PUBLIC HEALTH NUTRITION IN AUSTRALIA:

NEW DIRECTIONS NEW PRIORITIES

29–30 November 2007

CONFERENCE PROCEEDINGS

Emmanuel College, The University of Queensland
Brisbane, Australia

The Australian Public Health Nutrition Academic Collaboration (APHNAC)
and
Queensland Health

In conjunction with

The Dietitians Association of Australia

The Public Health Association of Australia

BACKGROUND

This conference aims to provide the opportunity to consider and discuss new directions for public health nutrition, and to establish new priorities in a range of environments and policy contexts.

The conference programme has been developed with the following in mind:

- examine the imperatives driving change in public health nutrition;
- explore the responses required by public health nutrition in relation to changing political, socio-economic and environmental priorities; and
- evaluate new roles for public health nutritionists to address new directions and new priorities.

The conference incorporates keynote addresses from national and international speakers to illuminate issues concerning developments in

- food policy;
- socio-economic factors impacting on food supply and food choice;
- imperatives arising from climate and environmental change; and
- urban development and supportive environment .

Proffered papers will then elaborate further on these areas, and parallel workshops will provide opportunity for assimilation and development of key skills. The plenary sessions at the end of each theme will be used to bring together ideas for policy and action.

In planning this conference we were mindful of the importance of providing as much variety as possible, and breaking away from the usual conference mode. We sincerely hope you enjoy the conference and we look forward to your active participation in the debates and discussions.

Conference organisation has been undertaken by members of the Australian Public Health Nutrition Academic Collaboration (APHNAC) and Queensland Health, in conjunction with the Dietitians Association of Australia and the Public Health Association of Australia.

KEYNOTE SPEAKERS

Liz de Chastel is the National Policy Manager for the Planning Institute of Australia. Liz is a qualified planner with over 20 years experience in planning in the Northern Territory, Queensland and the ACT. Liz has worked in senior levels within planning, housing and transport government agencies and was an adjunct lecturer at Queensland University. In her current role Liz develops and advocates national policy positions for the Institute.

Jane Dixon is research fellow in the Centre of Epidemiology and Population Health at the Australian National University. Her research has examined socio-cultural determinants of obesity, public health impacts of food system transformations and the social transmissions of health damaging and health promotion social practices. Jane's most recent book (co-edited with Dorothy Broom) is *The Seven Deadly Sins of Obesity: How the modern world is making us fat.*

Tim Lang is Professor of Food Policy at City University, UK. He has worked widely across food and public health, as an academic, in the voluntary sector and as a consultant to local, national and international bodies. Tim is author and co-author of over 120 publications, including 9 books, numerous reports for international bodies and academic journal articles. Recent books include *The Atlas of Food* (co-authored with Erik Millstone) and *Food Wars: The global battle for mouths, minds and markets* (co-authored with Michael Heasman).

Geoff Lawrence has been Professor of Sociology and Head of School of Social Science, The University of Queensland, since 2002. Before that, he was Foundation Professor of Sociology, Head of Department of Social Science, Central Queensland University. Geoff's research interests include agriculture, the environment and natural resource management and the sociology of agro-biotechnologies. Recent research concerns supermarkets and agri-food supply chains.

TABLE OF CONTENTS

1. Background on Keynote Speakers 3

2. Program- Day One Thursday 29th November 2007 6-7

3. 3. Program- Day Two Friday 30th November 2007 8-9

4. Session 1: **Urban Environments and Public Health Nutrition**

   4.1 Keynote Presentations 13-14
   4.2 Proffered Papers 15-20
   4.3 Notes from Skills Workshop 21
   4.4 Notes from Ideas Session 22

5. Poster Session; Lessons Learned from Overseas 25-28

6. Session 2: **Socio-economic Aspects of Food and Eating**

   6.1 Keynote Presentation 31
   6.2 Proffered Papers 32-37
   6.3 Notes from Skills Workshop 38-39
   6.4 Notes from Ideas Session 40

7. Session 3: **Food, health and public policy**

   7.1 Keynote Presentations 43-44
   7.2 Proffered Papers 45-49
   7.3 Notes from Skills Workshop 50

8. Session 4; **Environmental changes, food and health**

   8.1 Keynote Presentation 53
   8.2 Proffered Papers 54-58

9. Notes from Plenary - Where to from here? 59

DAY ONE Thursday 29/11/07	
8:30-9:00	**Registration, Networking Opportunities, Tea & Coffee**
9:00-9:15	**Welcome, Housekeeping, Objectives of meeting** Chair: Assoc Prof John Coveney, Flinders University
9:15 – 9:50	**Keynote Session 1: Urban development and public health nutrition (Supportive Environments)** **Liz de Chastel, National Policy Manager, Planning Institute of Australia** ***The Influence of the Built Environment on Public Health Nutrition*** Chair: Assoc Prof Geoff Marks, University of Queensland
9:50-10:10	2nd Keynote: Dr Sharon Friel, Fellow Australian National University (ANU) ***Unequal food systems, unhealthy diets***
10:10-10:30	***Morning Tea***
10:30-12 noon	**Knowledge Proffered Papers: Urban development and public health nutrition** Chair: Andrea Begley, Curtin University of Technology 1. Mehta, Marketing junk food and beverages to children: the ethical imperative. 2. Schubert & Jennaway, Time scarcity and dietary practices. 3. Anderson, Heart Foundation Tick- Genuine Healthier Food Solutions. 4. Maher & Hughes, A study of breastfeeding guidance in community pharmacy settings as a basis for continuing professional education planning. 5.Giskes et al, A systematic review of associations between environmental factors, energy and fat intakes among adults: Is there evidence for environments that encourage obesogenic dietary intakes. 6. Babajafari et al, Family's eating behaviour during adolescence associated with overweight in young adults: a longitudinal study.
10:30-12 noon	**Skills Workshop: Urban development and public health nutrition (Supportive Environments)** Chair: Assoc Prof Geoff Marks, University of Queensland Presenter: Liz de Chastel
12noon to 12:45pm	**Ideas**: **New Directions, New Priorities: Urban development and public health nutrition** Chair: Assoc Prof Geoff Marks, University of Queensland Andrea Begley, Curtin University of Technology
12:45 to 1:30	***Lunch: Poster Session- Lessons from Overseas*** 1. Charlton et al, Messages to lower salt intake do not compromise iodine intake: an example from a country which has mandatory iodine fortification. 2. Javanparast, Coveney & Saika, Moving towards comprehensive primary health care to address the social determinants of child malnutrition: The perceptions of Iranian health stakeholders. 3. Giskes et al, Socioeconomic position at different stages of the life course and its influence in bodyweight and weight gain in adulthood: A longitudinal study with 13 years follow-up. 4. Matthys et al, Cardiovascular disease risk in women of South Asian origin in Auckland, New Zealand.

1:30-2:05	**Keynote Session 2: Socio-economic aspects of food, health and eating** **Dr Jane Dixon: Research fellow in the Centre of** **Epidemiology and Population Health at the Australian** ***A 'Cinderella public health dimension': the socio-cultural determinants of a taste for healthy food*** Chair: Dr Sharon Friel, ANU
2:05-3:30	**Knowledge Proffered Papers: Socio-economic aspects of food, health and eating** Chair: Assoc Prof Roger Hughes Griffith University 1.Burns & Cook, The experience of food insecurity in single parent families. 2.Ogwang, Oldenburg & Fredricks, Nutrition a core component in a primary prevention and capacity building project in urban Aboriginal and Torres Straight Islander populations. 3.Giskes et al, Socioeconomic inequalities in food purchasing: The contribution of respondent-perceived and actual (objectively measured) price and availability of foods. 4. Wood, A local government approach for removing barriers to local food security 5.Giskes et al, Socioeconomic inequalities in BMI among the Australian population: Do socioeconomic groups perceived their weight status differently and accurately? 6. Harrison, Welfare to Work policy: what impact will it have on food behaviours of single mothers?
2:05-3:30	**Skills Workshop: Socio-economic aspects of food, health and eating** WORKSHOP Presenter: Dr Jane Dixon, Chair: Dr Sharon Friel, ANU Case Study: Friel, Gold, Burns, Dietary inequalities in Australia: an analysis of income-related differences in household food expenditure from 1998-99 to 2003-04.
3:30-3:50	***Afternoon Tea***
3:50-4:45	**Ideas**: **New Directions, New Priorities- Socio-economic aspects of food, health and eating** Chair: Dr Sharon Friel, ANU & Assoc Prof Roger Hughes Griffith University Plenary feedback from Knowledge and Skills Sessions and Discussion re: where we want to be; implications for workforce and professional development; academic training; policy and practice; future directions; next steps
4.45-5:00pm	**Plenary – summing up** Chair: Assoc Prof Geoff Marks, University of Queensland
5:00 – 6:00pm	**Social event** On the Terrace overlooking the river

DAY TWO Friday 30/11/07	
9:00-9:05	**Welcome, Housekeeping, Objectives for Meeting**
9:05-10:00	**Keynote Session 3: Food, health and public policy** **Tim Lang: Professor of Food Policy at City University, UK.** ***Choice, power and food: nutrition in an ecological public health era*** Chair: Assoc Prof Mark Lawrence, Deakin University
10:00-10:25	**2nd Keynote: Assoc Prof Heather Yeatman, Wollongong University** ***Report on Australian food and nutrition policies- working towards, satisfactory or achieved?*** Chair: Assoc Prof Mark Lawrence, Deakin University
10:20-10:40	***Morning Tea***
10:40-12:00	**Knowledge Proffered Papers: Food, health and public policy** Chair: Assoc Prof Mark Lawrence, Deakin University 1. Lawrence, A systematic approach for developing policy to promote public health nutrition. 2. Thuraisingam et al, A critical analysis of the 2006 Australian and New Zealand Nutrient Reference Values. 3. Begley, Do You Want Folic Acid With That? Representation of the Mandatory Fortification of the Australian and New Zealand Food Supply with Folic Acid as a Policy Problem. 4. Lee, Eat Well Queensland 2002-2012: Public Health Nutrition Policy and Practice or Are we (1/2 way) there yet? 5. Hughes, Public health nutrition workforce development over the past decade: Progress or system failure.
10:40-12:00	**Skills Workshop: Food, health and public policy** **Critical Policy Analysis** Presenters: Tim Lang/Heather Yeatman Chair: Dr Malcolm Riley, Dairy Australia
12:00-12:45	***Lunch***

12:45-1:30	**Keynote Session 4: Environmental changes, food and health** **Geoff Lawrence, Professor of Sociology and Head of School of Social Science, UQ** ***Climate Change and Food Provision in Australia: Assessment and Implications*** Chair: Dr Amanda Lee, Manager Nutrition & Physical Activity QLD Health
1:30-3:00	**Knowledge Proffered Papers: Environmental changes, food and health** Chair: Dr Amanda Lee, Manager Nutrition & Physical Activity QLD Health 1. Sulda, Coveney & Bentley, Food, health and climate change: Where do public health nutritionists fit in? 2. Friel et al, The impact of prolonged drought on urban food systems and diet-related health 3. Fisher, "Farm to School Direct"- a glimpse of the food system of the future 4. Bryden & Wild, Mycotoxin exposure and population health in developing countries 5. Riley, Dietary change and environmental sustainability: Looking in the right direction
3:00-3:20	***Afternoon Tea***
3:20-4:50	**Plenary: Keynotes: Where to from here? Feedback from Food, health and public policy and Environmental changes, food and health sessions** Chair: Assoc Prof John Coveney, Flinders University **Panel: Keynote Speakers and presenters** • Public Health Nutrition Practice • Public Health Nutrition Research • Public Health Nutrition Advocacy
4;50-5:00pm	**Plenary- Summing Up** Chair: Assoc Prof John Coveney, Flinders University

Session 1:
Urban Development and Public Health Nutrition (Supportive Environments)

Influence of the Built Environment on Public Health Nutrition

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Our cities, regions and towns face a number of challenges in the future including the management of growth, impact of climate change, ageing of the population, housing affordability and provision of infrastructure. At the same time we face increased health costs from preventable diseases such as obesity and an increase in mental health issues and social dislocation. When managing these planning and health challenges how much consideration is being given by planners for the health of the community and how much do health nutrition professionals understand planning issues and what may be some of the links? This presentation explores some of the national planning issues and the growing consideration of health issues especially in creating places and spaces that promote active living and well being. It highlights some work underway in this area including design elements that are important in creating urban environments that support active living and well being. Some other connections between health nutrition and planning are discussed such as protection of agricultural land and location of food outlets. Ideas for greater engagement by health nutrition professionals in planning are suggested as a way forward and as a discussion point for the workshop which will follow. This presentation is from a planning practitioner's perspective of the peak professional association representing around 5000 urban planners and related professions in Australia and overseas.

Unequal food systems, unhealthy diet

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During the era of intense economic globalisation there has been what is termed the “nutrition transition” – the increasing consumption of fats, sweeteners, energy-dense foods, and highly processed foods compared to traditional diets characterised by higher intake of cereals. The world now faces a double burden of under-nutrition and over-nutrition, each unequally distributed. Addressing the nutrition inequities requires action on the global and national socio-political and macro-economic policies that have influenced food and nutrition systems, re-shaped society’s make-up and affected the distribution of food availability, accessibility and acceptability. For example structural adjustment in low- and middle-income countries, supported by the agriculture trade agreement in the 1994 Uruguay Round of the General Agreement on Tariffs and Trade, opened them up to the international market. The nature of food subsidies has arguably distorted the food supply in favour of less healthful foodstuffs, and with greater foreign direct investment more marketplaces are crammed with cheaper-to-produce energy dense foods. The influence of the shift in national food distribution systems towards supermarkets and food service chains on increasing energy density and fat intake is seen in transitioning countries. The type of retail outlet accessible to individuals determines the range and quality of foodstuffs available for purchase and the prices paid. While average global food prices have dropped, in rich countries foods recommended in healthy eating guidelines are often more expensive than the less healthy options. Using the examples of Australia and India, the paper will illustrate the underlying inequities in the globalised food system and the effects on dietary habits.

Marketing junk food and beverages to children: the ethical imperative.

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The marketing of unhealthy foods to children is recognised as a probable contributory factor in childhood obesity and subsequently is the subject of political and public debate about who's responsibility and how best to intervene. This debate has been mostly framed in terms of childhood obesity, however consideration of ethical constitutes another important frame.

Children under the age of 8 years, have not fully developed the cognitive skills to understand the persuasive intent of marketing and consequently do not possess cognitive defence to its effects (Boush D M 1994; John 1999).

At its most basic, food and beverage marketing to children informs about new products, stimulates desire and builds brand loyalty. However secondary effects over and above brand recognition and purchase requests include development of consumerist values, acquisitiveness, dissatisfaction and unhappiness (Kunkel 2001).

Marketing to young children works through their 'pester power'; encouraging children to manipulate their parents, thereby adding tension and conflict in family relations (Ip, Mehta et al. 2007).

The above factors challenge us to take a broad view of the impact of marketing on children's health.

The presentations will draw on the literature as well as children's perceptions about the ethics of marketing.

References

Boush D M, F. M., & Rose G M. (1994). "Adolescent skepticism toward TV advertising and knowledge of advertiser tactics." Journal of Consumer Research **21**: 165 - 175.
Ip, J., K. Mehta, et al. (2007). "Parents' perceptions about the influence of television food advertising on children's food choices." Nutrition & Dietetics **64**: 50 -58.
John, D. (1999). Through the eyes of a child: children's knowledge and understanding of advertising. Cited in MC Macklin and L Carlson (Eds) Advertising to Children: Concepts and Controversies. CA, Thousand Oaks, Sage.
Kunkel, D. (2001). Children and television advertising In. Handbook of children and the media. D. Singer and J. S. (Eds), Sage Publ Inc.

Time scarcity and dietary practices

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While the prominence of 'convenience' as a food choice ideology has received some attention in the nutrition behaviour literature, the implications of social changes, particularly those affecting workforce participation of women for food provisioning in households with varying resource margins has been little researched. The purpose of the study described here is to explore the way that households where the available time for household labour is limited or constrained manage food provisioning tasks, and the implications this has for dietary practices. Household food strategies and everyday dietary practices were examined in a group of city dwelling, Australian family households where primary food provisioners had a range of experiences with combining paid employment and domestic labour.

An ethnographic style approach to data collection offers a micro-level qualitative socio-cultural analysis of food provisioners rarely seen in nutrition behaviour literature, and provides the opportunity to examine:

- The extent and form(s) of food provisioning outsourcing;
- Individual households' rationale for adoption or rejection of strategies widely promoted across nutrition education and food consumer literature;
- Core discourses that food provisioners drew on in resisting the construction of their outsourcing strategies as individual moral failure; and
- Adoption of a range of behaviours compatible with a trend towards a 'rationalisation of household food provisioning'.

Limited or constrained time available for food provisioning alone is likely to be a poor predictor of diet quality. However, this study has highlighted the value of considering household resources as one important dimension when considering a households ability to adequately fulfil the tasks associated with food provisioning, and ultimately to achieve a well-fed family.

Heart Foundation Tick – Genuine Healthier Food Solutions

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The Heart Foundation Tick is one of the most successful nutrition intervention programs in the world. It challenges manufacturers to reformulate foods for the supermarket and for meals eaten out and then keeps raising the bar to re-define 'healthier'. It acts as a signpost for consumers to show them the way to healthier choices across more than 50 food categories.

Today, there are around 100 companies qualified to carry the Tick on around 1200 supermarket foods.

Until the recent introduction of the Heart Foundation Tick for meals eaten, there was no way of making an independent assessment of a guaranteed healthier choice when eating out.

The public health impact of Tick has been demonstrated. Trans fat free pastry – a world first innovation – was developed. Tick margarines and dairy blends now have among the lowest levels of trans fats in the world. Kellogg removed 235 tonnes of salt in one year when 12 cereals were reformulated using Tick criteria. And one million McDonald's customers a day now have the option of guaranteed healthier choices and critically, research shows they are prepared to try them and keep buying them.

The Heart Foundation Tick is the leading device that helps consumers identify healthier choices when shopping. Consumer research (1) shows that;

- 72% use the Tick regularly or sometimes when shopping
- Over 74% seek out Tick foods when in the supermarket or eating out
- Almost 70% understand Tick means the food is a healthier choice
- 52% know Tick foods and meals are regularly and independently tested

(Instinct and Reason, July 2007)

A study of breastfeeding guidance in community pharmacy settings as a basis for continuing professional education planning

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Breastfeeding promotion is universally recognised as a public health imperative with significant impact on health, social and economic outcomes. Amongst a complex array of determinants that effect breastfeeding initiation and duration, inconsistent and/or ambivalent advice and support from health professionals is recognised as an unacceptable feature of health service delivery, that compounds socio-demographic and cultural barriers to breastfeeding. The role of community pharmacy as a setting for health promotion has recently been reviewed, however, community pharmacies and the professional staff that work in this health service setting, have received limited attention in the context of breastfeeding promotion. The simulated patient or covert observational methodology ("mystery shoppers") is an internationally used method to assess staff adherence to protocols and to provide feedback regarding service quality. A number of studies have used this approach to provide baseline data regarding practices and information provision, as a basis for informing staff continuing education needs and service quality improvement. A mystery shopping exercise was designed guided by relevant methodological literature. This involved the mystery shopper (a female postgraduate student) trained to act as a sister of a mother with a 7 week old baby who was experiencing sore, red and cracked nipples, who had been asked by the mother to seek guidance from the pharmacy. The mystery shopper script alluded to the mother's intention to stop breastfeeding as a result of nipple problems and making enquiries about infant formulas. The mystery shopper–pharmacy staff exchange was shadowed by a second researcher acting as an observer. Immediately following the completion of the exchange, both the mystery shopper and the observer documented answers provided by pharmacy staff, discussed observations and completed observational notes prompted by a structured assessment tool. Specific attention was given to documenting the sequence of advice provided and questions asked to provide context for, and inform, advice given. Results of the analysis demonstrate significant need for infant feeding specific continuing education of pharmacy practice staff, in order to optimise the impact of health professional guidance in this important community setting.

A systematic review of associations between environmental factors, energy and fat intakes among adults: is there evidence for environments that encourage obesogenic dietary intakes?

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Introduction: To review the literature examining associations between environmental factors, energy and fat intakes among adults, and to identify issues for future research.

Methods: Literature searches of studies published between 1980 and 2004 were conducted in major databases (i.e. PubMed, Human Nutrition, Web of Science, PsychInfo, Sociofile). Additional articles were located by citation tracking.

Results: Twenty-one articles met the inclusion criteria. No study provided a clear conceptualisation of how environmental factors may influence these dietary intakes. Availability, social, cultural and material aspects of the environment were relatively understudied compared to other factors such as seasonal/day of the week variation and work-related factors. Few studies examined the specific environmental factors implicated in the obesity epidemic, and there was little study replication. All studies were observational and cross-sectional.

Conclusions: It is too premature to conclude whether or not environmental factors play a role in obesogenic and unhealthy dietary intakes. More studies need to examine associations with those environmental factors thought to contribute to obesogenic environments. There needs to be more development in theories that conceptualise the relationship between environmental factors and dietary intakes.

Family's eating behavior during adolescence associated with overweight in young adults; a longitudinal study

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Aim: To assess the association of selected social aspects of family eating behaviour including frequencies of family eating together, going out to eat, getting take away foods, and maternal attitudes towards the family eating together at adolescence with Body Mass Index (BMI) and overweight/obesity of the young adults.

Method: Data used were from the Mater-University Study of Pregnancy (MUSP) 1981 to 1983 cohort, Brisbane, Australia. Information on family food choices and other covariates was collected by self reported questionnaires from eligible mothers at 14 years follow-up (FU). Height and weight of 2,629 young adults were measured at 21 years FU. BMI was categorized to normal and overweight/obese according to WHO categories for adults.

Result: The prevalence of overweight (including obesity) was 34.5% in males and 33.7% in females at 21 years FU. Offspring of mothers who reported that eating meal with family is "not really important" and the families going out to eat frequently were in greater risk to have high BMI and become overweight by age 21 years. In the age and sex adjusted model, the odds of being overweight for offspring of mothers who reported that family go out to eat "once a week" compared with those who reported they go out to eat "several times a year/ rarely or never" was 1.44 (95% confidence interval; 1.10, 1.90). This association remained robust after adjusting for potential confounders. There was no association between frequency of family eating together and getting take away foods at adolescence with overweight status of young adults.

Conclusion: Findings of this study suggests that attitude toward family meal and decreasing in the frequency of going out to eat are potentially important in reducing the chance of being overweight later in life. The mechanisms and implications of these need exploration, including exploring the benefits of fostering family meals and encouraging young Australians to eating more frequent meals in their family context.

Notes from Skills Workshop: Urban Development and Public Health Nutrition (Supportive Environments)

Notes from Ideas Session; New Priorites, New Direction: Urban Development and Public Health Nutrition (Supportive Environments)

Poster Session:

Lessons from Overseas

Messages to lower salt intake do not compromise iodine intake: an example from a country which has mandatory iodine fortification

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Background: At the same time as consumers are being urged by the World Health Organization to lower salt intakes, there is concern about re-emergence of iodine deficiency.

Objective: To assess whether salt intakes at recommended levels results in an increased sub-optimal urinary iodine status in a country where salt is the vehicle for iodine fortification.

Design: Cross-sectional study of 262 men and women, conveniently sampled in Cape Town, South Africa. Three 24-hr urine samples were collected for assessment of urinary sodium and a single sample taken for urinary iodine concentrations (UIC). Para-amino benzoic acid was used as a marker of completeness of urine collection.

Outcomes: Mean urinary Na equates to a daily salt intake of 7.8g, 8.5g and 9.5g in black, mixed ancestry and white subjects, respectively but no difference in median UIC was found by ethnic group. A fifth of the sample had salt intakes < 6 g/day. Median UIC = 120 µg/L (IQR = 75.3 – 196.3); 38 % subjects had some degree of suboptimal iodine status (UIC <100 µg/L) while 12 % had UIC <50 µg/L. No difference in either median UIC or % subjects with suboptimal UIC status was found according to cut-offs < or ≥ 6g salt/day.

Conclusions: The iodine status of South African adults is optimal but, given the mandatory iodine fortification programme of table salt since 1995, it is surprising that 12 % of the sample had moderate to severely low UIC levels. Messages to lower salt intake will not compromise iodine status.

Moving towards comprehensive primary health care to address the social determinants of child malnutrition: The perceptions of Iranian health stakeholders

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Despite a well-structured primary health care in Iran, and impressive improvement in many health indicators, child malnutrition- particularly its unequal distribution- remains a main concern for Iranian public health policy-makers.

This study aims to investigate the perceptions of different health stakeholders - including policy-makers, health providers and recipients - regarding the strengths and weaknesses of primary health care in Iran in addressing the social determinants of malnutrition and remedial actions to move towards a more comprehensive approach.

To achieve this, a qualitative study, using interviews and focus groups, was undertaken to engage national and provincial policy-makers, as well as health providers and mothers of children under age five.

The outcome of the study highlights influential factors which facilitate or limit Iranian primary health care in undertaking endeavours to reduce malnutrition in children. Health care availability and nutrition education are the main strengths. Potential pitfalls are: a) managerial problems, including rapid turnover; b) health providers' problems such as the lack of motivation and low wages; c) lack of appropriate intersectoral collaboration; and d) lack of effective community participation.

Fundamental differences were seen among stakeholders in the understanding of comprehensive actions. Whilst policy-makers believed in collaborative action as part of the national government's stewardship responsibility and political advocacy, the community level stakeholders paid more attention to informal links with other social sectors based on trust, self-helping and local initiatives.

The findings of above study present the views of health stakeholders which helps policy-makers in moving towards comprehensive primary health care to address child malnutrition.

Socioeconomic position at different stages of the life course and its influence on bodyweight and weight gain in adulthood: a longitudinal study with 13 years follow-up

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Introduction: Socioeconomic inequalities in bodyweight have been demonstrated in numerous cross-sectional studies. However, little research has investigated these inequalities from a life course and longitudinal perspective. We examined the association between child- and adulthood socioeconomic position (SEP) and BMI and overweight/obesity in 1991 (baseline) and changes in BMI and the prevalence of overweight and obesity between 1991 and 2004.

Methods: Data from the 1991 and 2004 waves of the longitudinal Dutch GLOBE study were used. Participants (n=1465) were aged 40-60 years at baseline. BMI was calculated from self-reported height and weight collected by postal questionnaire. Retrospective recall of father's occupation was used as childhood socioeconomic indicator, and adulthood SEP was measured by the occupation of the main income earner of the household.

Results: Among women, childhood SEP exerted a greater influence on bodyweight than SEP in adulthood: at baseline, women from disadvantaged backgrounds in childhood had a higher BMI and were more likely to be overweight/obese, and they gained significantly more weight between baseline and follow-up. By contrast, adult SEP had a greater impact than childhood circumstances on men's bodyweight: those from disadvantaged households had a higher mean BMI and were more likely to be overweight or obese at baseline, and they gained significantly more weight between 1991 and 2004.

Conclusions: Exposure to disadvantaged circumstances at critical periods of the life course is associated with bodyweight and weight gain in adulthood. Importantly, these aetiologically-relevant periods differ for men and women, suggesting gender-specific pathways to socioeconomic inequalities in bodyweight in adulthood.

Cardiovascular disease risk in women of South Asian origin in Auckland, New Zealand

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Background: Mortality due to cardiovascular disease (CVD) in South Asian women in New Zealand exceeds that of women in the total New Zealand population. Little is known about the risk factors for CVD in this group.

Objective: To investigate risk factors for CVD in women of South Asian origin living in Auckland, New Zealand.

Design: Cross-sectional data was collected from 224 South Asian women aged >20 years living in Auckland. Subjects using medication for diabetes were excluded.

Outcomes: The women's mean (±SD) age was 41.2±10.3 years and they were highly educated (75% ≥15 years of education). Overweight and obesity were prevalent in 72% (BMI ≥23kg/m^2), central obesity in 30% (waist circumference ≥85cm), waist/stature ratio was increased in 51% (>0.5), TC/HDL-C was increased in 22% (≥4.5), triglyceride concentrations were increased in 20% (≥1.7mmol/L, 150mg/dL), hypertension was prevalent in 19% (SBP ≥140mmHg and/or DBP ≥90mmHg) and metabolic syndrome in 17%, 51% of women had HOMA-insulin resistance (IR) values ≥1.9 and 10% ≥4. BMI and waist stature ratio were significantly correlated (controlling for age and years of education) with HOMA-IR (R = 0.51 and 0.46), HDL-C (R = -0.29, -0.31), TC/HDL (R = 0.25, 0.29), triglycerides (R = 0.25, 0.24), SBP (R = 0.27, 0.27) and DBP (R = 0.38, 0.31).

Conclusions: The overall prevalence of most risk factors was high, with BMI and waist/stature probably playing an important role in the increased risk. Strategies to improve the CVD risk profile of this population are urgently required.

Session 2
Socio-economic aspects of Food, Health and Eating.

A 'Cinderella public health dimension': the socio-cultural determinants of a taste for healthy food

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Evidence suggests that lower SES groups living in Australian cities have access to affordable nutritious food supplies, although this may be changing as the drought pushes up prices of fruit and vegetables. In the main, availability and accessibility are not barriers to healthy eating. However, AIHW data show that less advantaged groups consume fewer fruits and vegetables than higher SES groups; which begs the question as to the inferior acceptability of these particular foods for lower SES groups. When food was scarce and cheap calories were a prerequisite for labour force participation and children's growth, the consumption of energy dense and nutritionally inferior foods made economic and cultural sense. Raising the matter of class-based preferences for nutritionally inferior foods runs a risk of being tagged an elitist or nutrition terrorist. This paper begins with Lang and Rayner's provocation that culture constitutes public health's 'Cinderella' and outlines several competing explanations for the socio-economic variations in food preferences. I argue that a socio-cultural perspective should become a central feature of the New Nutrition Science project.

The experience of food insecurity in single parent families

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Obesity and diet-related disease accounts for over 11% of the burden of disease in Australia (AIHW 1999). Individuals and households on low income or living on the poverty line are at higher risk of both obesity and diet-related disease. These vulnerable populations are also more likely to be food insecure. Food insecurity itself is a risk factor for obesity, specifically in women. However, while we know that the associations between lack of financial resources, food insecurity, poor diet and obesity are strong, there is little work in Australia on *how and why* these associations occur. In the current study, a photo assisted food taxonomy was used within an in depth interview to examine how available financial resources shape access to, preparation of, social meaning and psychological role of food. Participants were recruited through an existing research project which sought to explore the experiences of single parents on welfare. The final number of participants was determined by data saturation. The qualitative data was analysed inductively using ethnographic analysis techniques including structural, componential and contrast analyses (Spradley, 1979). In addition, the data was analysed critically (Carspecken, 1997). Preliminary data from 20 subjects indicate that satisfying hunger for the least cost, values around cooking, feelings about specific foods such as fruit and chocolate, and social exclusion are significant issues influencing food purchase in this population. These findings indicate that food cost relative to perceived satiety and social norms around food should be considered in developing population based programmes to improve community food security.

Nutrition a core component in a primary prevention and capacity building project in urban Aboriginal and Torres Strait Islander populations

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Aboriginal and Torres Strait Islander Australians continue to experience substantially poorer differentials in health outcomes. Despite widespread action to reverse the situation, health differentials continue to widen in Australia. Population based prevention activities are few and far between, and of those that do exist, few are reported and fewer still utilise measurable indicators of success. This has resulted in a narrow evidence base for primary prevention interventions. The Queensland Aboriginal and Islander Health Council (QAIHC) Centre for Clinical Research Excellence (CCRE) is undertaking a collaborative project to build effective, multidisciplinary, primary prevention capacity in the Aboriginal and Torres Strait Islander Community Controlled Health Service sector. The project is supporting Community Controlled Health Services to develop, implement and evaluate primary prevention interventions that give value to Indigenous people and processes, and in doing so challenge problem-oriented health promotion practice. This presentation will give a project overview including its objectives, anticipated outcomes and interim progress, including results of a systematic literature review.

Socioeconomic inequalities in body mass index among the Australian population: do socioeconomic groups perceive their weight status differentially and accurately?

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Introduction: Self-perceptions of one's weight status may drive behavioural responses (i.e. changes in dietary intakes and/or physical activity). This study aimed to determine the direction and magnitude of socioeconomic differences in perceptions of weight status among Australian adults. Furthermore, it aimed to identify whether there are differences between socioeconomic groups in the accuracy by which they perceive their weight status.

Methods: This study used data from the 1995 National Health Survey. A total of 31084 men and women aged 20-69 years (from all states and territories of Australia) were sampled by multi-stage area sampling. Self-reported height, weight and perceptions of weight status (i.e. acceptable weight, underweight or overweight) were collected in face-to-face interviews. Accuracy of perceived weight status was ascertained from body mass index (BMI) and perceived weight status: participants were categorized as underestimating, overestimating or correctly estimating their weight status. Socioeconomic position (SEP) was classified on the age when participants left school. Differences in perceptions and accuracy of weight status were examined using logistic regression models, adjusting for age and country of birth.

Results: Overweight/obesity was inversely related to education among men and women. There were no education differences in perceived weight status among men. However, low-educated women were more likely to perceive themselves as underweight or overweight compared to those with higher education. Lower educated participants were more likely to underestimate their weight status, compared to their more advantaged counterparts.

Conclusion/implications: Socioeconomic inequalities in overweight/obesity may be (partly) a consequence of the way socioeconomic groups perceive their weight status. Health promotion strategies to decrease population prevalence of overweight and obesity, and socioeconomic inequalities in these, should take into account how people evaluate their weight status in order to bring about change in dietary intakes and physical activity.

A local government approach for removing barriers to local food security

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The Victorian "Environments for health" framework (E4H) promotes health and wellbeing through considering built, social, economic and natural environments in municipal public health planning (1). A model for mapping local food security was developed against the E4H framework in two metro food security demonstration projects (2). This model was subsequently applied in the City of Port Phillip (3), and requires further application in several metro and rural local government areas (LGAs). The Victorian Local Governance Association uses the E4H model as a conceptual basis for the e-based Food Security Network (http://www.foodsecurity.vlga.org.au), and other activities such as consultations, forums and workshops.

The Victorian incidence of food insecurity is 6.1% of adults (LGA range 0.8 to 11.5%), and the total number of food insecure Victorians is estimated to be 500,000 (4). Climate change, drought, water shortage and peak oil are all major issues which already affect local food chain systems, and have the potential to dramatically affect it in future. The food supply contributes 30-50% of the total ecological footprint, and what happens at the local level is more important than ever before.

The goal is to now to improve local government capacity to establish mainstream pro-active local food policies and strategies for the entire population, so that there is an improvement in local food security. This will also create opportunities for local employment and enterprise, social inclusion, preservation of arable land and the local environment, as well as increased physical activity, improved physical and mental health, and local economic growth.

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Socioeconomic inequalities in food purchasing: the contribution of respondent-perceived and actual (objectively-measured) price and availability of foods

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Background: Research has shown that lower socioeconomic groups purchase foods that are less consistent with dietary recommendations. The price and availability of foods are thought to be important mediating factors between socioeconomic position and food purchasing.

Objectives: We examined the relative contribution of the perceived and objectively-measured price and availability of recommended foods to household income differences in food purchasing.

Methods: Using a face-to-face interview, a random sample of Brisbane residents (n=812) were asked about their food purchasing choices in 2000. They were also asked about their perceptions of the price and availability of 'recommended' foods (i.e. choices lower in fat, saturated fat, sugar, salt or higher in fibre) in the supermarkets where they usually shopped. Audits measuring the actual availability and price of identical foods were conducted in the same supermarkets.

Results: Lower socioeconomic groups were less likely to make food purchasing choices consistent with dietary guideline recommendations. Objective availability and price differences were not associated with purchasing choices, nor did they contribute to socioeconomic inequalities in food purchasing choices. Perceived availability and price differences were associated with the purchase of recommended foods. Perceived availability made a small contribution to inequalities in food purchasing, however perceived price differences did not.

Conclusion: Socioeconomic inequalities in food purchasing are not mediated by differential availability of recommended foods and differences in price between recommended and regular foods in supermarkets, or by perceptions of their relative price. However, differential perceptions of the availability of recommended foods may play a small role in food purchasing inequalities.

Welfare to Work policy: what impact will it have on food behaviours of single mothers?

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Rates of obesity follow a socioeconomic gradient, with higher rates observed amongst racial/ethnic minorities and the poor. Food choices in obesity have been explained in terms of biology, physiology, behaviour and more recently socio-economics. In other words, the cost, quality and availability of food, and the observation that those who are poorest are limited to food choices that are cheapest, but often highest in fat and sugar.(Drewnowski 2004) These increased rates of obesity are linked to increased rates of type 2 diabetes, cardiovascular disease and other so-called lifestyle diseases with concomitant increased levels of morbidity and mortality, with serious implications for the health system. Therefore, there is a need to consider the impact on food choices of social or economic policies targeting the lower SES populations in our society. One such group is welfare recipients.

The 'Welfare to Work" policy has been introduced to move single parents (amongst others) off welfare and into paid employment. The benefits of this have been described as: increasing an individual's prosperity; encouraging self reliance; and increasing individual well-being.

With these aims, it is possible that this policy could impact on food behaviours by altering factors that have been associated with poor nutrition outcomes, such as income levels and socioeconomic status? Potentially, a move from welfare to work, mandated by this policy, could change the environment, the means and access to food, thereby altering food behaviours? Despite the long term health implications of these questions, there has been limited research in this area to date.

This paper presents the background to the Australian Welfare to Work policy and discusses the possible implications it will have for the food behaviours of single mother families.

Notes from Skills Workshop; Socio-economic Aspects of Food, Health and Eating

Dietary inequalities in Australia: an analysis of income-related differences in household food expenditure from 1998-1999 to 2003-2004

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The objective of this paper is to assess cross-sectional differences over 5 years in household food expenditure by income quintile, using the 1998-1999 and 2003-2004 Household Expenditure Survey (HES) data for core and non-core food categories.

Total expenditure and expenditure for each food category increased with increasing income. However, relative expenditure was highest for lowest income groups. As income increased, relative expenditure on core foods and two non-core food categories (edible fats and oils, cakes and biscuits) declined and expenditure on soft drinks, confectionery and foods prepared outside the home increased.

The absolute and relative expenditure on core and non-core foods varies by income quintile. Lower income households spend proportionally more on core foods. The link between obesity and poverty may be driven by intake of relatively cheap, high energy non-core foods such as edible oils, cake and biscuits.

Households with limited resources already spend proportionally more of their income on core food categories. To maximise the nutritional benefit of this expenditure, the consumer cost of a healthy diet must be reduced.

Notes from Ideas Session; New Priorites, New Direction: Socio-economic Aspects of Food, Health and Eating

Session 3
Food, Health and Public Policy

Choice, power and food: nutrition in an ecological public health era

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Nutrition science faces an important challenge in the era of climate change. As we are recognising from obesity, only ecological ways of thinking about public health make sense. Different analyses have to be woven together. Complex problems cannot be resolved by simple solutions. These macro / structural problems question the continued domination of the Life Sciences approach to nutrition which has dominated for the last half century. Its biological focus has been scientifically successful and dynamic but less useful in public policy. The older tradition of Social Nutrition has bee marginalised, which situated food and nutrition within social structures, arguing that population health improves through a combination of supply and social welfare reform and investment. Social Nutrition's great policy moment was in post World War 2 reconstruction. Until recently, Life Sciences Nutrition had no such policy leverage. Everything is so multifactoral and complex due to individual variation. Now, however, Life Sciences Nutrition offers tantalising prospects such as nutrigenomics and individualised dietary health counselling. Meanwhile, as evidence of the enormity of climate change, water shortage and fossil fuel problems dawn on policy-makers, this lecture asks whether nutrition, like public health as a whole, needs to resurrect a submerged tradition which locates nutrition within environmental circumstance. Far from offering population or individual advice based upon a notional ideal diet, this Ecological Public Health Nutrition is going to have to work out not just <u>what</u> nutrients are required but <u>how</u> produced, <u>whence</u> they come and their hidden as overt <u>impact</u>. 21st century nutrition has to address nutrients alongside embedded carbon and water. Consumers are already juggling competing demands: health, ethics, environment, price, taste etc. Take Fish and omega 3s. 'Eat fish' say dietary guidelines. 'Stop eating them to protect stocks' say environmentalists. After years of unquestioning centrality in policy, the value and role of 'choice' is being questioned. It may be central to policy informed by neo-liberal politics but really how important is choice? What does choice mean? Who and what gains and loses? In a food system which is highly concentrated, the reality is that 'choice-editing' by retail buyers – through their contracts and specifications – or product designers is more important in shaping dietary intake. As it wrestles with such issues, an Ecological Public Health Nutrition might be seriously influential in policy and re-connect with core issues facing humanity. If nutrition ignores ecology, is it doomed to marginalisation?

Report on Australian food and nutrition policies – working towards, satisfactory or achieved?

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Background – In 1992 the Australian government released a Food and Nutrition Policy and in 2002 the World Health Organization adopted the Global Strategy on Action for Diet, Physical Activity and Health. What has happened in Australia as a result of these policy actions and what has been achieved?

Objective - Assess the food and nutrition policy and program actions of Australian national, state and local level governments against a framework based on elements from the WHO Global Strategy, the New Nutrition Science framework and the WHO European Region's Action Plans for Food and Nutrition Policy.

Design –Document analysis of key Australian food and nutrition policies and surveys of key government departments, agencies and committees were undertaken.

Outcomes - At national and state levels, policy action has been taken in some areas (specific strategies to address childhood obesity), but is less consistent in other areas (consistency between nutrition, food safety and agricultural policies or fiscal policies). At the local level, integrated food and nutrition actions have generally been wound back, with local governments in most states reporting less activity in 2007 than they did in 1995, with the exception of Victoria.

Conclusions - Australian governments have not been held accountable for progress toward public health nutrition goals and actions. Without public and professional accountability, opportunities to progress public health nutrition agendas may be lost. Recommendations are made on strategies for nutrition professional engagement in food and nutrition policy actions, and implications for professional training and related issues.

A systematic approach for developing policy to promote public health nutrition

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A systematic approach is needed for developing policy to promote public health nutrition. This paper presents a policy framework, modified from the World Health Organisation framework for implementation of the Global Strategy on Diet, Physical Activity and Health, that integrates three different paradigms for addressing public health nutrition. The socio-ecological paradigm accommodates policies designed to influence either the broad social and economic conditions of society (e.g. taxation, education, and social security policies) or the food and physical activity environments to make healthy eating and physical activity choices easier. The objective of policies aligned with the lifestyle paradigm is to directly influence individuals and group's behaviours, and the medical paradigm encompasses those policy initiatives that support health services and clinical interventions. The outcomes of these policy decisions can be measured in terms of biological, economic, social and environment indicators, which can be used to monitor and evaluate policy effectiveness. A set of grids for analysing potential policy action to support public health nutrition are described. The general patterns that emerge from populating the analysis grids are that all sectors and levels of government, non-governmental organisations and the private sector have multiple opportunities to contribute to public health nutrition. Influencing the food environment will require action across all levels of governance, whereas policies influencing physical activity environments are principally local. The framework and analysis grids provide for a comprehensive and strategic approach to mapping the policy environment related to public health nutrition, and a tool for identifying policy gaps, barriers and opportunities.

A Critical Analysis of the 2006 Australian and New Zealand Nutrient Reference Values

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The Nutrient Reference Values (NRVs) are reference standards for nutrient intakes that are cornerstones for many public health nutrition policies and programs. An analysis of the 2006 Australian and New Zealand NRVs identified issues raised by stakeholders as accessed through public submissions. Stakeholders had greatest concerns with the developmental process and application of the values recommended for individual nutrients [1]. To gain a greater insight into stakeholder 'worldviews' of the 2006 NRVs, critical discourse analysis was employed to explore language and power [2]. Specifically, this method was used to explore both the explicit statements made in the submission and the implicit assumptions upon which they are based. Results from the critical discourse analysis highlight that stakeholders referred to two contrasting perspectives: (1) a reductionist perspective, which can be explained by biological science based on observational studies and Randomised Controlled Trials that inform public health policy; (2) a holistic perspective, which considers the social, environmental and biological implications for public health policy. Stakeholder comments can be explained by the evidence system that was employed to inform the NRVs which were based on conventional biological science. The end product (NRVs) will reflect the type of evidence system that informs decision-making. Therefore an evidence system that is more inclusive of the social, environmental and economic dimensions detailed in the New Nutrition Science is recommended. What indicators inform the evidence for these social environmental and economic dimensions will look like is an exciting challenge for public health nutrition.

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Do You Want Folic Acid With That?
Representation of the Mandatory Fortification of the Australian and New Zealand Food Supply with Folic Acid as a Policy Problem*

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Academic research, media representations, political imperatives and stakeholder demands all contribute to different representations of policy problems. Analysis of the Australian media representation of nutrition issues has been previously used to establish the discourses underlying the various representations (Lupton, 2004). The comparison of media representations with the representations in the academic literature is one way to inform the way policy is problematised and provide lessons for future policy development (Bacchi, 1999). The representation of the folic acid fortification issue as a policy problem was compared between the academic literature and newspaper representations between May 1995, one month before voluntary fortification was first approved up to July 2007, one month after the approval for the mandatory fortification of bread by the Aust & NZ Food Regulation Ministerial Council. A content analysis was conducted using multiple databases containing peer-reviewed journals (PubMed and Informat) and newspaper indexing databases (Factiva and Proquest ANZ Newstand) using the same search terms. The content analysis revealed 83 academic papers, editorials and letters to editors and 176 media stories, editorials and letters to the editor in Australian & New Zealand newspapers in the study time period. Critical discourse analysis was applied to all articles using Bacchi's (1999) analytical framework 'What's the Problem Approach?' Application of critical discourse analysis identified multiple and competing discourses, including biomedical dominance and professional encroachment. There are a number of points this analysis raises about how the responses would differ if the problem was represented differently that will inform future practice to improve food and nutrition policy.

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* Results submitted as partial requirements for DrPH Flinders University SA.

Eat Well Queensland 2002-2012: Public Health Nutrition Policy and Practice or Are we (½ way) there yet?

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Public Health Nutrition Policy and Practice in Queensland is articulated under *Eat Well Queensland; smart eating for a healthier state 2002-2012* developed by the 18 member organisations of the Queensland Public Health Forum. The aim of the strategy is to improve the health and wellbeing of all Queenslanders through better food and nutrition. The strategy endeavours to achieve this by implementation, evaluation and dissemination of best-practice initiatives, research and innovation as outlined under six priority action areas: improving food supply; promoting healthy eating/ increasing demand for healthy food; increasing fruit and vegetable consumption; enhancing health of mothers, infants and children (including school children); achieving and maintaining a healthy weight; developing infrastructure and capacity.

Eat Well Queensland has guided a dramatic increase in nutrition capacity within the state since 2002. For example Queensland Health now invests more than $16M new funding per year on the delivery of public health nutrition services and programs throughout Queensland.

The Queensland Public Health Forum has scheduled a review of *Eat Well Queensland*. The review process will examine implementation, help celebrate successes, identify gaps and emerging issues and gather data to contribute to an implementation plan for the next five years. The first part of the review will constitute a workshop for all stakeholders to be held during the two days immediately prior to the “Public Health Nutrition in Australia- New Directions, New Priorities” Conference.

As a case study of nutritional aspirations at the state/territory jurisdictional level, this presentation will outline major achievements of *Eat Well Queensland* to date, including key findings of the workshop to help set a vision for the future of public health nutrition in Queensland.

Public health nutrition workforce development over the past decade: Progress or system failure?

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Workforce development is a capacity building strategy that underpins national responsiveness to public health nutrition issues. Whilst there is a strong logic that a nations ability to respond to public health challenges depends on the capacity of its health workforce, there has been limited and variable co-ordination and strategic development of the workforce designated with this responsibility. Previous Australian research in the early 2000’s has highlighted the determinants of public health nutrition workforce capacity that limit the likelihood of effective responses at a population level, including a small specialist workforce, inadequate workforce preparation, inappropriate service delivery models and workforce disorganization [1]. In the 5 years since this study, there have been significant and relatively sudden investments in workforce growth in some states, organisational restructuring in others and evidence of a limited surge capacity in the public health nutrition workforce. This means that in order to adequately grow the workforce with appropriately prepared practitioners with the support to practice in the manner required, our capacity to enhance the public’s nutrition is limited. This presentation will provide a critical analysis of the challenges and progress made in public health nutrition workforce development over the last decade and will map out a perspective on priorities and new directions, based on national and international research and experience.

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Notes from Skills Workshop: Food, Health and Public Policy.

Session 4

Environmental Changes, Food and Health

Climate Change and Food Provision in Australia: Assessment and Implications

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It is now recognised that, during the past 200 years, activities by human societies have had a major impact on the atmosphere of the planet. Greenhouse gas emissions have contributed to global warming and global warming has, in turn, altered temperature and rainfall patterns. From sober academic assessments such as the recent study by the Intergovernmental Panel on Climate Change (2007) to the Stern Review on the *Economics of Climate Change* (2006) to Al Gore's more accessible documentary *An Inconvenient Truth* (2006), there is a shared view that climate change will impact upon virtually all ecosystems with some positive, but many negative, consequences. In Australia, for example, it is predicted that coral reefs, wetlands, savannas and desert landscapes will be affected, with biodiversity loss being one of the key concerns. In agriculture, there will be increased heat stress on animals, reduced pasture productivity, increased soil erosion, reduced soil moisture, and a higher incidence of floods and droughts. This has the potential to alter the way agriculture – and natural resource management, more generally – is practiced in Australia.

This paper presents a brief overview of global climate change before focusing upon the likely impacts upon Australia, and Australian farming. Rather than dwell on bio-physical change, the paper examines broader socio-political settings, and cultural attitudes, that might inhibit the ability of farmers to respond, in a positive manner, to climate change. It concludes that – under the mantle of climate change - both future food provision, and sustainable development, will be jeopardised by the continued reliance upon 'productivist' systems of agriculture. Some alternatives to the productivist mode of food provision are assessed in the context of climate change.

Food, health and climate change: Where do public health nutritionists fit in?

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The relationship between food, health and climate change is complex. There is increasing evidence that climate change will impact on the food supply, but also that the food supply influences climate change. Recent research in this area focuses on the following industries; cropping, livestock, and to smaller extents, fisheries and horticultural industries. Climate change may result in changes to food variety, availability and affordability within these industries, all of which can impact on human health.

There are also three additional areas requiring attention: adaptation, mitigation and vulnerability. In terms of adaptation, the food supply will need to devise strategies to adapt to the conditions created by climate change. In terms of mitigation, food production methods may change to reduce greenhouse gas emissions that create climate change. These changes could also impact on health. Finally, in terms of vulnerability, there are concerns that the health of those groups who are already most socially and economically disadvantaged may be most greatly affected by food supply changes in response to climate change.

Nutritionists have a responsibility to promote a food supply that is not only nutritious but also sustainable. In doing so, it is essential for public health nutritionists to address climate change in their practice.

This paper will describe in detail the various aspects of the relationship between food supply and climate change, and will also discuss the role of public health nutritionists in tackling climate change. The paper focuses on Australian data where possible, drawing on global research when required.

The impact of prolonged drought on urban food systems and diet-related health

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Australia is in the grips of one of the worst droughts in living memory. This ‘prolonged drought’ is expected to have serious impacts along the food chain affecting rural and urban food availability, accessibility and acceptability.

One component of the ‘Healthy Urban Systems’ research collaboration between ANU NCEPH and CSIRO Sustainable Ecosystems is concerned with the potential effects of drought along the food chain and the consequences for urban diet-related health and inequities. The study hypothesizes that dietary practices in urban settings concerning food items that are price elastic and/or reduced in availability due to drought may change, with replacement by consumption of foods that are more readily available, cheaper and which tend to be higher in refined fat and sugar.

This paper reports results from preliminary investigations into the effect of drought conditions on food prices, particularly fruit and vegetables, and subsequent dietary purchasing and consumption habits in the Australian Capital Territory. Using routinely collected data from national and local sources, we report patterns of food prices (especially fruit and vegetables) before and during drought conditions (since 2001) and illustrate corresponding household food expenditure patterns and individual dietary intake (especially fruit and vegetables).

Early results suggest that during this drought period some foods were more price elastic than others, but there is no obvious relationship between drought and fruit and vegetable retail price. The next stage in the investigation will be to consider the food source, whether local, domestic or international, and identify agricultural practices that may be protecting food prices against the effect of drought.

“Farm to School Direct” – a glimpse of the food system of the future ?

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The ecological footprint of food production, processing and packaging and storage in South Australia accounts for 36%[4] of South Australian's impact on their environment. South Australians’ ecological footprint is currently about three times the world average. Clearly food is a major contributor to this unsustainable and inequitable situation.

The Department of Education and Children's Services in South Australia will introduce a nutrition policy for all public schools in 2008. The new “Healthy Eating Guidelines” will restrict sales of junk food in both school canteens and in fundraising for schools. This has created an opportunity for replacing sales of junk foods with locally sourced fresh fruit, a project called “Farm to School direct”. This project is compatible with both nutrition and sustainability messages taught in the classroom and provides another market for smaller growers to supply and remain viable businesses.

The project has the potential to translate the “big picture” of unsustainable food systems into some practical action at the ground level, whilst working to address most of the Eat Well SA's Public Health Nutrition goals.

The presentation will discuss the development of the ‘Farm to School direct’ project in the Adelaide Hills. Consultations with key stakeholders: food producers, schools, academics, key government departments and E-business professionals will be described. Challenges to engaging in a new discourse of nutrition and ecology will be explored.

[4] Wallace J. The Sustainability benefits of a healthier diet. Public Health Bulletin, April, 2007.

Mycotoxin exposure and population health in developing countries

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It has been estimated that 25% of the world's crops are affected by mould or fungal growth. Fungal spoilage of crops can have serious economic consequences and commodities may be contaminated with toxic fungal secondary metabolites or mycotoxins. Human exposure to mycotoxins may result from consumption of plant derived foods that are contaminated with the toxins, carry over of mycotoxins or metabolites into animal products such as milk, meat and eggs, or exposure to air and dust containing toxins. When ingested mycotoxins may cause an acute or chronic mycotoxicosis. Chronic conditions have a much greater impact on human health globally. Reduced growth and development, immunosuppression and cancer are chronic effects that have a higher incidence following continual exposure to low level mycotoxin ingestion as is experienced in many developing countries. Aflatoxin is the most studied mycotoxin in this context and it has been shown that simple intervention methods may reduce the burden of disease resulting from ingestion of this mycotoxin. However, the mycotoxins that are likely to be encountered by human populations differ between countries. This reflects different crops, agronomic practices and climatic conditions which dictate the fungi that are present in the farming system. Other mycotoxins that are likely to be important in human health include ochratoxins, tricothecenes, fumonisins and zearalenone. Until reliable biomarkers are developed, which can be determined in blood and urine, it will be difficult to accurately determine the prevalence of human exposure to these mycotoxins and to assess the scale of any associated adverse health effects.

Dietary Change and Environmental Sustainability: Looking in the right direction.

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Life cycle assessment (LCA) has proved to be a useful technique to characterise the environmental impact of the production and consumption of individual foods. However, such techniques do not formally include an assessment of the nutritional benefit of the food – this is generally accomplished as an informal posthoc analysis. Such considerations, and others including social and ethical factors, are relevant to contribute to the 'consumer benefit' side of a comprehensive assessment of the whether an activity is 'worth it'. LCA can be used to appropriately prioritise improvements intended to minimise the environmental impact of food production, while considerable effort is expended in enhancing the 'consumer benefits' of food. Environmental impacts of food production and consumption need to be considered against the benefits and the alternatives.

Notes from Plenary - Where to from here?