

Informing policy using mixed methods evidence reviews

Case studies from the Health Research Board's Evidence Centre

Louise Farragher, Camille Coyle and Joan Quigley

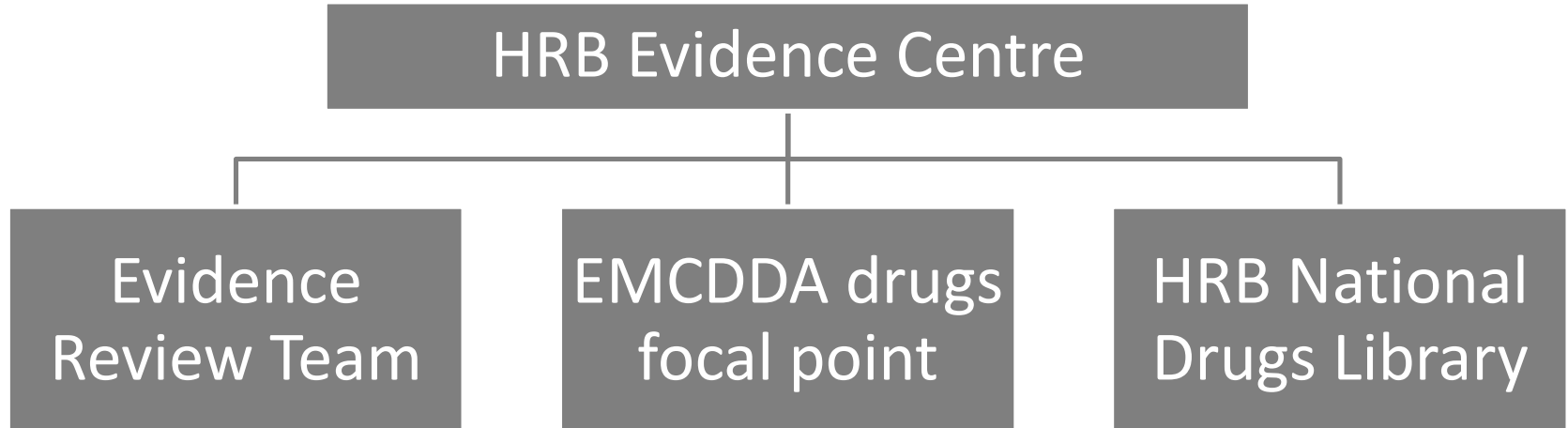
Agenda

- About the HRB Evidence Centre
- Our approach to **searching for evidence** for mixed methods reviews
- **Case study 1** – Housing with support for older people
- **Case study 2** – Regional health organisations
- Q&A

About HRB Evidence Centre

2011 HRB strategic goal:

“Generating and synthesising evidence, and promoting the application of knowledge to support decision-making by policy makers and relevant practitioners.”



Recent HRB Evidence Centre publications

- ***Infectious disease legislation*** – legislation overview and lessons learned: an evidence review
- Measures to reduce ***the clinical need for dental amalgam***: an evidence review
- *Out-of-hours specialist and generalist palliative care service provision: an evidence review (commissioned)*
- ***Vaccine injury redress*** programmes: an evidence review
- *Treatment services for people with co-occurring substance use and mental health problems: a rapid realist synthesis (commissioned)*
- ***Healthy workplace tools*** in five countries: an evidence review

Evidence informing the policy process

Define the policy problem

Assess potential policy options

Identify policy implementation considerations

Source: Lavis JN. How can we support the use of systematic reviews in policymaking? PLoS Med. 2009 Nov;6(11)

Policymaking Process	Sub-Steps that involve acquiring research evidence	Examples of the types of systematic reviews used
Define the problem	Identifying the problem	Reviews of observational studies (e.g., administrative database studies, community surveys)
	Making comparisons (over time, across settings or against plans)	Reviews of observational studies (e.g., administrative database studies, community surveys)
	Highlighting alternative framings of the problem	Reviews of qualitative studies that examine stakeholders' views about and experiences with the problem

Source: Lavis JN. How can we support the use of systematic reviews in policymaking? PLoS Med. 2009 Nov;6(11)

Policymaking Process	Sub-Steps that involve acquiring research evidence	Examples of the types of systematic reviews used
Assess potential policy options	Identifying policy and program options that could affect the problem	Reviews or overviews of systematic reviews
	Characterizing the positive effects (benefits) and negative effects (harms) of policy options	Reviews of effectiveness studies (e.g., randomized controlled trials, interrupted time series) and / or observational studies
	Characterizing the cost-effectiveness of policy options	Reviews of economic evaluations
	Identifying the key elements of complex policy options	Reviews of qualitative studies that examine how or why interventions work and/or reviews of observational studies
	Characterizing stakeholders' views about and experiences with the policy options	Reviews of qualitative studies that examine stakeholders' views and experiences with particular options.

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	Characterizing stakeholders' views about and experiences with the policy options	Reviews of qualitative studies that examine stakeholders' views and experiences with particular options.

Policymaking Process	Sub-Steps that involve acquiring research evidence	Examples of the types of systematic reviews used
Identify implementation considerations	Identifying potential barriers to implementation	Reviews of observational studies and/or reviews of qualitative studies
	Characterizing the effects of appropriately targeted implementation strategies	Reviews of effectiveness studies

Source: Lavis JN. How can we support the use of systematic reviews in policymaking? PLoS Med. 2009 Nov;6(11)

Mixed Methods Reviews

- A review that includes studies with qualitative, quantitative and /or mixed methods research designs
- Sometimes called integrative reviews, mixed methods research synthesis, mixed research synthesis or mixed studies reviews
- There is a growing interest in synthesising evidence derived from studies of different designs
- Mixed methods reviews combining quantitative and qualitative evidence are a challenge because of the multiple synthesis options

Source: Hong QN, Pluye P, Bujold M, Wassef M. Convergent and sequential synthesis designs: implications for conducting and reporting systematic reviews of qualitative and quantitative evidence. *Syst Rev.* 2017 Mar 23;6(1):61

Mixed methods review – the best of both worlds

Aggregative reviews	Configurative reviews
Quantitative	Qualitative
'Join up' studies	Explanatory
Test theory	Generates theory

Source: Gough D, Thomas J, Oliver S. Clarifying differences between review designs and methods. Syst Rev. 2012 Jun 9;1:28 and Wright

Mixed methods review – the best of both worlds

Aggregative reviews

Configurative reviews

Quantitative

Qualitative

'Joins up' studies

Explanatory

Test theory

Generates theory

Single search

Main search followed by iterative searches

Searches planned in advance

Main search is planned, additional searches evolve

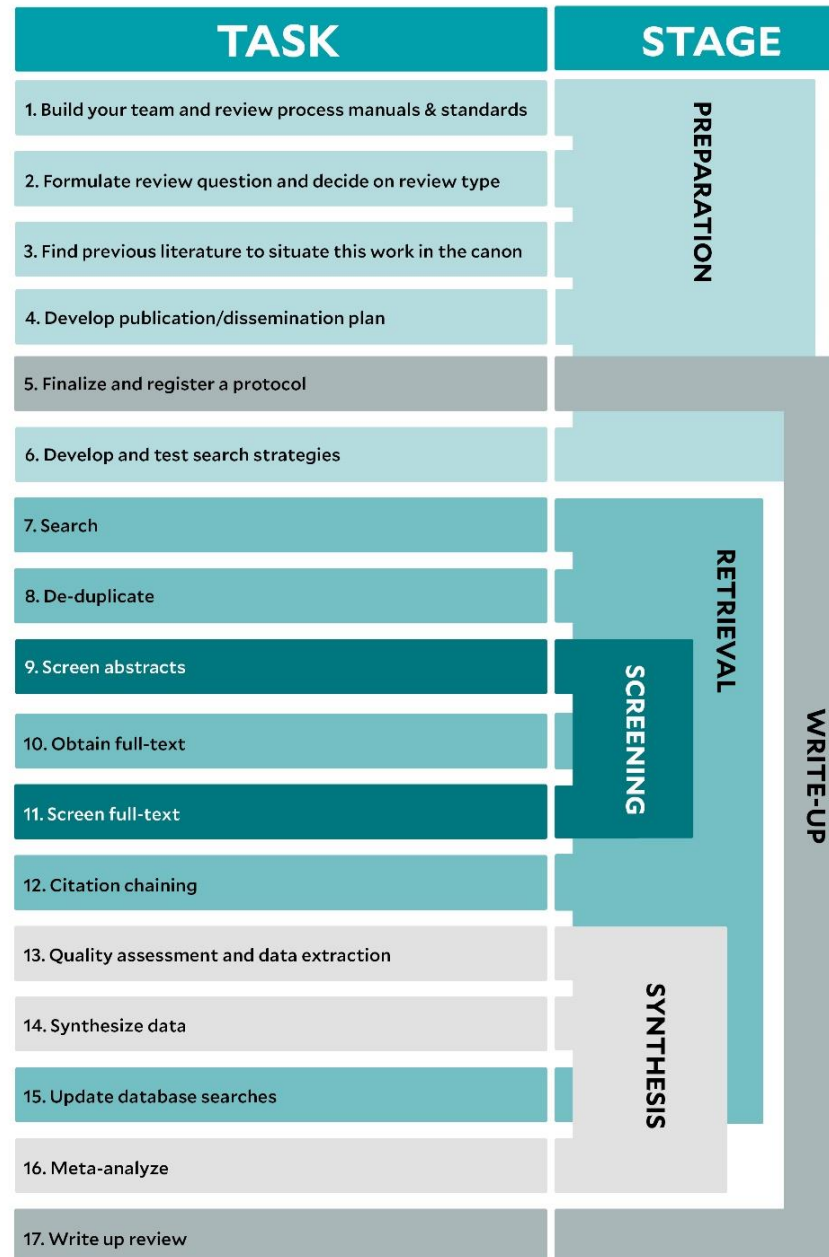
All searches are reported and methods are transparent

All searches are reported and methods are transparent

Source: Gough D, Thomas J, Oliver S. Clarifying differences between review designs and methods. *Syst Rev.* 2012 Jun 9;1:28 and Wright J. Searching for Mixed Methods Reviews. University of Leeds, 2019

Searching for evidence for mixed methods reviews

The Systematic Review Process



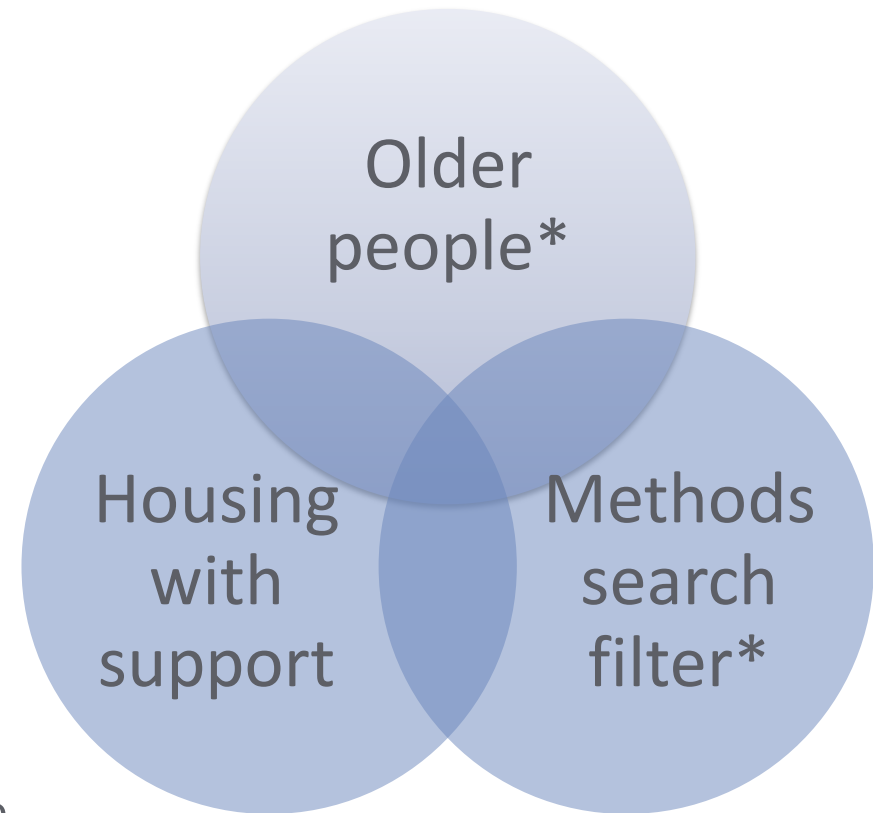
Case Study 1 – Housing with support for older people

1. What is the **impact** of housing with support for older people?
2. What are older people's **perceptions and experiences** of housing with support?



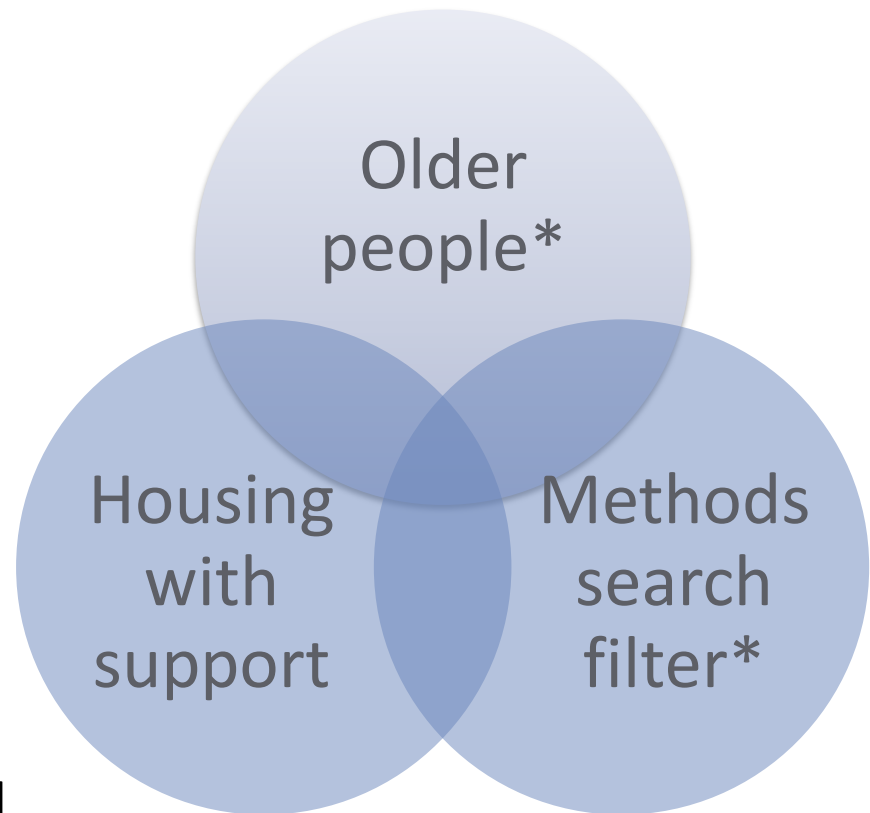
Search strategy

- **Scoping searches** to generate keywords and concepts
- **One comprehensive search** for peer-reviewed articles for both research questions
 - Four databases: Medline, CINAHL, SocINDEX, and Social Policy & Practice
 - Combination of keywords and MeSH terms
 - Use of search filters if available (and adapt as necessary)

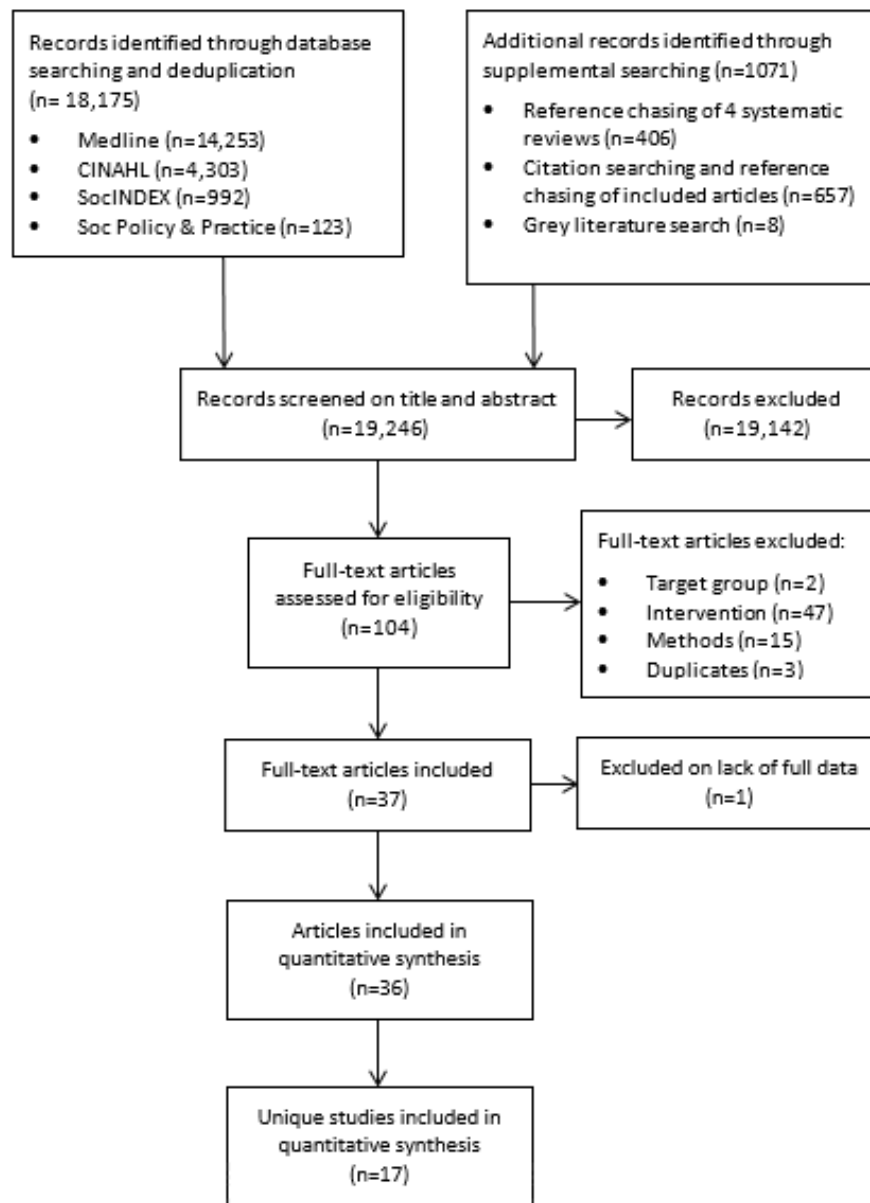


Search strategy

- **Grey literature** search
- **Reference and citation chasing** of all included articles & relevant systematic reviews
- No standard guidance for searching for mixed methods reviews
- Synthesis method will inform your search strategy
- Aim to be **rigorous** and **reproducible, avoid bias** and **transparent**

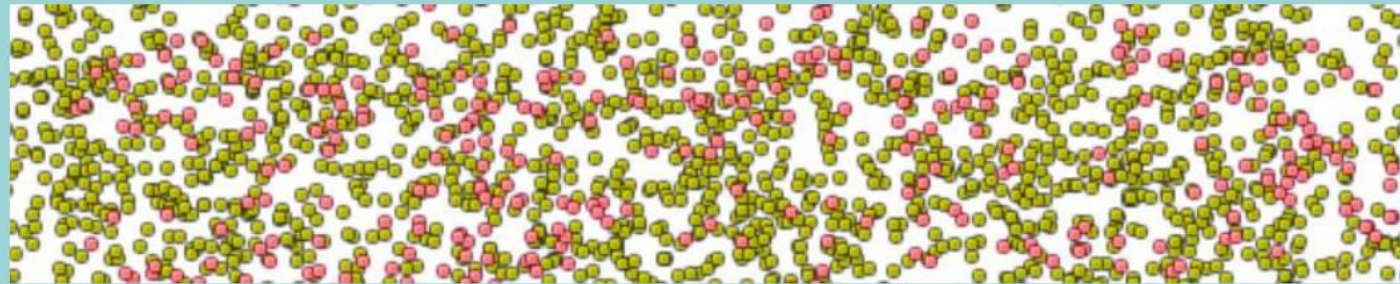


PRISMA flow diagram – Impact question (quantitative)



Priority screening: changing the distribution of studies

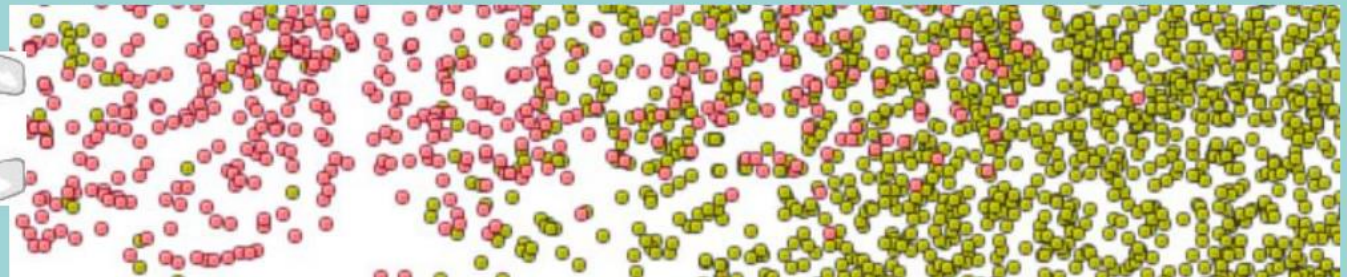
Traditional screening



Screening process (red = eligible study)



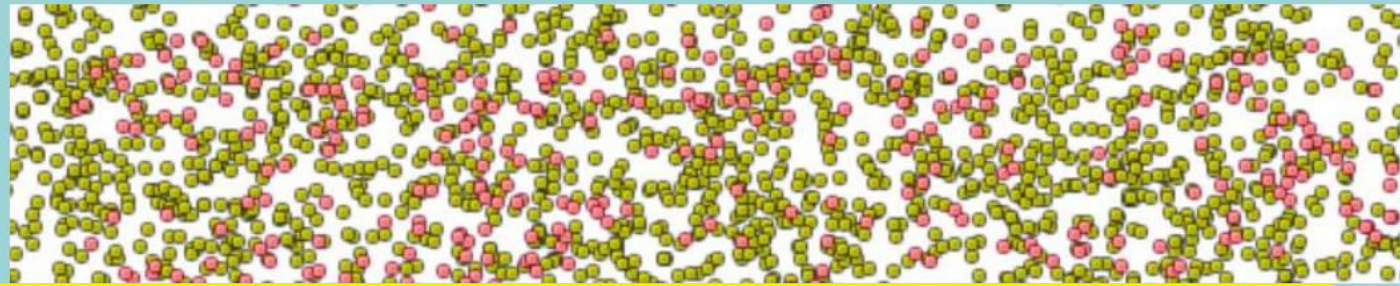
Screening aided by text mining



Source: Thomas, J. 2016. Getting to know Eppi Reviewer. Webinar

Priority screening: changing the distribution of studies

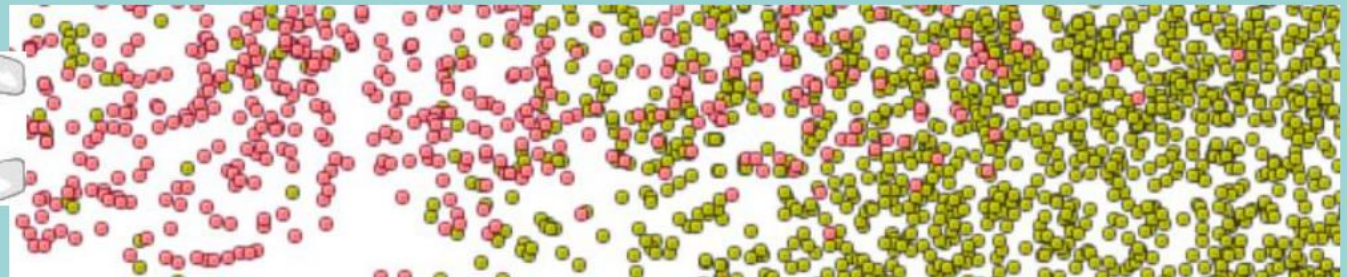
Traditional screening



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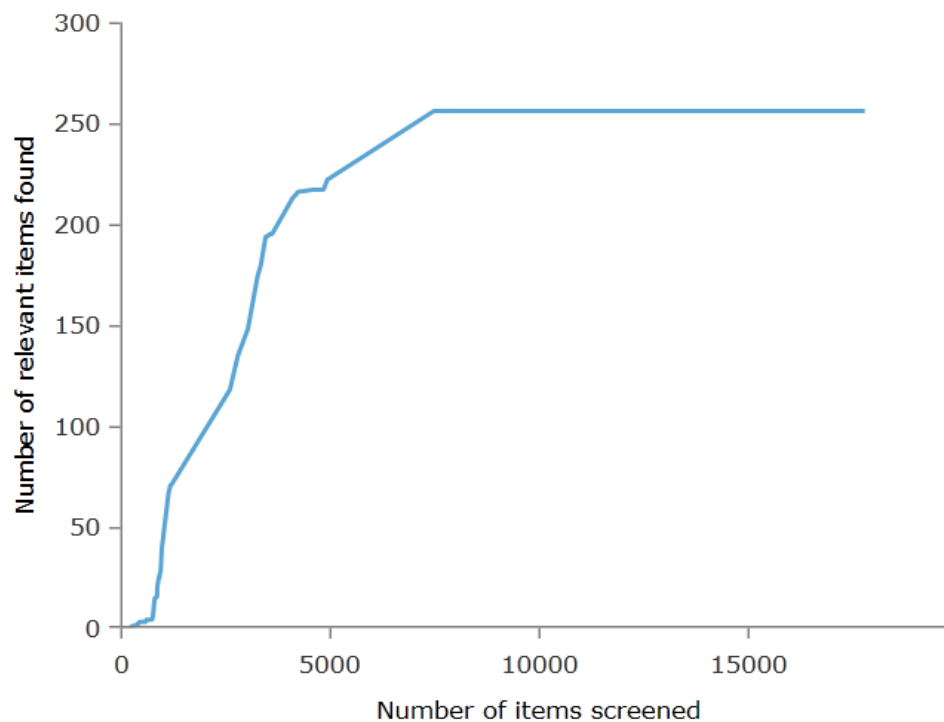
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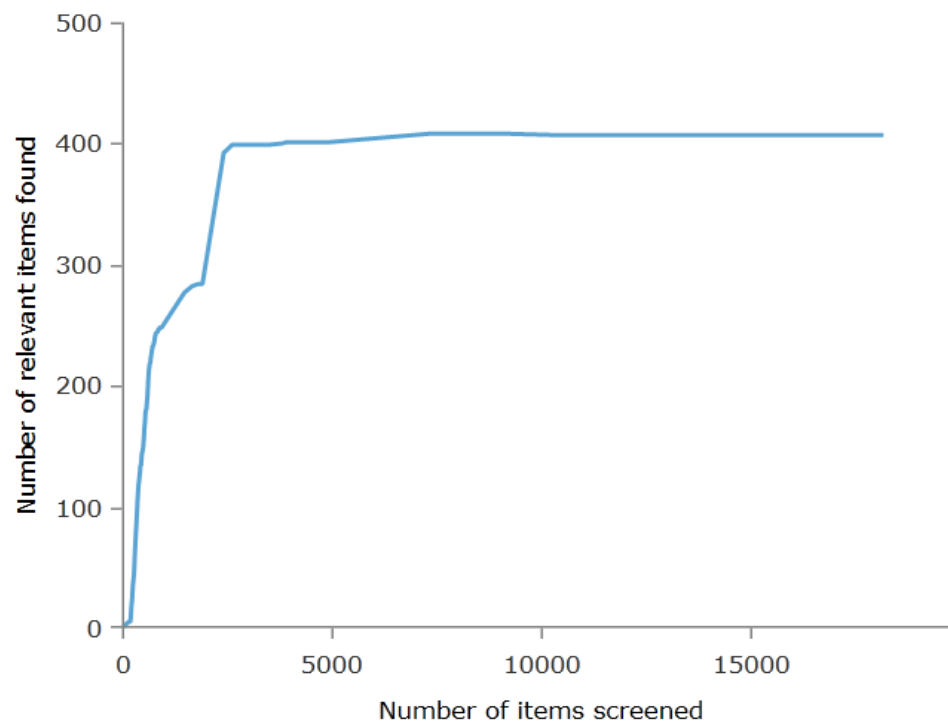
Priority screening – quantitative

Screening progress



Priority screening – qualitative

Screening progress



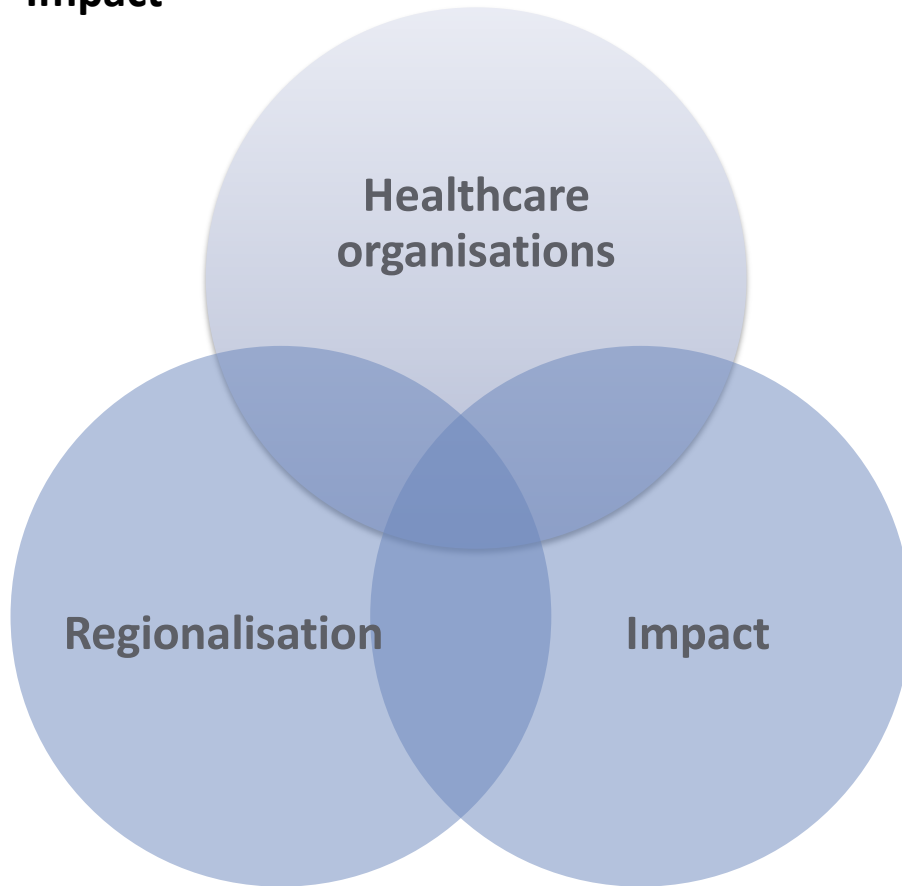
Case Study 2 – Regional Health Organisations

1. What are the documented positive or negative **impacts** or outcomes of adopting a regionalised health care system?
2. What are the documented **barriers to and facilitators** of effective regionalised health care systems?

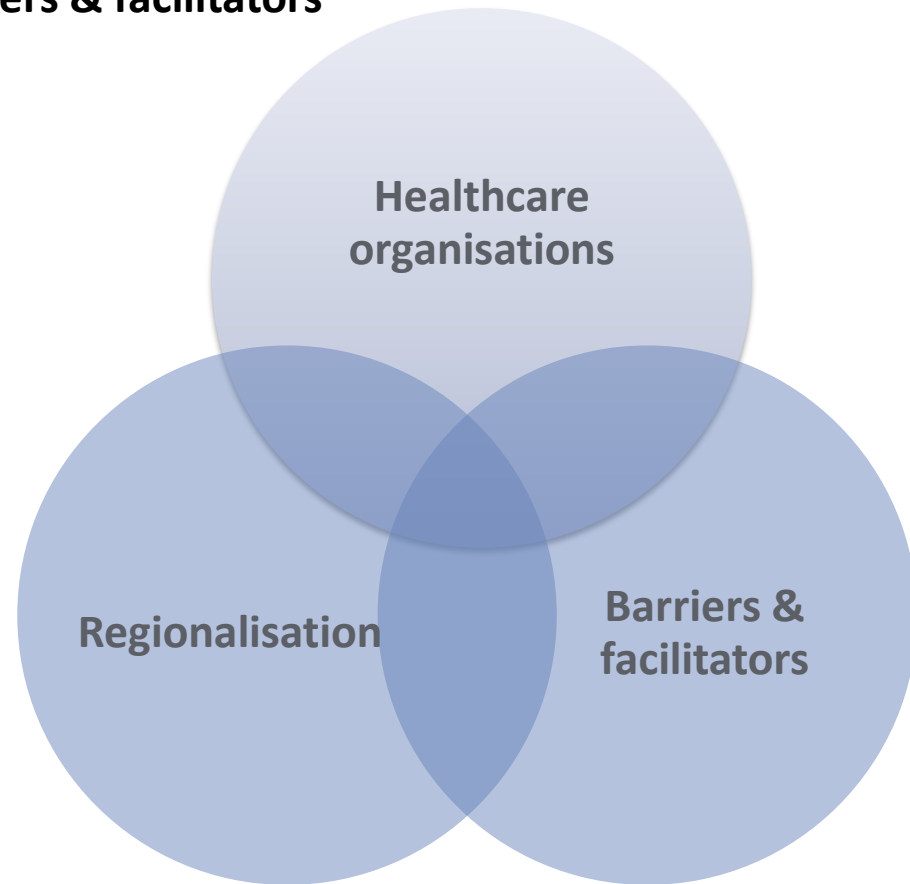


Search concepts

Impact



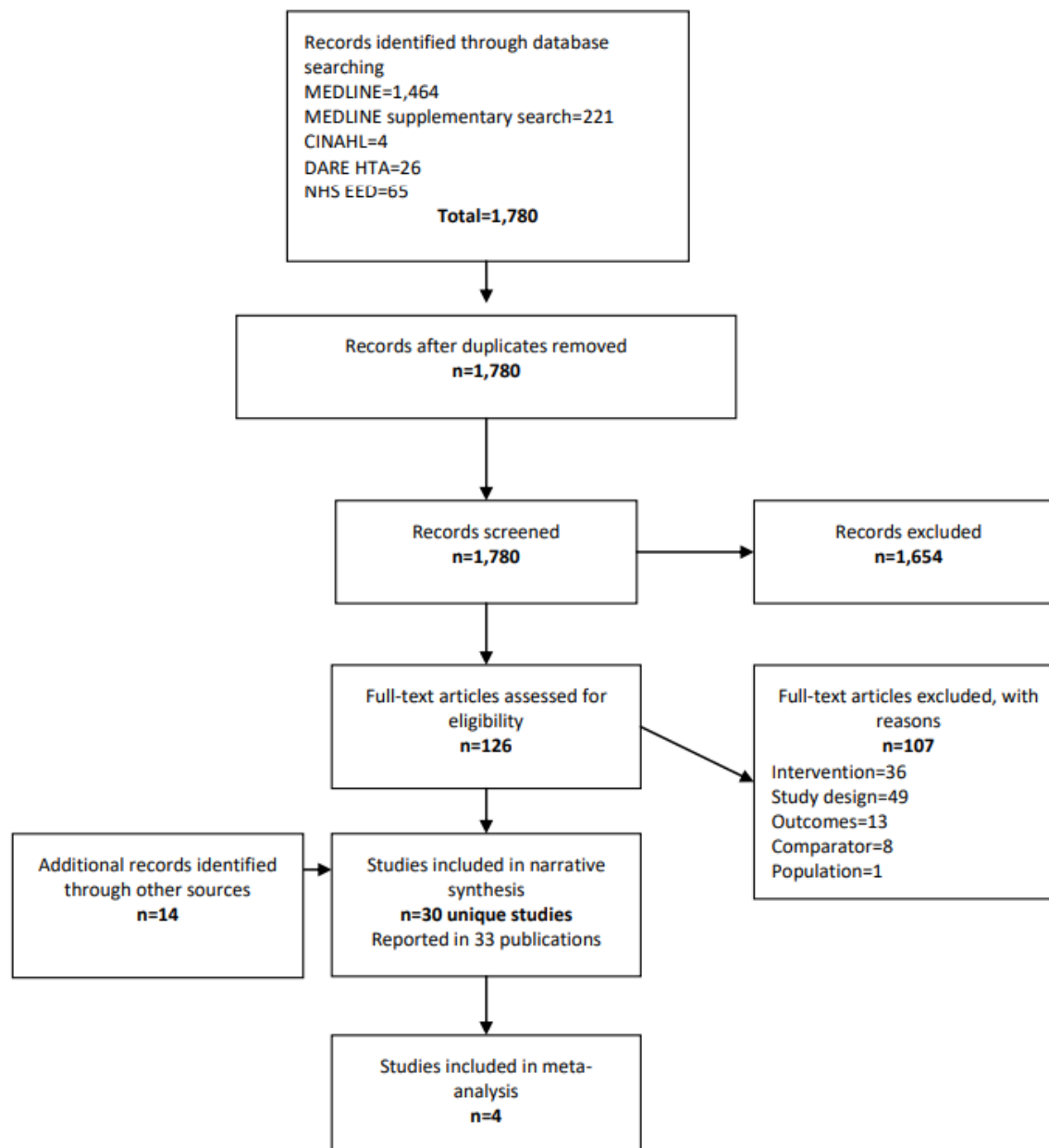
Barriers & facilitators



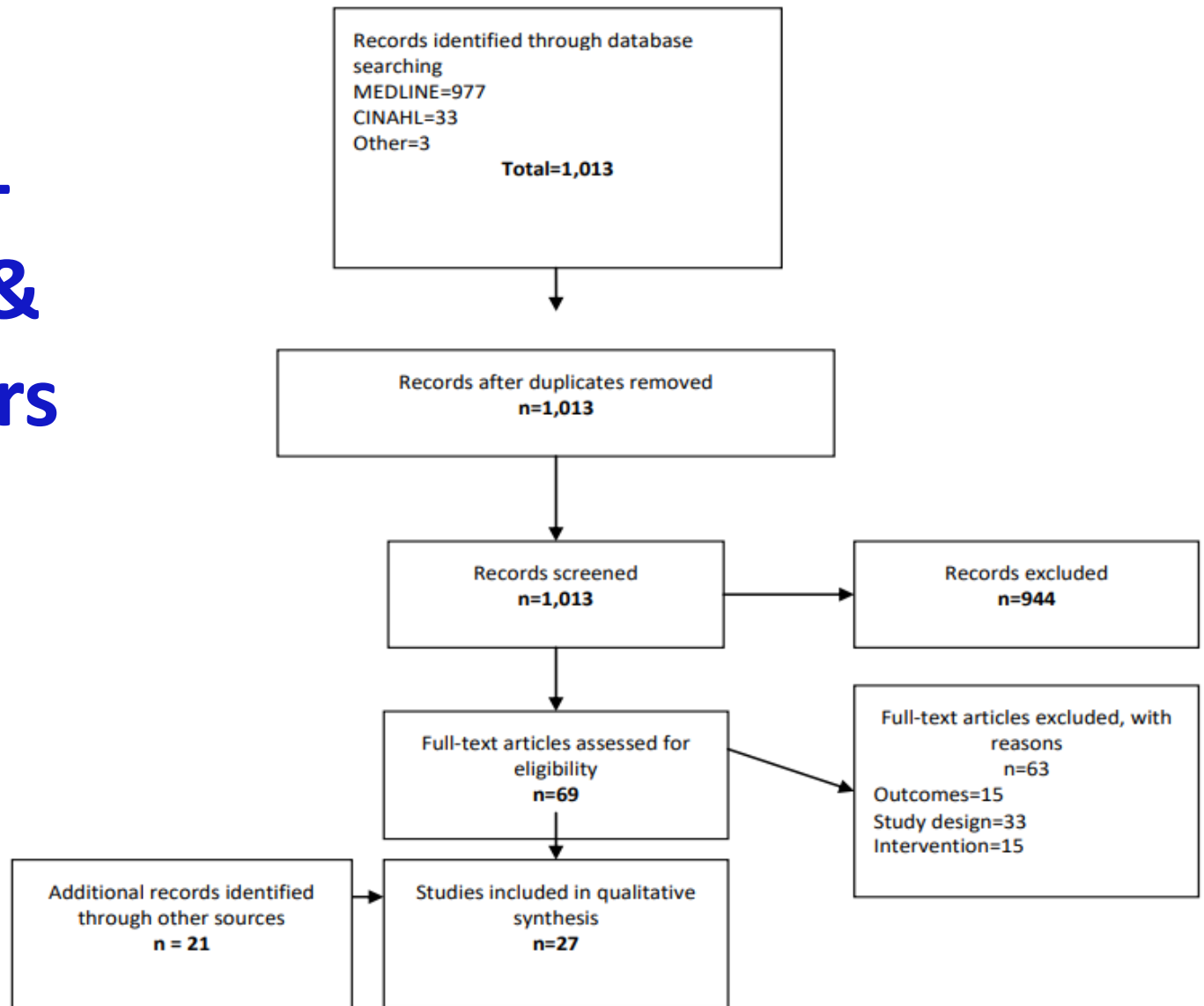
Search strategy

- **Scoping searches**
- **2 separate searches** for peer-reviewed articles for both research questions
 - Medline, CINAHL, DARE, NHS Economic Evaluation Database, HTA database
- **Grey literature search**
- **Reference and citation chasing** of all included articles & relevant systematic reviews

PRISMA - Impact question



PRISMA - Barriers & facilitators question



Case study – Housing with support for older people

Research questions

1. What is the impact of housing with support for older people?
2. What are older people's perceptions and experiences of housing with support?



Inclusion and exclusion criteria

Domain	Inclusion criteria		Exclusion criteria
Population	People aged 50 and over		Family members and carers
Intervention	Purpose-built housing with support where older people have their own front door		Adaptations to the family home Age-friendly cities Age-friendly neighbourhoods Hospitals Housing purpose-built for homeless older people, blind older people, older people with dementia or disabilities Housing with shared rooms Inpatient care centres Naturally occurring retirement communities Nursing homes Skilled nursing facilities
Study design	<i>Quantitative</i> Before and after studies Cohort studies Longitudinal studies Time series RCTs	<i>Qualitative</i> Grounded theory Ethnographic research Phenomenological Qualitative case studies Narrative analysis	Conceptual or theoretical articles Conference abstracts Letters to the editor MSc and PhD theses Opinion pieces
Publication date	2000-present		

Included quantitative articles

- 36 articles were included in the impact review
- 17 unique studies

Improving housing with care choices for older people: the PSSRU evaluation of extra care housing

Robin Darton, Theresia Bäumker, Lisa Callaghan and Ann Netten

Robin Darton is a Senior Research Fellow, Theresia Bäumker and Lisa Callaghan are both Research Officers and Ann Netten is a Professor, all are in the Personal Social Services Research Unit, University of Kent, Canterbury, UK.

The authors are grateful to Jeremy Hobson, up until recently the National Programme Lead for Housing at the Department of Health (DH), for his invaluable contributions and project support, along with his former colleagues at the Department, Carol Lupton and Michele Medaris. They would also like to thank the members of the Steering Group for their guidance, the Housing Learning and Improvement Network, formed by the DH, social services liaison contacts, the housing associations, the staff of the schemes, and, particularly, the residents who gave up their time to be interviewed for the study and who shared their personal views and experiences so openly and honestly. At the PSSRU, Jacquie Holder and Jennifer Towers contributed to the early stages of the study, and Louise Cook and Jane Dinnitt undertook the data transcription work. Finally, but not least, they would like to acknowledge the local interviewers, without whom the study would not have been possible. The views expressed in this paper are those of the authors and are not necessarily those of the DH.

PSSRU Discussion Paper 2612, November 2011.

DOI: 10.1080/08980101.1159191

Article

Quality of Life Trajectories of Older Adults Living in Senior Housing

Research on Aging
2018, Vol. 49(4) 511–524
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DOI: 10.1177/0146262217731313
journals.sagepub.com/home/raa
SAGE

Amy Restorick Roberts¹ and Kathryn Betts Adams²

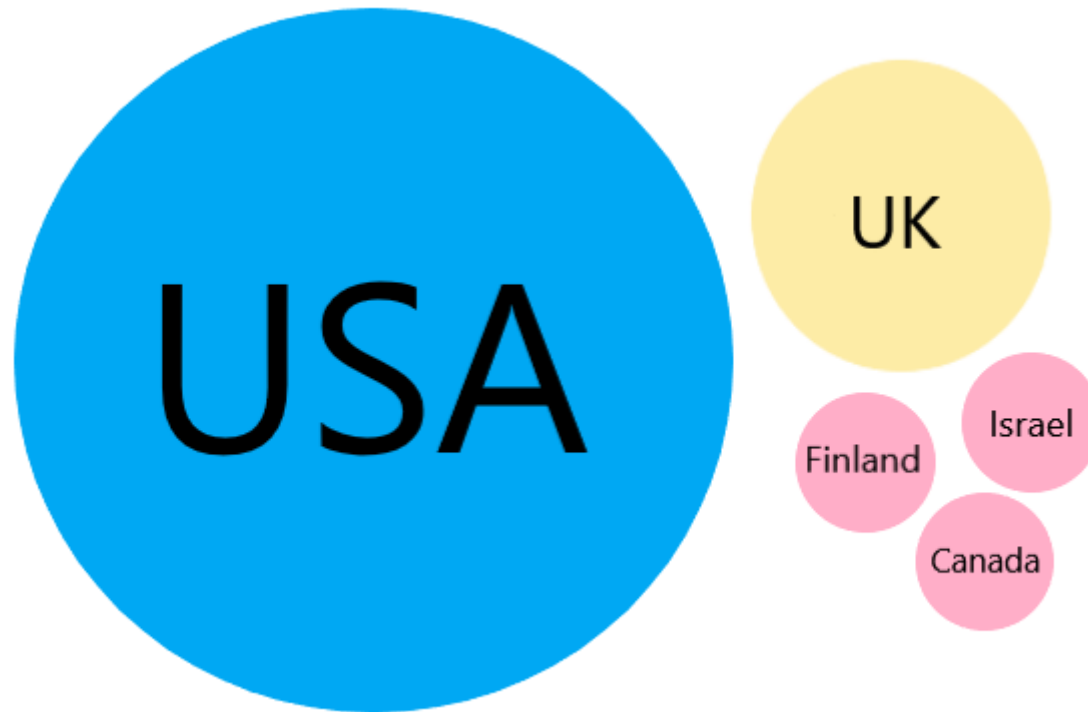
Abstract

Quality of life (QoL) in the face of declining health, mobility, and social losses is a central issue for older adults. Our study examined changes in QoL over time for older adults residing in independent senior housing within continuing care retirement communities (CCRCs) and estimated how residents' social engagement during their first year influenced QoL over the next 4 years. Data were drawn from a 5-year panel study of 267 older adults who moved into senior housing within four CCRCs. Although initial QoL varied between individuals, QoL declined for the group over time. One component of early social engagement—participating in a greater number of formal social activities organized by the CCRC—significantly slowed the rate of decline in QoL. Findings suggest that senior housing residents may benefit from early participation in organized social and leisure activities soon after move-in to forestall declines in QoL over the long term.

¹ Department of Family Science and Social Work, Scripps Gerontology Center, Miami University, Oxford, OH, USA

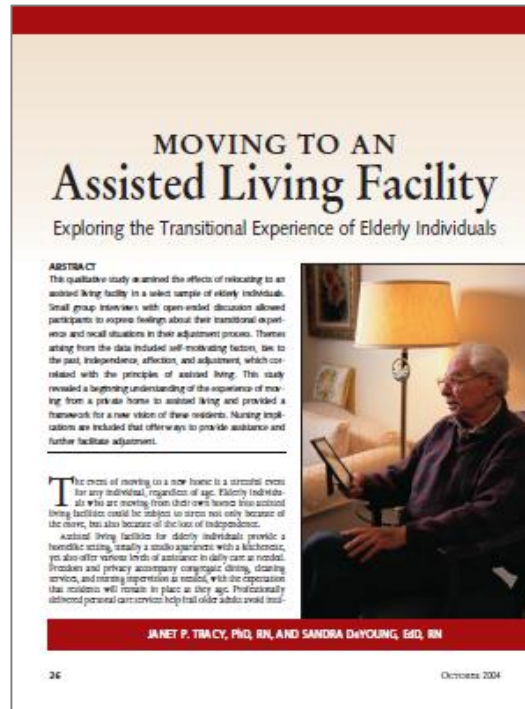
² Department of Psychiatry, University of Connecticut School of Medicine, Farmington, CT, USA

Included quantitative articles



Included qualitative articles

- 39 articles were included in the perceptions and experiences review
- 38 unique studies



Housing LIN Case Study 93
Connecting people, ideas and resources

The benefits of extra care housing on the quality of life of residents: The impact of living in Campbell Place, Fleet

This case study for the Housing Learning and Improvement Network showcases improved outcomes in the quality of life enjoyed by residents of Campbell Place, a 74 unit extra care housing scheme in Fleet, North Hampshire, developed and owned by Sentinel Housing Association.

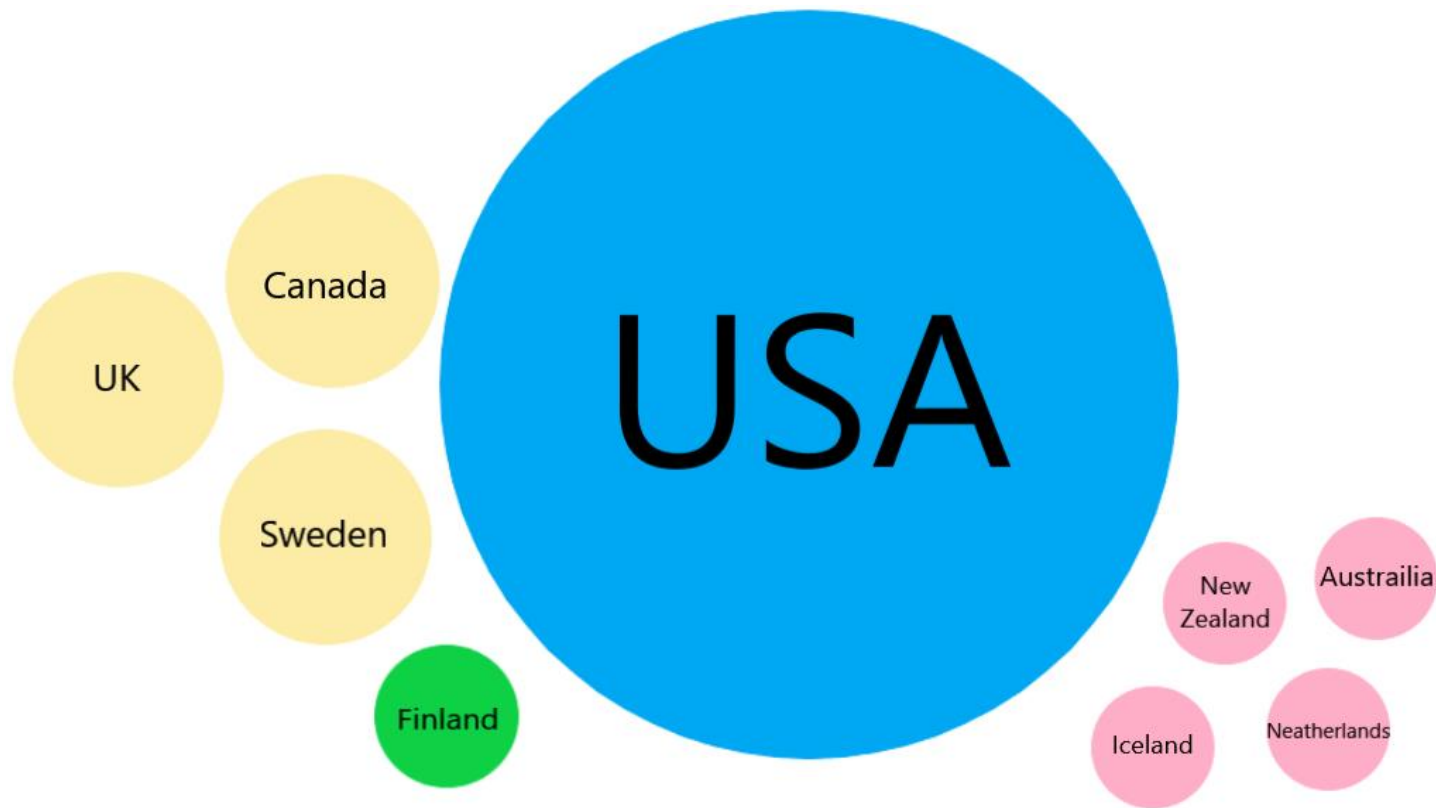
Using research based on interviews with residents, the study found that overall they reported improved outcomes in relation to their health, happiness, confidence, social life, relationships with their families and general well-being. The importance to well-being of social interaction, activities and a communal restaurant was striking and supports the case for such activities and facilities to be available as soon as a scheme opens.

Written for the Housing Learning & Improvement Network by
Jacqueline Burns, Independent Consultant

August 2014

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Included qualitative articles

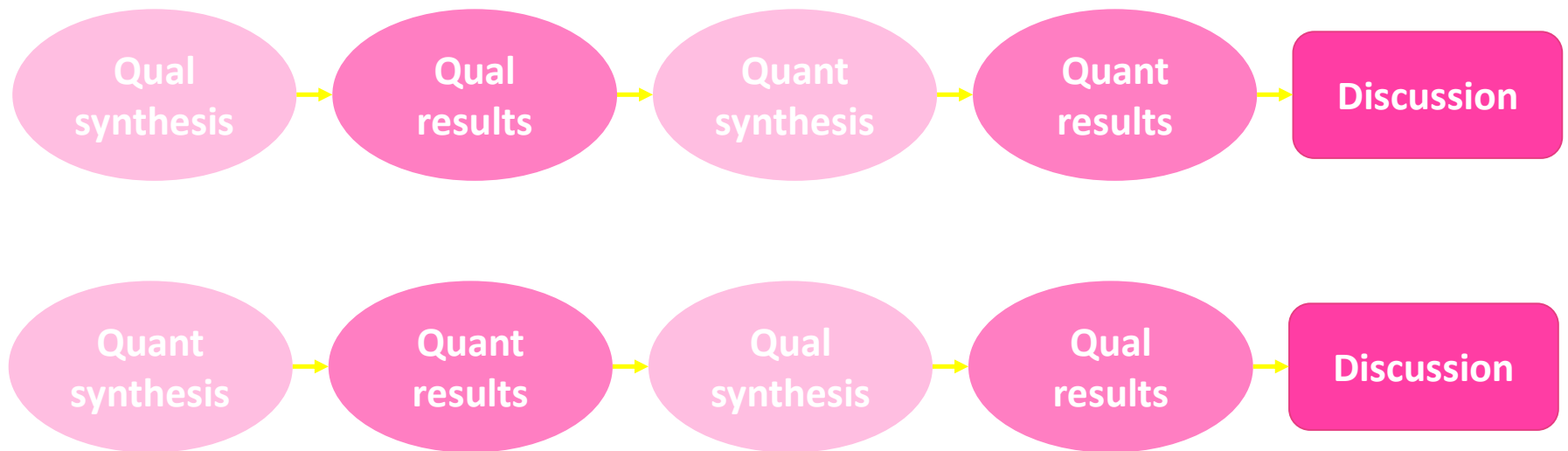


Quality assessment

- Quantitative studies
 - Adapted a **tool for observational cohort studies** from National Institutes of Health in the USA
- Qualitative studies
 - Joanna Briggs Institute's **critical appraisal checklist**
- Did not exclude articles based on quality



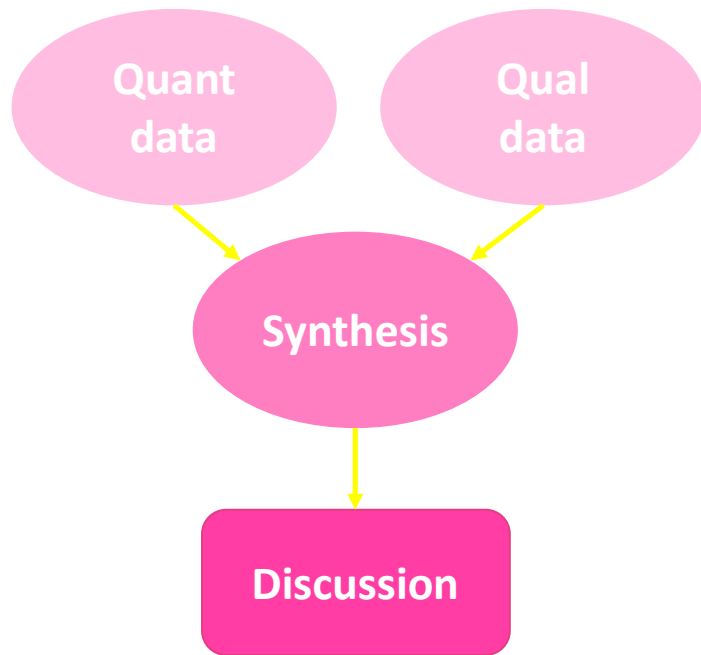
Approaches to synthesis in mixed methods reviews – Sequential



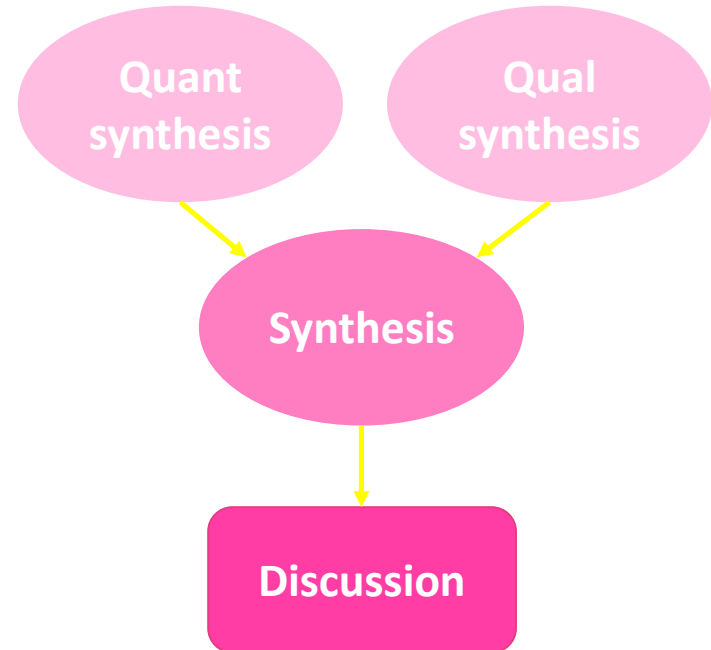
Source: Hong et al. (2017) Convergent and sequential synthesis designs

Approaches to synthesis in mixed methods reviews – Convergent

Data-based convergent synthesis



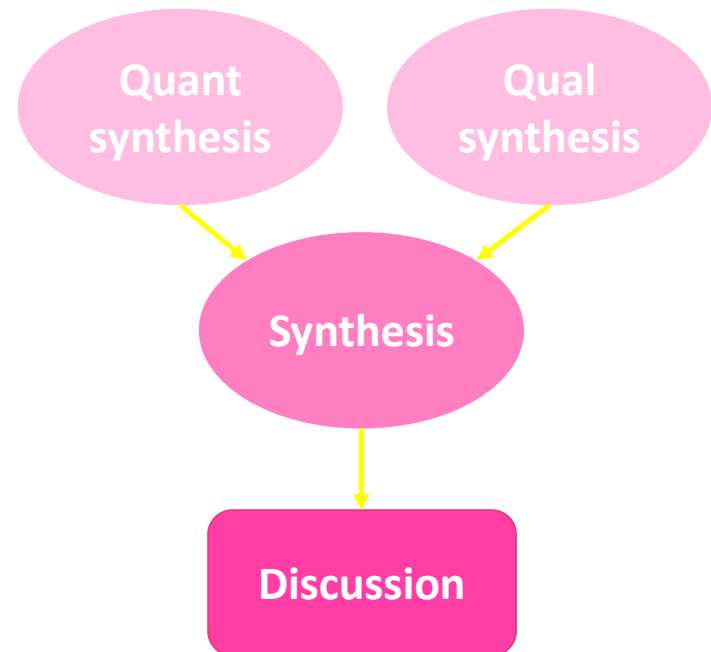
Convergent parallel synthesis



Source: Hong et al. (2017) Convergent and sequential synthesis designs

Convergent parallel design

- Appropriate for **two separate research questions**
- Quantitative and qualitative **findings were analysed separately**
- Results from the **quantitative and qualitative syntheses were then integrated**
- Preserves integrity of findings from qualitative and quantitative studies



Quantitative synthesis

- **Feasibility assessment** to determine whether meta-analysis was possible
 - Considered population, comparator, intervention, measurement scale, and length of time to follow-up
 - Determined that the level of heterogeneity among the included quantitative studies was too high to warrant a meta-analysis
- **Narrative synthesis** – used summary statistics, where available, and described the influence of covariates, where such analysis was completed

Qualitative synthesis

- **Thematic synthesis** was used to integrate the results of the qualitative studies
- Thematic synthesis has three stages:
 - **Line-by-line coding** of text
 - Development of **descriptive themes**
 - Generation of **analytical themes**
- The generation of analytical themes represents the stage of synthesis whereby reviewers integrate the primary studies and **generate novel interpretations of findings**

GRADE certainty of evidence for quantitative studies

- We assigned a **level of evidence of 3 (of 5)** – all of the included studies were cohort studies, many of which had high loss to follow-up and very small sample sizes
- Four levels of certainty – very low, low, moderate, or high
- We have low confidence in the evidence regarding impact – **there is insufficient high-quality evidence** to make definitive conclusions



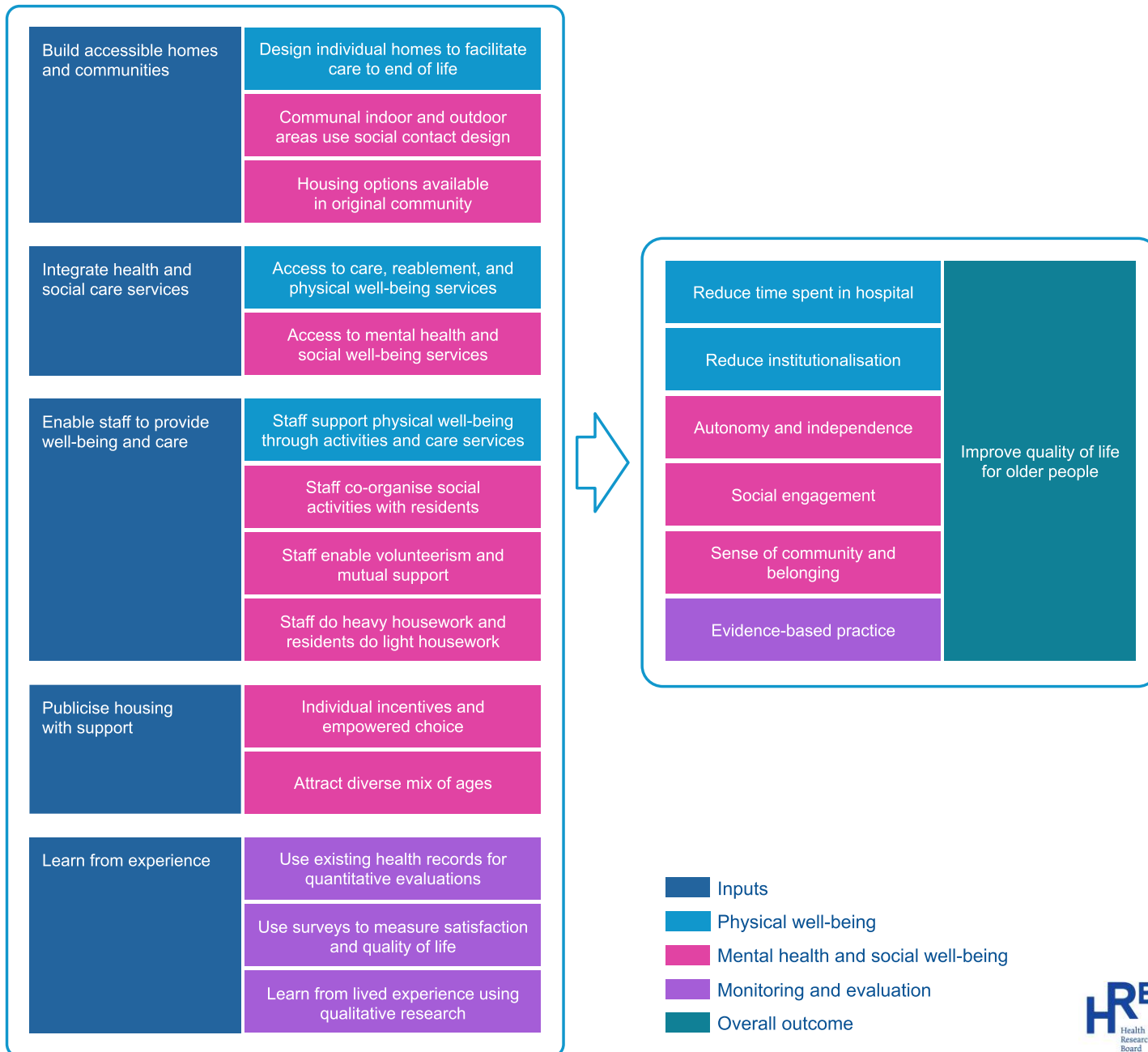
CERQual level of confidence in qualitative findings

- We assessed each major qualitative findings according to CERQual's four criteria: **methodological limitations, coherence, adequacy of data, and relevance**
- Four levels – very low, low, moderate, or high
- We have **moderate confidence** that our findings are a reasonable representation of the phenomenon of interest



Conceptual model of housing with support

Model of housing with support for older people



Case study – Regional health organisations

Background: Sláintecare







“ Under the Committee’s recommendations, the HSE in future will act as a more strategic ‘national centre’ carrying out national level functions... supported by **regional care delivery through regional bodies**, recognising the value of geographical alignment for population-based resource allocation and governance to enable integrated care. ”



Research questions

1. What are the documented positive or negative **impacts** or outcomes of adopting a regionalised health care system?
2. What are the documented **barriers to and facilitators of** effective regionalised health care systems?

Methods

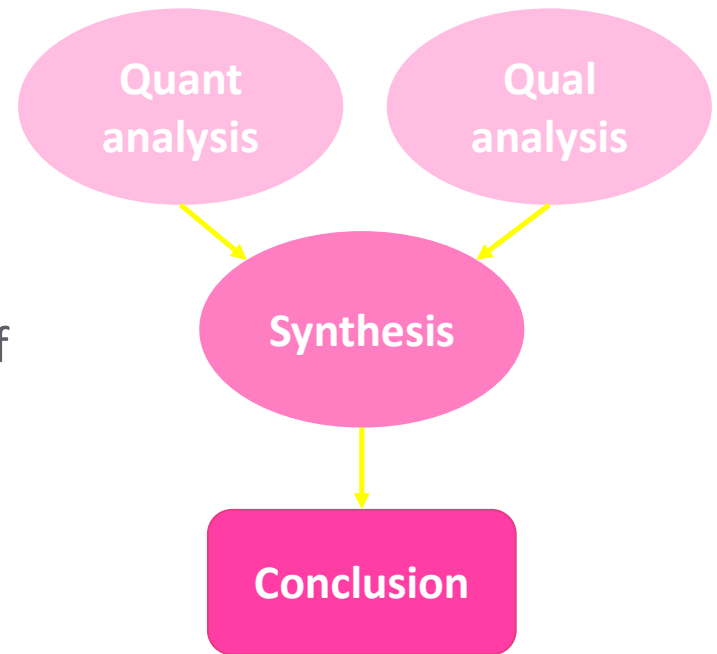
1. Scoping
2. Searching
3. Screening  
4. Quality appraisal  
5. Data extraction  
6. Data analysis and synthesis
7. Combined synthesis

Eligibility criteria

Population	General population	
Intervention	Health service established on a regional/geographic basis Organisation responsible for care across acute, primary, social/community setting	
Comparator	For impact review only	
Outcomes	Impact: 9 outcome categories	Barriers/facilitators: Key barriers and facilitators
Location	OECD countries	

Review methods

- Quantitative and qualitative findings were analysed separately
 - Quantitative: narrative synthesis & meta-analysis of impact
 - Qualitative: thematic synthesis of barriers/facilitators
- Results from the quantitative and qualitative syntheses were then integrated



Top-level results impact review

- 30 quantitative studies included
- Mostly before and after study design
- Using the Effective Public Health Practice Project's quality appraisal tool – 3 studies were found to be 'strong' with respect to design and/or analysis, 13 were found to be 'moderate', and 14 were found to be 'weak'

Top-level results barrier/facilitators review

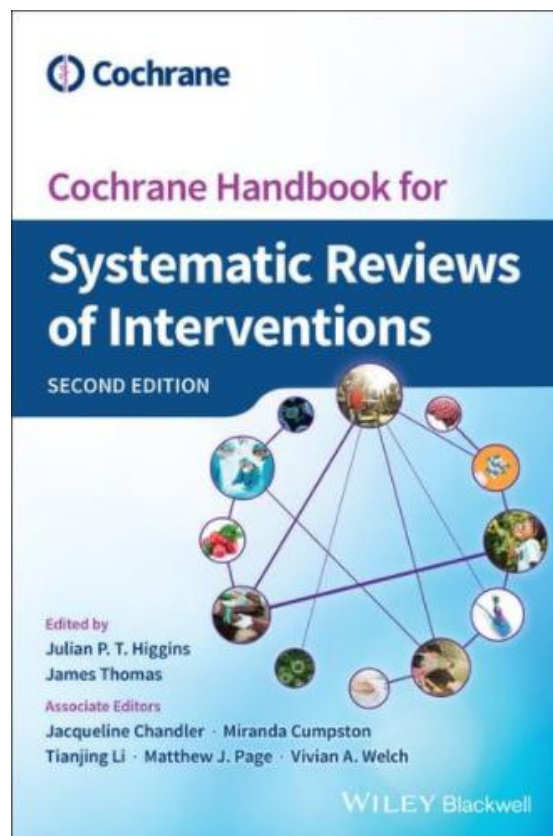
- 27 studies included in the systematic review
- Designs included qualitative, quantitative, and mixed methods
- **Qualitative data** were assessed using a tool that we adapted using quality appraisal tools from McMaster University and the Joanna Briggs Institute – 2 studies were found to be of 'high' quality with respect to study design and/or analysis, 17 were found to be 'moderate', and 2 were found to be 'weak'
- **Quantitative data** were assessed using the Effective Public Health Practice Project's quality appraisal tool – all 13 studies that contained quantitative data were found to be 'weak' quality with respect to design and/or analysis

Integration of results

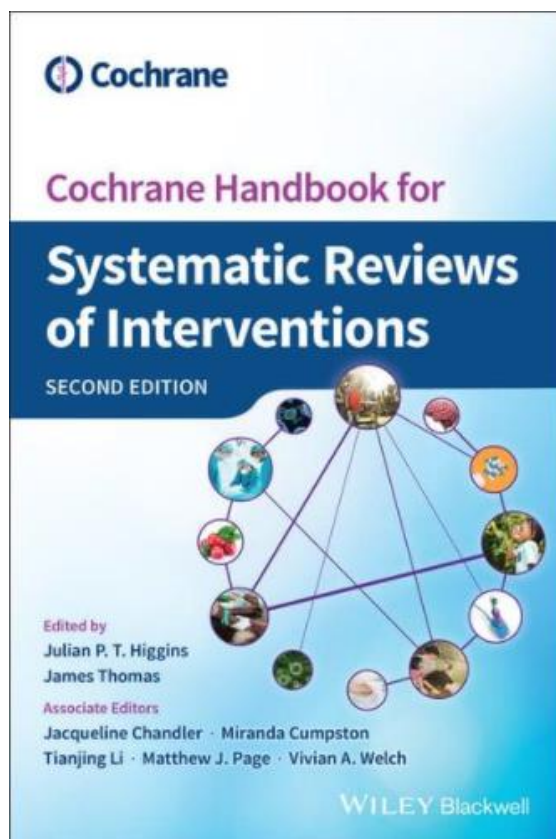
What is a logic model?

- A logic model is a **graphic representation** of the theory of change
- It illustrates the **linkages** among program resources, activities, outputs, audiences and short-, intermediate- and long-term outcomes related to a specific problem or situation
- Logic models have been used by **planners, funders, managers and evaluators** of programs and interventions to plan, communicate, implement and evaluate them

Call for logic models



Using logic models in systematic review



Two main instances for use in systematic reviews:

- **Defining research questions** and scope of review
- **Illustrating the results** of a review by graphically summarising how the interactions between intervention, participant and context may produce outcomes

Key reference

Cochrane [Database of Systematic Reviews](#)

Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: a qualitative evidence synthesis

Cochrane Systematic Review - Qualitative | Version published: 08 October 2013 [see what's new](#)

<https://doi.org/10.1002/14651858.CD010414.pub2> 



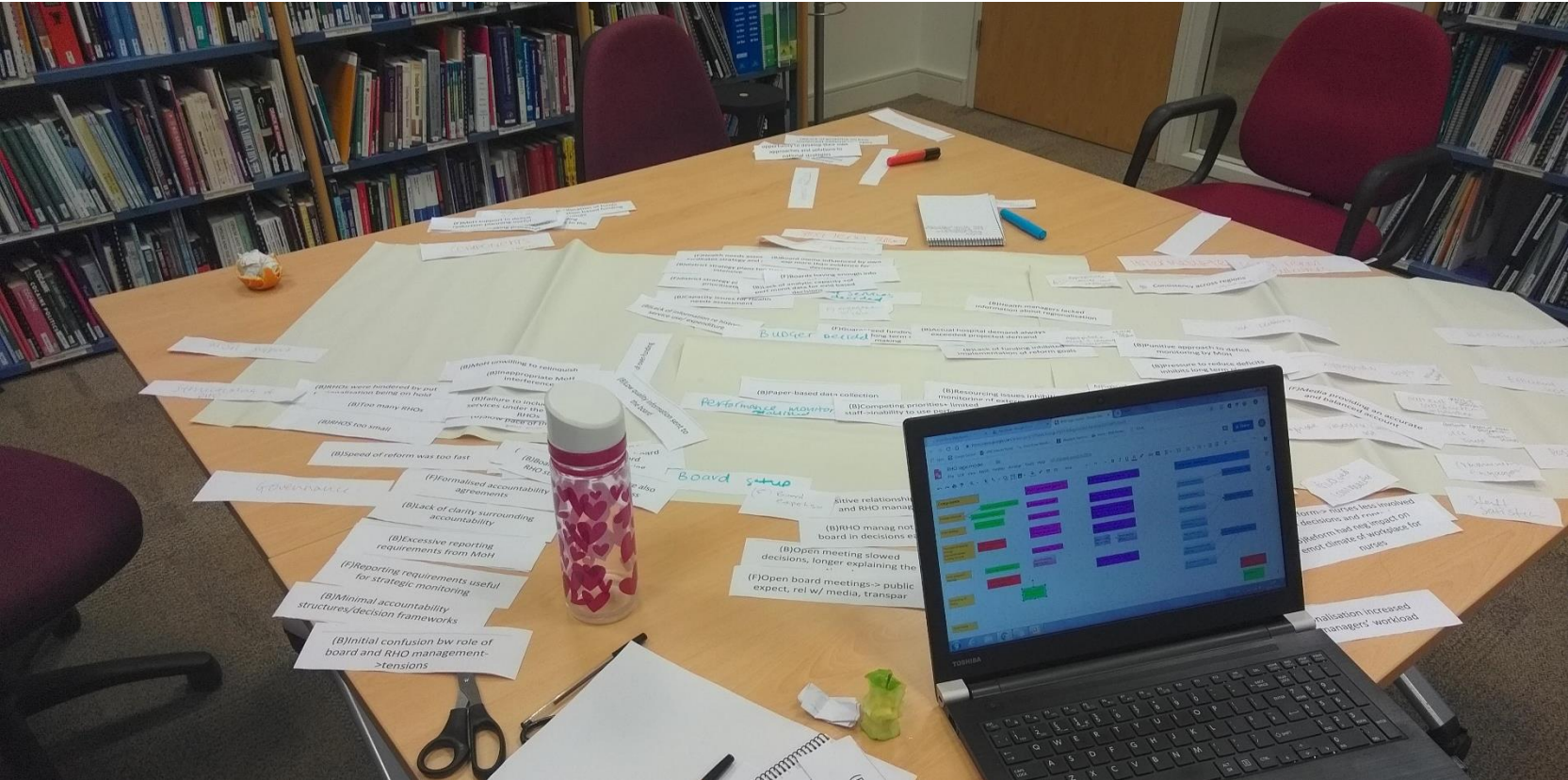
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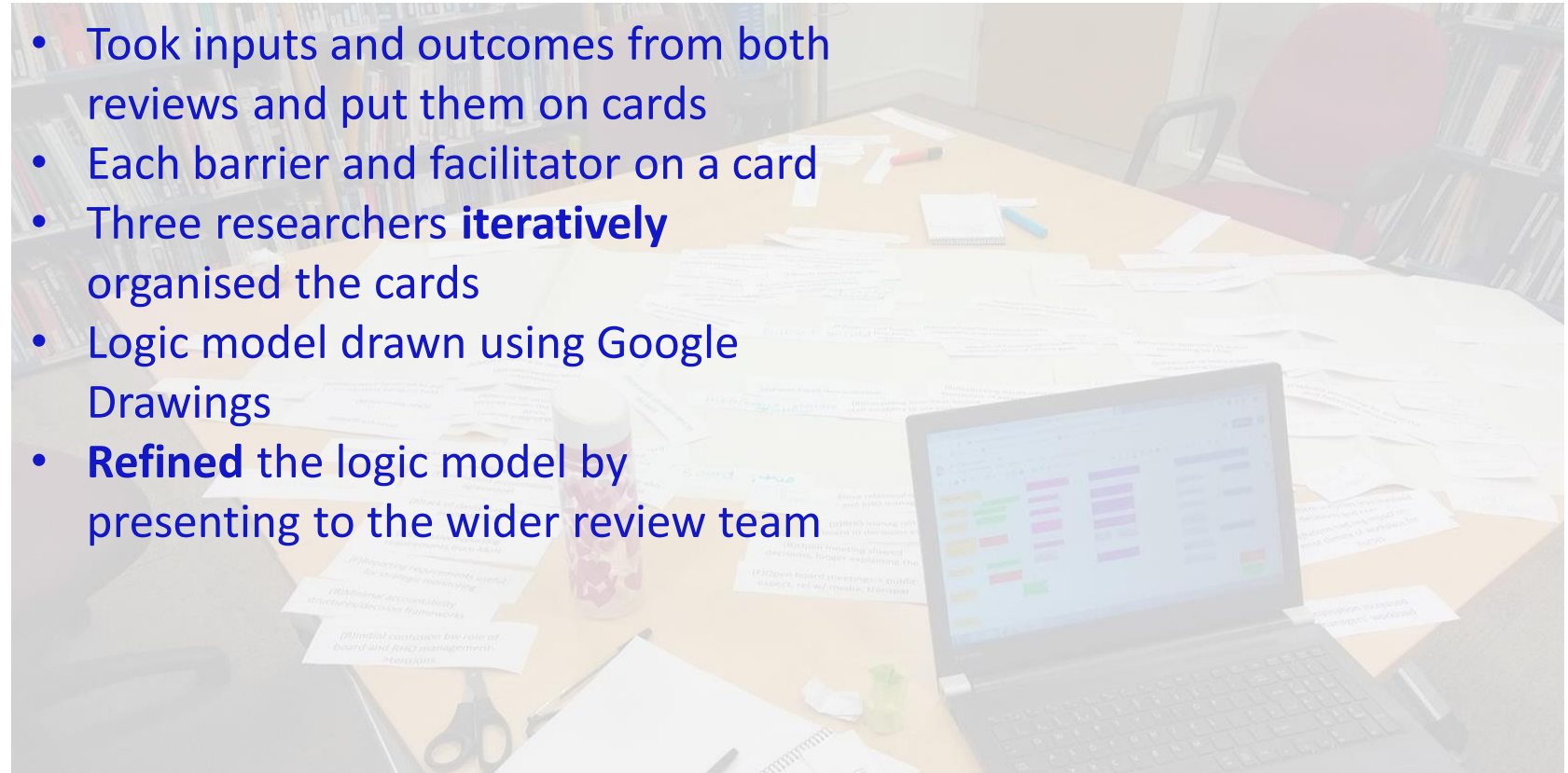
Brings together results of a review of effectiveness and a qualitative synthesis in a logic model – parallel synthesis

Process

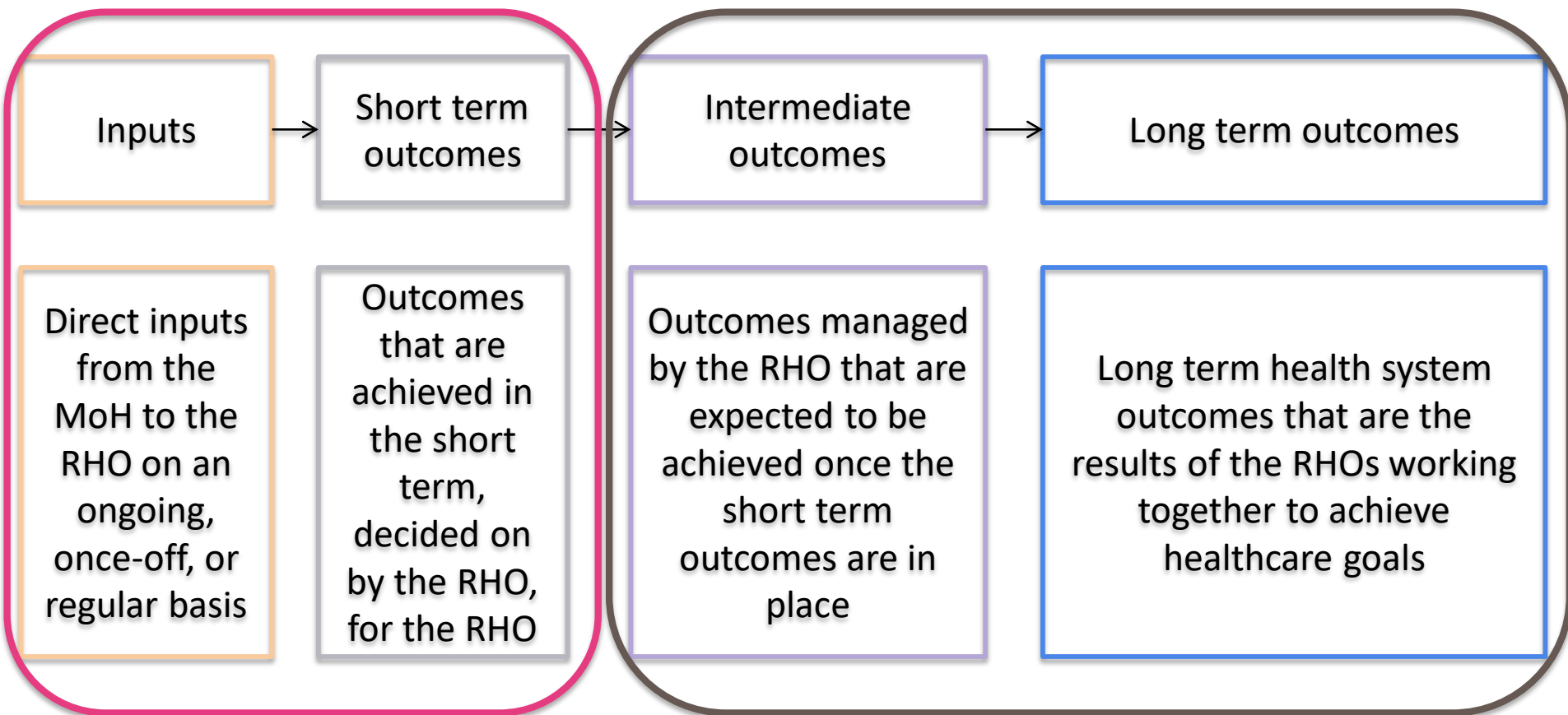


Process

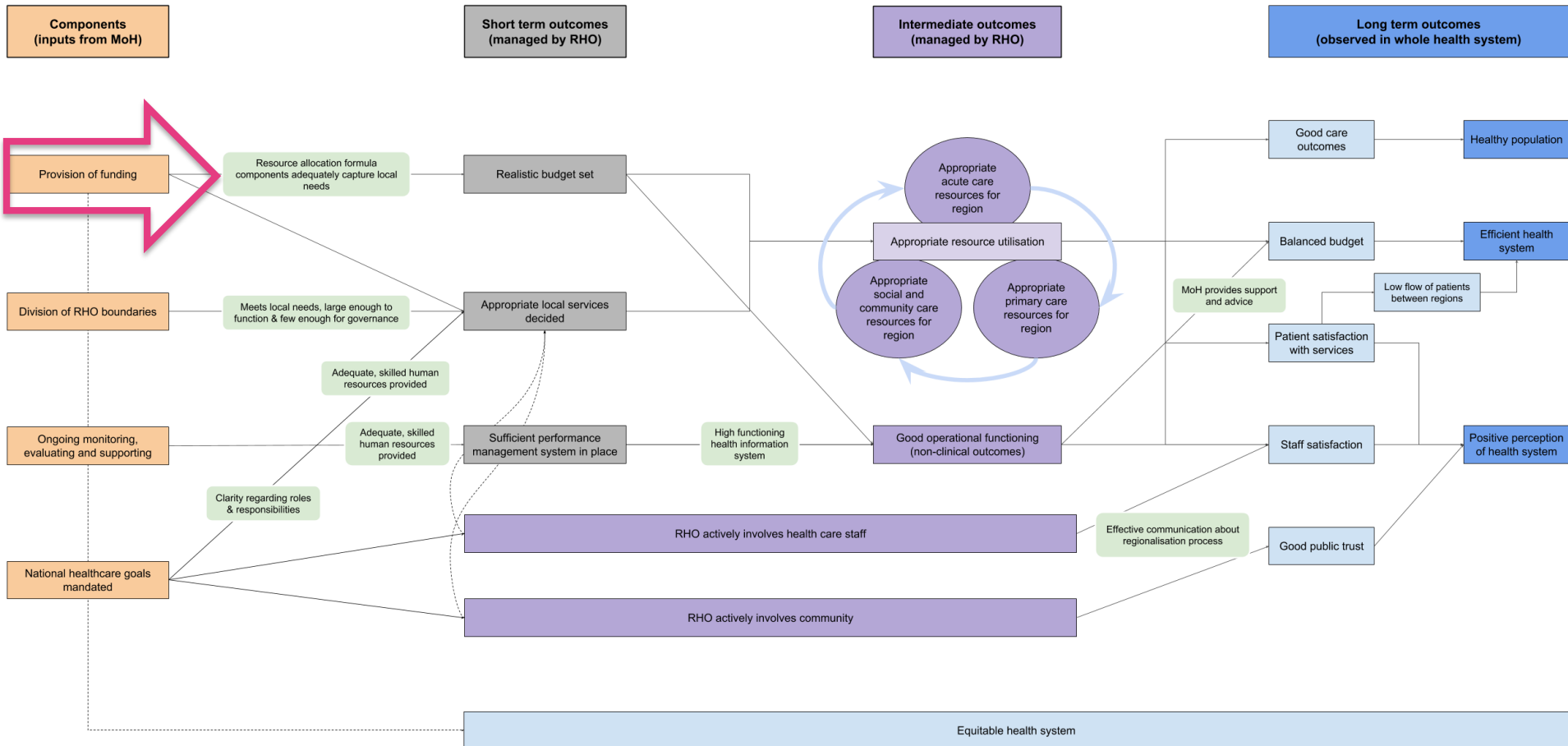
- Took inputs and outcomes from both reviews and put them on cards
- Each barrier and facilitator on a card
- Three researchers **iteratively** organised the cards
- Logic model drawn using Google Drawings
- **Refined** the logic model by presenting to the wider review team



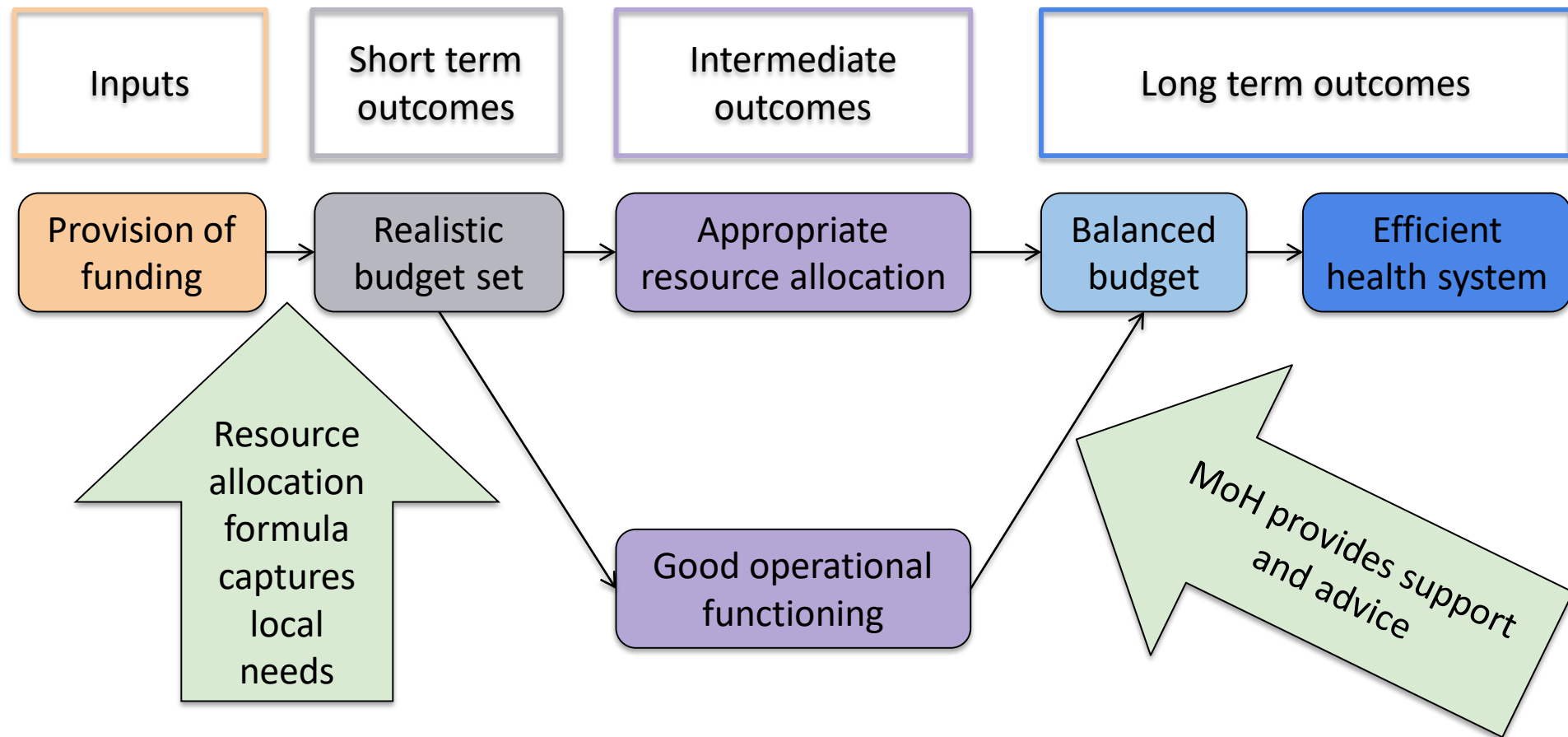
Bringing the logic model together



Logic model



Chain of activities – funding



Impact

Sláintecare action plan

Define and agree a new organisational and operational structure for the future reconfigured health service, including respective roles of the Department of Health, the HSE and national and regional integrated care organisations.	International Evidence Review of National and Regional Health Structures	On Track	Draft HRB report received by DoH 15 March 2019. Technical observations submitted 03 April 2019 by DoH to HRB. Internal observations have been collated internally within the DoH from the different areas.
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Regional integrated care organisations

- Review was one source used to inform the geographical boundaries drawn by Department of Health e.g.
- If population of region is too small it will be at a disadvantage
- Having a large number of regions is a barrier to strategic change
- Will be utilised in ongoing work



Take home messages

- Mixed methods reviews draw on the strengths of quantitative and qualitative evidence
- Mixed methods allow for triangulation of findings
- Models can form a key output of mixed methods reviews and provide policy makers with a valuable visual representation of results
- Mixed methods are especially useful for policy questions because they can capture impact as well as perceptions and experiences of implementation

The pragmatic gold standard for a policy-useful systematic review might thus be a timely, mixed-method, broad-scope review that embraces multiple disciplinary perspectives and gives a comprehensive (though not exhaustive) summary of the state of knowledge, ignorance and uncertainty in a field.

(Greenhalgh et al. 2017)

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