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The Pyramid of evidence: challenges and opportunities for nursing research

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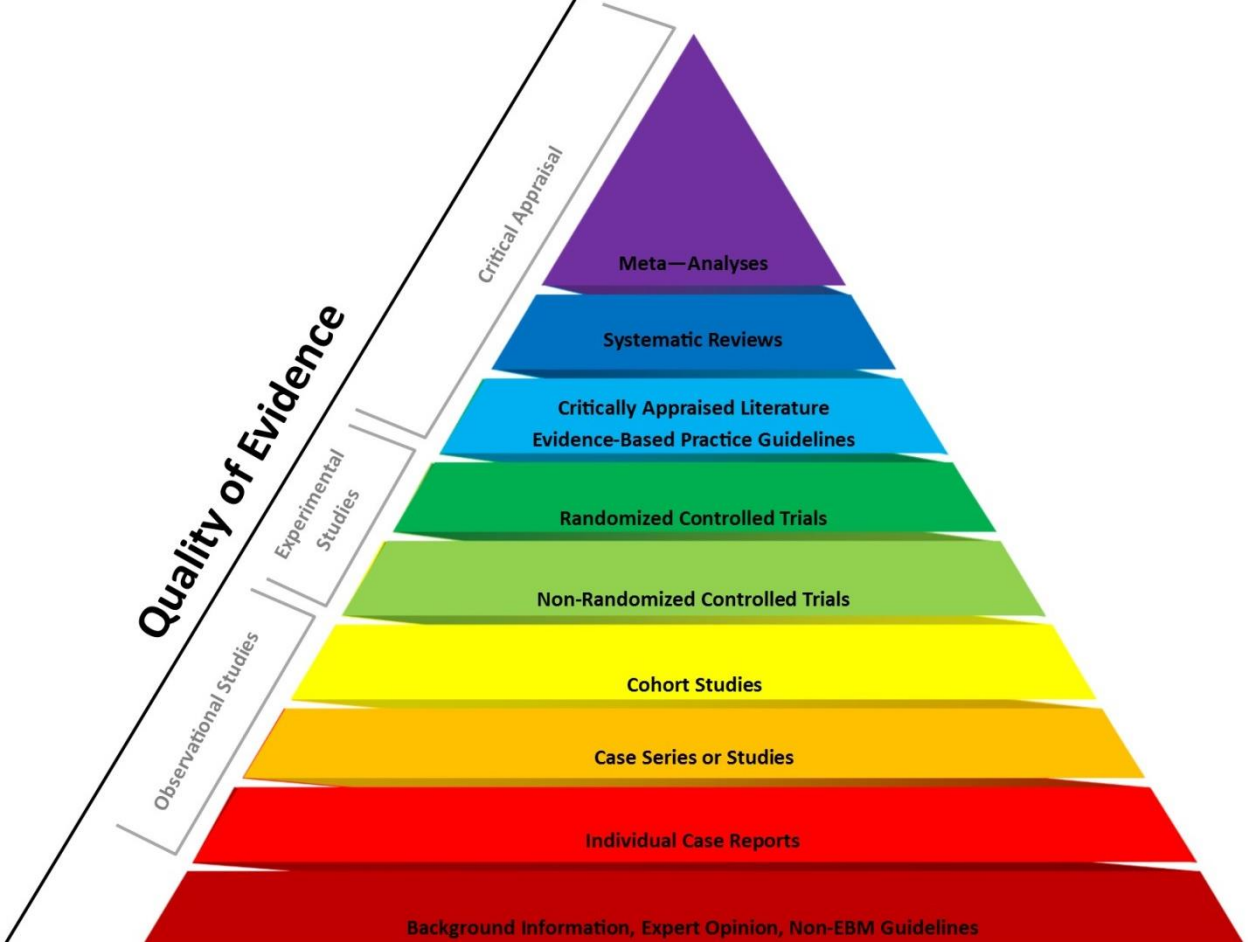
Proposing a stepped approach

- Step 1: clinical problem
- Step 2: appraising evidence
- Step 3: gaining confidence
- Step 4: identifying gaps in evidence
- Step 5: research question
- Step 6: best method for the question
- Step 7: stepping up the pyramid



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A Systematic Review And Narrative Summary of Workplace-based Interventions to Increase Breast Mammography Screening in Islamic Countries

Susanne Cruickshank, Rob Polson , and Gill Hubbard

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Saudi Arabia

Saudi Arabia is the largest sovereign state in the Middle East, the second-largest in the Arab world (after Algeria), the fifth-largest in Asia, and the 12th-largest in the world. The Saudi national population in 2013 was 20,180,080 (Saudi cancer registry, 2012).

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Breast Cancer Incidence In Islamic Countries

There are high levels of breast cancer among women in Islamic countries [Noor et al. 2016]

- In Islamic countries i.e. Egypt, Yemen, Saudi Arabia and Oman there is a significant increase in women presenting with late stage breast cancer (stage 3 and 4) [Saudi cancer registry, 2012]
- The median age at diagnosis is 49 years [Saudi cancer registry 2014]. USA median age at diagnosis is 61 years [national cancer institute 2010]. In the UK, 80% of breast cancer cases were above 50 years and 48% 65 years and over [cancer research UK 2014].

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The Incidence And Mortality Of The Breast Cancer Through 2012 In Muslim Countries

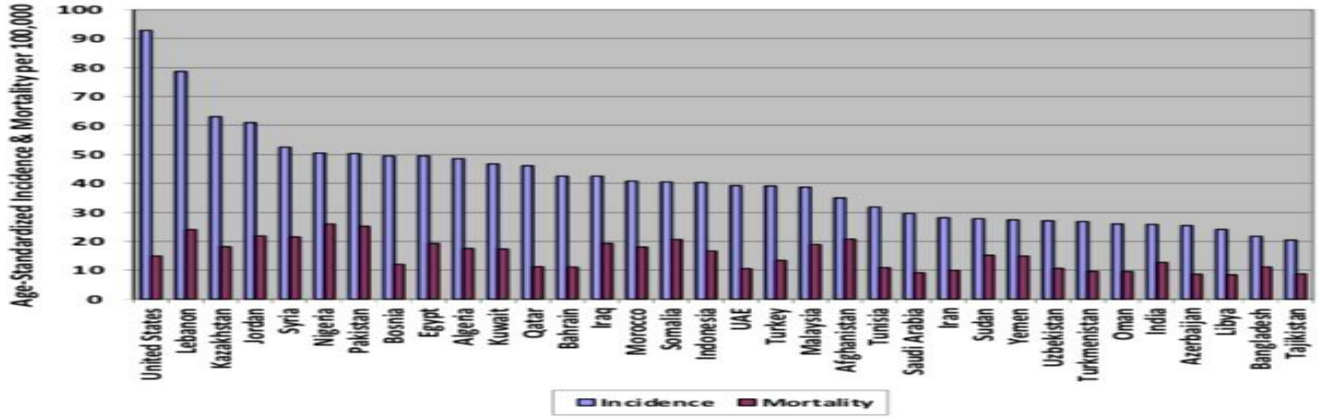

Fig. 1. The incidence and mortality of breast cancer through 2012 in Muslim countries and US; WHO's GLOBOCAN 2012 database [7]

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Mammography Screening In Islamic Countries

Islamic countries adopt the recommendations of the national cancer institute, USA and mammography is offered to all women from the age of 40 onwards.

- According to the International Cancer Screening Network (ICSN) (2010), the population of Saudi women who had a mammogram in 2012 was 19.0% (6,200) among those aged 40-64 years.
- Mammography screening programs are opportunistic as no call recall system is in place [el-Bcheraoui et al. 2015; miles et al. 2004].

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Systematic Review

Why choose Workplaces?

1. Gender segregation

2. Provide a convenient location for reaching large groups of women

As a first step towards developing an effective workplace intervention in Saudi Arabia to increase mammography screening rates, I conducted a comprehensive systematic review.

I needed to appraise evidence in this area to understand what research has been done

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Objectives

The purpose of the review was to carry out a systematic review and narrative summary of studies that assessed the effectiveness of workplace interventions to increase mammography uptake among female employees.

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Search Terms

The search terms are detailed below using PCC technique (Population, Concept and Context)

Population : Employee women in the workplace where the intervention was delivered.

Concept: A programme delivered to employees in a workplace setting to increase mammography uptake among female employees. The primary outcome that measured mammography uptake by self-report or verified report in a clinical database or medical record.

Context : workplace setting

Type of study: Before-and-after studies and randomized and non-randomised controlled trials.

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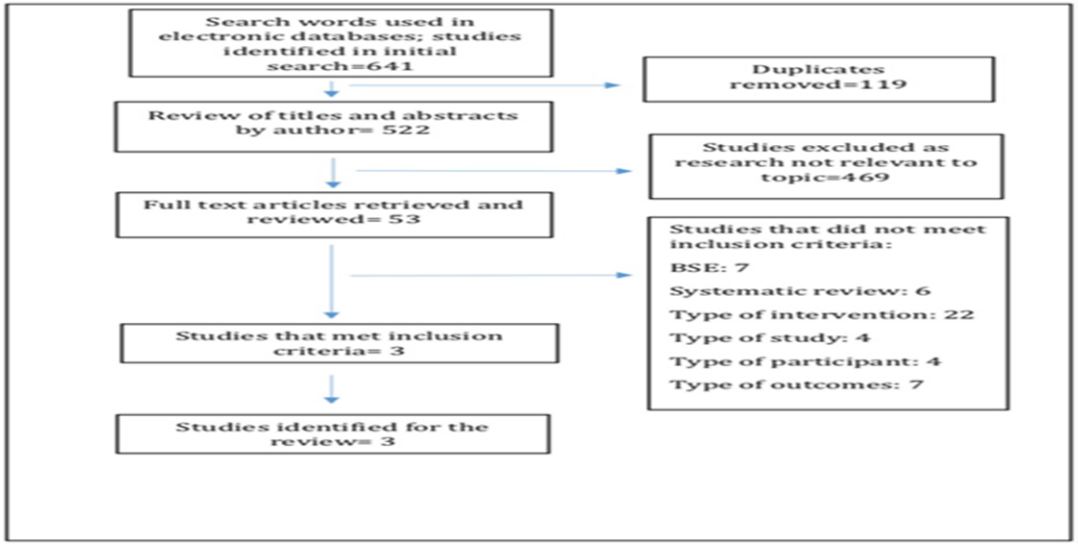
Data Extraction Processes

coping Review Details
Review title
Review objective/s
Inclusion/Exclusion Criteria
Population
Concept
Context
Types of Study
Study Details and Characteristics
Study citation details (e.g. author/s, date, title)
Country
Context
Participants (details e.g. age/sex and number)
Details/Results extracted from study (in relation to the concept of the scoping review)

Only **3** studies

Fig.1 flowchart



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Using TIDieR (template for intervention description and replication)

Item	Function	Allen et al 2001 U.S.A	Ma et al. 2012 China	Mayer et al.1993 U.S.A
1	**Behaviours**	Mammography screening, clinical breast examination and cervical cancer screening (pap test)	Mammography screening	Mammography screening
2	**Intervention function**	Education, Persuasion, Incentives, Training, Environmental restructuring, Modelling and enablement	Education, Persuasion, Training, Environmental restructuring, Modelling and enablement	Education, Persuasion, Training, Modelling and enablement
3	**Duration**	16-month intervention	pre- and post-intervention assessments and 6-month follow-up on mammography screening	A one-year programme
4	**study population numbers**	Twenty six worksites were randomly assigned to the intervention or comparison group. Baseline(n =2943) Follow up(n=2747)	Eight worksites in Nanjing, four of which were assigned to the intervention group(n=232) and four to the control group (n=221)	Employees at two campuses of the California state University. At the intervention site (n= 600)and at the control site (n= 513)
5	**Result**	The effect size for the intervention was small. Between baseline and follow up ,the use of mammography slightly increase among women aged 40 t0 50	The workplace intervention dramatically increased the uptake of mammography from 10.3% at baseline to 72.6% at 6-month follow-up in the intervention group	Mammography rates increased at both sites, but the result also were not statistically significant

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Results

- No studies have been conducted in Saudi Arabia or with Saudi women employees
- All three studies were conducted in countries USA (2) and China (1) with different health service systems operating
- All studies were carried out only over a short period and prior to 2012
- **No** evidence of significance from the review ; two studies revealed no significant variation in uptake mammography screening before and after the educational intervention among participants

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Conclusions

STEP Back and Give a voice to women

It was felt necessary to understand why, when services are free in Saudi so few women use them and secondly, what features would need to be included in a workforce intervention to address the specific needs of Saudi women and increase mammography uptake

Therefore, my present study is exploring the knowledge, attitudes and sources of information about mammography screening among female employee's in a university (uses focus groups)

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Thank you

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Opportunities and challenges when updating Cochrane reviews: Specialist breast care nurses for supportive care of women with breast cancer

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Introduction

A look at some 'opportunities' and 'challenges' related to updating existing systematic reviews in the Cochrane Library using the BCN review as an example.

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Original review 2008

Cochrane Library

Cochrane Database of Systematic Reviews

Specialist breast care nurses for supportive care of women with breast cancer (Review)

Cruickshank S, Kennedy C, Lockhart K, Dosser I, Dallas L

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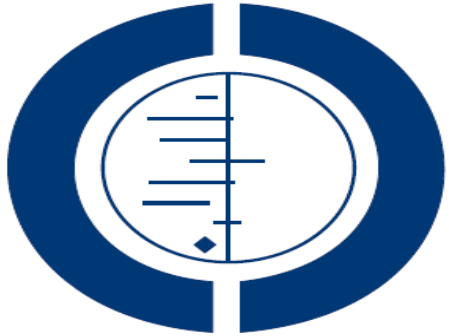
Protocol

Specialist breast care nurses for supportive care of women with breast cancer (Protocol)

Cruickshank S, Kennedy C, Lockhart K, Dosser I, Dallas L



This is a reprint of a Cochrane protocol, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2006, Issue 1

http://www.thecochranelibrary.com

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Definition of a specialist breast care nurse

"a registered nurse who applies advanced knowledge of the health needs, preferences and circumstances of women with breast cancer to optimise the individual's health and well-being at various stages across the continuum of care, including diagnosis, treatment, rehabilitation and palliative care"

Yates P, Evans A, Moore A, Heartfield M, Gibson T, Luxford K. Competency standards and educational requirements for specialist breast nurses in Australia. Collegian 2007;14(1):11-5.

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Background

- Breast cancer is a complex disease which continues to be the most common cancer seen among women globally.
- Specialist Breast Care Nurses (BCNs) provide support, information, patient advocacy and general liaison among the various members of the healthcare team.
- It is a widely cited review – European guidelines, competency framework

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Aim

We wanted to understand whether the regular encounters by BCN's with women with breast cancer can improve quality of life outcomes, either by including a specific intervention and/or undertaking new roles within the multidisciplinary team.

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Opportunities when updating a Cochrane review?

- Ensure the evidence base is up-to-date
- Improve the reporting of the evidence – see ‘challenges’
- Increase our understanding of the components of interventions
- Inform the development of future interventions and the direction of further research
- Make sure the review is policy and practice-relevant
- Highlight where there are still gaps in knowledge
- Make recommendations for research and practice
- Raise the profile of nursing research and reporting

Challenges when updating a Cochrane review?

Challenges can be divided into:

- Challenges around the quantity of the evidence base and
- Challenges around changes to methods – this is our focus today

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Challenges when updating a Cochrane review?

- Expectations of a Cochrane Review
- Authorship team
- Context – characteristics of women with breast cancer, BCN experience/training
- PROGRESS criteria*
- Risk of bias
- Evolved results
- GRADE/Summary of findings**

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*Social determinants of health have been summed up in the acronym PROGRESS-Plus:

- Place of residence
- Race/ethnicity
- Occupation
- Gender
- Religion
- Education
- Socio-economic status
- Social capital
- Age, disability and sexual orientation

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**Certainty in the evidence.....

Applying the constructs of GRADE (Grading of Recommendation, Assessment, Development and Evaluation) to assess the certainty in the evidence when ‘all’ you have is narrative summary.

Murad MH, Mustafa RA, Schunemann HJ, Sultan S, Santesso N. Rating the certainty in the evidence in the absence of a single estimate of effect. Evid Based Med June 2017, vol 22, no 3, pp85-87.

GRADE domain	How to apply the GRADE domain to evidence that has been summarised narratively
Methodological limitations of the studies	Make a judgement on the risk of bias across studies for an individual outcome. A sensitivity analysis is not possible to determine if the effect changes when studies at high risk of bias are excluded. It is possible to consider the size of a study, its risk of bias and the impact it would have on the summarised effect.
Indirectess	Make a global judgement on how dissimilar the research evidence is to the clinical question at hand (in terms of population, interventions and outcomes across studies).
Imprecision	Consider the optimal information size (or the total number of events for binary outcomes and the number of participants in continuous outcomes) across all studies. A threshold of 400 or less is concerning for imprecision. Results may also be imprecise when the CIs of all the studies or of the largest studies include no effect and clinically meaningful benefits or harms.
Inconsistency	Judge inconsistency by evaluating the consistency of the direction and primarily the difference in the magnitude of effects across studies (since statistical measures of heterogeneity are not available). Widely differing estimates of the effects indicate inconsistency.
Likelihood of publication bias	Publication bias can be suspected when the body of evidence consists of only small positive studies or when studies are reported in trial registries but not published. Statistical evaluation of publication bias is not possible in this case. Publication bias is more likely if the search of the systematic review is not comprehensive.

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Summary of Findings

Outcome	Effect	Number of participants (studies)	Certainty in the evidence
		xxx (x RCTs)	See previous slide. For example: ⨁⊖⊖⊖ VERY LOW (due to serious risk of bias, indirectness and imprecision)

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Conclusion – a recommendation for research & practice

Report more detail about the intervention providers in studies so that reviewers can extract this information and report in systematic reviews in order to improve reporting and indeed replication of complex interventions……

Tamara Brown – Research Fellow

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A feasibility study of the Mini-AFTER telephone intervention for the management of fear of recurrence in breast cancer survivors

Dr Susanne Cruickshank @sue_cruickshank
Prof. Gerald Humphris, University of St Andrews
Dr Jo Armes , University of Surrey
Prof. Debbie Fenlon, Swansea University
Emma Steel, Research Assistant
Elspeth Banks, Chair Independent Cancer Voices and patient expert
Funder Breast CancerNOW

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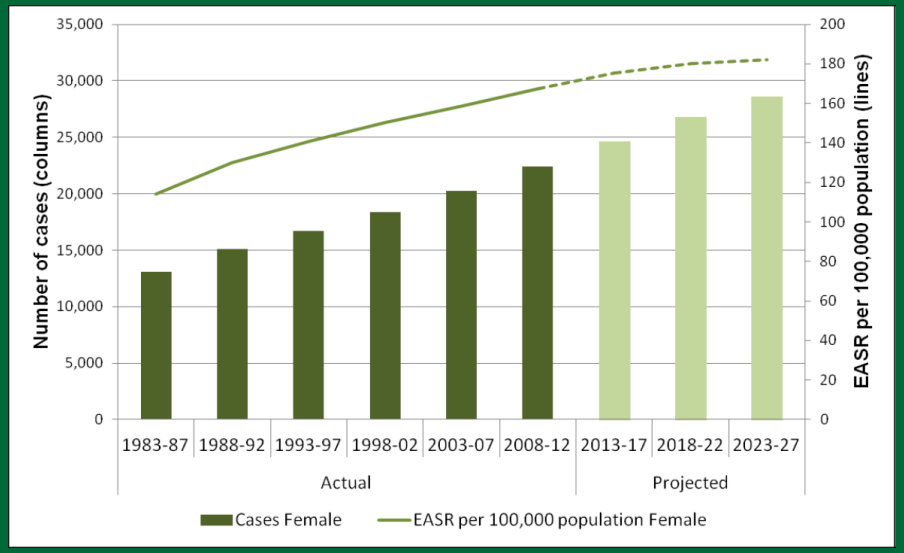
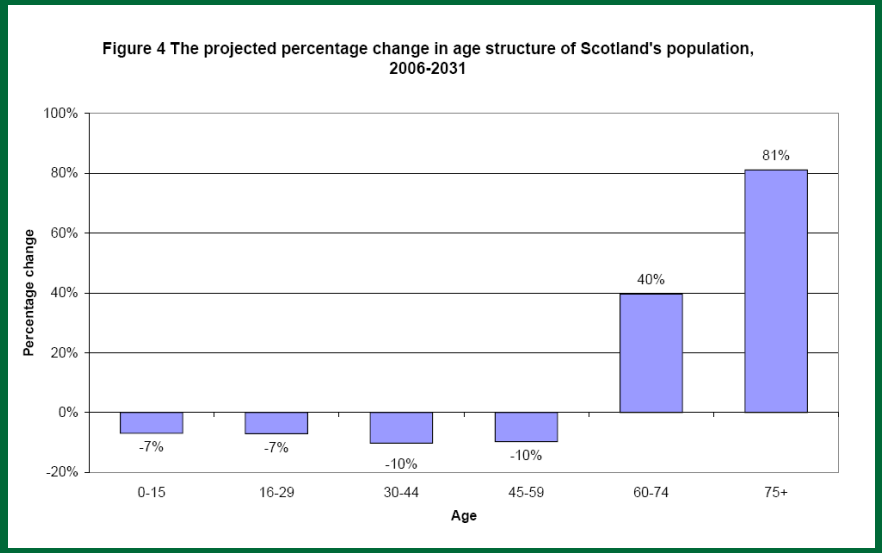
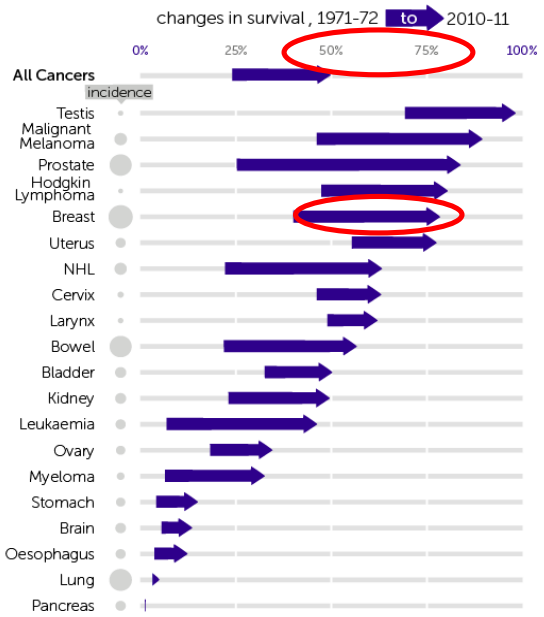
Background

Breast cancer projections





Age-Standardised Ten-Year Net Survival, Selected Cancers, Adults (Aged 15-99), England and Wales, 2010-2011



Prepared by Cancer Research UK
Original data sources:
Cancer Research UK Cancer Survival Group, London School of Hygiene and Tropical Medicine. Personal communication, 2014.

CANCER RESEARCH UK

Recurrence in Breast cancer

Clinical Data (based on Y1 4,697)

2-3 years (10-15%; 675)

3-5 years (4.3%; 164)

5-9 years (4.6%; 168)

Up to and beyond 20 years

Secondary breast cancer: different outcomes

Breast cancer

Cases- 50,285 (4,697 Scotland, 2013)

Deaths – 11,716

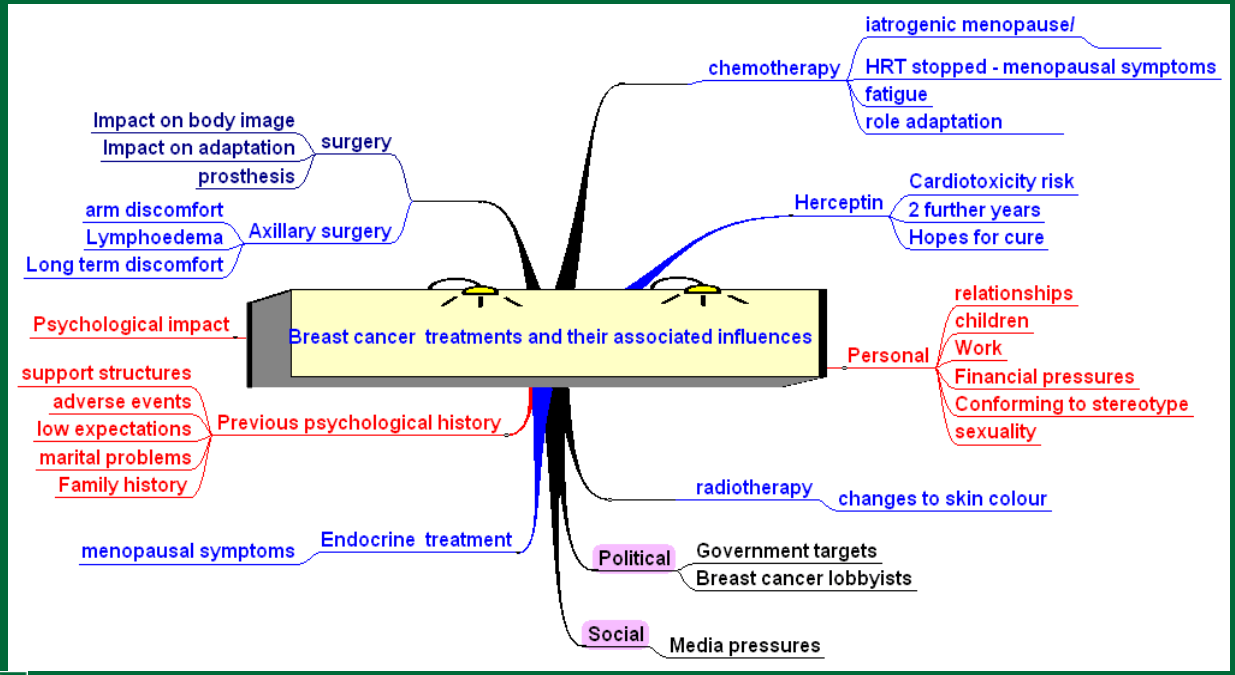
Survival – 78%

Preventable cases – 27%

Diagnosed and treated – approx. 570,000

UK – 25% of cancer population

Complexities of breast cancer on an individual



Fear of cancer recurrence

Fear of cancer recurrence (FCR) is defined as “fear, worry, or concern about cancer returning or progressing” Lebel et al. 2016

- **Normal reaction to a threat and level of fear appropriate to alert individual to adverse symptoms**
- **Risk of the cancer recurring is a possibility people have to live with**
- **Increased healthcare usage among breast cancer population (what is a normal symptom?**
- **Fear is on a continuum of mild to severe**

AFTER
Mini-AFTERc

A = Assessment
F = Family
T = Thoughts and feelings
E = Examination and self-care
R = Returning of cancer & review

AFTER = severe FCR, 6 x 1 hour sessions
Mini = moderate FCR (stepped approach), 30 minute telephone call

Aim and objectives of study

To determine the SBCN views on implementing the Mini-AFTERc intervention into their practice.

1. Capture current approaches used by SBCNs to identify and manage FCR

2. Identify challenges and barriers experienced by SBCNs in assessing and managing FCR

3. Assess SBCNs willingness to implement the Mini-AFTERc intervention and understand what would enable successful implementation

Mixed Methods

Phase	Procedure	Product
Phase 1: Data collection	• Web-based survey	• Numerical data • Free-text responses
Phase 1: Data analysis	• Multi-level models • Sensitivity analysis • Coding free text responses	• Descriptive statistics • Coded themes
Connecting Phase 1 and 2	• Purposive sampling frame determined by survey findings on specific domains • Develop interview questions to answer questions raised by survey findings	• Interview sample • Semi-structured interview schedule
Phase 2: Data collection	• Individual semi-structured phone interviews (n=20) • Verbatim transcription of interview audio recordings	• Interview transcripts
Phase 2: Data analysis	• Framework Analysis	• Thematic framework • Indexed and charted data • Mapping and interpretation of the data
Integration of Phase 1 and 2 results	• Interpretation of the survey data • Refinement to implementation process	• Discussion • Refinement of the Mini-AFTER intervention • Revision of Mini-AFTER study design • Feasible process for implementing Mini-AFTER in BCN practice • Future research

Normalisation process theory

NPT identifies the component parts for understanding and evaluating the process (implementation) that would enable interventions, such as the Mini-AFTERc to be operationalised and normalised into everyday practice (embedded) but also sustained in practice (integration)

Four components are:

1. **Coherence – sense making**
2. **Cognitive participation – or engagement**
3. **Collective action – work done to enable the intervention to happen**
4. **Reflexive monitoring – formal and informal appraisal of the benefit and costs of the intervention**

NPT influencing interview schedule

THEMES	KEY QUESTIONS	ADDITIONAL PROMPTS
Coherence Differentiation Communal specification Individual specification Internationalisation	Could you tell me about your role as a breast care nurse and which patients you see?	What sort of care do you provide to breast cancer patients?
	How is the issue of FoR generally raised?	Do you always raise the discussion, or do you only discuss FoR if the patient raises it? How do you probe for silent concerns?
	How comfortable are you discussing FoR with your patients?	What prevents you from being open about it? What makes you comfortable?
	How does this differ to your discussions around pathology and treatment options?	Do you find it easier to discuss pathology and treatment options as opposed to emotional issues and fear of recurrence?
	Do you feel there is an impact on you personally when discussing FoR with patients?	Or other emotional issues with patients?
	Is there any kind of support you feel would help you to better deal with FoR in your patients?	Supervision? Grief counselling? Debriefing? Continuing education?
	Whose responsibility is it to discuss FoR with patients?	Is there a shared sense of purpose to address FoR among breast cancer patients?
	How do you think Mini-AFTER differs to your current method of assessing patients for FoR?	
	Who do you think Mini-AFTER would benefit?	Patients? Nurses? Family members? Clinicians?
	Do you think patients would value Mini-AFTER?	How would you make a clinical judgement about whether a patient values it?

NPT influencing coding

NPT Component – Main theme	Sub-themes	Coding
Coherence **Is the sense making work that people do individually and collectively when they are faced with a problem of operationalising some set of practices**	Identifying FCR – how it is raised	Formal assessment
		Not always addressed
		Probing for silent concerns
	Timing of FCR discussion	End of treatment – 6 months after
		On-going
		variable
	Managing FCR (strategies)	Discussing signs and symptoms
		Signposting
		Open access follow-up
	Confidence	Confident
		Managing uncertainties
		Difficult to raise
Cognitive participation **Is the relational work the people do to build and sustain a community of practice around a complex intervention or technology**	Training format	Face to face
		online
	Training aspects	Action plan
		Advanced communication
	Willingness to invest time	Adding to skillset
		Whole BCN team

NPT used to optimise trial design

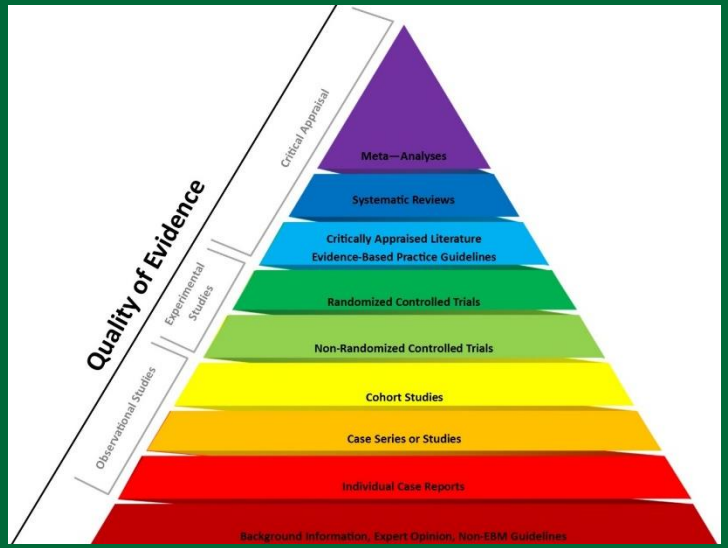
NPT Components	Questions using a NPT approach	NPT analysis to improve trial design
Coherence	What is the relationship between knowing about FoR is a concern and identifying how a new intervention aligns with everyday practice? What is the worth attributed to introducing a FoR intervention? Is the intervention easily described? Is there a shared sense of purpose? Who would the intervention benefit? Are benefits likely to be valued by women with breast cancer?	The intervention, described in more detail for the interview participants, was easily understood and distinguishable from other interventions they delivered. Fear of recurrence was a term very familiar to the SBCN and recognised by many as an area of concern among patients they meet. Perception of the proportion patients with moderate to severe FCR may be over or under-represented. This indicated a gap in accuracy in current assessment approaches used and therefore estimation of perceived benefit.
Cognitive participation	Are the target groups, people affected with breast cancer, and SBCNs likely to think it is a good idea? What kind of skills do SBCNs have now when dealing with FoR concerns? Are SBCN likely to invest time, energy and work into delivering a FoR intervention?	For SBCN, the trial would provide an opportunity to gain new skills through protected training and positively viewed. It is expected a structured intervention could improve the confidence of SBCNs SBCN's offered the opportunity to gain psychological training to deliver a FCR intervention were largely enthusiastic and likely to invest time to train to do it.

Examples continued

Collective action	**Will it promote or impede their work?** **Do they think it would change the patient/SBCN relationship?** **Is the work compatible with the existing practices of the SBCN?** **How would the intervention impact on their workload?** **How does it fit with organisational goals?**	**Projected benefits appear to be consistent with their work** **May improve interactions. Uncertainty about how patients will be approached – training will help** **High levels of their work are focused on psychological support although low use of structured cognitive behavioural approaches** **The SBCNs may need to challenge their current /organisational practices in the provision of psychological support**
Reflexive monitoring (reflect on the trial)	How are SBCNs likely to perceive the benefits of the intervention once it has been used? Do they perceive issues associated with recruitment? What would be required to make the intervention workable in practice? When would be an appropriate time to review the intervention?	SBCN saw the benefits of intervention and understood training would be delivered. Some held concerns about the intervention being delivered via telephone and not face to face. For SBCN, clear training in identification of participants with moderate FCR is required There are pressures on services so choosing a regular day/time to deliver intervention will be necessary to encourage adoption into work schedule

Conclusion

- Using NPT in a mixed methods study is complex but offers a focused approach
- Articulating process is clear and transparent – replicability may be better
- Building a body of work in a field requires many steps up and down the pyramid of evidence



References

Stewart, R., Donaldson, J., Humphris, G., Cruickshank, S. (2019) The experience of patients with breast or prostate cancer recurrence: an integrative review (PROSPERO CRD42019137381)

Cruickshank, S., Steel, E., Fenlon, D., Armes, J., Scanlon, K., Banks, E., Humphris, G. (17th April 2019) Specialist breast cancer nurses' views on implementing a fear of cancer recurrence intervention in practice: a mixed methods study. Supportive Care in Cancer, http://dx.doi.org/10.1007/s00520-019-04762-9

Cruickshank, S., Steel, E., Fenlon, D., Armes, J., Scanlon, K., Banks, E., Humphris, G. (2017) A feasibility study of the Mini-AFTER telephone intervention for the management of fear of recurrence in breast cancer survivors: a mixed methods study protocol, Pilot and Feasibility Studies http://rdcu.be/ul5m