



British Food Journal

Foodbank of Western Australia's Healthy Food for All:

Butcher Lucy Meredith Miss Public Health Nutritionist Chester Miranda Rose Mrs. Coordinator, School Breakfast Program
Aberle Leisha Michelle Miss Public Health Nutritionist Bobongie Vanessa Jo-Ann Mrs. Davies Christina Ms. Assistant
Professor Godrich Stephanie Louise Mrs. regional strategy coordinator Milligan Rex Alan Keith Mr. Tartaglia Jennifer Mrs.
Thorne Louise Maree Miss Begley Andrea Dr. Doctor of Public HealthSenior Lecturer

Article information:

To cite this document:

Butcher Lucy Meredith Miss Public Health Nutritionist Chester Miranda Rose Mrs. Coordinator, School Breakfast Program
Aberle Leisha Michelle Miss Public Health Nutritionist Bobongie Vanessa Jo-Ann Mrs. Davies Christina Ms. Assistant
Professor Godrich Stephanie Louise Mrs. regional strategy coordinator Milligan Rex Alan Keith Mr. Tartaglia Jennifer
Mrs. Thorne Louise Maree Miss Begley Andrea Dr. Doctor of Public HealthSenior Lecturer, (2014), "Foodbank of Western
Australia's Healthy Food for All", British Food Journal, Vol. 116 Iss 9 pp. -

Permanent link to this document:

<http://dx.doi.org/10.1108/BFJ-01-2014-0041>

Downloaded on: 24 August 2014, At: 18:14 (PT)

References: this document contains references to 0 other documents.

To copy this document: permissions@emeraldinsight.com

The fulltext of this document has been downloaded 1 times since 2014*

Access to this document was granted through an Emerald subscription provided by 310177 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

Title: Foodbank of Western Australia's Healthy Food for All

Introduction

The traditional role of food banks is as a central collection warehouse for donated food or food that that would otherwise be wasted. Food is acquired from supermarkets, food manufacturers or farms, to be made available to vulnerable populations. From an international perspective, the functionality of food banks is diverse. Food banks may provide food directly or indirectly, through charitable organisations, to individuals seeking emergency food relief. Some food banks focus solely on food provision, while others have taken on supplementary responsibilities, such as soup kitchens, school feeding programs, substance abuse clinics as well as AIDS and Tuberculosis hospices (Riches 2002, The Global Foodbanking Network 2013). The nutritional adequacy of food provided to users or nutrition education is a priority of a few food banks, particularly in developed nations (Foodbank WA 2013, Godfrey 2011, Irwin et al. 2007, Riches 2002).

For over twenty years, food banks across Australia have provided free or low cost food to community groups and charities referred to as agencies. Australian food banks act as a conduit between the welfare sector and the food industry by redistributing unwanted and unused surplus food products. Foodbank Australia's primary aim is to supply food to those in need; however, in recent years there has been a shift to include a commitment to nutrition and physical activity in an effort to address the issue of food insecurity more holistically (Foodbank WA 2013). In Australia, the Foodbank of Western Australia (Foodbank WA) pioneered the integration of healthy lifestyle considerations into core food bank business and is recognised as the leader in this area.

Food insecurity exists "whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable food in socially acceptable ways is limited or uncertain" (Radimer 2002). Often oversimplified as an issue of poverty and the inability to afford food; food insecurity encompasses access to, and the food literacy to prepare, nutritionally adequate food (Burns et al. 2011, Carter et al. 2010). Food insecurity is considered by many to be a problem specific to developing nations; whilst more subtle, this issue is also prevalent in developed nations (Foley et al. 2009). In Australia, approximately five percent of the population are thought to experience food insecurity, but this estimate is conservative (Australian Bureau of Statistics 1995, Australian Bureau of Statistics (ABS) 2003). Of the individuals considered to be food insecure in Australia, 40 percent are thought to be severely

food insecure (Temple 2008). Certain groups, Indigenous people, geographically isolated, the unemployed, young people and refugees are at greater risk of food insecurity; reported prevalence in these groups range from 15-71 % (Burns 2004, Gallegos et al. 2008, Rosier 2011). These high risk groups mirror the clientele serviced by Foodbank WA (Hanbury et al. 2010). In 2012, Anglicare investigated the prevalence of food insecurity amongst individuals accessing emergency food relief; of these individuals 96 % experienced some level of food insecurity and 76 % were severely food insecure (King et al. 2012). The majority of food bank users are thought to be food insecure. Ninety four percent of Canadian food bank users were found to be food insecure (Irwin et al. 2007).

Prolonged periods of food insecurity may adversely affect health and has been linked to the development of Type 2 Diabetes, cardiovascular disease and depression (Burns 2004, Foley et al. 2009, Kim and Frongillo 2007, Ramsey et al. 2012, Seligman et al. 2010, Stuff et al. 2004). There appears to be a paradoxical relationship between obesity and food insecurity, particularly in women (Burns 2004, Drewnowski and Specter 2004). Individuals with limited access to food often choose food with high caloric value instead of foods with high nutritional value, a contributing factor to weight gain (Alaimo et al. 2001, Burns 2004, Drewnowski and Specter 2004, Handforth et al. 2013, Townsend et al. 2001). People experiencing food insecurity are less likely to eat fruit and vegetables at levels recommended for good health (Gulliford et al. 2003, Hume et al. 2009, Kirkpatrick and Tarasuk 2008, Smith et al. 2013). A Canadian study found that food bank users had suboptimal micronutrient intakes, with the consumption of zinc, vitamin A and vitamin C below the recommended levels (Starkey et al. 1999). Another Canadian study investigated the nutritional adequacy of 30 food bank hampers, 99 % of which did not provide sufficient nutrients for three days. The hampers were found to contain below the recommended amounts of fruit, vegetables, dairy and meats products as well as nine essential nutrients (Irwin et al. 2007).

The factors affecting ability to access nutritious foods are complex and multifaceted (Burns et al. 2011, Innes-Hughes et al. 2010). Poor food literacy, for example lack of cooking and food budgeting skills as well as limited nutrition knowledge, has been identified as a potential barrier to nutritious food access (Vidgen and Gallegos 2014). An individual with poor cooking skills may be less likely to purchase and consume nutritious foods because they lack the confidence or knowledge of how to prepare or utilise these foods. These individuals are

also thought to be more likely to rely on prepared or take away meals, which tend to be higher in energy, fat, salt and sugar and contain less fruit and vegetables than homemade meals. (Bowyer et al. 2011, Hume et al. 2009, Stead et al. 2004, Vidgen and Gallegos 2014). The aim of this paper is to describe how food banks can add to their core business and why food banks can improve food security in longer term by providing food literacy programs

Methodology

A case study approach has been chosen to illustrate the potential for Food banks to build their capacity to address other elements of food insecurity and nutrition education. The case study describes Foodbank WA's innovative approach to (food bank plus) the incorporation of food literacy and physical activity education into core food bank business. The selection of case study methodology allowed for a holistic and comprehensive examination of Foodbank WA's HFFA strategy in a real life context. The detailed nature of case study research enabled the investigation of trends, commonalities, differences and themes across the HFFA initiatives in a full range of environments; thus, strengthening the existing evaluation data (Yin 2009).

Evidence to illustrate the case study has been gathered from multiple sources including Foodbank WA and HFFA strategic plans, student placement reports and the Foodbank Australia annual 'End Hunger' reports (Foodbank Australia 2012, Foodbank WA 2013). Foodbank WA regularly collects data from stakeholders, agencies and the client base; this data is collated and disseminated by Foodbank Australia. HFFA conducts ongoing evaluation of all initiatives and the findings are published in annual reports (Davies 2012a, Davies 2012b, Davies 2013a, Davies 2013b, Davies 2013c). This case study utilised evaluation data from 2012 and 2013. These sources have been used to triangulate the results by corroborating the main findings from the case study approach.

Findings

There are three key points from the data collection that illustrate how food banks can add to their core business and ultimately improve the health of their clientele. These points are strategic planning, including program types, reach and engagement potential and effectiveness in addressing food literacy and food insecurity.

Strategic Planning- Establishment of the Healthy Food for All[®] strategy

Foodbank WA has made addressing poor food literacy a priority so as to improve the nutrient intake of disadvantaged groups. As part of a holistic approach to healthy lifestyle promotion, Foodbank WA also tackles the issue of physical inactivity. Investment in nutrition education goes back to 1997 when Heathway funding was obtained to deliver Foodcents training; however a dedicated healthy lifestyle (HFFA) strategy was not established until 2007 (Healthway 1998). Foodbank WA's HFFA strategy was developed in response to government tender for the development and delivery of health promotion programs around poor nutrition, overweight and obesity and physical inactivity. HFFA provides a health and wellbeing focus to Foodbank WA's core business of food provision. Far from simply providing food to the hungry, considerations include the nutritional quality of foods available to member agencies, the intentional promotion of fresh fruits and vegetables and up-skilling agencies and community members around food literacy, nutrition knowledge and food preparation skills. The longevity and success of HFFA has hinged on the development and maintenance of extensive partnerships with volunteers, universities, corporate, government and non government organisations. HFFA is responsible for the establishment of a community kitchen garden on the Foodbank WA premises. The garden is tended by Foodbank WA volunteers and a professional horticulturalist. Produce from the garden is utilised in HFFA's cooking workshops and training days.

Outside of the food bank setting, HFFA is a comprehensive state wide, school and community based strategy, incorporating the *School Breakfast Program*, *Food Sensations[®]* and *Choose to Move* (physical activity) initiatives. The inbuilt *Regional Strategy* facilitates the tailored implementation of HFFA initiatives in communities in regional and remote Western Australia (WA) (refer to **Figure 1** for the organisational structure of HFFA).

<insert **Figure 1**>

The development of HFFA's initiatives has been an organic process, largely driven by community and government demand (Foodbank WA 2013). Foodbank WA's School Breakfast Program (SBP) was established in 2001 in direct response to expressed need from a local school experiencing major behavioural and attendance issues. Upon surveying students, the school reported that 16 % had not eaten breakfast, and many had not eaten dinner the

previous evening. Foodbank WA donated food for a breakfast program trial, which very quickly showed considerable improvement in behaviour and attendance. Foodbank WA has been involved in nutrition education since the late nineties; however in 2007 the state government highlighted the necessity for targeted interventions for childhood obesity sparking the consolidation of nutrition activities and the formation of *Food Sensations*[®]. *Choose to Move* was created in conjunction with *Food Sensations*[®] in recognition that nutrition programs alone could not address the underlying health concerns facing students from low socio economic backgrounds. In 2010, as a result of a growing demand from communities and the government sector for relevant, tailored and practical education in rural and remote WA, HFFA extended the strategy's catchment to include the entire state of WA. All of HFFA's initiatives have been developed in consultation and collaboration with the target group, health professionals, funding agencies and stakeholders.

Program types

School Breakfast Program

The aim of the SBP is to ensure all WA school children have regular and equitable access to a healthy, nutritious breakfast. The core activity of the SBP, like Foodbank WA, is food provision. Shelf-stable food products (canned fruit in natural juice, wheat biscuits, Vegemite, canned spaghetti, baked beans and UHT milk) and fresh products (bread, yoghurt, fresh milk, fresh fruit and vegetables) are available to schools. The SBP (membership and food) is provided free of charge, funded by state government, corporate and philanthropic donations. Funding also covers the cost of transporting food products to geographically isolated regional schools. SBP predominately improves food availability; however, SBP registration entitles the whole school population to access *Food Sensations*[®] and *Choose to Move* in an effort to increase food literacy skills and physical activity.

Food Sensations[®]

Food Sensations[®] is a practical interactive nutrition education and cooking initiative developed for schools, adolescents, parents, adults and health professionals or support staff. Incorporating elements of the WA Department of Health FOODcents[®] nutrition and budgeting program, *Food Sensations*[®] aims to improve knowledge and understanding of nutritious foods, and provide the skills to purchase and prepare them. *Food Sensations*[®] is delivered in partnership with Diabetes WA, Australian Red Cross, Cancer Council of WA, University of WA and Edith Cowan University.

Food Sensations[®] consists of three programs: *Food Sensations*[®] for Schools, *Food Sensations*[®] for Adults and the Adolescent Program. Educator Training is offered by all of *Food Sensations*[®] programs and has been designed to be a five hour professional development day for health professionals, school staff, community members and other agencies. Topics covered in *Food Sensations*[®] sessions may include the healthy eating plate or pyramid, portion sizes, supermarket tours, lunchboxes, label reading, sugar content in drinks, comparing the fat, sugar and salt content between take-away and homemade foods, budgeting, meal planning, recipe modification, food safety, chronic disease management and basic cooking skills. Sessions are tailored for each group's abilities and needs. Delivery of sessions is flexible and may vary from one-off to eight week workshops. All participants are provided with recipe books and resources to encourage behaviour change at home on conclusion of the workshops.

Choose to Move

Foodbank WA's physical activity initiative, *Choose to Move* aims to increase student physical activity through structured lessons and unstructured play in Foodbank WA's SBP schools. *Choose to Move* provides schools with a comprehensive range of sports equipment as a means of facilitating "free unstructured play" before or after breakfast, recess and lunch times.

Theoretical basis

HFFA's initiatives are guided by a number of theories including the Health Belief Model, Social Learning Theory and Social Ecological Theory (Boslaugh and McNutt 2008, Stokols 1996). *Food Sensations*[®] for Adults utilises the four constructs (perceived susceptibility, perceived severity, perceived benefits, and perceived barriers) of the Health Belief Model to predict and influence behaviour change. *Food Sensations*[®] workshop content highlights the susceptibility and severity of lifestyle related chronic diseases as well as the benefits of a nutritious diet. Perceived barriers are addressed through the provision of reassurance and strategies to overcome obstacles. *Food Sensations*[®] operates as a cue to action and builds participant self efficacy.

The school based initiatives and the Adolescent Program are based on the Social Learning Theory. The theory is underpinned by the concept that people learn from one another via

observation, imitation and modelling. Children who attend *Food Sensations*[®] observe the facilitators, parent helpers, teachers and their peers cooking and enjoying nutritious foods. These observations drive the participants to model this positive behaviour in the classroom and at home. HFFA supports schools to abide by a Health Promoting Schools approach, building upon classroom health education by creating a healthy environment (such as encouraging schools to provide healthy options in the canteen) and collaborative partnerships with the wider community (including involvement of local health organisations) (Gillies et al. 2011). HFFA staff is involved in the development of the Australian national health curriculum as well as influencing Foodbank health policy at a state and national level. Further, *Food Sensations*[®] components have been directed by the Social Ecological Theory, with program strategies developed to influence behaviour change at individual, interpersonal and organisational levels and approaches aimed at facilitating health promoting environments and policy development (Stokols 1996).

Foodbank WA's HFFA utilises the Western Australian Health Promotion Strategic Framework as a basis (Department of Health 2012). The action areas or levels outlined in the framework include: development of healthy policy at government and organisation level, creating for living, working and relaxing, which support healthy choices, raising public awareness and engagement, community development, targeted interventions and strategic coordination, building partnerships and capacity building (Department of Health 2012). HFFA addresses all of these action areas in an effort to improve the eating behaviours of the strategy's target audience.

Reach and Engagement- Target audience

The primary target audience of HFFA are children and adults from low socio economic backgrounds in metropolitan, regional and rural communities of WA; an area of 2,526,786 km² or twenty times the area of England and a population of 2.536 million (Australian Government 2010). An example of a typical regional journey is as follows: A trip to the Warburton Ranges community to deliver *Food Sensations*[®] involved a one-hour flight from Perth to Kalgoorlie (594 kilometres) followed by 12 hours of car travel from Kalgoorlie to Warburton (913 kilometres), resulting in a return trip of 3,014 kilometres and 26 hours of travel (Australian Government 2010).

Often described as high priority groups, HFFA engages a wide range of individuals including school children, people experiencing mental illness, seniors, prisoners, Culturally and Linguistically Diverse (CALD) groups, Indigenous people, disability groups, refugees, parents and health professionals. Most of these groups are recognised as being vulnerable to food insecurity (Rosier 2011). *Food Sensations*[®] for Schools and the SBP target school aged children (4 to 18 years old). SBP specifically engages with low-socioeconomic ranked schools; however applications are accepted from more advantaged schools containing a subset of disadvantaged students. *Choose to Move* is also a school based initiative; however, only students in school years four to seven (aged 9 to 12 years) are eligible to receive sports equipment. The Adolescent Program caters to individuals aged 12-16 years old (or up to 18 years old if not in the workforce). *Food Sensations*[®] for Adults, *Food Sensations*[®] Educator Training and parent's sessions offer services to individuals aged over eighteen years from a wide range of backgrounds.

Effectiveness in addressing food literacy and food insecurity- Evaluation of initiatives

As part of its quality assurance activities, HFFA collects evaluation data via surveys (online and paper based) from program participants. *Food Sensations*[®] and *Choose to Move* are evaluated through matched pre and post evaluation surveys, which are completed by program participants (school children, teachers, adults and health professionals). Foodbank WA's SBP is evaluated annually via an online survey of SBP coordinators. The adolescent program is currently in a formative stage and has yet to be evaluated. All surveys were developed and reported on by researchers external to and independent of Foodbank WA.

Evaluation surveys allow participants to provide feedback and reflect on how the initiative has affected their wellbeing, knowledge and attitudes. Survey participation is voluntary and obtained via informed consent at the time of program enrolment. Where written evaluation isn't possible due to low literacy or disability, verbal interviews are conducted to obtain feedback and assess planned behaviour change. Participation in the evaluation does not affect the ability of a person to take part in HFFA's initiatives. Data collection, analysis and reporting is conducted in line with good research and ethical practice with care taken to ensure the confidentiality, wellbeing, safety and dignity of all participants. Ethics approval for the evaluation was granted by the University of Western Australia's and Edith Cowan University's Human Research ethics committee.

Outcome 1: Increased provision and demand

Service delivery increased across all initiatives, except *Choose to Move*, during the reporting period. Rates of SBP involvement and meal provision increased between 2012 and 2013, indicative of growth in previous years (see **Table 1**). By the end of 2013, the SBP was providing breakfasts to 16,390 students in 426 schools around WA; this equated to 53,250 breakfasts a week, an increase of 31 schools, 1,201 students and 7,178 breakfasts on 2012 figures. In addition, SBP product was used to supply 20,684 emergency (other than breakfast) meals a week. Foodbank WA's SBP is the largest school breakfast provider in Australia. The 2012 SBP evaluation (n=333 schools, response 87 %) found approximately 50 % of participating schools operated their SBP every day of the school week, at an average of 29 breakfasts per day (Davies 2012b).

<insert **Table 1**>

During 2012/13, participation rates and number of sessions increased in both the School (Metropolitan and regional) and Adult initiatives (see **Table 2**).

<insert **Table 2**>

Due to budgetary constraints, *Choose to Move* is limited to the supply of approximately 200 sports equipment packs per year. As illustrated in **Table 3**, school, student and teacher participation rates remain constant.

<insert **Table 3**>

Outcome 2: Positive contribution to health and wellbeing

Survey results indicated respondents felt the HFFA initiatives had positively impacted their own or school children's health. SBP survey respondents agreed the program positively contributed to the physical health (96 %), social skills (92 %), behaviour (91 %) and mental health (89 %) of students. In addition, respondents thought the program had a positive impact on class attendance (82 %) and academic outcomes (79 %). Overall, 95 % of schools planned to continue with the SBP in the future and agreed that the products provided by the SBP were of a high quality (97 %) and were appropriate (94 %) (Davies 2012b).

In 2012, 1541 students participated in the Choose to Move evaluation (response 33 %). Respondents ranged in age from seven to thirteen years. Of those students who used the *Choose to Move* equipment, 79 % thought they did more physical activity during the school day since the equipment arrived in their school. Of those teachers that participated in the evaluation, the majority of teachers (n= 77) agreed that *Choose to Move* assisted them to conduct physical activity lessons and had a positive impact on student health (99 %) (Davies 2013a).

During the period June 2012 to May 2013, 167 *Food Sensations*[®] *for Adults* sessions were delivered in partnership with the Cancer Council WA and Australian Red Cross. Of those participants who attended two or more sessions and completed an evaluation (n= 206) results indicated a significant increase in reported fruit and vegetable consumption and a significant decrease in reported number of days of fast food consumption (Health Promotion Evaluation Unit 2013).

Outcome 3: Improved knowledge and skills

Evaluation results illustrated the majority of participants felt their knowledge; cooking skills and confidence improved as a result of attending *Food Sensations*[®] sessions.

1. Food Sensations[®] *in Schools*

In 2012, 1222 metropolitan students (response 55 %) and 988 regional students (response 50 %) completed an evaluation survey. Students agreed the sessions taught them about healthy food, how to cook healthy food, how to choose which foods are healthy to eat and said they would try to make the foods cooked in the session at home. After participating in *Food Sensations*[®] nine out of ten students felt healthy food was easy to cook. When asked about *Food Sensations*[®] all teachers (n=230) thought their students enjoyed taking part in the session. The majority of teachers also agreed the program improved student knowledge about nutritious foods, provided students with skills to prepare nutritious food and helped their school meet Health and Physical Education curriculum objectives (Davies 2013b, Davies 2013c).

2. Food Sensations[®] *for Adults*

From 2011-2012, 130 sessions were delivered to 467 people of which 311 (response 66 %) completed an evaluation survey. Overall, the program was delivered to people from over 51

different cultural backgrounds. The majority of respondents thought the program was relevant to them (96 %) and indicated they would use the knowledge/skills learnt in the session at home (99 %) (Davies 2012a).

3. Food Sensations[®] Educator Training

In 2012, 170 metropolitan and regional community workers, teachers and health professionals participated in an educator training day. Of those who took part in the evaluation (n=146), 92 % regional and 95 % metropolitan agreed the session improved their knowledge about healthy food (Davies 2013b, Davies 2013c). Overall, 97 % of regional participants and 95 % of metropolitan participants felt confident they could deliver all or part of the program to their students/clients and confirmed their intention to do so (Davies 2013b, Davies 2013c).

Discussion

Foodbank WA's HFFA is unique in relation to the strategy's comprehensive nature, geographical reach and extensive partnerships. There has been an increase in delivery of food, education and resources across Foodbank WA's HFFA initiatives. The expansion of service delivery of HFFA initiatives may be attributed to both demand and provision. The addition of initiatives and the expansion of the HFFA strategy over the years have allowed for greater provision of services to communities where access has previously been unavailable. Foodbank WA experienced a nine percent increase in people seeking emergency food relief in 2013 and other agencies, such as Anglicare, have also observed greater demand (Foodbank WA 2013, King et al. 2012). The recent mining boom in Western Australia has caused an elevation in the cost of living, particularly in the rental and housing market (Australian Bureau of Statistics 2013). This increase and uneven distribution of wealth has expanded the divide between the richest and poorest households. While emergency food relief and food insecurity has been limited to the unemployed in WA in the past; the cost of living and rental stress have created a population of working poor who are becoming increasingly reliant on charitable services (Australian Bureau of Statistics 2013). The heightened number of people seeking emergency food relief and the strengthening reputation of HFFA are explanations for increasing demand.

HFFA results demonstrate the potential of food literacy interventions to positively impact the lifestyles of people from low socio economic backgrounds – a major target group of food

banks (Foodbank Australia 2012). The Food Bank of New York facilitates a school based cooking and nutrition education program which has also yielded positive findings (Godfrey 2011). Approximately, three quarters (78 %) of teachers surveyed felt that most of their students were more interested in healthy eating and were more likely to try new vegetables as a direct result of the program; findings comparable to those reported by *Food Sensations*[®] in Schools (Godfrey 2011). These findings as well as the results of other food bank based food literacy programs demonstrate the potential for food bank based initiatives to beneficially impact the nutritional status of people in need (Godfrey 2011, Keller-Olaman et al. 2005, Yao et al. 2013).

HFFA is a complex food provision, nutrition and physical activity strategy targeting individuals across the life span. Internationally, a number of food banks are involved in the delivery of food literacy programs or supplying food to school breakfast programs; however few food banks have dedicated healthy lifestyle departments to the scale and scope of Foodbank WA's HFFA (Godfrey 2011, Keller-Olaman et al. 2005, Ontario Association of Food Banks 2013, Vineyard 2008). Foodbank WA is the only Australian food bank to take a holistic approach to the incorporation of food literacy and physical activity considerations into the core business of food provision. Food banks in other Australian states and territories view Foodbank WA's HFFA as a 'best practice model' for the promotion and support of healthy lifestyles and regularly consult with Foodbank WA around development of similar initiatives in their regions. HFFA provides healthy lifestyle support across the lifespan, tailored to the cultural and socio economic needs of the target groups.

Foodbank WA's dedication to communities, regardless of their geographical location, ensures relevant healthy lifestyle education is accessible to all Western Australians. HFFA initiatives are delivered across the entire state of WA, an area of 2,526,786 km², encompassing some of the most isolated communities in the world (Australian Government 2010). Regional and remote areas are considered to be a high priority, given these areas have limited access to health services and nutritious foods; all barriers to food security (Rosier 2011). Foodbank WA endeavours to reach communities in need by any means possible, which on occasion requires charter plane travel to remote areas not otherwise serviced by commercial airlines, or travelling up to 26 hours return to enable community member participation in *Food Sensations*[®]. Since the *Regional Strategy*'s inception in 2010, Foodbank WA staff have travelled in excess of 100,000 km in an effort to deliver *Food Sensations*[®] across the state.

'Tyranny of distance' is recognised as a challenge to health service provision across regional and remote WA (Snowball and Morton 1993). Over 60 % of SBP schools are located in regional WA, some in areas classified as 'very remote'. Vast distance and climatic extremes (such as floods and cyclones) can negatively impact upon the transport of even shelf-stable foods and health service delivery, resulting in increased time and financial costs. In these situations, service provision requires a delicate balance between economic efficiency and maintaining a high quality of service and product. Foodbank WA's consistent track record has led to them being referred to by Government as a 'preferred provider' of breakfast program services to schools across the state (Department of Education 2014).

HFFA's *Regional Strategy* endeavours to address the aforementioned food security and literacy issues in regional and remote WA. The success of HFFA's delivery in regional and remote areas hinges on flexibility, ensuring service provision is relevant to the unique geographical, social, economic and cultural factors present in each community (Humphreys and Wakerman 2011). In a regional context, local staff and community provide vital background information, taking a relevant and culturally sensitive approach. Prior to regional visits, significant research is undertaken around the characteristics of each location, including local food security factors such as availability, variety, cost, cooking habits, storage and preparation facilities. *Food Sensations*[®] sessions can be adapted to include delivery outdoors using an interactive, hands-on and visual approach. Cooking methods utilised reflect local preferences, and may include fire pit and barbeque styles incorporating locally accessible ingredients and bush tucker if available. Successive evaluation demonstrates a strong consensus that HFFA's initiatives are having a positive impact on the health of people living in these communities.

The vastness of WA necessitates an innovative approach to the engagement of remote communities, such as video conferencing and training of local health professionals. Previously, the time and cost associated with travel made provision of frequent and continuous nutrition education to regional communities in the *Food Sensations*[®] catchment area impossible. However, video conferencing technology has assisted in bridging the gap in health services and has allowed for the delivery of four week intensive workshops in regional WA.

Foodbank WA's HFFA has established strong cross-sectoral partnerships with schools, government, the corporate sector, other not for profit organisations, universities and community groups. These relationships allow HFFA to manage resources more efficiently, tailor initiatives to the target group's needs and facilitate access to expert support. Partnerships are an essential component of regional delivery. Where possible, HFFA staff visit communities in collaboration with other agencies to maximise safety and minimise duplications of costs and time.

Relationships are based on empowerment and are a key to building the capacity of Foodbank WA's clientele. HFFA acknowledges the target group as a partner by valuing local knowledge, culture and processes as a strength. For example, schools implement their breakfast program autonomously; organise their own volunteers and required equipment. SBP facilitates the provision of food products, information and support. Schools are encouraged to draw on existing resources to ensure ongoing sustainability of the program. Foodbank WA's HFFA ultimately works to build resilience within communities, organisations and individuals to ensure our initiatives are sustainable. HFFA trains health professionals, teachers and support staff to deliver nutrition education and operate school breakfast clubs allowing for greater assistance for those in need. At an individual level, HFFA provides nutrition education, resources, cooking and budgeting skills, which empower individuals to access nutritious foods and more efficiently manage their food budgets.

Conclusion

Food banks are well placed to deliver food literacy and healthy lifestyle initiatives to vulnerable populations. The majority of food bank users are food insecure and are likely to have nutritionally inadequate diets; ultimately increasing the risk of these individuals developing lifestyle related disease (Irwin et al. 2007, Ramsey et al. 2012, Starkey et al. 1999). Furthermore, the food hampers provided by food banks may not meet nutritional recommendations. For these reasons, food banks have a responsibility to make nutrition a priority and create healthy lifestyle related policy. Greater provision for fresh fruit and vegetables is necessitated to address poor nutritional intake (Irwin et al. 2007). HFFA is an innovative strategy that addresses the food literacy and healthy lifestyle component of the Foodbank WA core business of supporting vulnerable populations. Food literacy education builds resilience and may enable individuals to cope more effectively in periods of food insecurity. Additional research is required around the impact of food literacy education in

food insecure populations, especially in Australia where research is limited (Innes-Hughes et al. 2010, Irwin et al. 2007, Vidgen and Gallegos 2014). Foodbank WA's demonstrated success with the HFFA strategy provides a knowledge base for the development of similar interventions in the existing food bank environment.

References

- Alaimo, K., Olson, C. M. and Frongillo, E. A. (2001) Low family income and food insufficiency in relation to overweight in US children: is there a paradox? *Arch Pediatr Adolesc Med*, 155, pp. 1161-7.
- Australian Bureau of Statistics (1995) *National Nutrition Survey: Foods Eaten, Australia*. Canberra: ABS.
- Australian Bureau of Statistics (2013) *Australian Social Trends* No. 4102.0. Canberra: ABS.
- Australian Bureau of Statistics (ABS) (2003) *Occasional Paper: Measuring Dietary Habits in the 2001 National Health Survey*,. Canberra: ABS.
- Australian Government (2010) *Area of Australia - States and Territories*, Available: <http://www.ga.gov.au/education/geoscience-basics/dimensions/area-of-australia-states-and-territories.html> [Accessed 20 January 2014].
- Boslaugh, S. and McNutt, L. (2008) *Encyclopedia of Epidemiology*. *Encyclopedia of Epidemiology*. SAGE Publications, Inc, Thousand Oaks, CA: SAGE Publications, Inc.
- Bowyer, S., Caraher, M., Eilbert, K. and Carr-Hill, R. (2011) Shopping for food: lessons from a London borough. *British Food Journal*, 111(5), pp. 452-474.
- Burns, C. (2004) *A review of the literature describing the link between poverty, food insecurity and obesity with specific reference to Australia*: Centre for Physical Activity and Nutrition Research, School of Exercise and Nutrition Sciences, Deakin University.
- Burns, C., Bentley, R., Lakar, T. and Kavanagh, A. (2011) Reduced food access due to a lack of money, inability to lift and lack of access to a car for food shopping: a multilevel study in Melbourne, Victoria. *Public Health Nutrition*, 14(6), pp. 1017–1023.
- Carter, K. N., Lanumata, T., Kruse, K. and Gorton, D. (2010) What are the determinants of food insecurity in New Zealand and does this differ for males and females? *Aust NZ J Public Health*, online.
- Davies, C. (2012a) *Food Literacy and Skill Development: Community & Intensive Program*, Available: http://www.healthyfoodforall.com.au/images/uploads/120730_AdultFoodLiteracyReport_Final_CD.pdf [Accessed 29 January 2014].

- Davies, C. (2012b) *School Breakfast Program – 2012 Evaluation Report*, Available: <http://www.healthyfoodforall.com.au/school-breakfast-program/research-evaluation/> [Accessed 29 January 2014].
- Davies, C. (2013a) *Choose to Move – 2012 Evaluation Report*, Available: <http://www.healthyfoodforall.com.au/choose-to-move/research-evaluation/> [Accessed 29 January 2014].
- Davies, C. (2013b) *Metropolitan Food Sensations – 2012 Evaluation Report*, Available: <http://www.healthyfoodforall.com.au/food-sensations/research-evaluation/> [Accessed 29 January 2014].
- Davies, C. (2013c) *Regional Food Sensations – 2012 Evaluation Report*, Available: <http://www.healthyfoodforall.com.au/regional-strategy/research-evaluation/> [Accessed 29 January 2014].
- Department of Education (2014) *Preferred service provider request for school breakfast and nutrition program*. Perth: Government of Western Australia, Department of Education.
- Department of Health (2012) *WA Health Promotion Strategic Framework 2012–2016*. Perth: Chronic Disease Prevention Directorate, Department of Health.
- Drewnowski, A. and Specter, S. E. (2004) Poverty and obesity: the role of energy density and energy costs. *American Journal of Clinical Nutrition*, 79, pp. 6-16.
- Foley, W., Ward, P., Carter, P., Coveney, J., Tsourtos, G. and Taylor, A. (2009) An ecological analysis of factors associated with food insecurity in South Australia, 2002–7. *Public Health Nutrition*, 13(2), pp. 215–221.
- Foodbank Australia (2012) *End Hunger report 2012*, Available.
- Foodbank WA (2013) *End Hunger Report 2013*. Perth: Foodbank WA.
- Gallegos, D., Ellies, P. and Wright, J. (2008) Still there's no food! Food insecurity in a refugee population in Perth, Western Australia. *Nutrition & Dietetics*, 65, pp. 78–83.
- Gillies, S., Dimitrijevič, S. and Lambert, M. (2011) *What is a Health Promoting School? A Resource to Assist Schools to Implement a Whole School Approach*. Perth: WA Health Education Services, WA Health Promoting Schools Association Inc. .

- Godfrey, J. R. (2011) School-Based Food Bank Program Uses Fresh Fare to Reach 30,000 Participants. *Childhood Obesity*, 7(1), pp. 49-53.
- Gulliford, M. C., Mahabir, D. and Rocke, B. (2003) Food insecurity, food choices, and body mass index in adults: nutrition transition in Trinidad and Tobago. *International Journal of Epidemiology*, 32, pp. 508–516.
- Hanbury, A., Hay, M., Proposch, J., Hanrahan, L. and Thornton, V. (2010) *Foodbank WA 2010 Agency Surveys*. Perth: Curtin University, Foodbank WA.
- Handforth, B., Hennink, M. and Schwartz, M. (2013) A Qualitative Study of Nutrition-Based Initiatives at Selected Food Banks in the Feeding America Network. *J Acad Nutr Diet.*, 113, pp. 411-415.
- Health Promotion Evaluation Unit (2013) *Food Literacy Programs Evaluation Results Report June 2012 – May 2013*. Perth: University of Western Australia.
- Healthway (1998) *Food Cent\$ at the Foodbank*: Healthway.
- Hume, C., Ball, K., Crawford, D., McNaughton, S. and Stephens, L. (2009) *Why do some women of low socioeconomic position eat better than others?* Melbourne Centre for Physical Activity and Nutrition Research
- Humphreys, J. and Wakerman, J. (2011) *Primary health care in rural and remote Australia: achieving equity of access and outcomes through national reform: a discussion paper*. Alice Springs: Monash University School and Centre for Remote Health
- Innes-Hughes, C., Bowers, K., King, L., Chapman, K. and Eden, B. (2010) *Food security: The what, how, why and where to of food security in NSW. Discussion Paper*, Available.
- Irwin, J., Ng, V. K., Rush, T. J., Nguyen, C. and He, M. (2007) Can Food Banks Sustain Nutrient Requirements? A Case Study in Southwestern Ontario. *Canadian Journal of Public Health*, 98(1), pp. 17-20.
- Keller-Olaman, S. J., Edwards, V. and Elliott, S. J. (2005) Evaluating a Food Bank Recipe-Tasting Program. *Canadian Journal of Dietetic Practice and Research*, 66(3), pp. 183- 188.

- Kim, K. and Frongillo, E. (2007) Participation in food assistance programs modifies the relation of food insecurity with weight and depression in elders. *J Nutr*, 137, pp. 1005–1010.
- King, S., Moffitt, A., Bellamy, J., Carter, S., McDowell, C. and Mollenhauer, J. (2012) *When there's not enough to eat*. State of the Family Report Sydney: Anglicare.
- Kirkpatrick, S. I. and Tarasuk, V. (2008) Food insecurity is associated with nutrient inadequacies among Canadian adults and adolescents." *Journal of Nutrition*, 138(3), pp. 604-612.
- Ontario Association of Food Banks (2013) *Hunger Report 2013: A comprehensive report on hunger and food bank use in Ontario and recommendations for change*, . Ontario: Ontario Association of Food Banks.
- Radimer, K. (2002) Measurement of household food security in the USA and other industrialized countries. *Public Health Nutrition*, 5(6A), pp. 859–864.
- Ramsey, R., Giskes, K., Turrell, G. and Gallegos, D. (2012) Food insecurity among adults residing in disadvantaged urban areas: potential health and dietary consequences. *Public Health Nutrition*, 15(2), pp. 227-237.
- Riches, G. (2002) Food Banks and Food Security: Welfare Reform, Human Rights and Social Policy. Lessons from Canada? *Social policy and Administration*, 36(6), pp. 648–663.
- Rosier, K. (2011) *Food insecurity in Australia :What is it, who experiences it and how can child and family services support families experiencing it?* Canberra: Australian Institute of Family Studies.
- Seligman, H. K., Laraia, B. A. and Kushel, M. B. (2010) Food Insecurity is Associated with Chronic Disease among Low-Income NHANES Participants. *The Journal of Nutrition* *Nutrition and Disease*, 140, pp. 304-310.
- Smith, C., Parnell, W. R., Brown, R. C. and Gray, A. R. (2013) Balancing the diet and the budget: Food purchasing practices of food-insecure families in New Zealand. *Nutrition & Dietetics*, pp. 1-8.
- Snowball, K. and Morton, H. (1993) Western Australia's Country Regions; Going Forward Together. in *2nd National Rural Health Conference*, Armidale: Rural Health Policy Unit.

- Starkey, L. J., Gray-Donald, K. and Kuhnlein, H. V. (1999) Nutrient intake of food bank users is related to frequency of food Bank Use, Household Size, Smoking, Education and Country of Birth. *The Journal of Nutrition*, 129(4), pp. 883-889.
- Stead, M., Caraher, M., Wrieden, M. and Longbottom, P. (2004) Confident, fearful and hopeless cooks: Findings from the development of a food-skills initiative. *British Food Journal*, 106(4), pp. 274-287.
- Stokols, D. (1996) Translating Social Ecological Theory into Guidelines for Community Health Promotion. *American Journal of Health Promotion*, 10(4), pp. 282-298.
- Stuff, J., Casey, P., Szeto, K., Gossett, J., Robbins, J., Simpson, P., Connell, C. and Bogle, M. (2004) Household food insecurity is associated with adult health status. *J Nutr*, 134, pp. 2160-2165.
- Temple, J. B. (2008) Severe and Moderate Forms of Food Insecurity: Are They Distinguishable? *Australian Journal of Social Issues*, 43(3), pp. 649-668.
- The Global Foodbanking Network (2013) *The Global Food Bank Community*, Available: http://www.foodbanking.org/site/PageServer?pagename=foodbanking_find#Europe [Accessed 20 December 2013].
- Townsend, M. S., Peerson, J., Love, B., Achterberg, C. and Murphy, S. P. (2001) Food insecurity is positively related to overweight in women. *J Nutr*, 131, pp. 1738-45.
- Vidgen, H. A. and Gallegos, D. (2014) Defining food literacy and its components. *Appetite*, 76, pp. 50-59.
- Vineyard, M. L. (2008) P27 Nutrition College for Food Bank Clients. *Journal of Nutrition Education and Behavior*, 40(4), pp. 53-54.
- Yao, P., Ozier, A., Brasseur, K., Robins, S., Adams, C. and Bachar, D. (2013) Food Pantry Nutrition Education about Whole Grains and Self-Efficacy. *Family and Consumer Sciences Research Journal*, 41(1), pp. 426-437.
- Yin, R. (2009) *Case Study Research. Design and Methods*, 4th edition ed., London: Sage.

Biographical Details

Author 1: Lucy Butcher is an Accredited Practicing Dietitian and is currently working as a Public Health Nutritionist at Foodbank WA. Lucy has completed Bachelors of Science in Nutrition and Health Promotion as well as a Master of Nutrition and Dietetics. Lucy is a PhD candidate and is investigating the food behaviours of people experiencing food insecurity.

Author 2:

Miranda Chester completed a Bachelor of Health Science, majoring in Health Promotion and has coordinated the state-wide delivery of Foodbank WA's *School Breakfast Program* since 2008. She has previously served on the Australian Health Promotion Association's WA Branch executive committee and is now Vice President of the WA Health Promoting Schools Association.

Author 3:

Leisha Aberle completed a Bachelor of Science, majoring in Nutrition. She is currently undertaking postgraduate studies in Health Promotion at Curtin University. She joined the Foodbank WA team in 2013 and works across both the *Food Sensations*[®] and Regional Strategy Initiative.

Author 4:

Vanessa Bobongie is the *Food Sensations*[®] Coordinator at Foodbank WA. Vanessa has a Bachelor of Science (Health Promotion) and has seven years experience in the area of nutrition and health promotion.

Author 5: Christina Davies is an Assistant Professor at The University of Western Australia. She has extensive experience in the area of health research and evaluation with qualifications in the psychology and public health.

Author 6:

Stephanie Godrich has seven years experience in community food literacy programs, organisational management, evaluation and research. Stephanie coordinated a state-wide Government-funded study around nutrition and physical activity levels of children and adolescents and is currently undertaking a Master of Public Health by research, focussing on the impact of food security determinants on fruit and vegetable consumption among regional and remote WA children. Stephanie commenced her position at Foodbank WA in 2010 with the creation of the Regional Strategy.

Author 7:

Rex Milligan began his working life as a physical education teacher. He subsequently obtained a Master of Public Health, specialising in nutrition, and was initially employed at UWA for five years in nutrition and physical activity research. Rex then moved to the Department of Health, working in a number of areas including epidemiology, nutrition, physical activity, injury prevention and elective surgery waitlist monitoring. In 2009, Rex moved to Foodbank WA, where he manages the *Healthy Food For All*[®] business unit, incorporating the *School Breakfast Program* and the *Food Sensations*[®] and *Choose to Move* initiatives.

Author 8:

Jennifer Tartaglia completed a Bachelor of Health Science with a double major (health promotion and nutrition) from Edith Cowan University. Jennifer has worked on several child health promotion evaluation and research projects at the University of Western Australian and Edith Cowan University including; the Child and Adolescent Physical Activity and Nutrition (CAPANS) Survey and evaluation of the School Drug Education and Road Aware Program (SDERA) and Smarter than Smoking Tobacco prevention program. Jennifer is the Coordinator of the *Choose to Move* physical activity initiative and also works at Foodbank WA in the role of Public Nutritionist for the *Food Sensations*[®] Schools Initiative..

Author 9:

Louise Thorne's keen interest in food, cooking and health lead her onto a career path as an Accredited Practising Dietitian. After completing a Bachelor of Science in Nutrition at Curtin University in 2008, Louise completed a Postgraduate Diploma in Dietetics in 2009, at Curtin University. Louise began her role as a Public Health Nutritionist at Foodbank WA in 2011 as the primary liaison and presenter for the Perth metropolitan school *Food Sensations*[®] program and Educator Training days. Louise is currently undertaking postgraduate studies in Health Promotion at Curtin University.

Author 10:

Andrea Begley is a Senior Lecturer in Nutrition & Dietetics at Curtin University. She holds a Doctor of Public Health with research in food literacy and is an Advanced Accredited Practicing Dietitian. Andrea has been involved in research associated with FoodBank WA since the early 1990s.

Acknowledgments

This work was supported by the State Government of Western Australia (Departments of Education, Health and Regional Development), Channel 7 Telethon Trust, BHP Billiton Iron Ore, the Australian Red Cross, and Cancer Council of Western Australia

Table 1: Foodbank WA's School Breakfast Program participation rates and meals provided in 2012 and 2013

| School Breakfast Program | 2012 | 2013 |
|--|-------------|-------------|
| Total schools | 395 | 426 |
| Metropolitan schools | 156 | 176 |
| Regional schools | 239 | 250 |
| Number of students involved | 15,189 | 16,390 |
| Number of breakfasts per week | 46,072 | 53,250 |
| Number emergency meals per week ^a | 19,345 | 20,684 |

^a Emergency meals refer to all meals other than breakfast.

Table 2: Foodbank WA's *Food Sensations*[®] initiatives participation and session attendance rates for 2012 and 2013

| Initiative | | Number of sessions | Number of participants |
|--|------|---------------------------|-------------------------------|
| <i>Food Sensations</i>[®] for Schools (Metropolitan) | 2012 | 98 | 2225 |
| | 2013 | 114 | 2655 |
| <i>Food Sensations</i>[®] for Schools Regional) | 2012 | 98 | 1863 |
| | 2013 | 131 | 2138 |
| <i>Food Sensations</i>[®] for Adults | 2012 | 220 | 1941 |
| | 2013 | 311 | 2158 |
| <i>Food Sensations</i>[®] Educator Training | 2012 | 21 | 192 |
| | 2013 | 22 | 168 |

Table 3: Foodbank WA's *Choose to Move* participation and sports equipment delivery rates for 2012 and 2013

| Year | Number of Schools | Number of Students | Number of Teachers | Number Sports equipment packs |
|--------------|--------------------------|---------------------------|---------------------------|--------------------------------------|
| 2012 | 48 | 6289 | 281 | 202 |
| 2013 | 61 | 5707 | 290 | 202 |
| Total | 109 | 11996 | 371 | 404 |

Figure 1: The organisational structure of Foodbank of Western Australia's *Healthy Food for All*[®] strategy

