

# IMPLEMENTATION SCIENCE IN PRACTICE: Finding The Framework That Fits Workshop

*Friday 4<sup>th</sup> August 2017*  
*Sydney and Newcastle*

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# WELCOME

On behalf of our conference partners:

- Hunter Cancer Research Alliance
- CONCERT TCRC
- Sydney West TCRC
- Translational Cancer Research Network
- Sydney Vital TCRC
- Kids Cancer Alliance
- Sydney Catalyst TCRC, and
- The Cancer Institute NSW



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# INTRODUCTION

BY PROFESSOR AFAF GIRGIS

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# KEYNOTE

BY PROFESSOR ELIZABETH EAKIN

## RE-AIM framework & the Healthy Living after Cancer Project

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# **The RE-AIM Framework in the Context of the Healthy Living after Cancer Partnership Project**

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Elizabeth Eakin  
Professor and Director, Cancer Prevention  
Research Centre  
University of Queensland School of Public  
Health  
Brisbane

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# Invited to address

My experience in developing the project

Why we chose the RE-AIM Framework

How we use it

Challenges in implementing the framework

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# Healthy Living after Cancer

Translating evidence into practice

# Healthy Living after Cancer

- ✿ NHMRC Partnership Project (2014 – 2018)
- ✿ Partners: Cancer Councils NSW, VIC, SA, WA
- ✿ Integrating an evidence-based, telephone health coaching intervention for cancer survivors into the 13 11 20 Cancer Information and Support Service





# Chief Investigators

- ✳ **Professor Elizabeth Eakin** – [University of Queensland](#)
- ✳ **Professor Sandi Hayes** – [Queensland University of Technology](#)
- ✳ **Professor Marion Haas** – [University of Technology Sydney](#)
- ✳ **Associate Professor Marina Reeves** – [University of Queensland](#)
- ✳ **Professor Janette Vardy** – [University of Sydney](#)
- ✳ **Professor Frances Boyle** – [University of Sydney](#)
- ✳ **Professor Janet Hiller** – [Swinburne University of Technology](#)
- ✳ **Professor Gita Mishra** – [University of Queensland](#)
- ✳ **Associate Professor Michael Jefford** – [Peter MacCallum Cancer Centre](#)
- ✳ **Professor Bogda Koczwara** – [Flinders University](#)

# Associate Investigators

- ✳️ **Ms Kathy Chapman** – [Cancer Council New South Wales](#)
- ✳️ **Ms Sandy McKiernan** – [Cancer Council Western Australia](#)
- ✳️ **Dr Anna Boltong** – [Cancer Council Victoria](#)
- ✳️ **Ms Amanda Robertson** – [Cancer Council South Australia](#)
- ✳️ **Professor Christobel Saunders** – [University of Western Australia](#)
- ✳️ **Professor Afaf Girgis** – [University of New South Wales](#)
- ✳️ **Professor Wendy Demark-Wahnefried** – [University of Alabama, USA](#)
- ✳️ **Professor Kerry Courneya** – [University of Alberta, Canada](#)
- ✳️ **Professor Kathryn Schmitz** – [University of Pennsylvania, USA](#)
- ✳️ **Professor Kate White** – [University of Sydney](#)

# Healthy Living after Cancer Team Members



UQ – Erin Robson,  
Project Coordinator



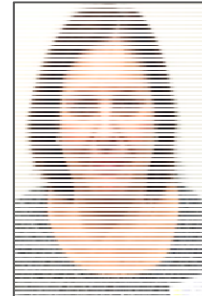
CC NSW – Liz Hing and  
Indhu Subramanian



CC Vic – Clare Sutton and  
Clem Byard

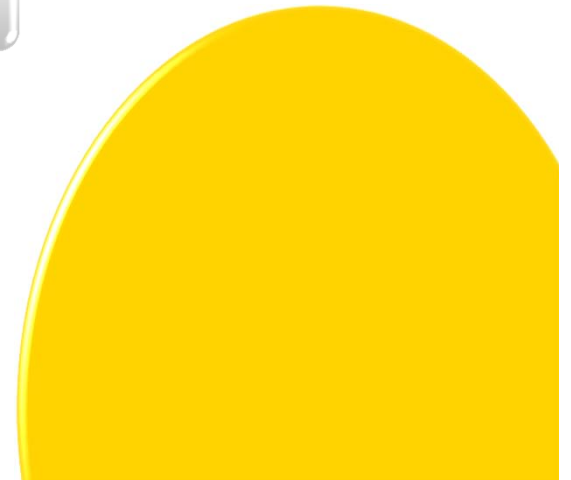


CC SA – Ann Branford, Polly Baldwin  
and Mia Bierbaum



CC WA – Rosemerry Hodgkin  
and Jo Daley

# HLaC Program Overview



# Evidence-based lifestyle guidelines

Maintain a healthy body weight

30 minutes moderate activity daily +  
resistance exercise 2x/wk

5 serves veg and 2 serves fruit daily

Limit ( $\leq 2$  drinks/day) or avoid alcohol

Cancer Council Australia. Position statement on nutrition and physical activity. Cancer Council Australia, 2013.

<http://www.cancer.org.au/policy-and-advocacy/position-statements/nutrition-and-physical-activity/>.

Hayes SC, Spence RR, Galvao DA, Newton RU. Position Stand – Australian Association for Exercise and Sport Science position

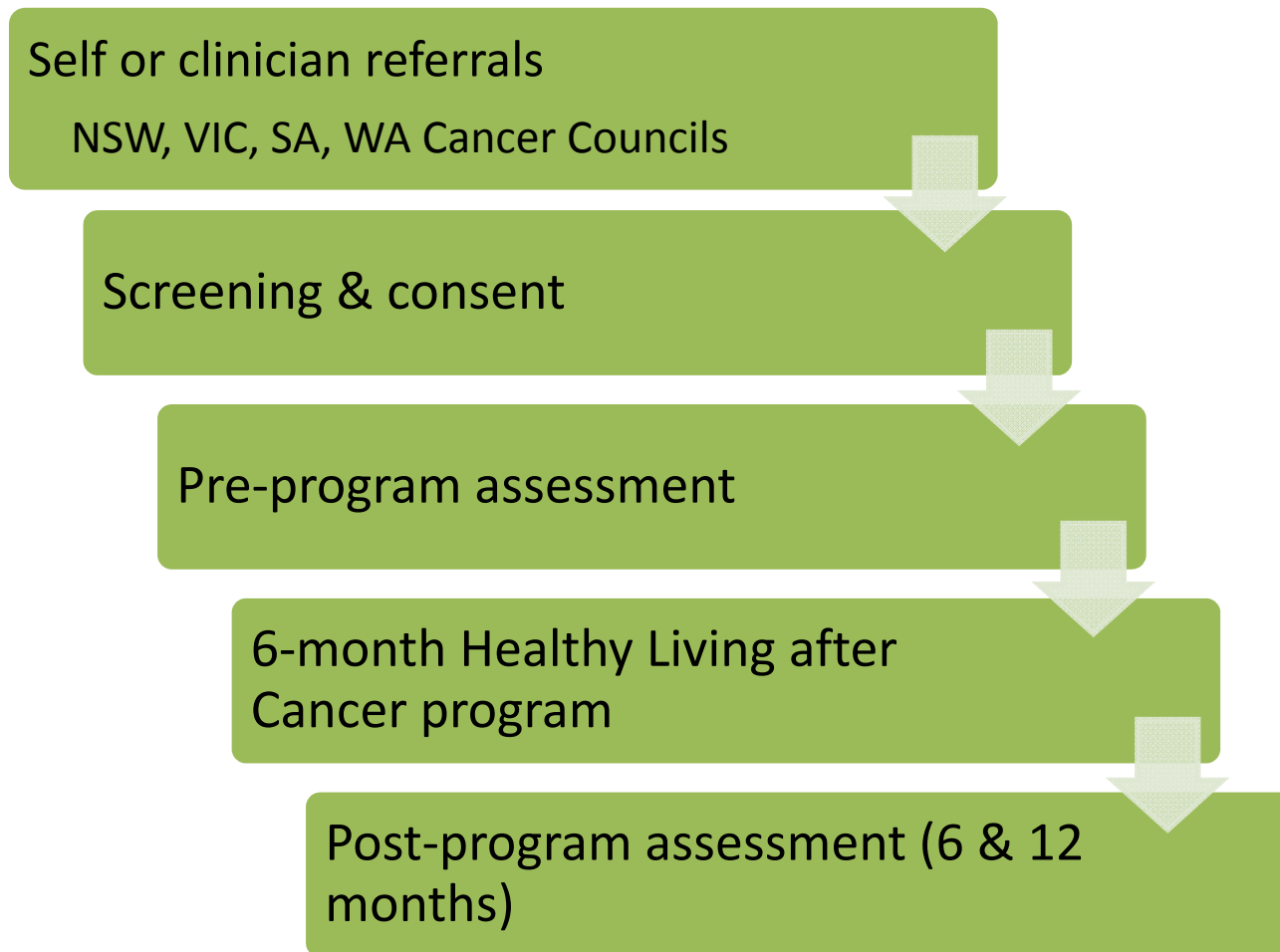
stand: Optimising cancer outcomes through exercise. *J Sci and Med Sport*. 2009;12:428-34.

World Cancer Research Fund, American Institute for Cancer Research. Food, nutrition, physical activity, and the prevention of

cancer: A global perspective. Washington DC: AICR 2007.

[http://www.wcrf.org/docs/food\\_nutrition\\_physical\\_activity.pdf](http://www.wcrf.org/docs/food_nutrition_physical_activity.pdf)

# Healthy Living after Cancer Protocol





# Developing HLaC

An evidence  
translation story...



# HLaC development steps

Partner with:

infrastructure to deliver telephone-based health coaching  
cancer survivorship mandate

Direct advocacy with Cancer Councils

“Fit” with strategic objectives

Broad reach of our telephone-based intervention = big selling  
point

Engaged extended network of academic and clinical collaborators

Concept development workshop (PoCoG and PC4)

NHMRC Partnership Project application



Call us **13 11 20**



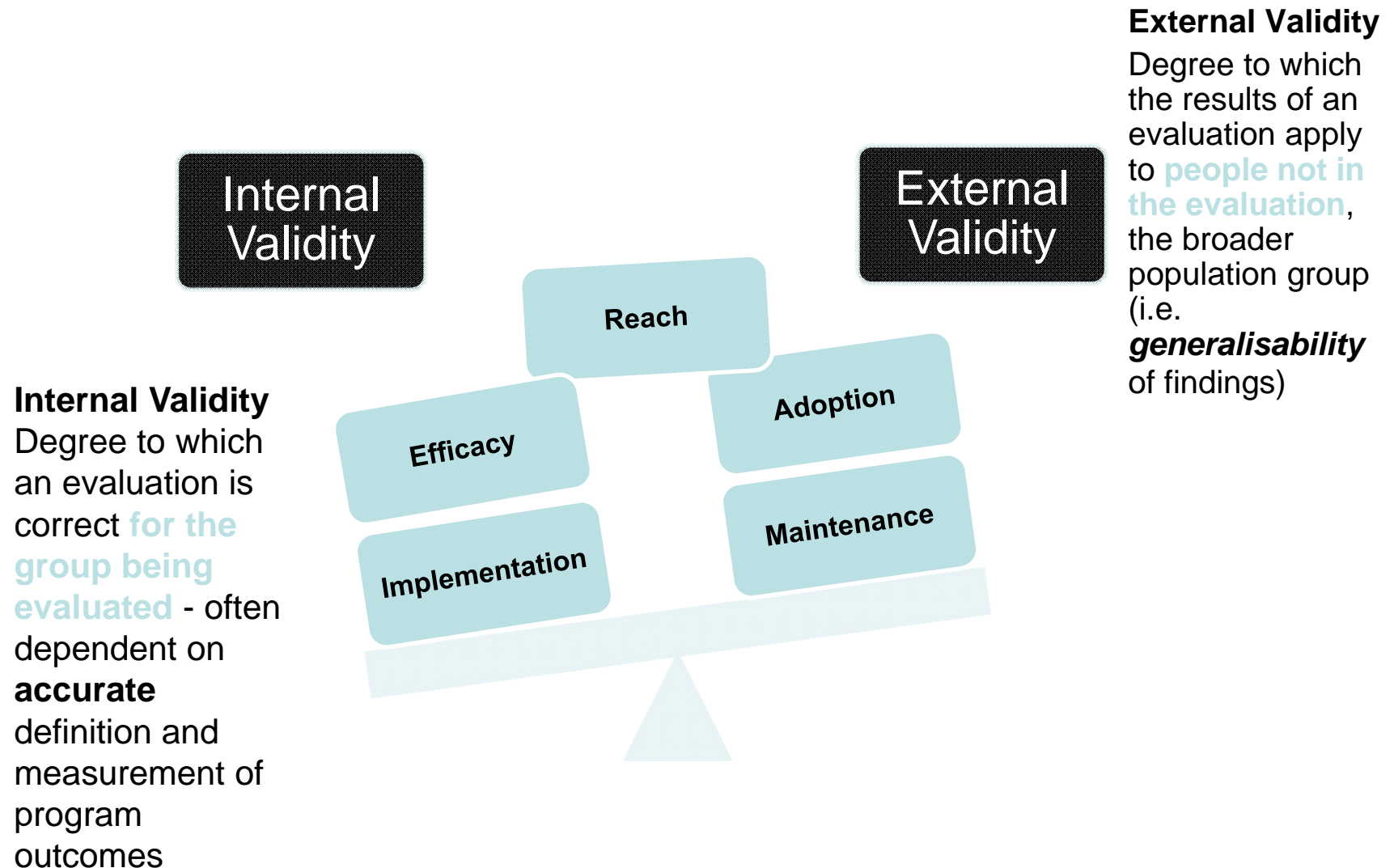
# RE-AIM Framework

# RE-AIM Framework

- **Reach** - What % of target population participates?
- **Effectiveness** - What is the intervention effect?
- **Adoption** - What % of settings adopt the intervention?
- **Implementation** - Is the intervention implemented as intended?
- **Maintenance** - Is the intervention sustained over time?

Glasgow RE, Emmons KM. How can we increase translation of research into practice? Types of evidence needed, *Annu Rev Public Health*. 2007;28:413-433.  
[www.re-aim.org](http://www.re-aim.org)

# RE-AIM suited to implementation research



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# Healthy Living after Cancer RE-AIM Evaluation

# Implementation Study

Single-group, pre-post study design

Process outcomes (primary)

- Where do referrals come from? (reach)
- Who takes part? (reach & representativeness)
- Is HLaC delivered as intended? (implementation)

Participant-reported outcomes (secondary)

- *What benefit do participants achieve? (effectiveness)*
- *And maintain? (maintenance)*

Economic analysis

# RE-AIM Indicators

RE-AIM Dimension	Indicator
REACH	<ul style="list-style-type: none"><li>• # referrals (sources)</li><li>• Participant characteristics</li></ul>
EFFECTIVENESS	<ul style="list-style-type: none"><li>• Weight, PA, diet, QoL...</li></ul>
ADOPTION	<ul style="list-style-type: none"><li>• # participating Cancer Councils</li></ul>
IMPLEMENTATION	<ul style="list-style-type: none"><li>• % eligible after screening</li><li>• Consent rates</li><li>• # calls delivered (duration)</li><li>• Completions / withdrawals</li><li>• Participant &amp; staff satisfaction</li><li>• Program delivery costs</li></ul>
MAINTENANCE	<ul style="list-style-type: none"><li>• Participant: 12-month follow-up</li><li>• System-level: CCs continuing program</li></ul>

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# RE-AIM Results



# Adoption



# Reach (& representativeness)

EEP1

	HLaC (n = 203)
Type of cancer	breast, prostate, bowel, lymphoma, kidney, cervical, leukaemia, ovarian, thyroid, endometrial, BCC skin cancer, Ewings' sarcoma, base of tongue
Gender	89% female
Age	57 $\pm$ 11 yrs
BMI	29.0 $\pm$ 6.0 kg/m <sup>2</sup>
Time since diagnosis	2 $\pm$ 3 yrs
Education (High school or higher)	90%
Ethnicity - Caucasian	95%
Regional / rural	25%

## Slide 26

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EEP1

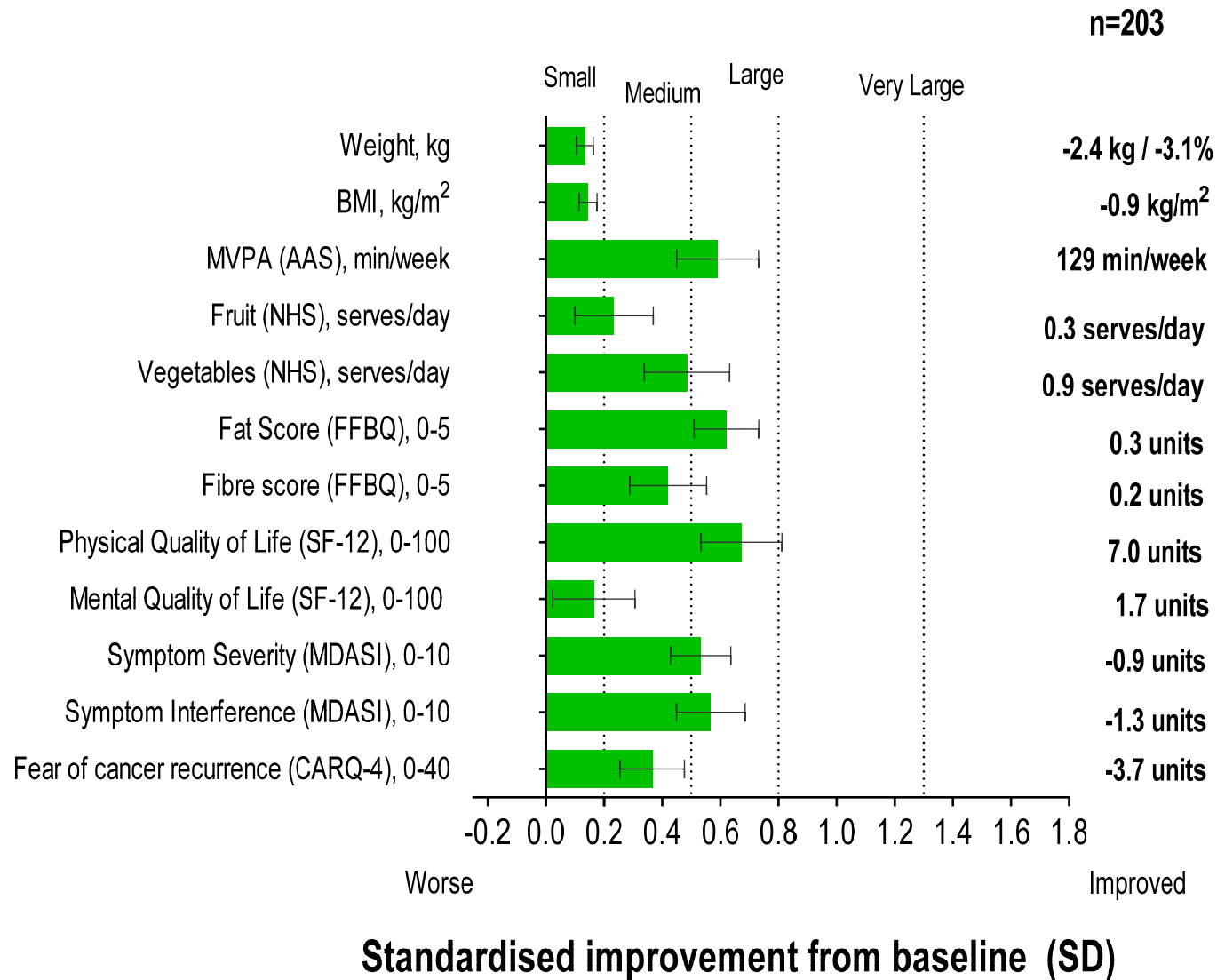
update with Lis report

Elizabeth Eakin Price, 7/14/2017

# Implementation

<b>Referrals to date</b>	<b>700+</b>
<b>Eligible following screening</b>	<b>76%</b>
<b>Program Uptake (of those eligible)</b>	<b>90%</b>
<b>Median # of calls</b>	<b>11</b>
<b>Average call length</b>	<b>30 minutes</b>
<b>Program Completion</b>	<b>59%</b>
<b>Adverse Outcomes</b>	<b>nil</b>

# Effectiveness (participant-reported outcomes)



# Maintenance - PROs

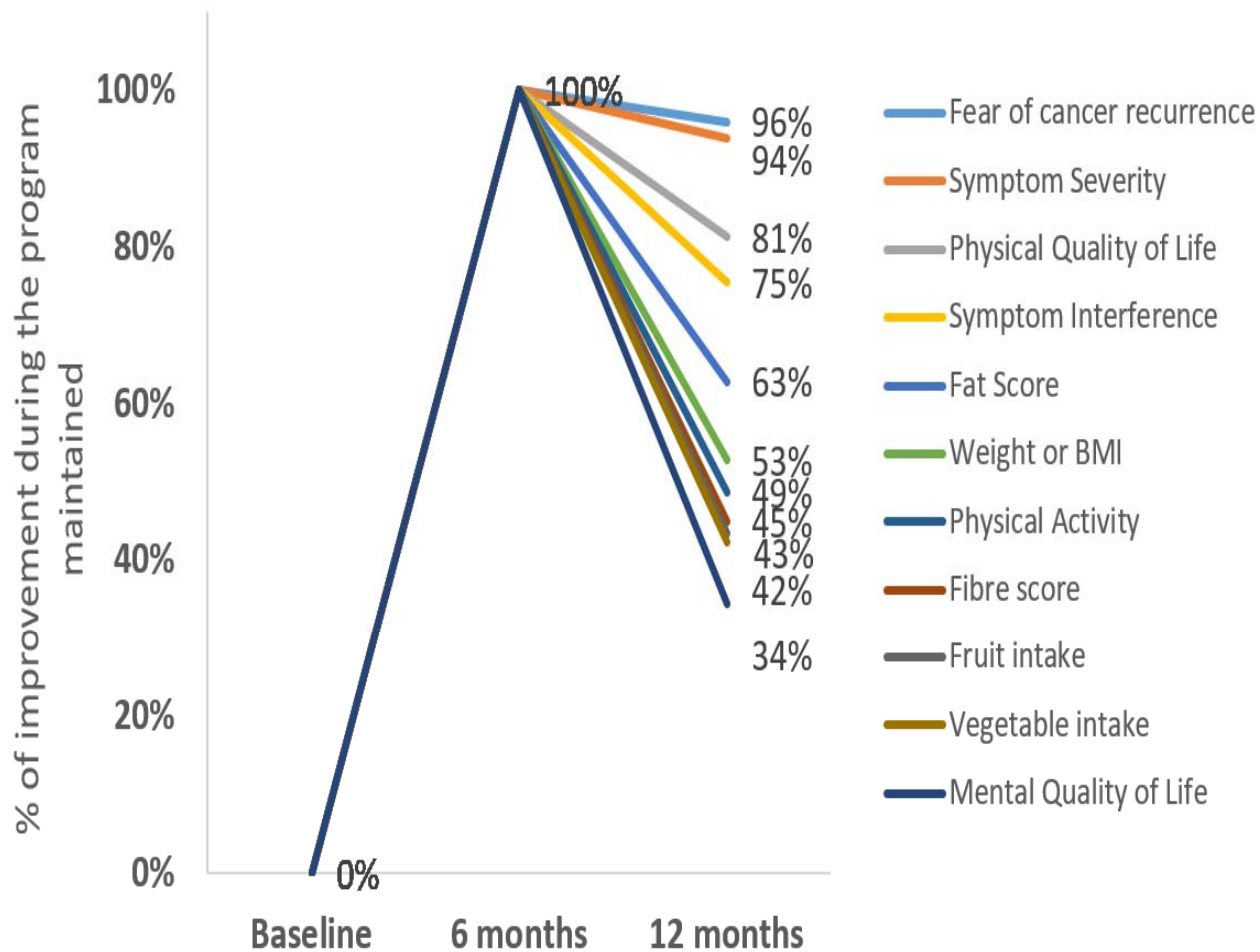


Figure 3: Maintenance of improvements made during the program (Baseline to 6 months) retained following non-contact (12-months) (n=135)

# Maintenance - CCs



# Staff Satisfaction

## **Nurse survey feedback**

- Application of coaching skills to other areas
- Increased knowledge of exercise and nutrition
- 'Walking the talk' in my own life 😊



# Participant Satisfaction



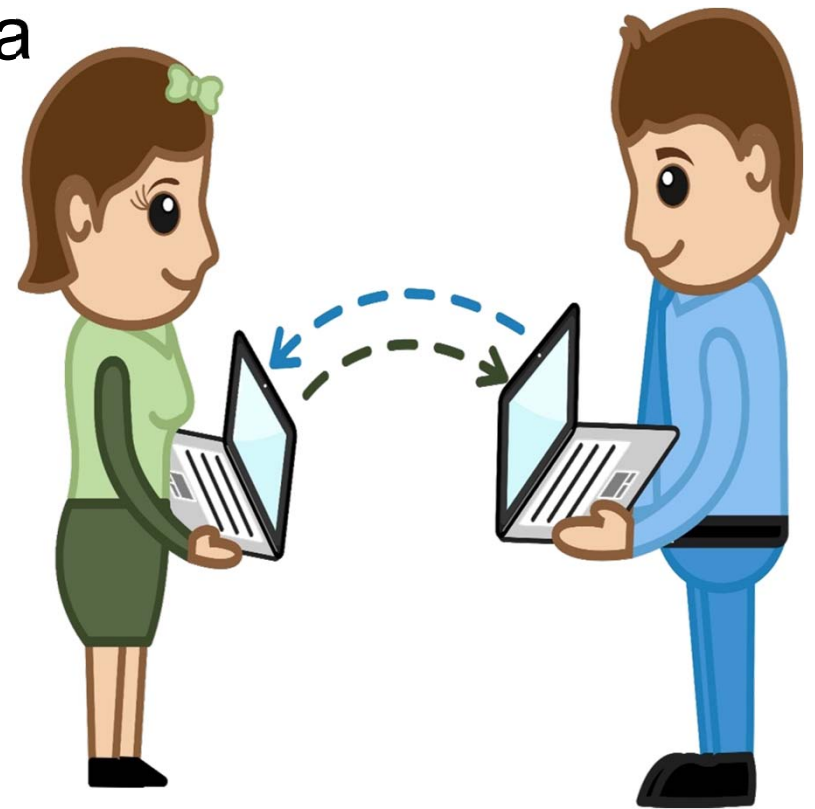


# RE-AIM Challenges

# Research in a service delivery context

My data/ your data / our data

- collaborative evaluation
- database challenges



# Implementation

## Nurse survey feedback

- Complexity of program protocols
- Logistics – scheduling, missed calls
- Switching ‘hats’ (13 11 20 to HLaC)
- Client psychosocial issues (eg, depression/anxiety)

# Maintenance - *HLaC+Txt* Intervention



Weight self-monitoring reminders  
Goal check of behavioural goals  
Prompting behavioural cues  
Goal re-set

1 per fortnight (optional)  
Fortnightly for each goal  
Optional, maximum 4 per fortnight  
Once in weeks 6, 18

SMS dose:  
1 – 11 per  
fortnight x 6m



Hi Jane. Its important to keep weighing yourself. Find time 2 jump on the scales & write it down in ur weight tracker.

On top of things Sue? Did u eat 5 serves fruit/day this week? Text me back yes or no & let me know. Jenny

John u wanted 2 walk 10,000 steps/day this week. I know u can achieve ur goals so go for it! Jenny

Its important 2 re-set ur weight goals Tim. Ur currently aiming 2 lose 2 kgs. If u have a new weight goal 4 the next 6 weeks then reply 2 let me know. Jenny

# Final Thoughts on Implementation

## Partnerships

- Engaging from the outset and ongoing
- Capacity building for CC staff/nurses
- Cancers Councils are ideal partners
  - telephonic infrastructure with national reach
  - their own funding (service & research)
  - culture of evidence-based practice



**Thank You!**





# MORNING TEA

*10.20am-10.40am*

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# CASE-STUDY PRESENTATIONS

*Picking the framework that fits -  
implementation research*

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# (ICAN)QUIT IN PREGNANCY TRIAL

BY A/PROFESSOR GILLIAN GOULD AND DR Yael BAR ZEEV

*University of Newcastle*

# Indigenous Counselling & Nicotine (ICAN) QUIT in Pregnancy Trial



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Collaborators: Billie Bonevski, Peter O'Mara, Marilyn Clarke, Chris Oldmeadow, Alan Clough, Kristin Carson, Jennifer Reath, Michelle Bovill, Katherine Boydell, Ling Li, Maree Gruppeta, Roger Smith, Yvonne Cadet-James, Renee Bittoun, Lou Atkin, Brett Cowling, Lisa Orcher.

# Indigenous Counselling & Nicotine (ICAN) QUIT in Pregnancy Trial

**Aim:** Improve health providers management of smoking in Aboriginal and Torres Strait Islander pregnant women



## Multi-component Intervention:

- Webinar training
- Educational resource package
- Free oral Nicotine Replacement Therapy
- Audit and feedback

**ICAN QUIT**  
*In Pregnancy*



## Slide 43

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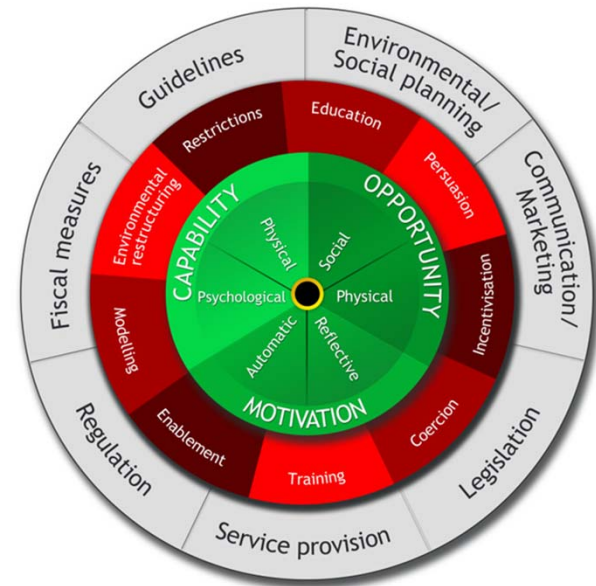
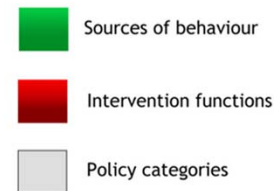
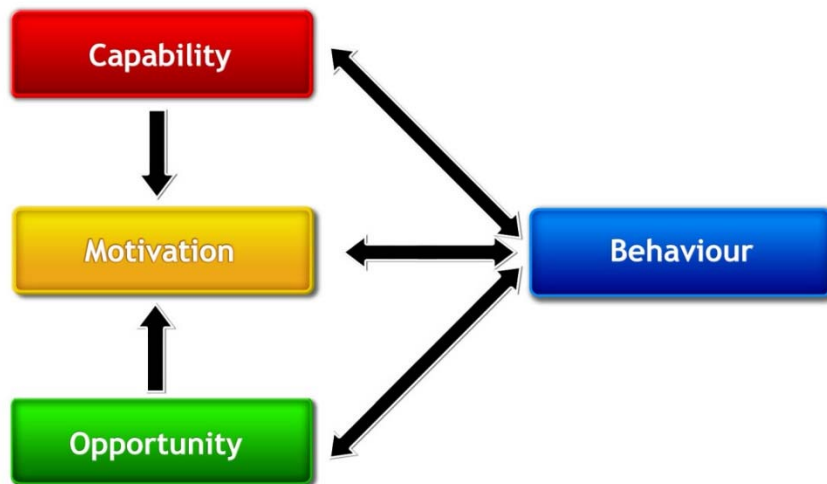
Office [2]1 I think have picture of the resources here

Microsoft Office User, 7/25/2017

# Behaviour Change Wheel<sup>1</sup>

Overarching synthesis of behaviour intervention frameworks

## COM-B model



<sup>1</sup>Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*. 2011;6(1):1-12.

## Slide 44

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**Office1**

I think we need to include the TDF also

Microsoft Office User, 7/25/2017

# What we did and challenges

Integrated findings from several studies  
with different levels of knowledge  
translation

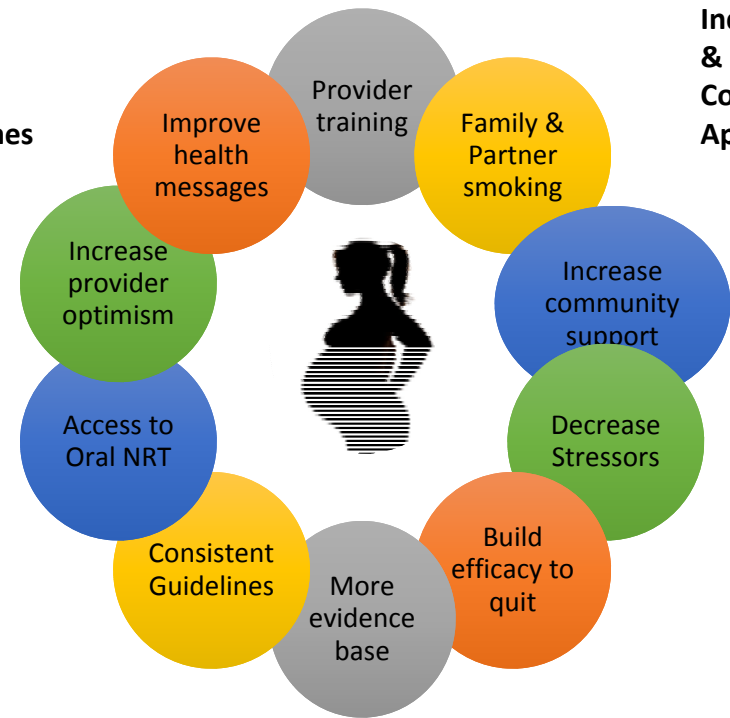
Complex intervention at service,  
provider and patient level

Cultural aspects paramount

Community Based Participatory  
Approach

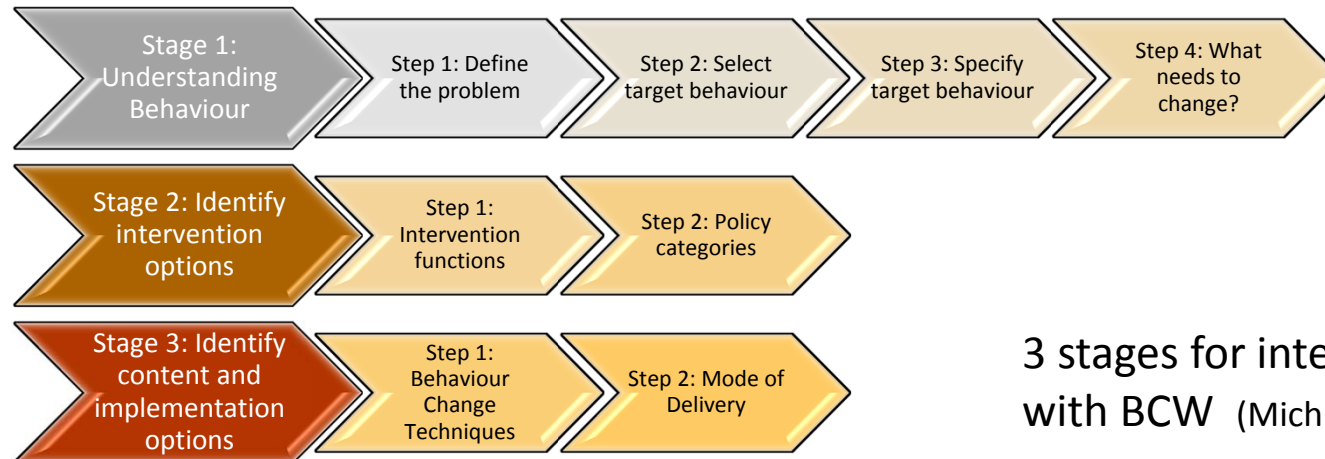
Iterative process can be hard to capture

Systemic  
&  
Provider  
Approaches



Individual  
&  
Community  
Approaches

*Multiple challenges need addressing for  
Indigenous quitting during pregnancy*



3 stages for intervention design  
with BCW (Michie et al 2014)



# Measuring Success

## Phase I

- Usability & appropriateness - expert panel, focus groups, readability
- Making changes to resources

## Phase II

- Pilot - Resources in action and feasibility
- Acceptability focus groups, interview, surveys, implementation log
- Refining resources, processes , implementation

## Phase III

- SISTAQUIT cRCT training vs. usual care 30 services in 5 states
- HP behaviour change, do women quit, does it help their babies?

**ICAN QUIT**  
*In Pregnancy*



**SISTAQUIT**<sup>TM</sup>  
Supporting Indigenous Smokers To Assist Quitting

# FROM PARIHS WITH LOVE

BY ALISON READ & DR MELANIE LOVELL

*University of Technology Sydney*

Twitter: [#impsci](#) [#frameworks17](#)

# From PARIHS with love - Measuring successful evidence-based guideline implementation

Funded by the National Breast Cancer Foundation

FACULTY OF MEDICINE

**Lead investigator:** Prof Melanie Lovell, Clinical Associate Professor USyd and Consultant Palliative Care Physician, HammondCare

**Chief investigators:** Prof Jane Phillips, Prof Meera Agar, Prof Fran Boyle, Prof Patricia Davidson, Dr Tim Luckett, Prof David Currow, Prof Lawrence Lam, Dr Nikki McCaffrey, Prof Tim Shaw,





# Stop Cancer PAIN Trial

## Control phase:

- Usual care
- Pain screening



## Training phase:

- Audit & feedback
- Introduce interventions



## Intervention phase:

- Qstream
- Patient held resource
- Regular audit & feedback



## Sustainability phase:

- De-identified audit feedback on patients with pain scores of  $\geq 7$

Patient & Carer Measures	Screenin g *	conse nt	Weeks 1, 2 & 4	Exit
Pain NRS	*		*	
EORTC QLQ-C15 Pal + 5 items			*	
heiQ			*	
Availability of primary carer		*		
Pain assessment and management audit				*
Carer measure				
CES			Wk 2 & 4	
Medicare data				*

# Which framework and why

- Implementation of evidence is complex & multidimensional
- Conceptualize and evaluate with measures
- Explain and predict success (or not) at sites
- Fidelity

Centres		Phases		
1	Control	Training & Intervention	Sustainability	
2	Control	Training & Intervention	Sustainability	
3	Control	Training & Intervention	Sustainability	
4	Control	Training & Intervention	Sustainability	
5	Control	Training & Intervention	Sustainability	
6	Control	Training & Intervention	Sustainability	
7	Control	Training & Intervention	Sustainability	
8	Control	Training & Intervention	Sustainability	

# PARIHS Framework

- Promoting Action on Research Implementation in Health Services (PARIHS) framework
- Acknowledged the complexity of the research to practice change process:
  - Evidence
  - Context
  - Facilitation

## PARIHS-Diagnostic and Evaluation Grid

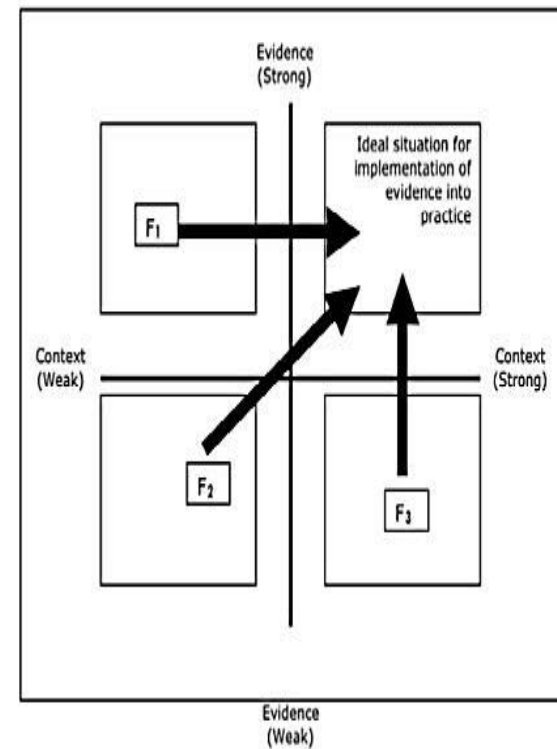


Figure 1  
The PARIHS Diagnostic and Evaluative Grid.  
Evaluating the successful implementation of evidence into practice using the PARIHS framework: theoretical and practical challenges  
Implement Sci. Implement Sci;3:1-1.

# Challenges of implementing the framework

- Qualitative exploration
- Used retrospectively
- Use of low to high continuum
- Clarity of definition of the sub-elements and how to map definitions to results

# How successful is PARIHS and how did we measure success?

- Fit for purpose
- Barriers identified and addressed
- Shared lessons
- Shaped negotiations with future sites
- Sharpened processes

## Sub element - CULTURE

### Evidence for ranking

### Rank

**Task driven organisation** - pain management seen as a task rather than a normal part of clinical practice

*"...when in the clinic you are in the 'zone' and it is hard to incorporate new material"* - advanced trainee medical oncology

**Resources not allocated** – time as a resource; not enough time is allocated

*"We have to remind [staff] to assess for pain as they are too busy maintaining patients other needs so pain is not addressed"* – palliative care nurse

**Lack of consistency** - lack of role clarity and consistency in pain assessment

*"We have to make a judgement call on whether to refer [the patient] to the doctor or not... sometimes patients say that pain is from something else"* – chemotherapy nurse

Low



# THE THEORETICAL DOMAINS FRAMEWORK IMPLEMENTATION APPROACH

BY DR NATALIE TAYLOR

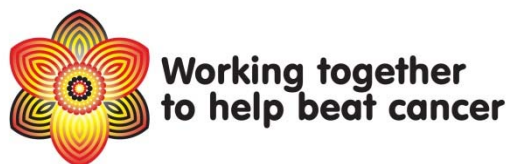
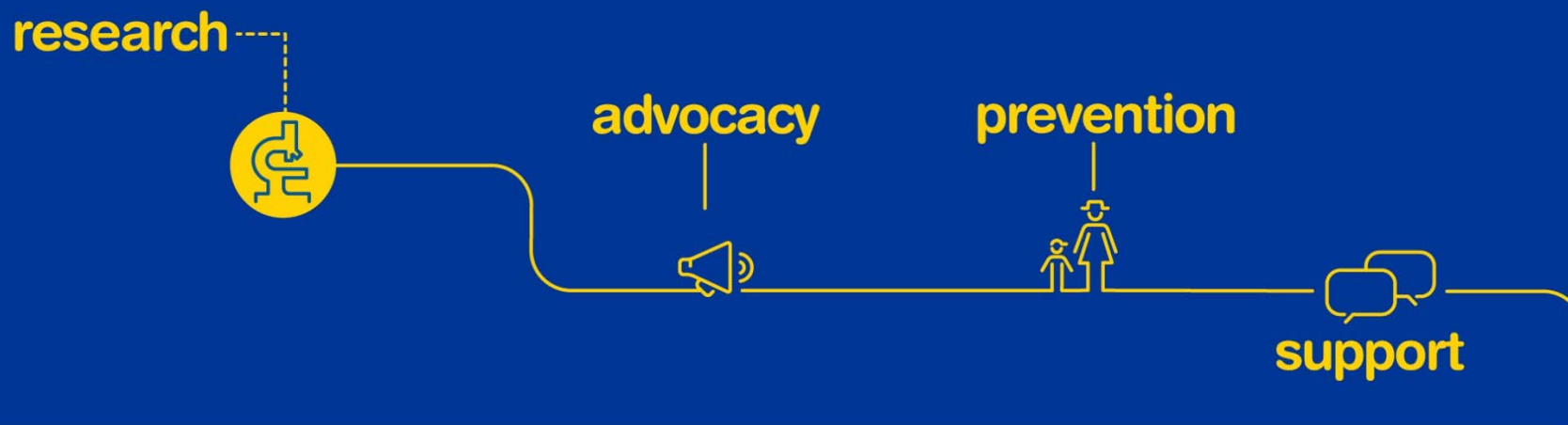
*Australian Institute of Health Innovation*

Twitter: [#impsci](#) [#frameworks17](#)

# The Theoretical Domains Framework Implementation approach and hereditary cancer: *Research Frameworks Workshop*

Natalie Taylor

Friday 4<sup>th</sup> Aug 2017



# The research project

**Translation of the latest genomic evidence  
into practice is lacking...**

**Project aim:**

***To improve the identification of colorectal  
cancer patients with a high likelihood of LS  
using behaviour change theory and  
implementation science***



**Working together  
to help beat cancer**



**Cancer  
Council  
NSW**

# Which framework and why?

Theoretical Domains Framework Implementation (TDFI) approach (Taylor et al., 2013b)

Why not just the TDF?

What else does the TDFI have to offer?

Principles of implementation

[Resources](#)

Cost effective

Taylor et al. BMC Health Services Research (2014) 14:648  
doi:10.1186/s12913-014-0648-4

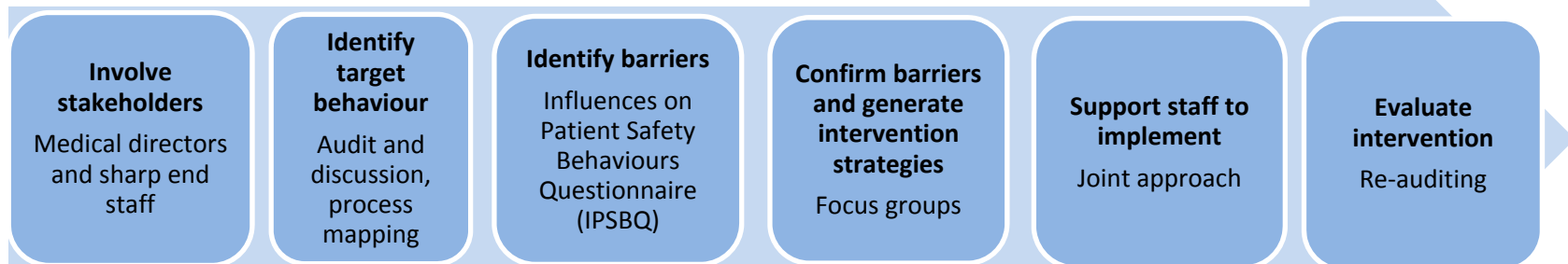
BMC  
Health Services Research

**RESEARCH ARTICLE**

**Open Access**

Collaborating with front-line healthcare professionals: the clinical and cost effectiveness of a theory based approach to the implementation of a national guideline

Natalie Taylor<sup>1\*</sup>, Rebecca Lawton<sup>2</sup>, Sally Moore<sup>3</sup>, Joyce Craig<sup>4</sup>, Beverley Slater<sup>3</sup>, Alison Cracknell<sup>5</sup>, John Wright<sup>3</sup> and Mohammed A Mohammed<sup>6</sup>

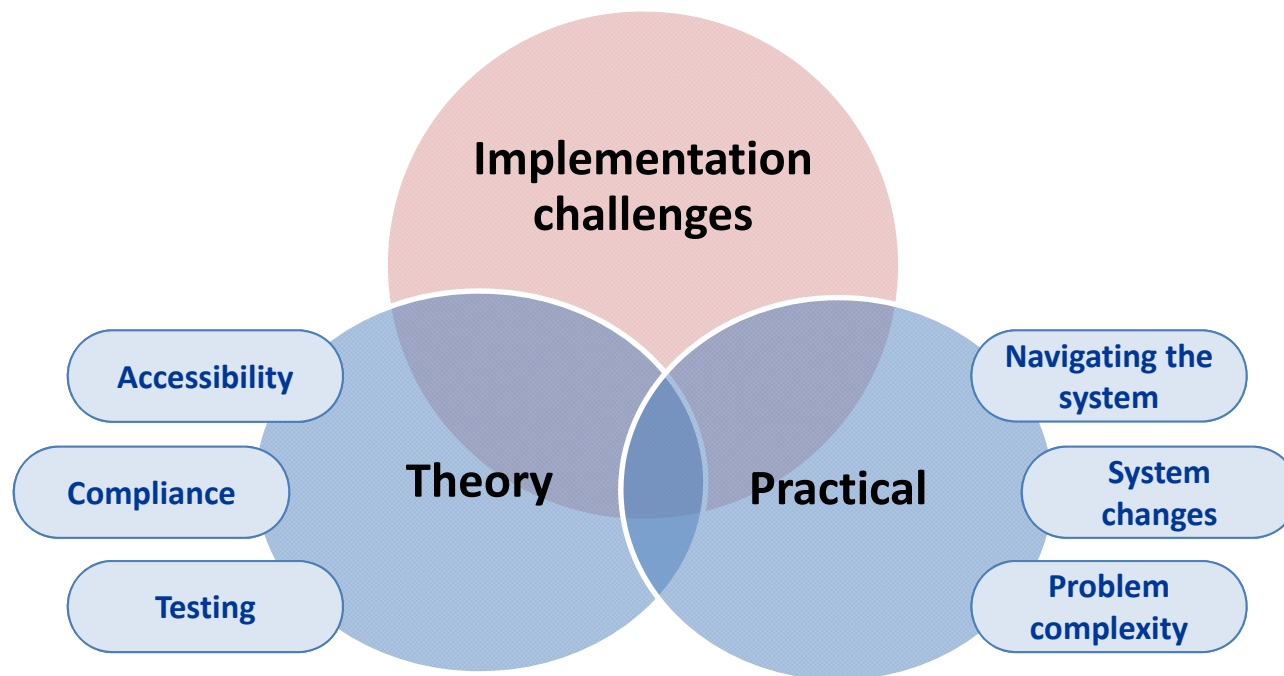


**Working together  
to help beat cancer**



**Cancer  
Council  
NSW**

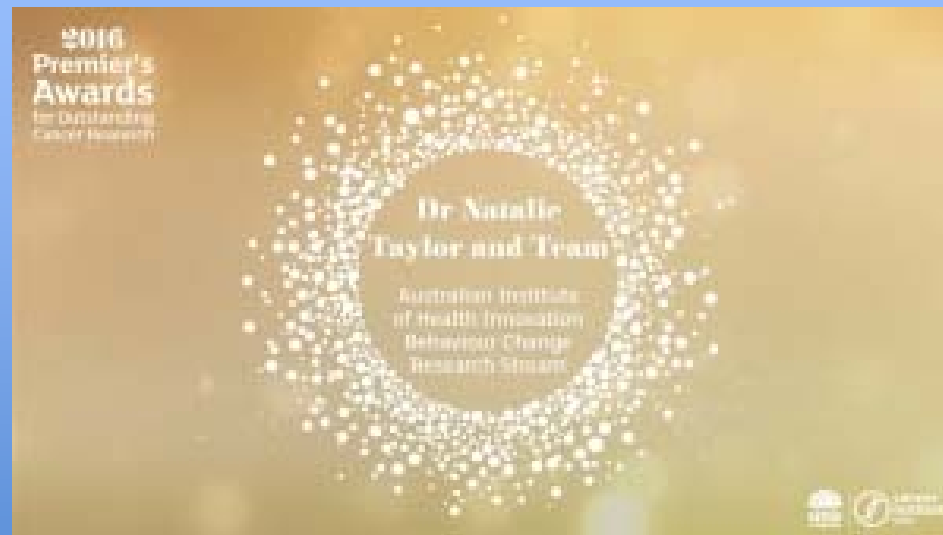
# Challenges implementing the framework



Working together  
to help beat cancer



# Evaluating framework performance



## What next



Working together  
to help beat cancer



Cancer  
Council  
NSW

# PRECEDE-PROCEED FRAMEWORK: LESSONS FROM THE RURAL PALLIATIVE CARE PROJECT

BY PROFESSOR JANE PHILLIPS

*University of Technology Sydney*





# PRECEDE-PROCEED Framework: Lessons from the rural palliative care project

Prof Jane Phillips, RN PhD

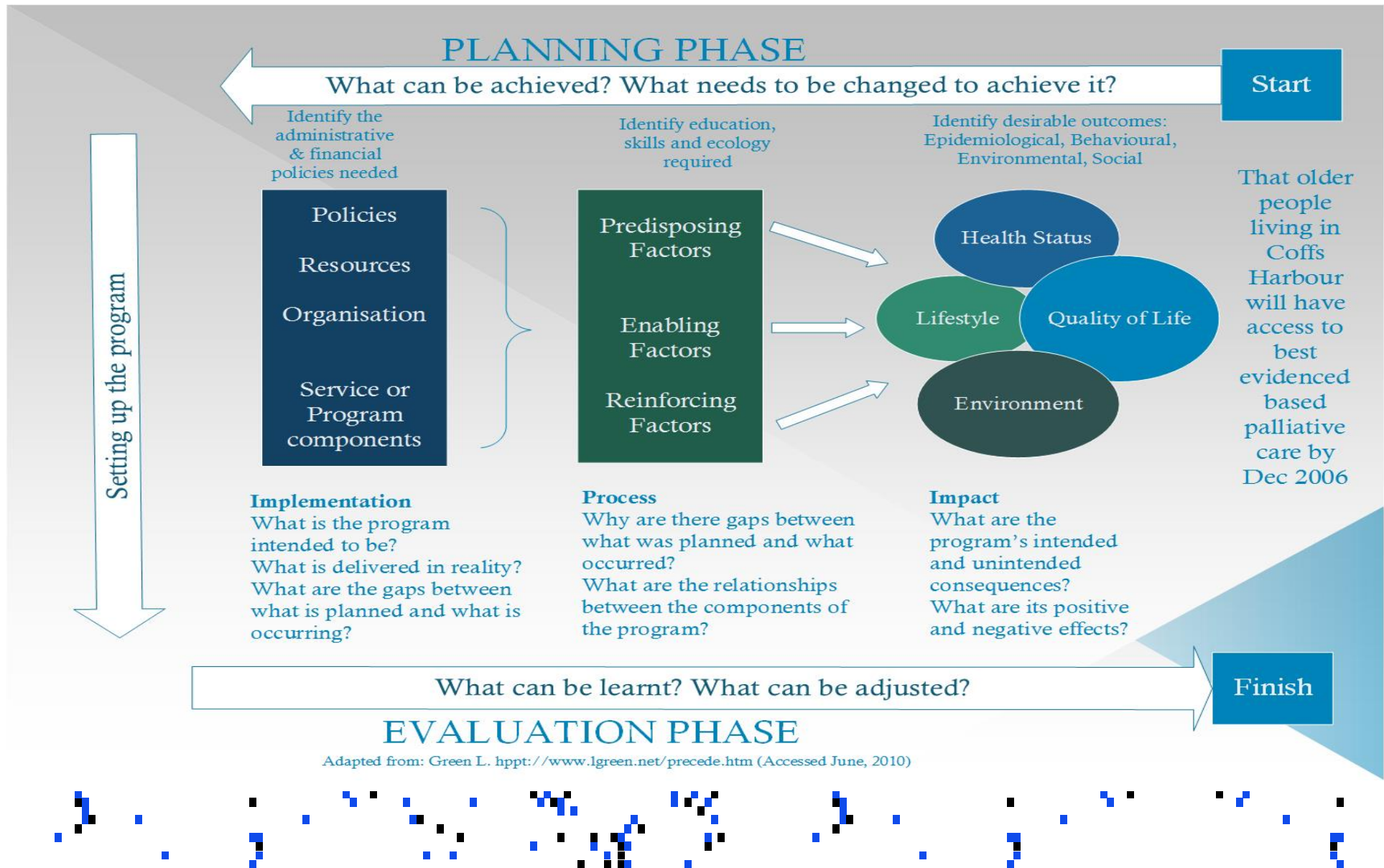
IMPACCT – Improving Palliative, Aged and Chronic  
Care through Clinical Research and Translation



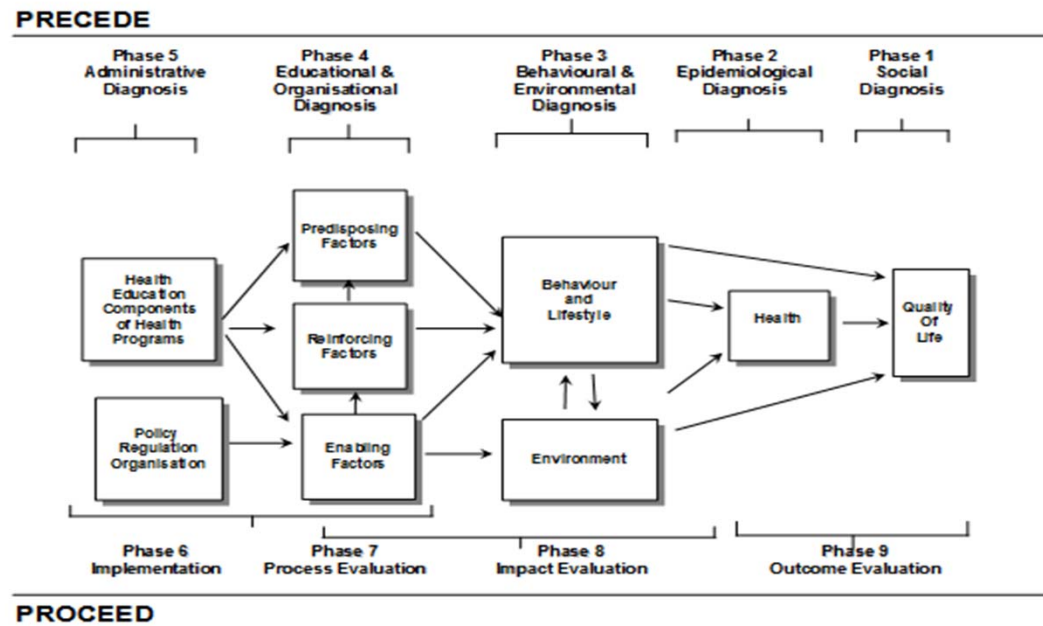
## Context

- Part of a larger project three year project - strengthening rural palliative care partnerships
- Rapidly ageing regional community – 67,000 population (35% > 65 years, by 2031)
  - Older people living in the community with progressive, life limiting illnesses and their families/carers had unmet palliative care needs;
- Applying the PRECEDE-PROCEED Model:
  - Facilitated synthesis of the social assessment data
  - Established a link between the priority health problems and the communities' needs
  - Focussed the planning process, targeted the intervention and provided the evaluation framework





# PRECEDE-PRCEED FRAMEWORK



## Planning and evaluation:

- **Identify and defined desired outcomes at the outset of the planning process**
  - facilitates the development of specific and measurable evaluation metrics
    - Process (Phase 7),
    - Impact (Phase 8), and
    - Outcome (Phase 9) evaluation levels.
- **Ranking system - classification of factors by relative importance and changeability**
  - consideration of the determinants for change at individual, provider, and system levels
  - allows for the identification, development, and implementation of tailored interventions with the greatest potential of achieving a positive impact.
  - Improvement strategies that attend to the highest ranked predisposing, enabling, and reinforcing factors are more likely to be successful. [10, 24, 25].



# IMPORTANCE AND CHANGEABILITY

Behavioural matrix to assist with developing targeting interventions

	MORE IMPORTANT	LESS IMPORTANT
MORE CHANGEABLE	HIGH PRIORITY Quadrant I	LOW PRIORITY Quadrant III
LESS CHANGEABLE	PRIORITY FOR INTERVENTION Quadrant II	NO INTERVENTION Quadrant IV

Source: Green and Kreuter<sup>1</sup> (p. 140)

## Conclusions

- **Since health related behaviours and activities that individuals engage in are almost always voluntary, any health intervention has to involve those whose behaviour(s) or actions you want to change.**
- **Health is, by its very nature, a community issue.** It is influenced by community attitudes, shaped by the community environment (physical, social, political, and economic), and coloured by community history.
- **Health is an integral part of a larger context, probably most clearly defined as quality of life, and it's within that context that it must be considered.** It is only one of many factors that make life better or worse for individuals and the community as a whole. It therefore influences, and is influenced by, much more than seems directly connected to it.





# Thank you

jane.phillips@uts.edu.au

## *Research Article*

### **Developing Targeted Health Service Interventions Using the PRECEDE-PROCEED Model: Two Australian Case Studies**

**Jane L. Phillips,<sup>1</sup> John X. Rolley,<sup>2</sup> and Patricia M. Davidson<sup>3</sup>**

<sup>1</sup> School of Nursing, The University of Notre Dame Australia, The Cunningham Centre for Palliative Care, St Vincent's & Mater Health Sydney, 170 Darlinghurst Road, Sydney, NSW 2010, Australia

<sup>2</sup> Cardiac Investigation Unit, St Vincent's Hospital, P.O. Box 2900, Fitzroy, VIC 3065, Australia

<sup>3</sup> Cardiovascular Nursing Research, St Vincent's Hospital and Centre for Cardiovascular and Chronic Care, Faculty of Nursing, Midwifery & Health, University of Technology Sydney, Broadway, NSW 2007, Australia

Correspondence should be addressed to Jane L. Phillips, jane.phillips@nd.edu.au

Received 20 February 2012; Accepted 10 April 2012

Academic Editor: Sheila Payne





# A STEPPED WEDGE CLUSTER RANDOMISED IMPLEMENTATION TRIAL

BY DR BEA BROWN

*NHMRC Clinical Trials Centre*

# CLIG

Clinician-Led Improvement in Cancer Care

A stepped wedge cluster randomised  
implementation trial

Bea Brown  
August 2017

**Acknowledgements:** Sax Institute, NSW Agency for Clinical Innovation, Cancer Council NSW, University of Sydney, Prostate Cancer Foundation of Australia (PCFA)

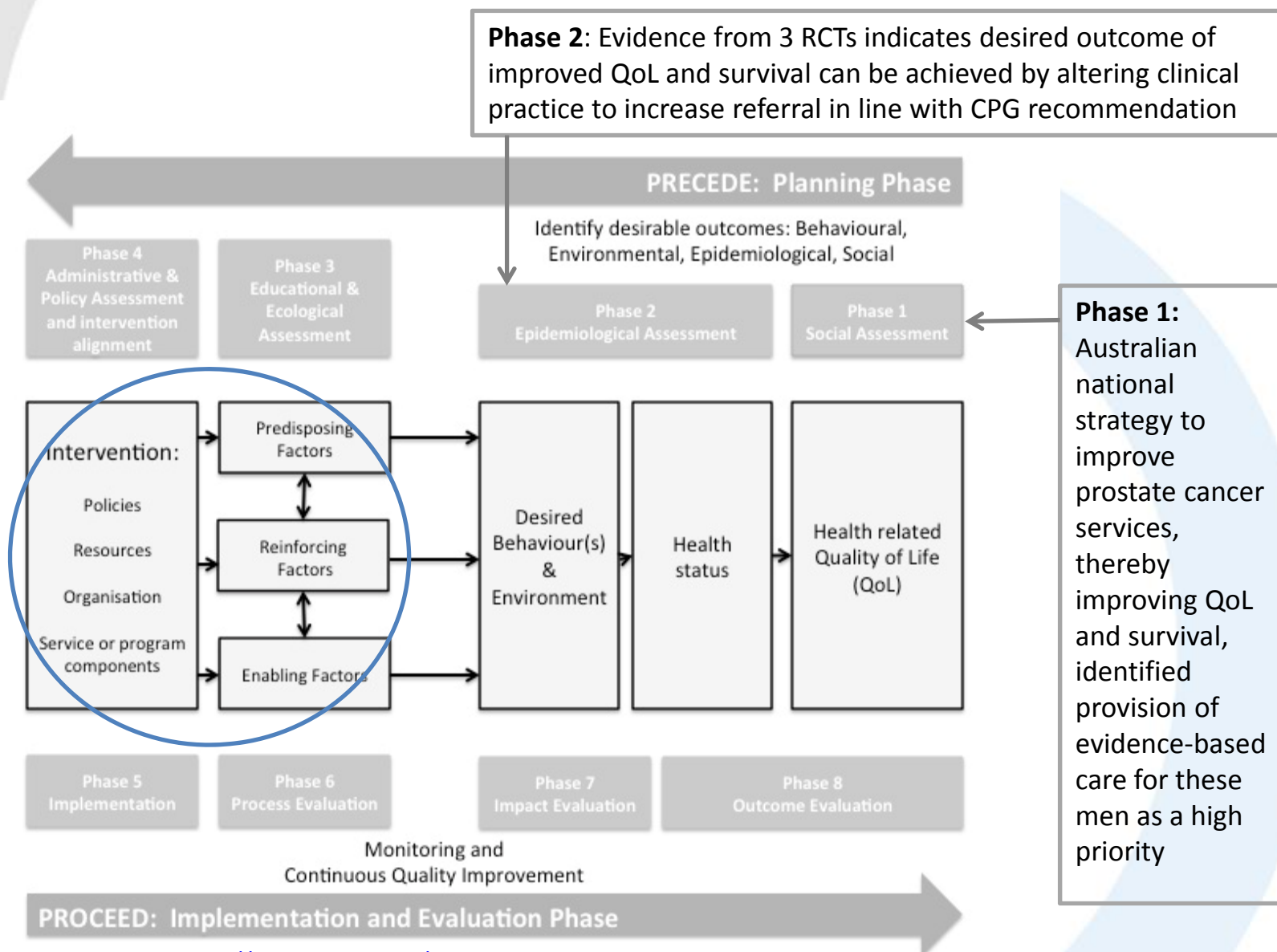
**Funding:** NHMRC partnership project: 1011474

## An evidence gap... in practice

- Australian Cancer Network Clinical Practice Guideline recommendation: Post- RP men with high-risk features should be referred for consideration of ART
- 10 –20% of eligible men receive ART in Australia and other regions such as the US and Canada

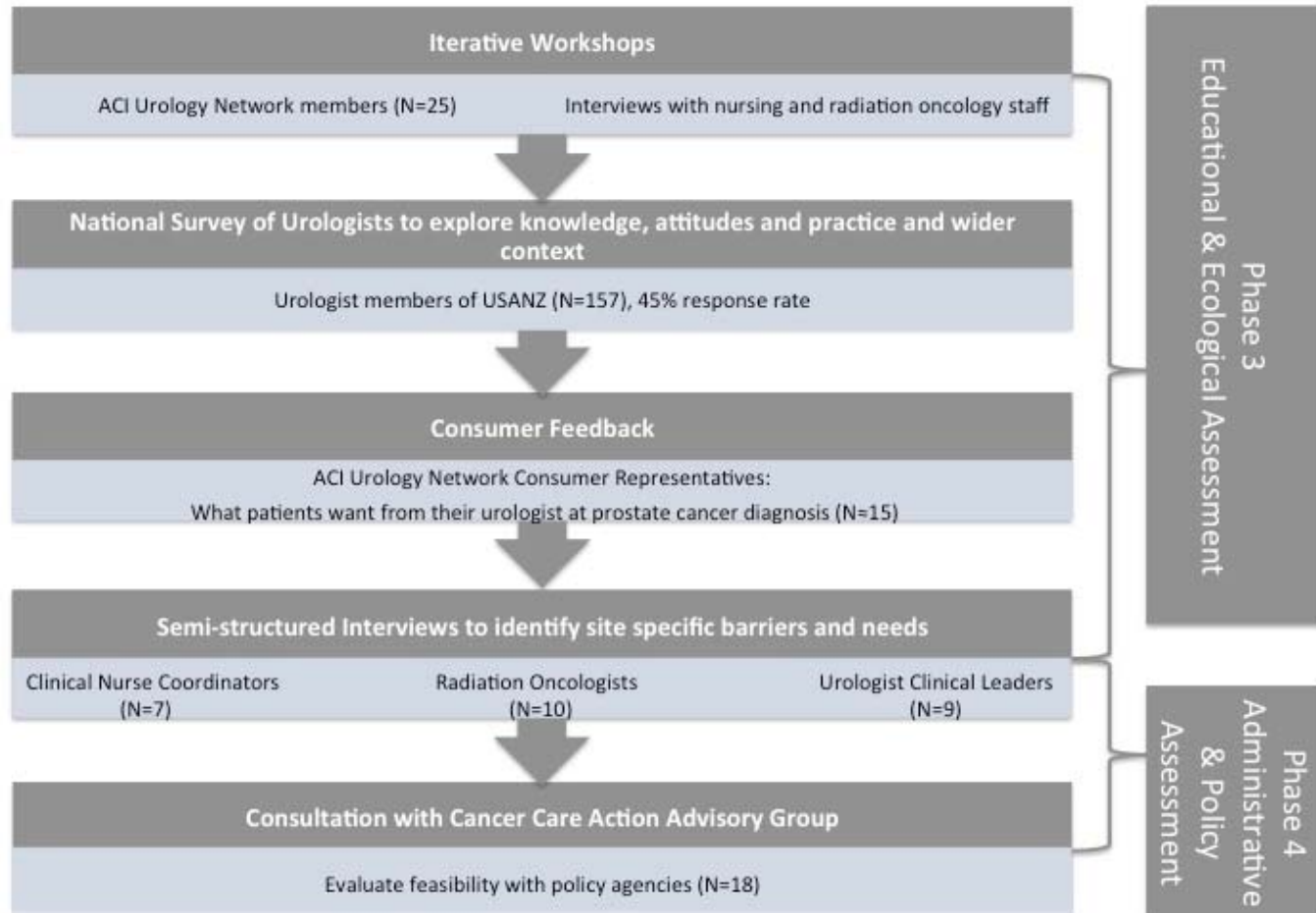
**CLICC Study Aim:** To increase guideline recommended referral of eligible men post-RP

# The PRECEDE-PROCEED Model

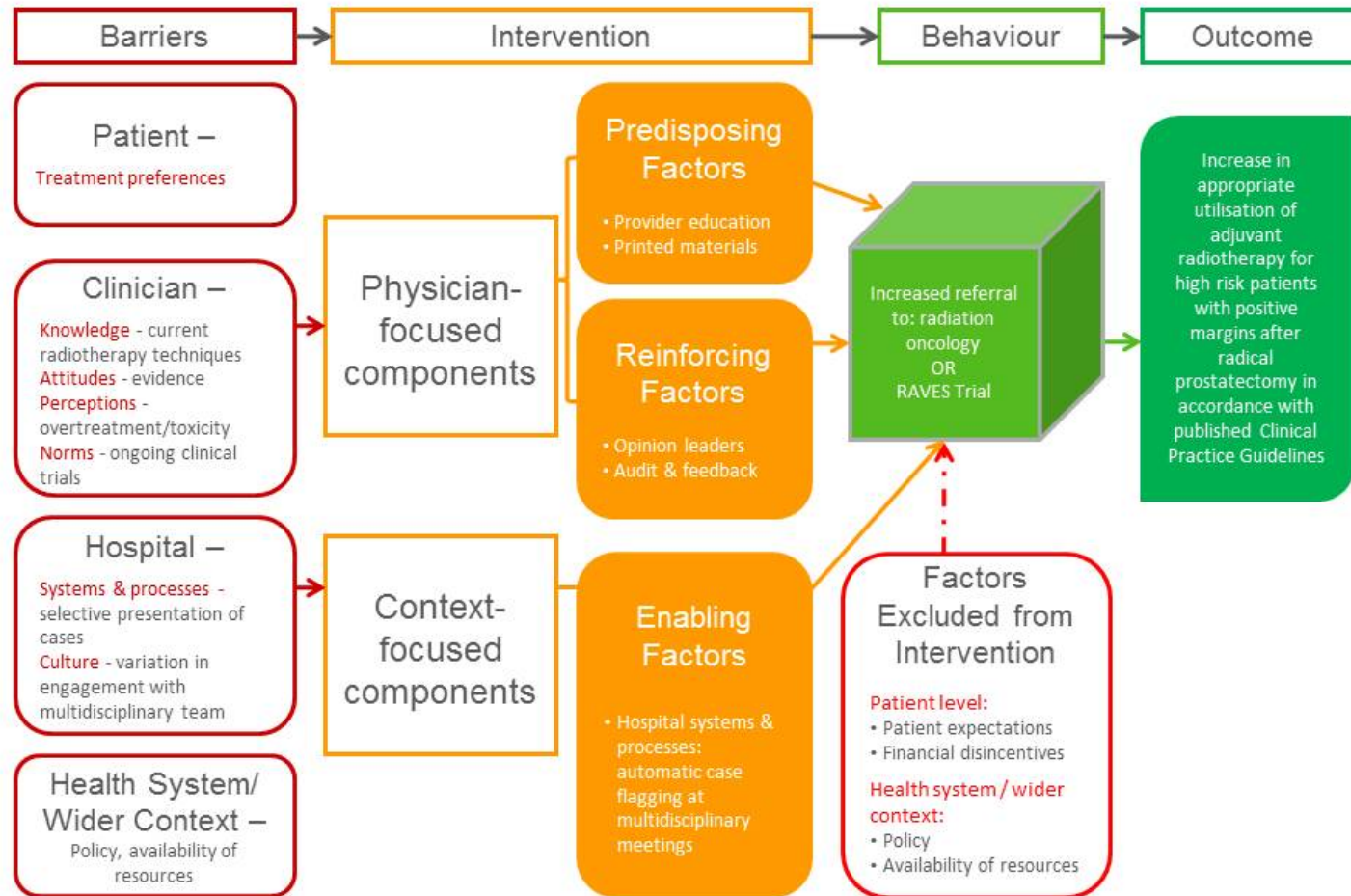


Adapted from Green L. <http://www.lgreen.net/precede.htm> [accessed October 2015]

# Phases 3 & 4: Needs and barriers analysis



# CLICC conceptual program logic model



## Phases 5 & 6: Implementation and Process Evaluation

	Opinion Leaders			Provider Education and Printed Materials				Audit & Feedback				Automated Systems	
	Local Clinical Leader	Urology Network Co-Chair	President of USANZ	CLICC Video	Full CPG	RCT papers	CLICC printed resource	Report 1	Report 2	Report 3	Report 4	Public pathology MDT flagging	Private pathology MDT flagging
Site 1	<b>Reinforcing factor</b> Mixed response			<b>Predisposing factor</b> Mixed response				<b>Reinforcing factor</b> Considered influential by nearly half (14 of 29; 48%).				<b>Enabling factor</b> Considered most influential intervention component (21 of 29; 72%)	
Site 2													
Site 3													
Site 4													
Site 5													
Site 6													
Site 7													
Site 8													
Site 9													

### Mixed methods process evaluation:

- Quantitative measures of intervention elements to assess *implementation*, *participation* and *response*, and *context*.
- Qualitative exploration of participants experience of, and *response* to, the intervention (*predisposing*, *enabling* and *reinforcing* factors) and the *contextual* characteristics of the nine participating study sites.



## **Phases 7 & 8:**

# **Impact and Outcome Evaluation**

- Impact evaluation: assessment of knowledge and attitudinal outcomes through pre-post intervention surveys
- Outcome evaluation: assessment of primary and secondary outcomes through blinded independent medical record review



# THEORY-INFORMED INTERVENTION TO IMPROVE THE IMPLEMENTATION OF DIETARY GUIDELINES IN CHILDCARE SERVICES

BY MEGHAN FINCH

*University of Newcastle*



**Health**

Hunter New England  
Local Health District

# Theory-informed intervention to improve the implementation of dietary guidelines in childcare services.

Dr Meghan Finch

Hunter New England Population Health, University of Newcastle

Kirsty Seward (PhD student), Associate Professor Luke Wolfenden, Dr Sze Lin Yoong, Professor John Wiggers,

Dr Rebecca Wyse



# Context



- Childcare key setting to improve child nutrition
- Setting dietary guidelines recommend provision of food in line with population dietary guidelines
- In NSW guidelines are outlined in Caring for Children
  - Children in care provided with 50% of recommended intake
  - Outline types and quantities of food
  - Focus on menu planning
  - Targeted at cooks and service managers



- Evidence indicates services are failing to meet their recommendations
  - 20 year existence of guidelines
  - Supportive licensing and accreditation standards
  - High recognition among cooks and managers

**Nutrition Checklist for Menu Planning**

Use this checklist to plan each two-week cycle of your service menu. The number of serves recommended is the minimum required to meet the nutritional needs of children when one main meal and two midmeals are provided.

<b>Main Meals</b> <b>Beef/Lamb/Kangaroo</b> ■ Lean red meat is included on the menu at least 6 times per fortnight <input type="checkbox"/> <b>Chicken/ Fish/ Pork/ Veal/ Non-Meat Meals</b> ■ A variety of lean white meat/non-meat meals are included on the menu up to 4 times per fortnight <input type="checkbox"/> ■ Non-meat meals are based on eggs, cheese, tofu or legumes <input type="checkbox"/> ■ Raw vegetables or fruit high in vitamin C are served with the non-meat meal <input type="checkbox"/> <b>Raw vegetables and fruit high in vitamin C include</b> citrus fruit, tomato, cauliflower, broccoli, kiwi fruit, capsicum, rockmelon <b>Iron Containing Foods</b> ■ On each day that a red meat meal is served, at least 1 other iron containing food is included on the menu <input type="checkbox"/> ■ On each day that a white meat or non-meat meal is served, at least 2 other iron containing foods are included on the menu <input type="checkbox"/> <b>Other iron containing foods:</b> wholemeal bread, breakfast cereal, dried fruit, Milo™ <b>Vegetables and Fruit</b> ■ The menu includes at least 2 serves of vegetables daily <input type="checkbox"/> ■ The menu includes at least 1 serve of fruit daily <input type="checkbox"/> <small>*A variety of vegetables and fruit throughout the menu is important.</small>	<b>Dairy Foods</b> ■ The menu includes a total of 1 serve of dairy foods daily <input type="checkbox"/> <small>Serving milk at morning and afternoon tea may be an easy and reliable way to meet this requirement.</small> milk, yoghurt, cheese, custard <small>*Cream, sour cream and butter are not substitutes for milk, yoghurt and cheese</small> <b>Breads, Cereals, Rice and Pasta</b> ■ The menu includes at least 2 serves of bread, cereal, rice or pasta foods daily <input type="checkbox"/> ■ High fibre varieties e.g. multigrain, wholemeal, high fibre white are included daily <input type="checkbox"/> <small>Other breads include: Pita, lavash, Turkish, Lebanese, fruit bread, scones, etc.</small> <b>Morning and Afternoon Tea (Midmeals)</b> ■ Midmeals are planned on the menu as part of the total daily intake <input type="checkbox"/> ■ Milk, cheese, yoghurt or custard is included if necessary to meet the recommended daily serve <input type="checkbox"/> ■ Bread/cereal based foods are included if necessary to meet the recommended daily number of serves <input type="checkbox"/> ■ Vegetables and fruit are included if necessary to meet the recommended daily number of serves <input type="checkbox"/>
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# Theoretical Domains Framework



## Why the TDF?

- Comprehensive, constructs from 33 behaviour change theories grouped in 14 domains covering key factors that are known barriers and enablers to implementation behaviours
- Provides a systematic approach:
  - Understanding of the determinants of current and desired implementation behaviours.
  - Identifying areas to change
  - Selection of strategies
- Successfully applied in the design of complex implementation interventions in clinical settings that have been effective in modifying care delivery practices
- Psychometrically evaluated measure to assess

# Theoretical Domains Framework



Domain	Example meaning
Knowledge	Do the key people know about the guidelines, do they understand their rationale, do they have appropriate procedural knowledge?
Skills	Do staff have sufficient skills, ability or training in required techniques?
Memory, attention and decision processes	Do staff forget to implement the guidelines, are there reminders in place?
Behavioural regulation	What is done at a personal level to ensure implementation?
Social influences	Who influences the decision to implement the guidelines?
Environmental context and resources	Are there sufficient resources to support implementation, what is missing?
Social/professional role and identity	Is implementation of the guidelines seen as typical staff's role?
Beliefs about capabilities	Are staff confident in their capacity to implement, what makes it easier or difficult?
Beliefs about consequences	What are benefits or negative aspects of implementing guidelines?
Optimism	Are staff optimistic that implementing guidelines will make a difference in the grand scheme?
Intentions	How motivated are staff to implement the guidelines?
Motivation and goals	How much of a priority is implementation compared to other competing demands ?
Reinforcement	Is there any personal or external rewards for implementation?

# Identifying barriers and enablers



## Literature review, interviews, observations

### Domains

### Barriers and enablers

#### Knowledge

- Limited awareness of whether menu meets guidelines, limited knowledge of food groups, serve sizes and the daily recommended serves per child to be provided while in care

#### Skills

- Lacking capability to undertake serve size calculations, modify recipes, read nutrition information panels, and use and apply the menu planning checklist.

#### Beliefs about consequences

- No formal schedule for menu reviews

#### Action planning

- Limited experience in setting SMART goals and action plans to enable service cooks and managers to work towards menu guideline implementation

#### Social/professional role

- Service cooks lack of support from management and educators

#### Environmental context and resources

- Limited access to appropriate resources to assist with identifying food groups and planning a menu



# Strategy selection

Behaviour change technique	Techniques judged to be effective in changing each construct domain										
	1	2	3	4	5	6	7	8	9	10	11
Goal/target specified: behaviour or outcome	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Monitoring	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Self-monitoring ★	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Contract	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Rewards; incentives (inc. self-evaluation)	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Graded task, starting with easy tasks	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Increasing skills: problem-solving, decision-making, goal-setting	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Stress management	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Coping skills	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Rehearsal of relevant skills	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Role-play	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Planning, implementation	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Prompts, triggers, cues	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Environmental changes (e.g. objects to facilitate behaviour)	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Social processes of encouragement, pressure, support	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Persuasive communication ★	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Information regarding behaviour, outcome ★	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Personalised message	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Modelling/demonstration of behaviour by others	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Homework	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Personal experiments, data collection (other than self-monitoring of behaviour)	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Experiential: tasks to gain experiences to change motivation	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use
Feedback ★	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use	Agreed use

## TDF domains

- 1 Social/Professional role and identity
- 2 Knowledge
- 3 Skills
- 4 Beliefs about capabilities
- 5 Beliefs about consequences
- 6 Motivation and goals
- 7 Memory, attention, decision processes
- 8 Environmental context and resources
- 9 Social influences
- 10 Emotion
- 11 Action planning

Recommendation for each technique mapped to TDF domains

KEY:

Agreed use
Uncertain
Disagreement
Agreed non-use

# Intervention summary



Domain	Suggested BCT	Implementation strategy	Example
<b>Knowledge</b>	Information regarding behaviour, outcome	<b>Training</b>	Information on importance of nutrition for children and the role of childcare. Review of content of Caring for children resource.
		<b>Resources</b>	Information on food groups, discretionary foods, serve sizes and daily recommended serves per child Fact sheets on recommended serve sizes and Instructional materials and newsletters targeting key barriers
<b>Skills</b>	Problem solving, demonstration, Rehearsal	<b>Training and follow-up support</b>	Practice identifying food groups, undertaking serve size calculations and applying the Caring for Children menu planning checklist.
<b>Action planning</b>	Goal target specified Planning, prompts	<b>Training</b>	Service cook and service manager set joint goals and action plans, using a goal setting template
		<b>Follow-up support</b>	Review of goals and actions plans of each service and integrate with quality improvement plans
<b>Beliefs about consequence</b>	Monitoring	<b>Audit and feedback</b>	Audit of menu at two time points (baseline and mid-intervention), with written and verbal menu feedback provided at each time point.
	Feedback	<b>Securing executive support</b>	Service manager signed MOU to provide feedback to the cook.
<b>Social professional role/ identity</b>	Social processes encouragement	<b>Follow-up support and securing executive support</b>	Facilitated discussions with managers and cooks to determine clear roles and responsibilities.
	Pressure,		Manager discussions at team meetings re required roles of educators to support healthy menu implementation



# Measuring success



- Intervention implemented over 6 months and evaluated via cluster randomised controlled trial with 45 childcare services

## Menu compliance:

- No change in full 2 week compliance (all food groups each day)
- Significantly greater compliance for 3 out of the 6 targeted food groups (fruit, meat, non-core food)

## Child food consumption:

- Significant improvements for 2 of 6 food groups (vegetables, fruit)

## TDF domains:



Health  
Hunter, Newcastle and  
Local Health District

no significant differences between groups in cooks TDF scores for domains targeted by intervention



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AUSTRALIA

# Challenges



- Identifying determinants
  - Requires investment of time and resource
  - Domain specificity
- Measurement
  - Length of full survey - high participant burden
  - Sensitivity, scores were high indicating possible ceiling effect hindering capacity to detect change
  - Balance between high behavioural specificity (to maximise identification of determinants) and generalisability to enable relevance to a range of contexts
  - Intervention may have exerted its effects through other pathways
- Framework for mapping determinants to strategies based on consensus

# Acknowledgements



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Hunter New England Population Health is a unit of the Hunter New England Local Health District.



Supported by NSW Health through the Hunter Medical Research Institute.



Developed in partnership with the University of Newcastle.



# PANEL DISCUSSION

*Including Q&A*  
*Chaired by Dr Ben Smith*

Twitter: [#impsci](#) [#frameworks17](#)

# EVALUATION SURVEY

<https://tinyurl.com/y9nqcmfk>

Twitter: #impsci #frameworks17

# LUNCH & NETWORKING

*1.00pm-1.45pm*

Twitter: [#impsci](#) [#frameworks17](#)