SmartStart Nutritional Analysis Tools Research and Development Project

Mr Robert de Castella, MBE

Australian Government

Fisheries Research and Development Corporation

Project No. 2003/246

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Objectives

The project has been divided into several discrete but connected components or stages with the relevant objectives per stage.

Stage 1 – Research and review

1. *Research and review literature and existing nutritional intake and analysis programs, instruments and procedures, and contact leading researches in the field to discuss the project issues and options for development.*
2. *Identify the nutritional needs for young children of primary school aged (5 to 13 years) for both micro-nutrients (vitamins, minerals etc) and macro-nutrients (fats, carbohydrates etc).*

Stage 2 – SmartStart Food Recorder

3. *Consider outcomes from Stage 1 and develop a suitable instrument for screening nutritional intake and eating behaviours of young children aged 5 to 13 years.*

Stage 3 – Report Structure

4. *Mock up a sample of a report to a parent on their child's nutrition analysis.*

Non-technical summary

Outcomes achieved to date

Summary
Our main goal was to research and review existing programs and literature to determine the most appropriate and efficient method(s) of collecting and profiling nutritional information on an individual basis and also on large population samples. The outcomes of the first objective have allowed us to develop a suitable screening instrument, the SmartStart Food Recorder and the structure of the report to the individual.

We can confidently state that there is a definite need for a project such as this to make a positive contribution to the health of young Australians and to promote the benefits of 'healthy' foods like seafood to the general public. Based on the research component of this project, there is no program that can effectively screen the nutritional intake of an individual that is efficient, cost effective and the methodology of which can be applied to large population samples at a quality standard. Our project also has the potential to be linked with fitness and research assessments.

Discussion of results
Carole Richards and Richard Telford reviewed articles, studies and existing software and approaches to screening and analysing diets and nutrition with both adults and children.

Contact and discussions have been held with research scientists and dietitians, organisations and academics regarding methodologies used in determining nutritional profiling.

Recommended intakes (RDIs) and allowances (RDAs) for children have been identified using new "Dietary Guidelines for Children and Adolescents in Australia" developed by the Commonwealth Department of Health and Aging and the NHMRC (National health and Medical Research Council).

The new SmartStart Food Recorder comprises two parts. Part one is a 24-hour food intake diary and recall and asks 15 questions covering all major food types. It is designed to quickly and easily record the food consumed by a child and can be completed by an older child (aged 10 or more) or completed by a younger child with some help from an adult (parent or teacher). *Please refer to Attachment 1.*

A report has been mocked-up. It is easy to understand, relevant to the individual parent and their child, and informative so as to increase their knowledge about good and poor nutrition. *Please refer to Attachment 2 for a sample of the report.*

The report is divided into the following sections.

General section

This includes information about the analysis, explanations about basic food groups and nutrients, why specific components are important for a

growing child, eg, the importance of calcium for growing bones and sources of calcium in our diet.

Results section

The results section provides an Overall Nutrition Score, calculated based on the child's intake meeting RDIs and RDAs. A break down by both food groups (Breads, Fruits, Vegetables, Meats and Dairy) is included with a score out of 5 (Very Poor to Very Good) for each food group.

Acknowledgements

SmartStart thanks both the Fisheries research Development Corporation (FRDC) and the Rural Industries Research and Development Corporation (RIRDC) for their assistance in the development of the Nutrition Analysis Tool.

The instrument that has been developed is now ready for the next stage of research and development, and we look forward to its implementation during 2004.

Background

The concept of SmartStart, to deliver a new, innovative and effective intervention to improve health and well being, was formulated in late 1995. SmartStart (Australia) Pty Ltd was incorporated on 20th February 1998 as the operating structure to develop and deliver this concept.

The development of the concept was based on delivering a service that would see an improvement in Australian children's health and fitness and a consequent flow on to adults. Initially, the service has been designed for Australian children but the ultimate aim is to have the service available for all persons.

SmartStart's mission is to provide an ongoing health and well-being measurement and reporting services that encourages children, parents and the community to make positive lifestyle choices.

The cost of supporting the public health system continues to increase and many experts acknowledge that a "supply" focused health system is doomed to uncontrollable increasing costs. Whilst the rate of mortality from some diseases such as heart disease has slowed, the cost of treating an ever-increasing number of sufferers of such disease continues to rise. Pharmacology, heart surgery and other treatments are effective in delaying death but have a cost implication for the health care system.

Further, the World Health Organisation has recently identified mental illnesses and specifically, as becoming the second highest killer, after heart disease, by the year 2020.

To address these trends, SmartStart believes many risk factors to both heart disease, cancer, diabetes and depression can be reduced by modifying people's behaviour and lifestyle. People must focus more attention on the behaviours that contribute to declining health rather than treating an illness after it has been identified. Many health experts believe that an approach that focuses on reducing demand or need for medical services, in contrast to a supply or treatment approach is necessary to reduce the Nation's increasing medical expenditure.

The majority of Australia's health care costs relate to disease caused by poor behaviour such as smoking, inactivity and poor eating habits. The Australian Bureau of Statistics in 1993, identified that Australians spent $36 billion on health and of that, some 70% was for lifestyle related illnesses and diseases.

To further exacerbate the problem, it is now being acknowledged that with an aging population and early in the 22nd century there will be fewer employed taxpayers in Australia to provide Government with the necessary income to support an ever-increasing aging population and the consequential social and health costs. In addition, while launching the new public health initiative, Active Australia, leading epidemiologist Professor Adrian Bauman of Sydney University said that if just 10% more Australians engages in sport or recreational activity, the net economic benefit to Australia would approach a staggering $600 million.

The SmartStart program in schools

The program offers a physical health and fitness measure, reporting and monitoring service. These are coupled with ongoing education interventions and support services for children, parents and schools.

A sophisticated software database produces reports each targeted in message and style to appeal to and provide useful information for children, parents, teachers and school principals.

Reliable health and fitness data is measured by trained and qualified SmartStart personnel (Measure Team Leaders) who visit schools on an annual basis. Feedback focuses on initially providing a profile of the child or group against normative data then tracking changes against their own personal profile. Reports provide positive messages, giving suggestions and advice relevant to any health and fitness issues identified.

The system has been developed to provide reports that will build over the lifetime of individuals, which will provide them with the information necessary to make positive lifestyle choices. It will allow them to look back over their life and associate their behaviour with changing health profiles.

Additional support and activities such as teacher and class resources, lesson plans and idea for group activities have also been implemented. SmartStart also offers personal visits by SmartStart staff to assist teachers and parents to target the individual, class or school health and policy issues and activities.

SmartStart results to date

Since SmartStart launched its operations in 2000, we have measured over 25,500, some for the fourth consecutive year, allowing SmartStart to develop an enormous longitudinal database of children's health and fitness statistics and provide profiles and feedback to schools to assist them structure, develop and monitor their physical education programs.

The program has been very well received by all, including parents, teachers and government.

SmartStart has achieved significant outstanding positive results to date, with reductions in gross average body fat in some schools of in excess of 10% over a twelve-month period. Additionally, SmartStart has also demonstrated significant increase in cardiovascular fitness of students over a two and three-year period. These are remarkable results in a climate where children are normally becoming more overweight and less fit!

Unfortunately not all participation schools have achieved such significant improvements and SmartStart is constantly seeking ways to further strengthen the intervention it delivers and work with students, parents and teachers to make an even greater impact on the health profile of our young population.

SmartStart, as it currently operates, primarily targets physical activity to address children's obesity and overweight with only limited nutritional support material and content. However, it is well known that the general problem of obesity in children has its origins in insufficient physical activity and in turn physical fitness and/or inappropriate dietary habits. There is clear realisation that the health status of Australian children and any intervention must focus on both areas of physical activity (energy output) and nutrition (energy intake).

Several other health issues such as osteoporosis, muscular development, brain and nerve development are also important to address by incorporating a nutrition message with SmartStart. Bone strength, growth and development needs to be supported by combining weight bearing activity and a good diet to provide adequate calcium. Other areas of a child's physical, emotional and mental development can also be incorporated.

SmartStart is confident that the incorporation of a strong nutritional module into the project will significantly enhance the outcomes achieved, and together it will be a more powerful intervention in reducing children's overweight and obesity.

Targeted settings

SmartStart simultaneously targets a variety of settings. The aim is to make the "health choice" the "easy choice" by increasing the convenience of choosing the healthy option, and making it more inconvenient to choose unhealthy options.

An example of this can be seen in the design of school facilities, and making sports grounds and recreation areas conducive to being used, and not located in inconvenient places.

The three main settings SmartStart targets are the home, the school and the community. The vehicles SmartStart uses to address each are the individual child, the parents, the teachers and the governments. The home and family is a significant setting that can also be influenced so parents are better informed to assist their children's nutritional and health outcomes. Another significant setting is the school, and SmartStart seeks to influence the role of teachers, especially primary school teachers, facilitating their role in changing the behaviour of their students with respect to sound nutrition practices and increased levels of physical activity.

SmartStart has developed a valid module to measure, analyse and report on the child's physical fitness. There is now a need to develop an equivalent program in the nutritional areas that complements this physical fitness profiling.

This program will facilitate a more comprehensive approach to specific investigation both across sections and longitudinally in the future (e.g. investigating the relationships between seafood consumption, physical fitness and levels of child obesity).

It has been almost two decades since the last nationally conducted project to measure children's fitness. Current data is certainly an important requirement and the Commonwealth is considering implementing a national profiling and study of children's physical health as part of a strategy to address youth obesity.

With the additional nutritional profiling SmartStart is well equipped to carry out the following research projects:

a) Scientific investigation of the incidence and control of obesity;

b) Provision of information to enable parents, teachers and children to positively change/modify their attitude and behaviour;

c) Profiling community nutrition intake patterns and identification of changes over time.

National research priorities

Recently, the Federal Government announced four National Research priorities to focus Australia's investment in key research areas that can deliver significant economic, social and environmental benefits. RDCs and all other government agencies and departments will be required to report against these priorities in their annual reports.

While the RDC report card will be excellent across some of the priorities, the second priority, 'promoting and maintaining good health', may be one in which RDCs have little activity to report.

One of the focuses of the priority is to promote the healthy development of young Australians. SmartStart is a health intervention program currently operating in the ACT, Queensland and South Australia and is ready to be released nationally. It addresses the increasing levels of overweight and obesity and the declining standards of children's health and fitness. The program targets children's physical health and fitness by delivering both educational interventions and quantitative

statistical reports on individual children for the child, their parents and whole of school reports for teachers and government. Data collected through the program has shown significant improvements in health and fitness measurements in participating schools.

The SmartStart team and history

Robert de Castella has been involved in the development of other innovative programs that are in the process of commercialisation and brings such experience to this project. This includes the 'self-esteem and self-concept' program that has been piloted in Victoria and may be available as an optional inclusion in the SmartStart program.

During Robert's years as Director of the Australian Institute of Sport between 1990 and 1995, he was involved in a number of elite innovative programs in the field of sports science, sports medicine and coaching. Many of these advances laid that foundation for Australia's success at the 2000 Olympics.

On Rob's departure from the Australian Institute of Sport, he joined a company in Melbourne called Camco Systems Pty Limited. Here Rob assisted in the development of a software based on adult health, fitness and personal development program that was sold successfully in the United States.

A number of the individuals involved in providing support and advice for the SmartStart program have also been involved in the research and development of successful programs.

Dr Richard Telford is one of the country's leading researchers in applied science and medicine and established the Australian Institute of Sports Science and Medicine Department. Recently he has coached several of Australian's leading distance runners, and is a Professor at Griffith University in Queensland where he lectures and supervises postgraduate work.

Dr Hoare has been instrumental in the development of the Australian Institute of Sport's software based talent identification program using variations of similar measurement mechanisms to the SmartStart program. Dr Hoare is currently overseas.

Dr Armstrong is a leading researcher at the Australian Institute of Health and Welfare (AIHW) and Dr Jiang and Dr Professor Prosser were involved in the development of the Self-esteem and self-concept program. Dr Armstrong has recently been seconded from the AIHW to World Health Organisation (WHO) and is currently based in Geneva. He keeps in regular contact with SmartStart progress and issues.

Dr Alan Roberts was a senior lecturer in Sports Studies at the University of Canberra, and has undertaken statistical analysis of SmartStart data while lecturing at the University.

Additional expertise is provided through Duesburys Chartered Accountants former Managing Partner, Zeke Ezra, who has been involved in numerous projects on behalf of the client base, in particular: Murrays Chartered Coaches; eGlobal International Ltd (a listed public company); CES Computers, while marketing support has been provided through Steve Doszpot, Managing Director of Canberra Strategic Marketing (International).

In addition, SmartStart's measure team staff are qualified and trained in the use of the measurement techniques and children's health and fitness. They have qualifications ranging from nursing, PE teaching, Physical science graduates and fitness leaders.

Need

The need has been identified in the Commonwealth Government's National R&D Strategy:

> "Promoting and maintaining good health."

Under this priority, the relevant research goal is "Preventative Healthcare": new evidence-based strategies to promote healthy attitudes, habits and lifestyles and to develop new health-promoting foods and nutraceuticals.

The nutritional module is needed because the current approach utilised by SmartStart focuses predominantly on increasing physical activity to address overweight and obesity. This approach is limited because it addresses only half of the intervention required to maximise outcomes.

Obesity occurs, most simply, because an individual's energy (physical activity) is less than their energy consumption (nutritional intake). The existing SmartStart program has been demonstrated to be effective in only a limited number of schools. It is expected that with a greater focus on nutrition, the positive outcomes achieved in school can be considerably improved.

It is necessary that any program or intervention maximise its impact by delivering a comprehensive cross-sectional approach in addressing this difficult issue. Some people will respond to a physical activity message, others may be more likely to respond to a nutritional message. All schools and individuals, however, will benefit from an intervention that incorporates both physical activity and nutrition in addressing overweight and obesity.

There has been discussion previously, but the need of the project is to complete the SmartStart profile to include nutritional as well as physical fitness information. This in turn may facilitate future comprehensive research opportunities whereby the SmartStart study can be part of a broader strategy that can complement strategies that the FRDC is developing aimed at raising public awareness of the health benefits of seafood.

We believe that there are significant opportunities for FRDC and other RDCs to show leadership in adopting a supportive role with the SmartStart initiative.

These include:

- Making a positive contribution to the healthy development of young Australians;
- Promoting awareness of the health benefits—nutritional value—(of seafood in the case of FRDC) through the schools; and
- Demonstrating responsiveness to the Federal Government's national research priorities.

The attempts by SmartStart (Australia) to introduce the SmartStart Health Intervention Program to various States has been limited by a lack of resources. There has been extensive consultation with Australian Government agencies, most of whom have agreed with the concept and stressed the importance of promoting the need for a commitment to a national benchmarking program through the State Governments and their Education and Health Departments. The Australian Government Ministers and Departments of Education and Health have been very supportive of the concept and have given positive indications of support. Due to the fact that both education and health are predominately State responsibilities, it is essential that SmartStart has an opportunity to present its program and the findings and issues identified from the last five years of its operation to all the major States and other significant State based stakeholders.

The need is also reinforced by the **National Research Priorities**: Recently, the Federal Government announced four National Research priorities to focus Australia's investment in key research areas that can deliver significant economic, social and environmental benefits. RDCs and all other government agencies and departments, will be required to report against these priorities in their annual reports.

While the RDC report card will be excellent across some of the priorities, the second priority, Promoting and Maintaining Good Health, may be one in which RDCs have little activity to report.

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Data collected through the program has shown significant improvements in health and fitness measurements in participating schools.

FRDC and RIRDC have already become investors in the SmartStart Health Intervention Program through the research and development and the incorporation of Nutritional module into the SmartStart program highlighting the nutritional value & benefit of specific food products.

Objectives

Stage 1 – Research and review

1. *Research and review literature and existing nutritional intake and analysis programs, instruments and procedures, and contact leading researchers in the field to discuss the project issues and options for development.*

2. *Identify the nutritional needs for young children of primary school aged (5 to 13 years) for both micro-nutrients (vitamins, minerals etc) and macro-nutrients (fats, carbohydrates etc).*

Stage 2 – SmartStart Food Recorder

3. *Consider outcomes from Stage 1 and develop a suitable instrument for screening nutritional intake and eating behaviours of young children aged 5 to 13 years.*

Stage 3 – Report structure

4. *Mock up a sample of a report to a parent on their child's nutrition analysis.*

Progress

Carole Richards and Richard Telford reviewed articles, studies and existing software and approaches to screening and analysing diets and nutrition with both adults and children.

Contact and discussions have been held with research scientists and dietitians, organisations regarding methodologies used in determining nutritional profiling.

Recommended intakes (RDIs) and allowances (RDAs) for children have been identified using new "Dietary Guidelines for Children and Adolescents in Australia" developed by the Commonwealth Department of Health and Aging and the NHMRC (National health and Medical Research Council).

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A report has been mocked-up. It is easy to understand, relevant to the individual parent and their child, and informative so as to increase their knowledge about good and poor nutrition. *Please refer to Appendix 3 for a sample of the report.*

The report is divided into the following sections.

General section

This includes information about the analysis, explanations about basic food groups and nutrients, why specific components are important for a growing child, e.g. the importance of calcium for growing bones and sources of calcium in our diet.

Results section

The results section provides an Overall Nutrition Score, calculated based on the child's intake meeting RDIs and RDAs. A break down by both food groups (Breads, Fruits, Vegetables, Meats and Dairy) is included with a score out of 5 (Very Poor to Very Good) for each food group.

The child's intake is also analysed by Nutrients (Protein, Fats, Sugars, Fibre, Iron, Calcium and Vitamin C) against the specific needs for age and gender. Again scores out of five are assigned for each nutrient.

A summary table identifies areas of concern for the individual child by nutrients and food groups, with a simple recommendation to increase or decrease consumption of various foods.

Tips and Suggestions section

This section will provide more specific suggestions for the parent to consider to help them improve their child's nutrition. Included in this section will be recipes and ideas for parents, as well as any special offers and discounts that we may be able to negotiate with suppliers to provide to parents.

Methods

The project commenced on the 23rd of July with contracts between SmartStart (Australia) and the Fisheries Research Development Corporation (FRDC) and Rural Industries Research Development Corporation (RIRDC) being signed.

RIRDC provided funds to assist with the development of Stage 1, and FRDC provided assistance for Stages 2 and 3.

Work commenced immediately and a leading researcher Dr Richard Telford, was contracted to oversee the nutritional and scientific components of the project. Robert de Castella, Managing Director and developer of SmartStart, has undertaken project supervision and coordination.

Experienced clinical dietitian, Carole Richards, was recruited and commenced the first stages of the project.

Results/Discussion

Professionally designed survey forms

We are currently in discussions with a designer who is familiar with what we do and who has an appreciation of our data collection methods and report generations. She will reformat the survey forms with the following criteria in mind:

- ease of use;
- attractiveness of the forms to the user;
- ease and efficiency of data entry;
- suitability of using the same design on different media (e.g. via web site or other electronic media).

Current literature and available programs

We now have a far better understanding of what material and options are available on the market for analyzing nutritional data.

While there are programs that allow the collection and analysis of nutritional data, such programs are not readily available to the general public. Nor do these programs allow for large scale data collection and analysis at a national or even regional level.

Benefits and adoption

The benefits of our activities thus far have allowed us to progress to the next four stages of development (as outlined in the 'Further Development' section below), leading us closer to the incorporation of a 'nutritional module' in the existing SmartStart program. Our aim in doing this is to improve the diets of children and through them, their families.

We, together with the support of the FRDC, can provide a pilot study that will expand the project to include a nutritional component and assess the potential for extending the campaign nationally. We believe that there are significant advantages for RDCs (and their related industries) in adopting a collaborative approach to this initiative. These include:

- Raising the awareness of the health benefits of seafood;
- Making a positive contribution to the healthy development of young Australians;
- Demonstrating a responsiveness to the Federal Government's national research priorities; and
- Demonstrating the flexibility of the RDCs to adopt collaborative approaches to common R&D priorities.

Further Development

Stage 4 – Validation and trailing of SmartStart Food Recorder.

The new one day food diary must be validated against the standard three day diary and intake used by most dietitians. The one-day instrument we have developed is simpler, quicker and cheaper to use, but we must now check to ensure it is accurate in its assessment of a child's dietary intake and needs.

Stage 5 – Software Development

Software now needs to be developed to scan the SmartStart Food Recorder forms and automatically upload the results into the SmartStart DataTool.

Once the child's food consumption is recorded the Nutritional Analysis Tool will automatically determine the breakdown of nutrients and food groups the child has had and compare them against our recommended intakes and allowances.

Areas of concern will be identified, overall and specific scores calculated and text will be automatically inserted into the individual child's report.

All records will be stored and the program will allow for longitudinal recording and tracking. This will allow for reference back to previous nutritional intake, and hopefully acknowledge improvements that the child has achieved over the duration of their participation.

Inserted text will recognise the changes achieved over successive profiles, similar to the existing SmartStart Physical Fitness Assessment Tool.

Stage 6 – Report Content Development

Reports will comprise both standard text and inserted text.

All text will need to be written and authorised by our dietitian and psychologist to ensure the material is accurate and delivered in the most effective and positive way.

All possible scenarios of results will need to be considered and specific text written for each. Inserted text will include reasons why specific nutrients are important, how to address these issues with your child, ideas and tips for improving your child's eating habits etc.

Stage 7 – Cross Reference against Physical Fitness Profiles

Future reports will consider both the physical profile and the nutritional profile together and provide one report focused on improving health by addressing both nutrition and activity.

Analysis of the Database will be very powerful, and investigation into correlations etc. between children with specific physical and nutrition profiles can be explored.

Planned Outcomes

The overall outcome sought as a result of this project is healthier and fitter children, empowered with the information to make better nutritional choices.

With the completion of the nutritional module, SmartStart is better equipped to provide the individual child, the parents, as well as the teacher and school setting with a meaningful and comprehensive program. This approach is most likely to be successful in changing behaviour.

The incorporation of the nutrition module can better promote the consumption, understanding and the benefits and enjoyment of healthy eating and the merits of specific foods such as seafood.

Conclusion

After having completed the initial stages of development, we believe that nutritional profiling and the profiling of larger population samples is highly achievable and with the appropriate marketing and funding, can positively impact on the general health of each participant.

The nutritional component of the SmartStart program can contribute significantly towards the change of attitudes and behaviours to improve health and wellbeing of children and families by encouraging them to modify their diets and improve their eating habits.

Whilst dietitians have undertaken similar analyses on individuals, the process is normally time consuming and relatively expensive, thus making it prohibitively expensive for many individuals and families. Furthermore, while a specific individual assessment may be quite detailed, again, the procedures in place for such analyses does not allow for screening of large population samples.

The SmartStart Nutrition Analysis Tool (SSNAT) aims to undertake both individual and large-scale nutritional data collection and analysis in a very cost effective way. It is a challenge for us now to structure the SSNAT to elicit responses from participants that will provide high quality, pertinent information. The material covered will not extend beyond the details that dietitians collect, but will provide an intermediate option that is both succinct and relevant to the individual and will be representative of the nutritional profile of the larger samples.

The time required of the participant will be minimal, as will the time needed for analysis, making it a very efficient procedure.

We feel confident at this point to continue with this project and proceed to the next stages of development. That is, to develop and incorporate a nutritional software program into the existing 'Robert de Castella's SmartStart to Life" program.

To do this we will need to do the following:

- To fine-tune the content of the Nutritional Analysis Tool Questionnaire;
- To fine-tune the content of the Nutrition Report;
- To contract a professional designer to create the layout and design of both the Questionnaire and the Report;
- Develop a software application to allow data entry of children's nutritional information into the existing SmartStart school program.

Child obesity is a huge problem caused by many factors that contribute to children consuming more calories than they expend. Additional health problems associated with poor nutrition include tooth decay, diabetes, cancers and poor bone development.

Good eating habits must be encouraged and established at a young age and, combined with programs that increase physical activity, can make a significant impact on child obesity.

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www.keepkidshealthy.com
www.mja.com.au
www.health.gov.au/nhmrc/publications/diet

Appendix 1 – Intellectual Property

Data collection methods (Physical assessments and Nutritional component)

SmartStart Nutritional Assessment Tool (NAT)

Draft Report layout and design

Appendix 2 – Staff

Name	Position	Qualifications
Robert de Castella	Managing Director	Bachelor of Applied Science
Richard Telford	Consultant Physiologist	PhD AM, FACFM
Carole Richards	Consultant Dietitian	Bachelor of Science, APD
Steve Doszpot	Marketing Consultant	
Kate Piper	Operations Manager	Bachelor of Science, Human Biology
Theresa de Castella	IT Development & Design	Bachelor of Art in Social Sciences Bachelor of Design
Kathleen Williams	Report Production Manager	Bachelor of Science

Appendix 3 – Draft Nutritional Analysis Tool
Smart Start Food Questionnaire

Date: ___/___/___

Name : _____ School: _____ Class: _____	Are you a ❑ Boy ❑ Girl **How old are you?** ❑ 4 to 7 years old ❑ 8 to 11 years old ❑ 12 to 18 years old

Please write down all that you eat and drink today.

Meal	Food and drinks
Breakfast and before school	
From start of school till lunch time	
Lunch	
After lunch until dinner time	
Dinner	
After Dinner	

The questionnaire is in 2 parts. The first part asks questions about the foods and drinks you ate today. The second part asks general questions about what you usually eat and drink.

Part 1

Looking at your list of foods and drinks you ate today, please answer the following questions by marking the ❑. The foods are listed in food groups and you are asked to estimate the amount you ate or drank. Please approximate the amount you ate as accurately as possible. If the food you ate is not listed, please list it as "other". You may need to ask an adult to help you.

1. Bread (slice, roll or piece)	0	1	2	3	4+
White bread or toast	❑	❑	❑	❑	❑
Wholegrain bread or toast	❑	❑	❑	❑	❑
White bread roll	❑	❑	❑	❑	❑
Wholegrain bread roll	❑	❑	❑	❑	❑
Crumpet or English muffin	❑	❑	❑	❑	❑
Pikelet or scone	❑	❑	❑	❑	❑
Flat bread, pide bread, chappati	❑	❑	❑	❑	❑
Other:	❑	❑	❑	❑	❑

2. Breakfast cereal (measured in cups)	0	1/2	1	1 1/2	2+
Porridge	❑	❑	❑	❑	❑
Muesli (Natural or Toasted) Just Right or Sustain	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑
All Bran Fibre Plus	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑
Weeties, muesli flakes Sultana Bran	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑
Rice Bubbles	❑	❑	❑	❑	❑
Corn Flakes or Crunchy Nut Corn Flakes	❑	❑	❑	❑	❑
Special K	❑	❑	❑	❑	❑
Nutrigrain	❑	❑	❑	❑	❑
Coco Pops Honey Weets	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑
Froot Loops Puffed Wheat	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑
other cereal	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4+
Weet Bix Vita brits	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑

3. Rice and Pasta	0	1/2 cup	1cup	1 1/2 cups	2+cups
white rice	❑	❑	❑	❑	❑
brown rice	❑	❑	❑	❑	❑
white spaghetti or pasta	❑	❑	❑	❑	❑
wholemeal spaghetti or pasta	❑	❑	❑	❑	❑
noodles	❑	❑	❑	❑	❑
other:	❑	❑	❑	❑	❑

4. Vegetables and Salad vegetables	0	1/2 cup	1cup	1 1/2 cups	2+cups
potato	❑	❑	❑	❑	❑
sweet potato, pumpkin, carrot	❑	❑	❑	❑	❑
peas, corn, snow peas	❑	❑	❑	❑	❑
green beans, broccoli, spinach	❑	❑	❑	❑	❑
cauliflower, cabbage, brussel sprouts	❑	❑	❑	❑	❑
mixed/stir fry vegetables	❑	❑	❑	❑	❑
other:	❑	❑	❑	❑	❑
	0	1/2 cup or 1 serve	1/2 cup or 2 serves	1 cup or 4 serves	1 1/2 cups or 6 serves
avocado	❑	❑	❑	❑	❑
sprouts	❑	❑	❑	❑	❑
lettuce	❑	❑	❑	❑	❑
celery	❑	❑	❑	❑	❑
tomato	❑ 0	❑ 2 slices	❑ 4 slices	❑ 6 slices	❑ 8+slices
capsicum (1 slice = 1 ring)	❑	❑	❑	❑	❑
cucumber	❑	❑	❑	❑	❑
beetroot	❑	❑	❑	❑	❑
other:	❑	❑	❑	❑	❑

5. Baked Beans and other dried or canned beans	0	1/2 cup	1/2 cup	1cup	More than 1 1/2 cups
baked beans	❑	❑	❑	❑	❑
dried or canned beans eg. kidney beans	❑	❑	❑	❑	❑

6. Fruit **(1 piece= 2 to 3 smaller pieces of fruit or 1/2 cup canned fruit)**	0	1 piece	2 pieces	3 pieces	4+ pieces
apple, pear	❑	❑	❑	❑	❑
orange, mandarin	❑	❑	❑	❑	❑
grapefruit	❑	❑	❑	❑	❑
lemon	❑	❑	❑	❑	❑
strawberries	❑	❑	❑	❑	❑
other berries	❑	❑	❑	❑	❑
rock melon	❑	❑	❑	❑	❑
other melons	❑	❑	❑	❑	❑
pineapple	❑	❑	❑	❑	❑
apricot	❑	❑	❑	❑	❑
peaches	❑	❑	❑	❑	❑
plums	❑	❑	❑	❑	❑
other:	❑	❑	❑	❑	❑

7. Dried fruit	0	1/2 handful	1 handful	More than 1 handful
e.g. sultanas, raisins, currants	❑	❑	❑	❑
dried apricots, apple	❑	❑	❑	❑
dried fig, prunes	❑	❑	❑	❑
other:	❑	❑	❑	❑

8. What did you drink today?	0	1/2 cup	1 cup	1 1/2 cups	2 or more cups
fruit juice	❑	❑	❑	❑	❑
cordial	❑	❑	❑	❑	❑
soft drink	❑	❑	❑	❑	❑
yoghurt drink	❑	❑	❑	❑	❑
milk (as a drink)	❑	❑	❑	❑	❑
milk (on breakfast cereal)	❑	❑	❑	❑	❑
soy milk (calcium added)	❑	❑	❑	❑	❑
soy milk (no calcium added)	❑	❑	❑	❑	❑
rice milk (calcium added)	❑	❑	❑	❑	❑
rice milk (no calcium added)	❑	❑	❑	❑	❑
other milk:	❑	❑	❑	❑	❑
water	❑	❑	❑	❑	❑
other drink:	❑	❑	❑	❑	❑

9. Other dairy foods	0	1/2 cup	1 cup	1 1/2 cups	2 or more cups
ice cream	❑	❑	❑	❑	❑
custard	❑	❑	❑	❑	❑
Yoghurt (1 small carton = 1 cup)	❑	❑	❑	❑	❑
	0	1 slice	2 slices	3 slices	4 or more slices
cheddar cheese	❑	❑	❑	❑	❑
cheese slices	❑	❑	❑	❑	❑
other cheese	❑	❑	❑	❑	❑

10. Red Meat	0	Small serve	Medium serve	Large serve
beef (sliced, steak, mince etc)	❑	❑	❑	❑
veal (steak, casserole, roast etc)	❑	❑	❑	❑
lamb (sliced, chop etc)	❑	❑	❑	❑
pork	❑	❑	❑	❑
kangaroo	❑	❑	❑	❑
venison	❑	❑	❑	❑
other	❑	❑	❑	❑
Beef or pork sausages	0	1	2	3 or more
sausage thin	❑	❑	❑	❑
sausage thick	❑	❑	❑	❑

11.Processed meat	0	1-2 slices	3-4 slices	5 or more slices
sliced deli meat (ham, corned beef, salami, devon etc)	❑	❑	❑	❑
pressed chicken	❑	❑	❑	❑
turkey ham	❑	❑	❑	❑
other	❑	❑	❑	❑

12. Fish, chicken, eggs and soy products	0	Small serve = 50gms	Medium serve = 100gms	Large serve = 150gms
fresh fish	❑	❑	❑	❑
canned salmon	❑	❑	❑	❑
canned tuna	❑	❑	❑	❑
fish crumbed	❑	❑	❑	❑
	0	3 large or 6 small	6 large or 12 small	9 large or 18 small
prawns	❑	❑	❑	❑
oysters or mussels	❑	❑	❑	❑
other seafood	❑	❑	❑	❑
chicken	❑	❑	❑	❑

turkey	❑	❑	❑	❑
tofu	❑	❑	❑	❑
soy burger	❑	❑	❑	❑
	0	1	2	3
chicken sausage (thin)	❑	❑	❑	❑
eggs	❑	❑	❑	❑
13. Did you eat nuts or peanut butter today?	0	Small handful	Handful	Large handful or more
nuts	❑	❑	❑	❑
	0	1 tablespoon	2 tablespoons	3 or more tablespoons
peanut butter	❑	❑	❑	❑

15. Did you eat any of these foods today?

❑	Donuts	❑	Hamburger		
❑	Cake	❑	BBQ chicken		
❑	Sweet biscuits	❑	Pizza	❑	Icy pole
❑	Savoury biscuits	❑	Fish and chips	❑	Ice cream
❑	Croissant	❑	Dim Sims	❑	Lollies
❑	Danish pastry	❑	Hot chips	❑	Chocolate
❑	Apple pie	❑	Take away Asian	❑	Chocolate bar
❑	Meat pie	❑	food	❑	Other lollies
❑	Sausage roll	❑	Other take away		
❑	Potato crisps, thins	❑	food	❑	Muesli Bar
❑	Twisties™	❑	Honey	❑	Fruit bar
❑	Corn chips	❑	Jam	❑	Roll up
❑	Other snack food	❑	Nutella™		

Part 2

This section asks general questions about what you usually eat and drink. Please mark the box that most closely describes your diet.

1. **How similar was the food you ate and the drinks you had today to what you usually eat on a school day?**

Very different	A little different	Mostly the same	Quite similar	Very similar
❑	❑	❑	❑	❑

2. **Are there foods you do not eat for medical, religious or other reasons?**

- ❑ Medical reasons. Please give details……
- ❑ Religious reasons. Please give details……
- ❑ Vegetarian diet
- ❑ Other reasons ……

3. **Are you allergic to any foods?**

- ❑ Not allergic to any foods
- ❑ Milk
- ❑ Eggs
- ❑ Fish
- ❑ Nuts
- ❑ Other……

4. **What type of milk did you usually drink?**

- ❑ Full cream milk
- ❑ Reduced fat milk (eg Hi Lo, Lite White)
- ❑ Shape
- ❑ Skim milk
- ❑ Goats milk
- ❑ Soy milk (added calcium)
- ❑ Soy milk (no added calcium)
- ❑ Rice milk (added calcium)
- ❑ Rice milk (no added calcium)
- ❑ Other

5. On average, how many meals and snacks do you have <u>each day</u>?

	1	2	3	4	5 or more
Meals	❑	❑	❑	❑	❑
Snacks	❑	❑	❑	❑	❑

6. On average, how many times <u>a day</u> do you eat:

	Less than once	Once	2 times	3 times	4 or more times
Fruit	❑	❑	❑	❑	❑
Vegetables	❑	❑	❑	❑	❑
Salad Vegetables	❑	❑	❑	❑	❑
Milk, cheese, yoghurt	❑	❑	❑	❑	❑
Butter	❑	❑	❑	❑	❑
Nuts	❑	❑	❑	❑	❑

7. On average, how many times <u>a week</u> do you eat breakfast?

Rarely or never eat breakfast	Once a week or less	2 to 3 times	4 to 5 times	Most days
❑	❑	❑	❑	❑

8. How many time <u>a week</u> do you eat:

	Never	Once a week or less	2 times a week	3 times a week	More than 4 times a week
Breakfast cereal Fruit	❑	❑	❑	❑	❑
Vegetables	❑	❑	❑	❑	❑
Salad vegetables	❑	❑	❑	❑	❑
Baked beans, dried beans	❑	❑	❑	❑	❑
Red meat (beef, lamb, pork, kangaroo)	❑	❑	❑	❑	❑
Chicken or poultry	❑	❑	❑	❑	❑
Fish and seafood	❑	❑	❑	❑	❑

9. Do you add salt to your food?

Never	Occasionally	Usually	Always
❑	❑	❑	❑

10. On average, how many times a week do you eat these foods?

	Rarely or never	Once a week or less	2 to 3 times a week	4 to 5 times a week	Most days
Cakes, biscuits, & slices	☐	☐	☐	☐	☐
Donuts	☐	☐	☐	☐	☐
Cake	☐	☐	☐	☐	☐
Sweet biscuits	☐	☐	☐	☐	☐
Savoury biscuits	☐	☐	☐	☐	☐
Croissant	☐	☐	☐	☐	☐
Danish pastry	☐	☐	☐	☐	☐
Apple pie	☐	☐	☐	☐	☐
Spreads	☐	☐	☐	☐	☐
Honey	☐	☐	☐	☐	☐
Jam	☐	☐	☐	☐	☐
Nutella™	☐	☐	☐	☐	☐
Sweet drinks	☐	☐	☐	☐	☐
Cordial	☐	☐	☐	☐	☐
Soft drink	☐	☐	☐	☐	☐
Ice creams and lollies	☐	☐	☐	☐	☐
Icy pole	☐	☐	☐	☐	☐
Ice cream	☐	☐	☐	☐	☐
Lollies	☐	☐	☐	☐	☐
Chocolate	☐	☐	☐	☐	☐
Chocolate bar	☐	☐	☐	☐	☐
Other lollies	☐	☐	☐	☐	☐
Potato chips	☐	☐	☐	☐	☐
Potato crisps, thins	☐	☐	☐	☐	☐
Twisties™	☐	☐	☐	☐	☐
Corn chips	☐	☐	☐	☐	☐
Other snack food	☐	☐	☐	☐	☐
Take away foods	☐	☐	☐	☐	☐
Meat pie	☐	☐	☐	☐	☐
Sausage roll	☐	☐	☐	☐	☐
Hamburger	☐	☐	☐	☐	☐
BBQ chicken	☐	☐	☐	☐	☐
Pizza	☐	☐	☐	☐	☐
Fish and chips	☐	☐	☐	☐	☐
Dim Sims	☐	☐	☐	☐	☐
Hot chips	☐	☐	☐	☐	☐
Take away Asian food	☐	☐	☐	☐	☐
Other take away food	☐	☐	☐	☐	☐

11. How many times a week do you take a vitamin or mineral supplement?

	Never or never	once	2 times	3 times	More than 4 times
Multivitamin	☐	☐	☐	☐	☐
Iron	☐	☐	☐	☐	☐
Calcium	☐	☐	☐	☐	☐
Vitamin C	☐	☐	☐	☐	☐
Other supplement	☐	☐	☐	☐	☐

Appendix 4 – Sample of Draft Nutrition Report

Welcome

Dear parent,

<FirstName>'s SmartStart nutrition assessment has investigated <GenderHisHer> food intake over a twenty-four hour period.

The assessment has also considered <GenderHisHer> general knowledge and attitudes in the area of nutrition and food.

This SmartStart Nutrition analysis is a simple and easy way for you and your child to screen their dietary intake and find out how they are going. You may also like to consider a more detailed analysis, especially of any significant issues are identified here, which can be conducted by a qualified dietitian.

This screening is designed to identify possible problems at an early stage and assist in having them addressed.

If you would like to arrange a detailed dietary analysis for yourself, or for <FirstName> please contact our office.

Both good and bad habits are often established at a young age. Now is the time to encourage <FirstName> to establish good habits that can stay with <GenderHimHer> for the rest of <GenderHisHer> life.

About this assessment

<FirstName>'s nutritional assessment has been conducted using the SmartStart one day food diary and recall, combined with questions to indicate whether the day's intake was representative of <GenderHisHer> normal diet.

This method has been validated against other more detailed and costly methods and been shown to be accurate as a first screening. The information presented in this report is however indicative, and we ask that you consider it in the light of you own knowledge about <FirstName> and <GenderHisHer> habits.

How to understand this Report

Nutrients

The SmartStart Nutritional screening and analysis focuses on investigating important nutrients such as Calcium, Iron, Protein, Fats, Sugars, Vitamin C, Fibre and other important elements such as water. These nutrients have been identified because they are acknowledged by Dietitians and health researchers as being most important and significant for children today.

The following table simply outlines the importance of each of these nutrients.

Nutrient	Important because?
Calcium	Essential for developing strong healthy bones and reducing risks of osteoporosis
Iron	Essential for muscle growth and the prevention of anemia, tiredness and increases resistance to infection
Protein	*"Finalised text to be inserted here."*
Fats	*"Finalised text to be inserted here."*
Fibre	*"Finalised text to be inserted here."*
Sugars	*"Finalised text to be inserted here."*
Salt	*"Finalised text to be inserted here."*
Water	*"Finalised text to be inserted here."*
Vitamin C	*"Finalised text to be inserted here."*

Food Groups

Nutrients such as Calcium are sourced from various food groups for example, dairy foods that are rich in one or more of these nutrients. SmartStart nutrition screening has investigated the consumption of various food groups to provide an indication of nutrient intake and eating habits that may cause health or growth problems.

The following table indicates which nutrients are sourced from various food groups. The results section of <*FirstName*>'s report will recommend increases or decreases in food groups based on <*FirstName*>'s nutritional assessment.

Food Group	Nutrients
Meats	Protein, Iron, Good Fats
Vegetables	Fibre, Vitamin C, Iron, Water
Fruit	Vitamin C, Fibre
Dairy	Calcium, Fat, Protein
Cereals & Breads	Carbohydrates, Fibre, Iron (if fortified)
Beans and Legumes	Protein
Water	Water
Treats	Sugar, Fat, Salt

How to use this report

<*FirstName*>'s results are divided into three sections, <*FirstName*>'s Overall Nutrition Score, <*GenderHisHer*> analysis by food groups and <*GenderHisHer*> analysis by nutrients.

Overall Nutrition Score

The Overall Nutrition Score has been calculated based on the individual needs of <Gender>s at <FirstName>'s age. It takes into account specific requirements related to growth, and development and has been developed by our Dietitians and nutritionists. Please be aware it is based on what <FirstName> recalled eating in the 24 hours monitored.

The formulae weights all nutrients equally and assesses the intake as a percentage against the RDIs and RDAs.

Food Group Analysis

Food Groups analysis includes recommendations for increasing or decreasing consumption of various food groups based on the needs we have identified for <*FirstName*>. <*GenderHisHer*> needs vary depending upon <*GenderHisHer*> age and may incorporate <*GenderHisHer*> SmartStart Physical Profile results, if appropriate.

The recommendations are presented in the following table.

The results also provide a comparison with <*FirstName*>'s previous nutrition analysis so you and <*GenderHeShe*> can monitor changes.

Results

Overall Nutrition Score	10	20	30	40	50
This Time					
Last Time					
Comments *"Specific text relevant to child's score to go in here"*					

Legend

Excellent	– 50 to 60	Poor	– 20 to 30
Good	– 40 to 50	Very Poor	– 10 to 20
Average	– 30 to 40	Extreme	– 0 to 10

Analysis by Food Groups	1=very poor to 5=very good				
	1	2	3	4	5
BREADS					
This Time					
Last Time					
Comments					
CEREALS					
This Time					
Last Time					
Comments					
FRUIT					
This Time					
Last Time					
Comments					
VEGETABLES					
This Time					
Last Time					
Comments					
MEAT					
This Time					
Last Time					
Comments					
DAIRY					
This Time					
Last Time					
Comments					

Analysis by Nutrients	1=very poor to 5=very good				
	1	2	3	4	5
PROTEIN					
This Time					
Last Time					
Comments					
FATS					
This Time					
Last Time					
Comments					
SUGARS					
This Time					
Last Time					
Comments					
FIBRE					
This Time					
Last Time					
Comments					
IRON					
This Time					
Last Time					
Comments					
CALCIUM					
This Time					
Last Time					
Comments					
VITAMIN C					
This Time					
Last Time					
Comments					

Analysis and Recommendations

<FirstName>'s analysis indicates that <GenderHisHer> areas of concern are

"Specific text relevant to child's score to go in here"

Nutrients	Food Groups
Ca, Iron, Fibre	Dairy, Meat, Vegetables

<*FirstName*> is encouraged to:

"Specific text relevant to child's score to go in here"

Have More	Have Less
Dairy such as cheese, milk,	Treats
Lean meat like chicken, fish,	

Tips and Ideas

Eat more dairy?

Toasted cheese sandwiches are often popular with children, and are a satisfactory way for them to get both grains from whole-wheat breads and dairy, including calcium from the cheese. It is not necessary to add additional butter or margarine to the bread; this cuts down on total calories. Children should aim to have one or two toasted cheese sandwiches per day. More than this may increase their fat intake above recommended levels.

"Specific text relevant to child's score to go in here"

(The text can be selected based on the child's profile, and also include a number of random bits of advice for parents. Maybe we could build up 50 or so tips that can be selected in the reports to add variety and diversity)