of NutriSTEP® in Ontario

NutriSTEP® is now a provincially recognized program in Ontario, funded by the Ministry of Health Promotion with its implementation is being supported by the Nutrition Resource Centre (NRC) (www.nutritionrc.ca) of the Ontario Public Health Association. The goal of the NRC NutriSTEP® Program is to increase the capacity of individuals, organizations, and communities to improve the nutritional health of young Ontario preschool children.

As a new NRC program in May 2007, the first 15 months were focused on program development and implementation (see Logic Model). To date, NRC has increased the feasibility to implement NutriSTEP® in Ontario; implemented in select sites and models; and, increased access and dissemination of the screening tool and implementation toolkit in Ontario.

Targeted Implementation in Ontario, Preliminary Results and Next Steps

Sudbury, Thunder Bay and York Region were three Ontario health unit sites chosen for a two-year (June 2007-09) targeted implementation and process evaluation study funded by the Danone Institute and NRC. Other primary health care study sites include Hamilton and Stratford through their local family health teams (FHTs). The University of Guelph and the Nutrition Resource Centre have led these studies with support from the Sudbury & District Health Unit Public Health Research and Evaluation Division (PHRED). An additional study also began late summer 2008 with the Hospital for Sick Children and a number of community paediatrician practices.

In Sudbury, the study goal was to screen 200 preschoolers with the assistance of trained practitioners in the new *Best Start* hubs using a guided referral model. In Thunder Bay, 300 preschoolers were to be screened by trained practitioners and retired teachers through their established *FairStart* program using the assisted referral model. In York Region, 500 preschoolers were to be screened by disseminating 1500 screening tools in JK/SK registration packages as a self-referral model. In Sudbury and Thunder Bay, nutrition screening in English and French began early November 2007 and was completed at the end of June 2008. In York Region, screening packages were distributed from January to May 2008.

A total of 81 children and their parents participated in Sudbury. Sixty-three children (78%) were at low nutritional risk while 16 (20%) were moderate risk and 2 (2%) were high risk. In Thunder Bay, 153 children and their parents participated with 87% (n=133) low risk, 8% (n=13) moderate risk and 5% (n=7) high risk. In York Region, 133 study packages have been returned to the University of Guelph and 102 (77%) are low risk, 20 (15%) are moderate risk and 11 (8%) are high risk.

While the Sudbury *Best Start* staff were comfortable and supportive of NutriSTEP® screening, there were a number of challenges in this new setting and a larger, more diverse sample size is needed to evaluate the referral process for the various risk levels as well as community capacity to meet referral needs. Parent feedback indicates this setting is appropriate for nutrition screening but would like to see following added to the screening process:

- a designated person to supervise their children while parents complete and score the questionnaire
- an option to complete the questionnaire at home so that more attention can be given to review and answer the questions on their own time
- a few tables which parents could use to fill out the questionnaire

Ongoing Sudbury implementation plans are underway between the health unit and *Best Start* organizers.

The Thunder Bay pilot was considered successful at the community level and NutriSTEP® is being implemented into their *FairStart* Program with plans to screen approximately 1000-1500 preschoolers in early 2009 through the JK/SK registration in two school boards.

In York Region, NutriSTEP® was included in a pilot project by a local school board. Eleven schools participated in health screening fair in late September 2008. Over 1200 children were screened with 635 parents completing NutriSTEP® with health unit nutrition staff while another 70 parents sent in completed screening tools with their children. Of the 635 tools completed on-site, 22% of the children were identified as high risk, 28% were moderate risk and 50% low risk. The school board is currently drafting an advocacy plan for local and provincial implementation funds for universal health screening.

The York Region health department nutrition staff debriefed and feel their participation in this event was appropriate use of their resources and expertise. Some educational resource needs were identified in which new or additional information is needed and will be developed:

- Tips to get into the breakfast habit and why.
- Baby/"feeding" bottles-disadvantages of baby bottles (decreased appetite, tooth decay, iron); recommended milk intake and why.

- Behavioral approach to eating, role modeling, eating as a family, eating veggies, eating without being hand fed by parent; no force-feeding, no TV watching while eating meals.
- Physical Activity suggestions for each season.

The Stratford study site began data collection in March 2008 and will continue for 12 months with a goal to screen 300 preschoolers with NutriSTEP® as part of 18 and 36 month old screening program. As of the end of July, 44 preschoolers have been screened with one high risk referral to the FHT RD.

In Hamilton, data collection began August 2008 with a goal to screen 300 to 500 preschoolers in an eight month period (end collection May 2008) through twelve FHTs that include seven RDs. The office managers in the FHTs are disseminating NutriSTEP® at a preschooler health visit and all RDs have received completed screening tools in their practice.

The HSC study began July 2009 and will continue for 12 months with a goal to screen 2400 children aged 1-5 years through five pediatricians' practices in two geographic locations in the GTA. In the first three months, physician feedback has been very positive and 120 children have been screened.

Other Activities

Based on a provincial needs assessment of FHT Registered Dietitians and dealing with preschool nutrition referrals, five 'Preschool Nutrition Primers for Registered Dietitians' (training modules on high risk nutrition concerns) have been drafted and dietitians in a number of settings are currently evaluating with revisions to take place late fall/early winter. A plan for dissemination will take place in early 2009.

A number of dietetic intern research projects have been proposed with the Northern Ontario Dietetic Internship Program (NODIP) and HSC Program. One NODIP project is inter-modal reliability testing of NutriSTEP® as an online versus the current paper pencil tool version. The HSC project will be finalized in the coming weeks.

NutriSTEP® has been cited in 4 out of 5 provincial childhood obesity prevention proposals. Additional funding at the provincial coordination and local health unit level has been requested to expand NutriSTEP® as a screening and surveillance tool in Ontario.

An exciting partnership with the Ontario College of Family Physicians has been formalized to include additional advocacy support as well as NutriSTEP® support in family physician training initiatives in the areas of maternal and early years nutrition as well as obesity prevention and treatment.

Preliminary work has begun on a web presence for NutriSTEP® beyond Flintbox through national partner, Dietitians of Canada and Eat Right Ontario.

There are also interest for NutriSTEP® validation in other languages in Ontario as well as with other interested provinces and countries.