



Welcome and introductions

ESI Mixed methods
evidence synthesis

25th and 26th September
Galway Bay Hotel





Prof. James Thomas
UCL



Prof. Angela Harden
City St Georges, University of London



Prof. Katy Sutcliffe
UCL

Workshop objectives

- By the end of this workshop you will:
 - Be familiar with key examples of mixed methods evidence synthesis;
 - Understand the rationale underpinning mixed methods evidence synthesis;
 - Be able to recognise a range of options for integrating quantitative and qualitative evidence within a mixed-methods evidence synthesis;
 - Have experienced the process of integration and some of the challenges faced when integrating quantitative and qualitative evidence;
 - Be able to apply lessons learnt to your own review activity.



Session	Lecture	Activity
1	Intro & worked example	Trying out thematic synthesis
2	Why do MMSR?	Developing MMSR questions
3	Types of MMSR	Recognising types of MMSR
4	Finding, describing and appraising studies	Developing implications from a thematic synthesis
5	Integration by comparison	Trying out integration by comparison
6	Integration by connection	Trying out integration by connection

Course structure

- 6 x 90 minute sessions over 2 days
- lecture ~30 mins, activity / discussion ~60 mins

Day 1 Outline

Time	Session
9.30-10.15	Introductions
10.15-11.00	Lecture 1 – worked example of mixed methods synthesis
11.00-11.15	Break
11.15-12.30	Activity 1 – Trying out thematic synthesis
12.30-1.00	Lecture 2 – Why do mixed methods synthesis
1.00-2.00	Lunch
2.00-2.45	Activity 2 – Developing questions for mixed-methods evidence syntheses
2.45-3.10	Break
3.10-3.30	Lecture 3 – Overview of options for integration
3.30-4.30	Activity 3 – Recognising different integration types
4.30-5.00	Plenary

Introductions

- Please introduce yourself to your neighbour (in 60 seconds if possible ... we'll get to know each other more as the course goes on):-
 - Your name and professional role
 - Your experience of doing systematic reviews
 - What you are hoping to get out of the course
 - Anything else you'd like to share (hobbies / interesting facts) ...
- Introduce your neighbour to the group





Integrating qualitative research with trials in systematic reviews

James Thomas, Angela Harden, Ann Oakley, Sandy Oliver, Katy Sutcliffe, Rebecca Rees, Ginny Brunton, Josephine Kasanagh

An example review from public health shows how integration is possible and some potential benefits

The value of including data from different types of studies in systematic reviews of health interventions is increasingly recognised. A recent editorial accepted that qualitative research should be included in systematic reviews, but pointed to a "daunting array of theoretical and practical problems."¹ This article presents an approach to combining qualitative and quantitative research in a systematic review. We describe how we used this approach in a systematic review of interventions to promote healthy eating among children, full details of which are available.²

The review framework

The review question was: "What is known about the barriers to, and facilitators of, healthy eating among children aged 4-10 years?" The specific focus of the review was fruit and vegetable intake. We searched for two types of research: controlled trials (randomised or non-randomised) that examined interventions to promote healthy eating and studies that examined children's perspectives and understandings (views studies), often by using qualitative research methods—for example, in-depth interviews and focus groups.



But will she eat her greens?

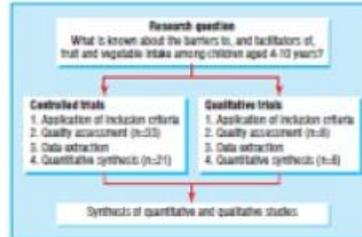


Fig 1 Stages of the review

We used conventional systematic review methods: sensitive searching, systematic screening, and independent quality assessment. These methods found 33 trials and eight qualitative studies that met our prespecified inclusion criteria.

We assessed studies for quality and reliability according to standards for their specific study types; they were then synthesised individually by using methods appropriate to the study. We conducted a meta-analysis with the data extracted from trials, used qualitative methods to synthesise the textual data extracted from the qualitative studies, and then integrated the findings from the qualitative synthesis with those from the meta-analysis. This gave us one review with three syntheses (fig 1).

Quality assessment

We maintained the key principles of avoiding bias and maximising transparency and accountability when conducting a systematic review. Both types of study went through a stage of quality assessment with two reviewers working independently and then meeting to discuss their findings. We used different tools for the different types of studies, building on recent developmental work and established consensus on quality assessment for both experimental studies³⁻⁶ and qualitative research.⁷⁻¹¹ The studies were assessed in terms of reporting quality, internal validity or reliability, and, for qualitative studies, the extent to which the findings were rooted in children's perspectives (box).



REPORT

October 2003

EPPi-Centre

Children and healthy eating: a systematic review of barriers and facilitators



Evidence for Policy and Practice
Information and Co-ordinating Centre

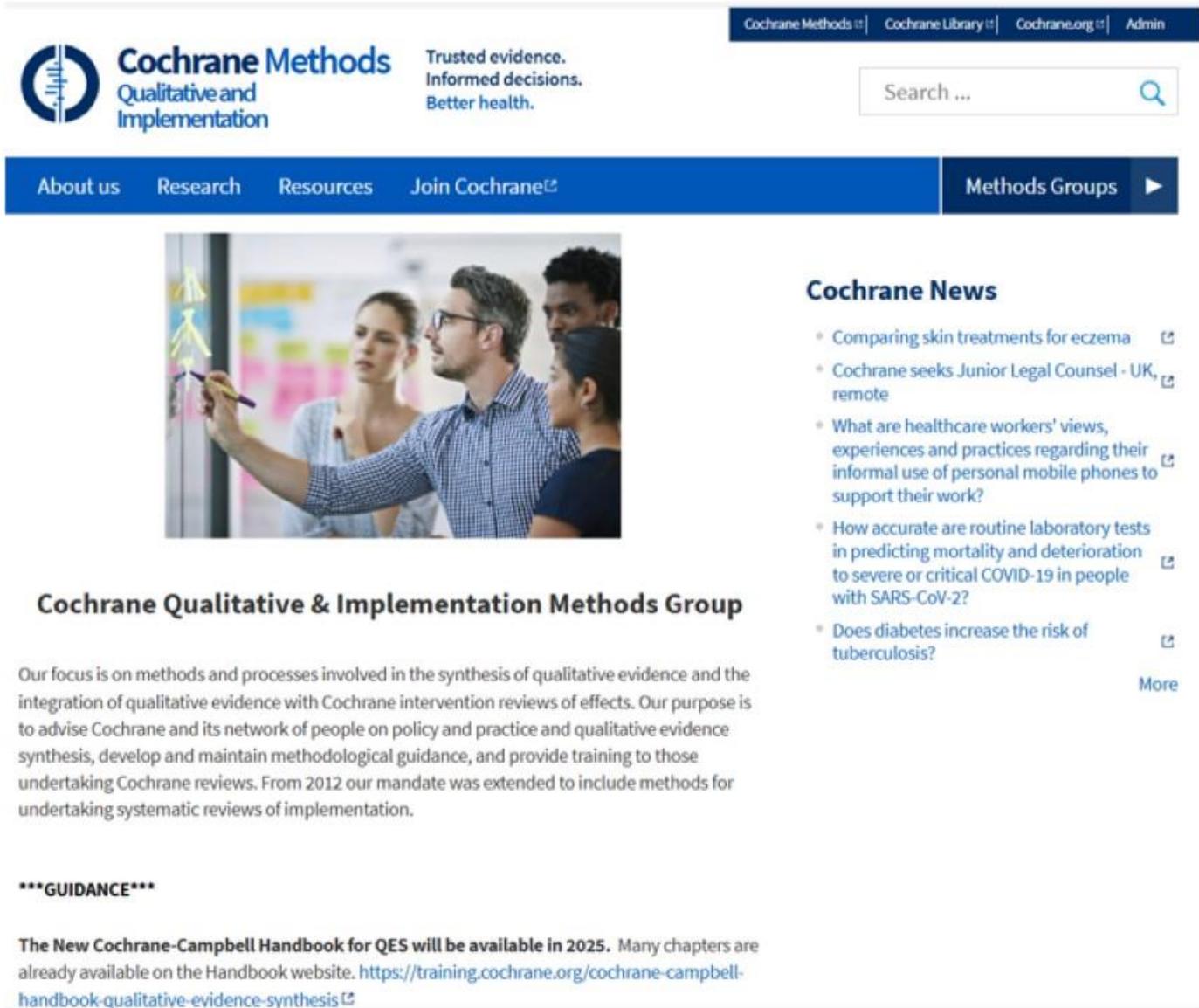
The EPPi-Centre is part of the Social Science Research Unit, Institute of Education, University of London.
NEP 01eppi.100.ac.uk

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Cochrane QIMG website

- Information
- Training
- Resources

<https://methods.cochrane.org/qi/>



The screenshot shows the website's header with navigation links: Cochrane Methods (12), Cochrane Library (12), Cochrane.org (12), and Admin. A search bar is located on the right. Below the header is a blue navigation bar with links for About us, Research, Resources, Join Cochrane (12), and Methods Groups (12). The main content area features a photograph of three people in a meeting, with a man pointing at a whiteboard. Below the photo is the title "Cochrane Qualitative & Implementation Methods Group" and a paragraph describing the group's focus on qualitative evidence synthesis and implementation. A section titled "***GUIDANCE***" mentions the upcoming 2025 Cochrane-Campbell Handbook for QES. On the right side, there is a "Cochrane News" section with a list of articles and a "More" link.

Cochrane Methods
Qualitative and
Implementation

Trusted evidence.
Informed decisions.
Better health.

Cochrane Methods (12) | Cochrane Library (12) | Cochrane.org (12) | Admin

Search ...

About us | Research | Resources | Join Cochrane (12) | Methods Groups (12)



Cochrane Qualitative & Implementation Methods Group

Our focus is on methods and processes involved in the synthesis of qualitative evidence and the integration of qualitative evidence with Cochrane intervention reviews of effects. Our purpose is to advise Cochrane and its network of people on policy and practice and qualitative evidence synthesis, develop and maintain methodological guidance, and provide training to those undertaking Cochrane reviews. From 2012 our mandate was extended to include methods for undertaking systematic reviews of implementation.

*****GUIDANCE*****

The New Cochrane-Campbell Handbook for QES will be available in 2025. Many chapters are already available on the Handbook website. <https://training.cochrane.org/cochrane-campbell-handbook-qualitative-evidence-synthesis>

Cochrane News

- Comparing skin treatments for eczema (12)
- Cochrane seeks Junior Legal Counsel - UK, remote (12)
- What are healthcare workers' views, experiences and practices regarding their informal use of personal mobile phones to support their work? (12)
- How accurate are routine laboratory tests in predicting mortality and deterioration to severe or critical COVID-19 in people with SARS-CoV-2? (12)
- Does diabetes increase the risk of tuberculosis? (12)

More



Cochrane-Campbell Handbook for
**Qualitative
Evidence Synthesis**

Edited by **Jane Noyes** • **Angela Harden**

Associate Editors: Heather Ames, Andrew Booth, Kate Flemming, Emma France,
Ruth Garside, Catherine Houghton, Tomas Pantoja, Katy Sutcliffe, and James Thomas.

WILEY Blackwell

**Hard copy to be published in 2025;
available online now**

<https://training.cochrane.org/cochrane-campbell-handbook-qualitative-evidence-synthesis>

Cochrane-Campbell Handbook for Qualitative Evidence Synthesis

Part 1: Core methods

1. Starting a qualitative evidence synthesis
2. Defining the review scope and formulating review questions
3. Selecting and using theory
4. Developing and using logic models
5. Searching for and identifying studies
6. Selecting studies and sampling
7. Assessing study methodological strengths and limitations
8. Selecting a method of synthesis and data extraction
9. Conducting a framework synthesis
10. Conducting a thematic synthesis
11. Conducting a meta-ethnography
12. Using visual methods to support synthesis
13. Assessing confidence in the evidence using the GRADE-CERQual approach
14. Integrating qualitative and quantitative evidence

Part 2: Other relevant methods

15. Conducting time-sensitive reviews
16. Conducting a realist synthesis
17. Reviewing diverse types of implementation evidence
18. Conducting a qualitative comparative analysis
19. Introducing meta-narrative reviews, critical interpretive s

Part 3: Reporting and peer review

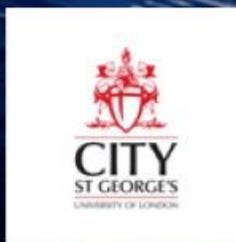
20. Reporting a protocol and a review
21. Peer reviewing a protocol or a review



Lecture 1 – worked example

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Diversity in systematic reviews

“The logic of systematic methods for reviewing the literature can be applied to all areas of research; therefore there can be **as much variation in systematic reviews as is found in primary research.**”

Gough, Thomas and Oliver (2012)

Diversity of Questions > diversity of evidence

Question types	Evidence types
What works? Is intervention x effective for outcome y?	Intervention evaluations (e.g. trials)
What are the barriers/facilitators of implementation?	Process evaluations
What's the extent/nature of the problem?	Epidemiological research (e.g. Survey)
What are people's needs?	Needs assessment
What are people's experiences?	Views research (e.g. qualitative, survey data)
What relationships are seen between phenomena?	Correlational studies

Mixed- method 'compound' questions

- E.g. questions about interventions that require mixed methods to answer
 - Which intervention *works best to achieve outcome y?* **AND** which works best *for whom, in what circumstances etc.?* (intervention effectiveness + contextual moderators)
 - To *what extent* **AND** *in what ways* does the person who delivers the intervention affect the outcomes attained? (effectiveness + implementation/mechanisms)
 - Who does this intervention work for, **AND** *why?* (effect of context + mechanisms)

Answering compound questions

Compound questions may require combinations of **different study types to be included**.

- E.g. process evaluations and trials

Different combinations of study types may demand **different methods of synthesis**.

- E.g. meta-analysis and thematic synthesis

Combining different study types requires **methods for 'integration'**

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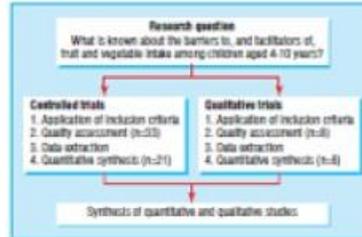


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REPORT

October 2003

EPPi-Centre

Children and healthy eating: a systematic review of barriers and facilitators



Evidence for Policy and Practice
Information and Co-ordinating Centre

The EPPi-Centre is part of the Social Science Research Unit, Institute of Education, University of London.
NEP 01eppi100.ac.uk

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Review question

e.g. What is known about the barriers to, and facilitators of, fruit and veg intake amongst children aged 4 to 10 years?

Mapping

(193 studies in 272 reports)

In-depth review

(41 studies)

Synthesis 1: Trials (N=33)

1. Application of inclusion criteria
2. Quality assessment
3. Data extraction
4. **Statistical meta-analysis**

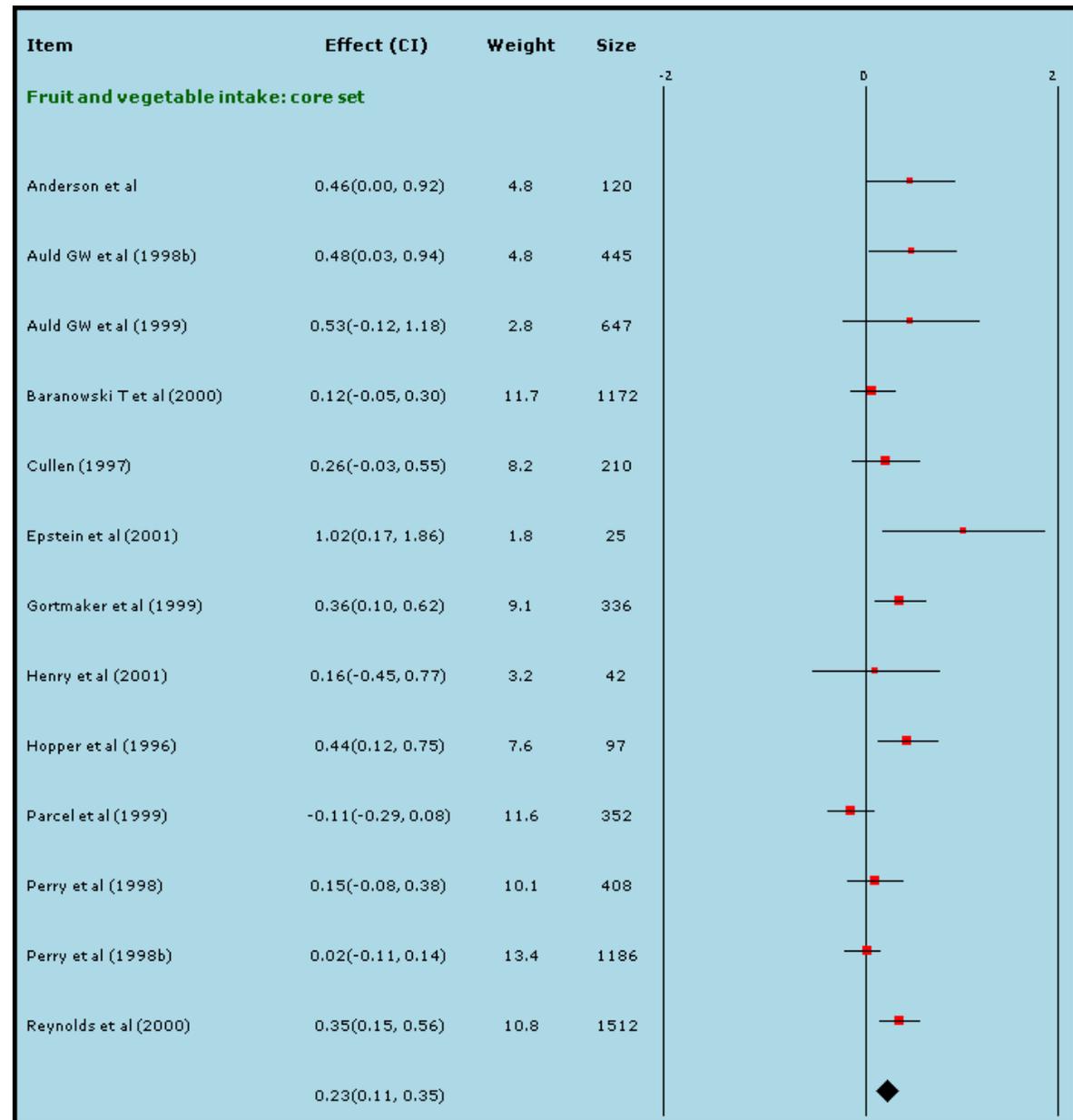
Synthesis 2 Qualitative studies (N=8)

1. Application of inclusion criteria
2. Quality assessment
3. Data extraction
4. **Thematic synthesis**

Synthesis 3: Trials and qualitative studies

Integration

Findings for first synthesis: (meta-analysis of trials)



'Thematic synthesis'

- Similar to other methods of synthesising qualitative research (e.g. 'meta-ethnography')
- Source data = text (documents)
- Source material = conceptual
- Key method = translation
- Final product = interpretation

Thomas J, Harden A (2008) Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, 8:45 doi:10.1186/1471-2288-8-

Research article

Open Access

Methods for the thematic synthesis of qualitative research in systematic reviews

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Abstract

Background: There is a growing recognition of the value of synthesising qualitative research in the evidence base in order to facilitate effective and appropriate health care. In response to this, methods for undertaking these syntheses are currently being developed. Thematic analysis is a method that is often used to analyse data in primary qualitative research. This paper reports on the use of this type of analysis in systematic reviews to bring together and integrate the findings of multiple qualitative studies.

Methods: We describe thematic synthesis, outline several steps for its conduct and illustrate the process and outcome of this approach using a completed review of health promotion research. Thematic synthesis has three stages: the coding of text 'line-by-line'; the development of 'descriptive themes'; and the generation of 'analytical themes'. While the development of descriptive themes remains 'close' to the primary studies, the analytical themes represent a stage of interpretation whereby the reviewers 'go beyond' the primary studies and generate new interpretive constructs, explanations or hypotheses. The use of computer software can facilitate this method of synthesis; detailed guidance is given on how this can be achieved.

Results: We used thematic synthesis to combine the studies of children's views and identified key

Sub-questions for synthesis 2: driven by main review question

- What are children's perceptions of and attitudes towards healthy eating? What does healthy eating mean to children?
- What do children think stops them from eating healthily?
- What do children think helps them to eat healthily?
- What ideas do children have for what could or should be done to promote their healthy eating?



Stages of thematic synthesis



Stages one and two: coding text and developing descriptive themes

Identifying the 'findings'

'Line-by-line' reading and coding of meaningful units of text

Compare and contrast across codes to developing descriptive themes



Stage three: generating analytical themes

In the light of the review question and aims

Developing descriptive codes & themes



Data extraction: results from primary studies



Coded the findings described in our data extraction (e.g. 'bad food = nice, good food = awful')

36 initial *descriptive codes*



Looked for similarities and differences among *descriptive codes* in order to group them

13 *descriptive themes* (e.g. 'Perceptions of health benefits')

Initial coding of meaningful units of text

The screenshot shows the EPPI-Reviewer 3.0 web application in a Windows Internet Explorer browser. The page title is "Inductive coding: code". The navigation menu includes "Review details", "Screening", "Analyse", "Enter / edit data", "My account", "Admin tools", and "Logout". The "Analyse" menu is expanded, showing options like "List guidelines", "Reviewers", "Login details", "Delete item", "Inductive coding", "Filter builder", "Edit review", "Web databases", "Help", and "View item".

The main content area displays the coding text for an item: "Dixey R; Sahota P; Atwal S; Turner A; (2001) Children talking about healthy eating: Data from focus groups with 300 9-11-year-olds". The text is as follows:

as a legitimate use of their money and thought parents should buy this.
*Children did not identify friends as an influence on their healthy eating

'Children were well aware of the pressures on them (to be healthy) and of the contradictions in their own behaviour, and knew that they did not always act on what they knew to be healthy: 'When they (the Apples project) come round, you think right, I'm going to get healthy now, but when you get home, you get something out of the fridge or something' (Boys, Year 6); 'At home I just nip into the biscuit tin.' (Boys, year 5)' p.74 - e.g. temptation 'All the things that are bad for you are nice, and all the things that are good for you are awful' (Boys, year 6) p.74 Problems with school dinners - 'But once you go down for the school dinners it's a different story, because you've got all your fattening foods' (Boys, Year 6) p.74 Some children reported throwing away foods they knew had been put in because they were 'good for you' and only ate the crisps and chocolate. Influence of advertising - reported keenness to emulate footballer Alan Shearer by eating at MacDonalds 'My brother says we have to go to there because Alan Shearer has been there.' (Girls, year 5) 'People think 'I want to be like Alan Shearer so I better go to MacDonalds.' (Boys, year 6) Children said that adverts made them 'feel hungry' and were particularly

The interface includes a "Text to code:" input field and a "Create new code" button. A hierarchical codebook is displayed on the right, with the following structure:

- Understandings of healthy eating
- Influences on foods chosen
 - Provided foods
 - Chosen foods
 - Food preferences
 - Perceptions of health benefits
 - bad food = nice, good food = awful
 - Roles and responsibilities
 - Knowledge - behaviour gap
 - Non-influencing factors

A context menu is open over the selected code "bad food = nice, good food = awful", showing options: "Code selected text", "Remove this code from selected text", "Show text coded with this code", "Delete this code", "Add sub-code here", "Reports", and "Properties...".

At the bottom, the user is logged in as James Thomas, reviewing "Children and Healthy Eating: A systematic review of barriers and facilitators" in the EPIC database.

Descriptive codes diagram

Inductive coding: diagrams - Microsoft Internet Explorer

Address: http://localhost:1933/EPPIReviewer/inductive_c_diagram.aspx

EPPI-Reviewer 3.0 Inductive coding: diagrams Help files

Review details | Screening | Analyse | Enter / edit data | My account | Admin tools | Logout

List guidelines | Reviewers | Login details | Delete item | Inductive coding | Filter builder | Edit review | Web databases | Help | View item

Show all 42 items

Insert | Select code | Insert comment | Delete | Undo | Redo | Zoom in | Zoom out | Fit

```
graph TD;
    PF[Provided foods] --> FS[Foods in the school];
    PF --> FH[Foods in the home];
    PF --- Note[breaks into two areas];
    FS --> HEC[Healthy eating concepts];
    FS --> GBF['Good and bad foods'];
    FS --> HC[Health consequences];
    FS --> FFLC[Factors further constraining limited choice];
    FS --> SDO[School dinners as social occasion];
    FH --> PPHFC[Promotion and provision of healthy foods contradiction];
    FH --> BR[Breaking rules and asserting independence];
    FH --> PIRF[Parental influence and food rules];
    CF[Chosen foods] --> NIF[Non-influencing factors];
    CF --> HB[Health benefits];
    CF --> RR[Roles and responsibilities];
    CF --> FP[Food preferences];
    CF --> KBG[Knowledge - behaviour gap];
```

Diagram name: Healthy eating descriptive codes Save diagram

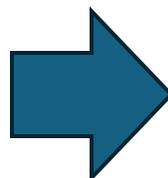
Done Local intranet

Developing analytical themes

- Further analysis of *descriptive themes*: **in the light of our review question and aims**
 - up until this point, we had no ‘results’: our analysis did not address our review question and aims, it was a synthesis of the studies in their own terms
 - Further analysis resulted in 6 *analytical themes* (e.g. ‘Children do not see it as their role to be interested in health’)
- From these themes, we inferred barriers, facilitators and recommendations for interventions (e.g. reduce emphasis on health messages)

Analytical themes

- 1) Children don't see it as their role to be interested in health.
- 2) Children do not see future health consequences as personally relevant or credible.
- 3) Fruit, vegetables and confectionary have very different meanings for children.
- 4) Children actively seek ways to exercise their own choices with regard to foods.
- 5) Children value eating as a social occasion.
- 6) Children recognise contradiction between what is promoted and what is provided



Implications for interventions

Brand fruit and vegetables as 'tasty' rather than 'healthy'.

Reduce health emphasis of messages

Do not promote fruit and vegetables in the same way within the same intervention.

Create situations for children to have ownership over their food choices.

Ensure messages promoting fruit and vegetables are supported by appropriate access to fruit and vegetables

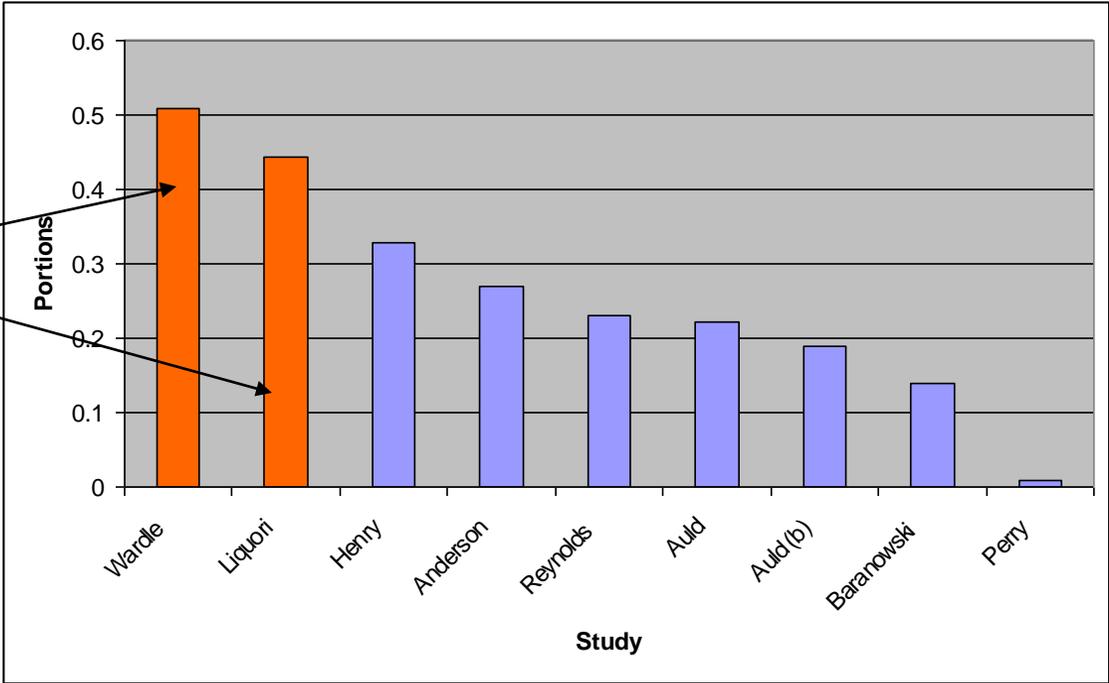
'Integration' via a matrix to *compare*

Children's views	Outcome evaluations	
Recommendation for interventions	Good quality	Other
Do not promote fruit and vegetables in the same way	No soundly evaluated interventions	No other interventions identified
Brand fruit and vegetables as an 'exciting' or child-relevant product, as well as a 'tasty' one	5 soundly evaluated interventions identified	5 other interventions
Reduce health emphasis in messages to promote fruit and vegetables particularly those which concern future health	5 soundly evaluated interventions identified	6 other interventions identified

Sub-group analysis to *connect* syntheses

Increase (standardised portions per day) in vegetable intake across trials

Little or no emphasis on health messages



These synthesis methods :

- Allows us to integrate ‘quantitative’ estimates of benefit and harm with ‘qualitative’ understanding from people’s lives
- Allows the exploration of heterogeneity in ways in which it would be difficult to imagine in advance
 - BUT protects against ‘data dredging’ – i.e. our analysis is informed by and justified by the qual evidence
- This review compares and connects as ways of integrating (you will hear more about these later)



Activity 1 – trying out thematic synthesis

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Activity 1 – Trying out thematic synthesis

- **Aims**

- Give you ‘taste’ of working with qualitative data in a thematic synthesis
- Generate findings that you will further develop and integrate with effectiveness data in later activities

- **Scenario**

- Policy makers are concerned that seasonal influenza will impose significant strain on healthcare services in winter season; vaccine uptake among healthcare workers (HCW) remains low.
- You have been commissioned to undertake a mixed-methods evidence synthesis to identify the most effective strategies for encouraging uptake of the seasonal influenza vaccine among HCW.
- In this first phase of the work your aim is to synthesise qualitative evidence to develop an understanding of the issues by developing initial themes on ‘HCWs’ perceptions and experiences of vaccination drives for seasonal influenza’.
- In later stages (i.e. subsequent workshop activities!) you will use your thematic synthesis findings to develop ‘implications for interventions’ (activity 4) which you will then integrate with intervention effectiveness data using a comparison approach (activity 5) and a connection approach (activity 6).

Activity 1 – Trying out thematic synthesis

- Instructions for the thematic synthesis activity (with suggested timings)
- **On your own:** read the six excerpts / short passages from qualitative studies on the following pages and jot down any initial ideas (**~10 mins**)
- **In small groups:** see if you can develop and agree any ... (**~20 mins**):
 - Descriptive themes (... what are participants views / experiences)
 - Analytical themes (... what are the implications re barriers / facilitators to vaccination uptake)
- **On the thematic synthesis' Padlet:** post one 'descriptive theme' and the 'descriptive codes' that underpin it (**~5 mins**) - padlet link: bit.ly/3BcCpaP, padlet QR code:
- **Whole group discussion:** In the last part of this activity you will have an opportunity to elaborate on your post and reflect on your experience of trying out thematic synthesis (**~20 mins**).

