# Rapid Evidence Assessment:
# Large Research-led Partnerships

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## Abstract

This rapid evidence assessment aimed to identify the enabling and inhibiting factors that can contribute to the success or otherwise of large research-led partnerships. Its findings are informing how GenV works with its partners and collaborators across sectors and disciplines to optimise their functioning and likely impact.

## Keywords

## Citation

## Aboriginal acknowledgement

# Table of Contents

G E N V

# Acknowledgement

The authors would like to acknowledge the following individuals for their assistance in conducting the rapid evidence assessment:

# List of abbreviations & glossary

| | |
|---|---|
| CLAHRC | Collaborations for Leadership in Applied Health Research and Care, a specific model of collaboration used in the National Health System in the United Kingdom to undertake applied health research |
| GenV | Generation Victoria, an initiative led from the MCRI with partners across Victoria, that aims to help improve Victorians' health, development and wellbeing through the establishment of one of the world's largest birth and parent cohorts – see https://genv.org.au/ |
| IKT | Integrated Knowledge Translation, a specific model of collaboration between researchers and decision-makers |
| MCRI | Murdoch Children's Research Institute |
| NHS | National Health Service (in the UK) |
| RCH | Royal Children's Hospital, where MCRI and GenV are physically based |
| REA | Rapid Evidence Assessment |
| UK | United Kingdom |
| WHO | World Health Organization |

G E N V

# 1. Executive summary

*Generation Victoria's* vision is to help solve complex issues affecting children and adults today and in the future. It conceptualises an entire Australian state becoming a single platform to enhance the speed, capacity and connectedness of research. The GenV 2020s Cohort will be open to all 160,000 newborns born over two full years from 2021 and their parents. With consent, it brings together new and existing data and biospecimens across time and generations. This rich fabric can then support diverse methodologies including discovery, trials, registries, geospatial and health services research.

GenV is partnering with researchers, policymakers and practitioners in Victoria, Australia and internationally in the quest to find practical, testable and translatable solutions that will help children and parents everywhere.

## Rationale

This rapid evidence assessment was undertaken to identify the enabling and inhibiting factors that can contribute to the success or otherwise of large research-led partnerships and directly inform the design and implementation of the Solutions Hub, a critical knowledge translation element of GenV. The results of the assessment will inform the design and implementation of GenV partnerships, aiming to optimise their functioning and likely impact.

## Methods

The research question was defined as: *'For large research-led partnerships, what factors (both enabling and inhibiting) affect their function and impact?'* In May 2018 searches were conducted in the databases MEDLINE, Cochrane and Scopus. Publications were included if they were published in English from 2008 onwards and reported enabling and/or inhibiting factors that affected the functioning and/or impact of the partnership. We were interested in large research-led partnerships aiming to have a population or system level impact. Therefore, we excluded publications about partnerships where: a) only researchers were involved, b) the only non-research partners were consumers/clients, c) the partnership existed only for a single project (discrete activity), and/or d) the partnership existed solely for quality improvement purposes at one institution.

Publications were first screened on title and abstract. Due to the high volume of publications identified (n=3725), at second stage screening we added three additional exclusion criteria: publications from non-OECD countries, partnerships that existed for the purpose of communities conducting their own research, and publications reporting on more than one partnership where not all partnerships appeared to meet the inclusion criteria (e.g. one partnership was before 2008 and one after).

We developed a coding scheme based on published schemes to extract data structured around four thematic areas (see Box 1).

**Box 1: Themes**

1. **Dynamic between partners:** the relationship between partners and the collective sense of the partnership
2. **Partnership structure and design:** how and what governance and organisational structure the partnership implemented, including the funding and time available to the partnership
3. How the partnership operated in regard to:
   a. **Partnership personnel:** the type of leadership, dedicated staffing and team building activities of the partnership
   b. **Partnership communication:** what, when and how did the partnership communicate
   c. **Partnership process:** if, what and how the partnership instituted processes to facilitate their work and the functioning of the partnership
4. **External context:** factors external to the partnership that may have affected the partnerships functioning and impact.

## Search results

After removing duplicates, 3725 potentially relevant publications were screened on title and abstract, including six publications that were identified from a review paper rather than database searches. Of 327 (9%) publications appearing to meet the inclusion criteria, we were able to source 306 full text documents. At second stage screening 296 publications were excluded, including 95 that did not meet the added exclusion criteria, leaving 31 publications for inclusion in the rapid evidence assessment.

## Publication results

The 31 publications described enablers (n=27) and/or inhibitors (n=22) for at least 42 large research-led partnerships and are summarised in Table 1. Publications most commonly described partnerships in the health sector (n=24) and were based in the United Kingdom (UK; n=9), Canada (n=7) and Australia (n=6). Six described Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), a specific collaboration type from the UK health system. Partnerships were most often assessed by interviews (n=15), authors' own knowledge/reflections (n=15), and analysis of existing documents and data (n=12).

**Table 1:** Most common enabling and inhibiting factors

| Enabler (n=27) | Publications (n) | Inhibitor (n=22) | Publications (n) |
|---|---|---|---|
| Shared vision, mission and/or goals | 12 | Lack of shared vision, mission and/or goals | 8 |
| Feelings of trust between partners | 10 | Different expectations for timelines | 8 |
| Frequent/regular communication | 10 | Differing expectations of partners for partnership | 7 |
| Flexibility in approaches/ implementation | 10 | Partnership participation takes too much time/more than expected | 6 |

# Enablers and inhibitors by theme

The majority of enabling and inhibiting factors were identified under the themes that were developed as part of the coding framework (Box 1) with most under the themes of Dynamic Between Partners, Partnership Processes, and Partnership Structure and Design (Figure 1). The most common enablers and inhibitors under each of these themes are further described below.

**Figure 1:** Inhibiting and enabling factors by theme
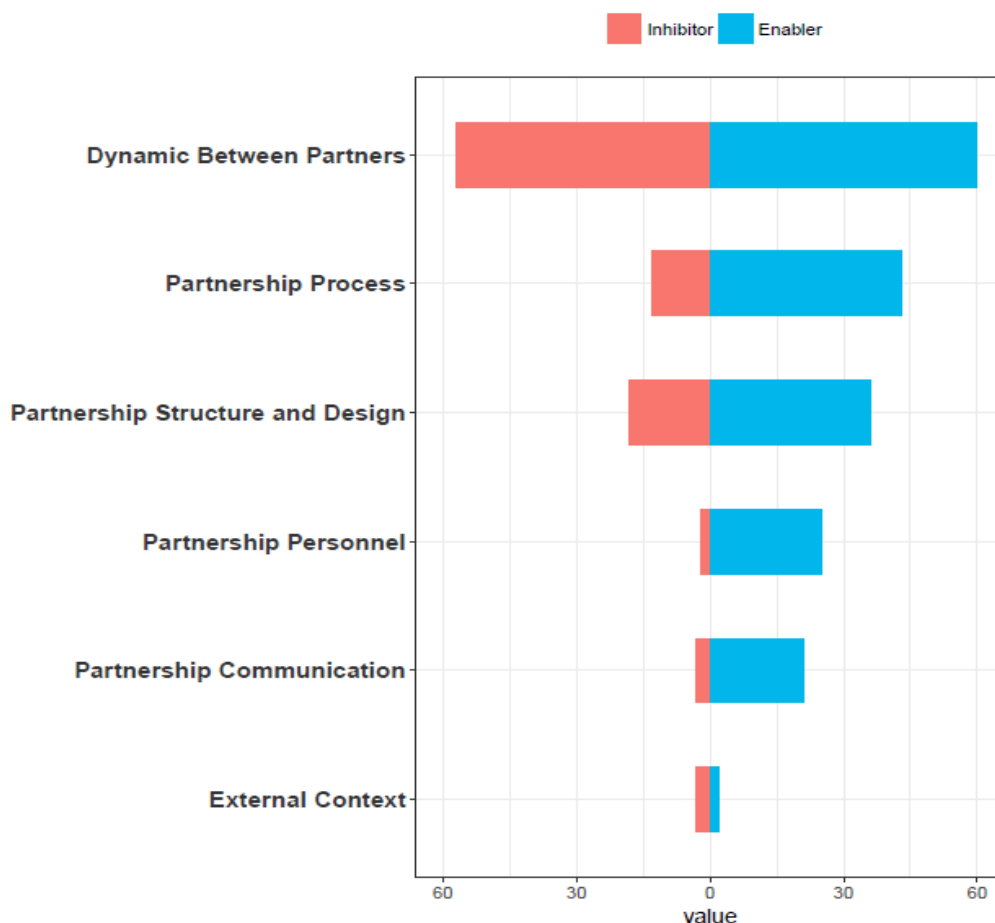


# Dynamic between partners

Having a shared vision, mission and/or goals (n=12) was the single most common inter-organisational enabler identified, while *lack* of a vision was frequently identified as a partnership inhibitor (n=8). Relationships between partners, with enablers including feelings of trust (n=10) and respect (n=5) and understanding or appreciating other partners' perspectives (n=8) was a similarly common finding.

*Not* understanding or appreciating these perspectives was a frequent inhibitor (n=5).

> *'...it was essential to engage and maintain a shared vision of the potential benefits of collaboration over a long period of time' (Payne)*

## Partnership structure and design

Common enablers included previous experience working together (n=7) and adequate funding to support the partnership (n=5). The balance and clarity or lack thereof of governance structure, roles and functions was identified as inhibiting and enabling factors.

## Partnership processes and external context

Strong partnership leadership/governance was identified as an enabler in eight publications. Frequent/regular communication was identified as an enabler (n=10) and infrequent communication (n=3) as an inhibitor. The most common process-related enablers were flexibility in approaches/implementation (n=10) and formal operational protocols/processes (n=8).

*'Participants acknowledged that regular, multi-modal communication was an important aspect of successful partnering' (Sibbald)*

The most common process-related inhibitor was time – that participation in the partnership took too much time, or more time than expected (n=6). External contexts affecting partnership functioning and impact were identified in few publications.

## Lessons for GenV

There are some critical key learnings that have emerged for GenV and in particular the Solutions Hub. There are also a number of implementation approaches that can activate these learnings. These include:

### 1. Shared outlook and commitment

- A clearly articulated GenV Vision communicated over the life of the partnership
- Agreement on the purpose and expected outputs and outcomes of the partnership

### 2. Partner expectations are clear and acceptable

- An explicit agreement as to 'what' each individual and organisations will contribute to the partnership in regards to roles, time and resources
- Ensuring that adequate time is allocated to complete partnership work, while also ensuring that this time is not overly onerous, or perceived as such
- Outlining what benefits partners will obtain from partnership participation (for example improved skills or access to training)

### 3. Establishing and nurturing relationships

- Allowing enough time to 'get to know each other' at all stages of the relationship
- Being explicit about 'how' the partners will work together

### 4. Formal processes and flexibility

- Dedicated staff to operate partnerships
- Standardised principles or practices of working e.g. Terms of Reference

## Conclusion

This rapid evidence assessment identified a diversity of enablers and inhibitors of large research-led partnerships. Likely limitations include probable omissions of some eligible partnerships and gaps in how partnership assessments were reported. However, these results broadly reflect the key partnership enablers and inhibitors identifiable within published partnership assessments. The findings of this assessment have immediately informed and will continue to inform the detailed planning for GenV partnerships. We hope it is also useful to other large research-led partnerships in OECD countries.

# 2. Introduction

## 2.1    Generation Victoria (GenV)

*Generation Victoria's* vision is to help solve complex issues affecting children and adults today and in the future. It conceptualises an entire Australian state becoming a single platform to enhance the speed, capacity and connectedness of research, with the GenV 2020s Cohort open to all 160,000 newborns born over two full years from 2021 and their parents. With consent, it brings together new and existing data and biospecimens across time and generations. This rich fabric can then support diverse methodologies including discovery, trials, registries, geospatial and health services research. Information about GenV will continue to evolve at https://genv.org.au/.

GenV is partnering with researchers, policymakers and practitioners in Victoria, Australia and internationally in the quest to find practical, testable and translatable solutions in real time as issues emerge, to help children and parents everywhere.

GenV is organised into four inter-related streams: Cohort 2020s, Data Innovation, Bio Discovery and the Solutions Hub. Throughout 2018, GenV was in its conceptualising phase. Data Innovation built a prototype LifeCourse Data Repository, Bio Discovery tendered its biobank, and GenV Cohort 2020s prepared a scientific protocol and ethics submission.

## 2.2    Rationale for rapid evidence assessment

Central to achieving GenV's vision is its capacity to build strong partnerships with key stakeholders. These partnerships, amongst many things, intend to capture the changing policy, research and service delivery landscape and opportunities, drive responsive, timely and innovative science and solutions, promote the understanding of the GenV data, facilitate the data's use and growth, and translate research into action. The capability to build these partnerships has been positioned within the GenV Solutions Hub stream.

To ensure an evidence based approach to partnership design and implementation, GenV undertook a 'rapid evidence assessment' of factors that affect large research-led partnerships. Rapid evidence assessments are also known as rapid reviews[1] or 'restricted review'[2] and have become an increasingly common method of knowledge synthesis to inform decision-making.[3-5] Although there is no single definition, a rapid evidence assessment is generally understood to be a type of knowledge synthesis using the methods of systematic review, but in a streamlined and accelerated fashion to produce similar results. Rapid evidence assessments are used when speed, opportunity cost and/or monetary cost are key considerations. Compared to a systematic review, rapid evidence assessments commonly reduce the scope of searches by limiting time frame and databases searched, reduce or exclude entirely the use of two reviewers to independently screen and/or extract data, and use narrative rather than quantitative synthesis of assessment results. The findings of rapid evidence assessments have been shown to be similar to findings of systematic reviews.[3-5]

Due to GenV's intentions to commence building partnerships in mid-2018 and the established value of rapid evidence assessments to inform decision-making the GenV Management Team decided to conduct a rapid evidence assessment of similar research-led partnerships to identify enablers and inhibitors of their functioning and impact.  The intention was to use the results of the assessment to maximise the likelihood of the success of GenV partnerships and the Solutions Hub, by designing and implementing the Hub and the partnerships it establishes based on existing evidence. This document presents the methods and results of this rapid evidence assessment, and the implications for GenV.

# 3. Methods

The assessment was conducted in accordance with existing guides for conducting rapid evidence assessments,[6,7] using the following steps:

1. **Defining the topic:** We developed, clarified and refined the purpose, the research question of the assessment (see below) and undertook preliminary literature searches to inform the scope and structure for the assessment.

2. **Developing the assessment protocol**: We identified and refined search terms in discussion with a medical librarian at the Royal Children's Hospital Library Service. We defined inclusion and exclusion criteria and search strategy and agreed upon an information management strategy - more detail on each of these is provided below. The team then reviewed the draft assessment protocol against the PRISMA, AMSTAR and PRESS checklists,[8-10] and updated the procedures as needed before commencing the assessment. As the research question did not have a direct client outcome, it was not possible to register the protocol in the PROSPERO prospective register of systematic reviews.

3. **Conducting the assessment:** Reviewers screened and extracted relevant data in accordance with the protocol. As described below, some changes were made to the protocol during the screening stage due to the large volume of publications identified in the searches.

4. **Performing the knowledge synthesis:** We undertook a narrative summary of results, implications and recommendations for future practice and limitations of the rapid evidence assessment.

5. **Compiling and disseminating the report** (this document), will be shared with the GenV operations team and key partners.

6. **Publish a shortened version of the report** in the international literature (forthcoming).

The rapid evidence assessment methods used complied with all minimum requirements for rapid evidence assessments as specified in Plüddemann et al 2018, apart from publication of the protocol in a prospective register (see above re consideration of registration in PROSPERO).[2]

## 3.1 Defining the research question

The research question was defined as:

***For large research-led partnerships, what factors (both enabling and inhibiting) affect their function and impact?***

Large was understood to mean partnerships that aimed to have an impact at a system or population level, not only within a single institution.

As the findings of this rapid evidence assessment were to be used to help make decisions about GenV partnerships, it was useful to define 'factors' more specifically. Factors were separated into enabling and inhibiting as these were common themes emerging from the literature, and could also be converted into practical guidelines for 'what to do' and 'what not to do'.

Two important components of partnerships, their functioning and their impact, were also specified in the research question to ensure the assessment was inclusive of both. It was assumed that different publications may focus on one or the other, and that some partnerships may function well but not have their intended impact, and vice-versa.

## 3.2   Search strategy

Searches were conducted in the databases MEDLINE, Cochrane and Scopus using the search terms below. We did consider searching additional databases (Web of Science, ERIC and Emerald) but decided not to given the likely large amount of overlap with the database searches conducted and the limited time (3.5 months) and resources to complete the rapid evidence assessment.

Author PP conducted the searches on 11th May 2018 and imported the results in the software Eppi-Reviewer for later screening.[11] We also manually identified some additional potentially relevant papers from a review paper[12] that was identified during the second stage screening.

We had initially planned to also include hand searches of specific journals and conference proceedings, and a targeted website search of potentially relevant partnerships collated by the project team. However, as the initial database searches appeared to be identifying multiple relevant publications, and initial investigations of these alternate search strategies were not proving useful, these were not pursued. During the assessment planning stages, we had also considered additional search strategies to identify grey literature including Google and Google Scholar searches and searches of grey literature databases. However, based on the experience of others,[13,14] we decided not to pursue these strategies as we assessed these were likely to provide limited additional relevant results but take a substantial time to conduct.

## 3.3   Search terms

Four main search concepts were used to identify relevant publications:

1. **Research**

2. **Partnership**: searches used variations of partnership, collaboration, cooperation and 'integrated knowledge translation'

3. **Outcomes of interest** (functioning and impact of partnerships): searches used variations of terms including process, impact, inhibit, success, implementation, facilitate, enablers, barriers, lessons learned, failure, factors, functioning, evaluation, effectiveness and risk factor

4. **Agency related**: searches used variations of terms to identify publications focused on agencies or organisations, including (but not exclusively) publications involving government agencies and private sector organisations.

Similar to the review by Gagliardi et al 2016,[12] we included the agency related search concept as without specifying this the number of records returned in Medline was unmanageably large.

The full search strategy for each database is available in Appendix 1; the search strategies were designed to be as close as possible to each other. The main difference was that for Scopus the "research" search concept was restricted to title, compared to Ovid Medline and Cochrane where it was also searched in the abstract, as not restricting this search term in Scopus resulted in an unmanageably large number of records to screen, most of which did not appear on initial scan to be relevant to the assessment.

## 3.4  Inclusion/exclusion criteria

As we were interested in large research-led partnerships aiming to have a population or systematic level impact, and were not interested in partnerships involving researchers only, we only included partnerships where at least one main partner primarily conducted research and at least one main partner did not primarily conduct research.

We initially excluded publications from the assessment that:

- Were published before 2008

- Were in a language other than English

- Did not report on an actual partnership (e.g. were testing hypothetical partnership scenarios or described a platform to support partnerships)

- Were about partnerships where:

  - the only non-research partners were consumers/clients

  - the partnership existed only for a single project (discrete activity)

  - the partnership existed solely for quality improvement purposes at one institution

- Did not report on factors affecting functioning and/or impact of the partnership. This included one paper screened on full text where outcome data was included, but not presented in a way that we could include in our extraction.[15]

Timeframe and language were restricted for pragmatic reasons; only 0.5 EFT were available from April to July 2018 to undertake the assessment.

After the completion of the initial screening on title and abstract, we added additional exclusion criteria for the full text screening to further narrow the scope of the assessment. These criteria were added for pragmatic reasons - we had limited time and resources to complete the assessment and decided to further focus the types of partnerships to those most relevant to inform the design of GenV partnerships.

The additional exclusion criteria added for the second stage full text screening were:

- Exclude if partnership is from a non-OECD country[16] or was a multi-country partnership

- Exclude community-based research partnerships, where the purpose of the partnership is for communities to be conducting research. This included partnerships described as "community-based participatory research"

- Exclude if the publication reported on multiple partnerships where not all partnerships included met our partnership inclusion criteria, as it was not always possible to extract outcome information only for the partnerships that met the assessment inclusion criteria.

On the completion of full text screening, two additional publications were excluded for other reasons. One as it was a detailed technical report (vs all other included papers which were articles)  and the rapid evidence assessment team felt it was not feasible to review this in detail and would bias results (by providing more detail than what was available for other partnerships),[17] and one as it reported on initial partnership assessment findings,[18] which were repeated with additional data from later assessments in a paper included in the assessment.[19]

Due to the difficulties in specifying a 'large' research-led partnership, we did not include 'large' as a specific inclusion/exclusion criterion for the assessment other than excluding small partnerships by excluding those that only existed for a single project (discrete activity) or that existed solely for quality

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improvement purposes at one institution (i.e. were not aiming for wide scale change).

All study designs and commentary/opinion publications were included in the assessment. We also included partnership assessments conducted during the implementation of the partnership and partnership assessments conducted after the partnership had ceased.

## 3.5  Publication screening

A two stage screening process was used. Firstly, an initial screening based on title and abstract was conducted to identify potentially relevant publications for which full text documents were sourced. Secondly, this subset of full text documents was then screened again for eligibility (see results for data screening flowchart).

### First stage: initial screening of title and abstract

All potentially relevant publications were imported into Eppi-Reviewer 4.[16] Each publication title and abstract was initially screened for inclusion by either author PP or LD. If authors PP and LD were unsure if the publication met the inclusion criteria they consulted author JG and a decision was made to exclude based on the information in the abstract or retain for the next stage of screening.

Author JG also double screened a) all publications assigned as included on the initial screen by authors PP or LD and b) a random 5% of the total publications. Any discrepancies in the screening assignments by JG were discussed with the other authors and a consensus decision reached.

In accordance with the World Health Organization (WHO) recommendations for conducting rapid evidence assessments,[7] we had initially planned that author JG would review all publications excluded on the initial screening. However, the large volume of publications sourced meant this approach was not feasible to implement.

### Second stage: screening of full text

We attempted to source full text documents for all 327 publications assessed in the first screening stage as being relevant for inclusion. We were unable to source 21 full-text publications, resulting in 306 publications for which the full text document was sourced and reviewed.

Author SD reviewed all full text documents sourced. If author SD was unsure if a publication met the inclusion criteria she consulted author JG and a joint decision was made.

Author JG double screened a random 5% of the publications included in the second stage of screening (n=17). Any discrepancies in the screening assignments by JG were discussed with the author SD and a consensus decision reached.

In accordance with the WHO recommendations for conducting rapid evidence assessments,[7] we had initially planned that a second author would review all publications excluded on the second stage of screening, and any discrepancies between the reviewers discussed with a third author. However, the large volume of publications sourced meant this approach was not feasible to implement.

During the full-text screening we identified one review paper where some, but not all, of the included publications met our inclusion criteria.[12] We excluded this review paper on this basis, but manually sourced six additional papers referred to in the review that had not previously been identified in our database searches and screened these for inclusion. Two of these manually identified papers were assessed as meeting the assessment criteria on full text screening and were included in the final set of included papers.[20,21]

## 3.6 Data extraction

The data screening stage took us longer than expected, and during this stage we identified several existing coding schemes to categorise enabling and inhibiting factors of multi-sectoral partnerships. Thus we decided it was neither practical nor desirable to design a results coding scheme via a full thematic analysis of the included papers. Rather, author JG designed a draft coding scheme by initially adapting the scheme developed by Drahota et al 2016 using thematic analysis for their systematic reviews of community-academic partnerships.[22] The draft coding scheme was then checked against findings from 15 of the screened abstracts to ensure that factors were adequately incorporated into our coding scheme. The authors discussed the coding scheme prior to commencing data extraction, and again after the first few papers had been extracted, and adjusted categories as required based on the collective knowledge of the screened publications to date.

The final coding scheme covered factors across the four main thematic areas of:

1. Dynamic between partners
2. Partnership structure and design
3. How the partnership operated, in regards to
   a. Partnership personnel
   b. Partnership communication
   c. Partnership process
4. External context

The coding scheme was entered into Eppi-Reviewer.[11] SD and JG then extracted data from the publications meeting the inclusion criteria, along with key partnership descriptive information (e.g. name, sector, funder) and details of the partnership assessment (e.g. year of assessment).

We initially consider conducting a quality assessment of included studies (also known as a risk of bias assessment or critical appraisal) and sourced potential tools to use for this. However, time limitations precluded this.

## 3.7 Information management

All data for this rapid evidence assessment was managed in the online software Eppi-Reviewer.[1] This supported the creation of workflows to manage the screening process, double-screening of a sample of records and extraction and storage of information. We used the 'remove duplicates' function within the software to automatically find and remove identical duplicate records, and manually reviewed and removed as required records that appeared to be potential duplicates (that were not quite identical and thus not automatically removed).

## 3.8 Data analysis

Reports of the extracted data were generated using the in-built Eppi-Reviewer[1] reporting functionality. When exported to Microsoft Excel, this facilitated descriptive statistics for this report. For some analyses we grouped together relationship enablers (feelings of trust, feelings of respect and/or understanding or appreciating other partners' perspectives) and collective sense enablers (shared vision, mission and/or goals, a sense of shared commitment to the partnership and/or mutual benefit from partnership).

Authors JG and SD selected quotes to illustrate the most commonly-identified enablers and inhibitors for inclusion in this report.

# 4. Results

## 4.1  Identification of eligible publications

Figure 2 describes the flow of identification of publications to include in the assessment. Most publications were identified through database searches (n=4482), with six additional publications identified through the review paper included in the full text screening.[12] After removing duplicates, 3725 publications were assessed for eligibility on first stage screening (review of title and abstract) by either author LD (n=2486) or PP (n=1239). At the completion of first stage screening, 327 publications appeared to meet the inclusion criteria; the most common reason for exclusion of the remaining 3398 was type of partnership (no partnership or partnership not research-led, n=1227) and outside of date range (n=776).

Full text was able to be sourced for 306 of the 327 publications assessed as potentially eligible during first stage screening. Of these, 31 publications (10% of those screened based on full text, 0.8% of the total unique publications initially sourced) met the assessment inclusion criteria. The single most common reason for exclusion on second stage screening of full text was the publication did not report on factors affecting partnership functioning and/or impact (n=73). Ninety five publications were excluded at the second stage of screening through additional criteria added to narrow the scope of the assessment (see methods earlier for further details). Of the included publications, 13 were sourced from Ovid-Medline, 16 from Scopus and two from a review paper.[12] The 31 included publications were sourced from 28 different journals, including three from *Implementation Science* and two from *Journal of Health Services Research and Policy*.

Results of the double screening undertaken can be found in Appendix 2.

**Figure 2:** Rapid evidence assessment data screening results
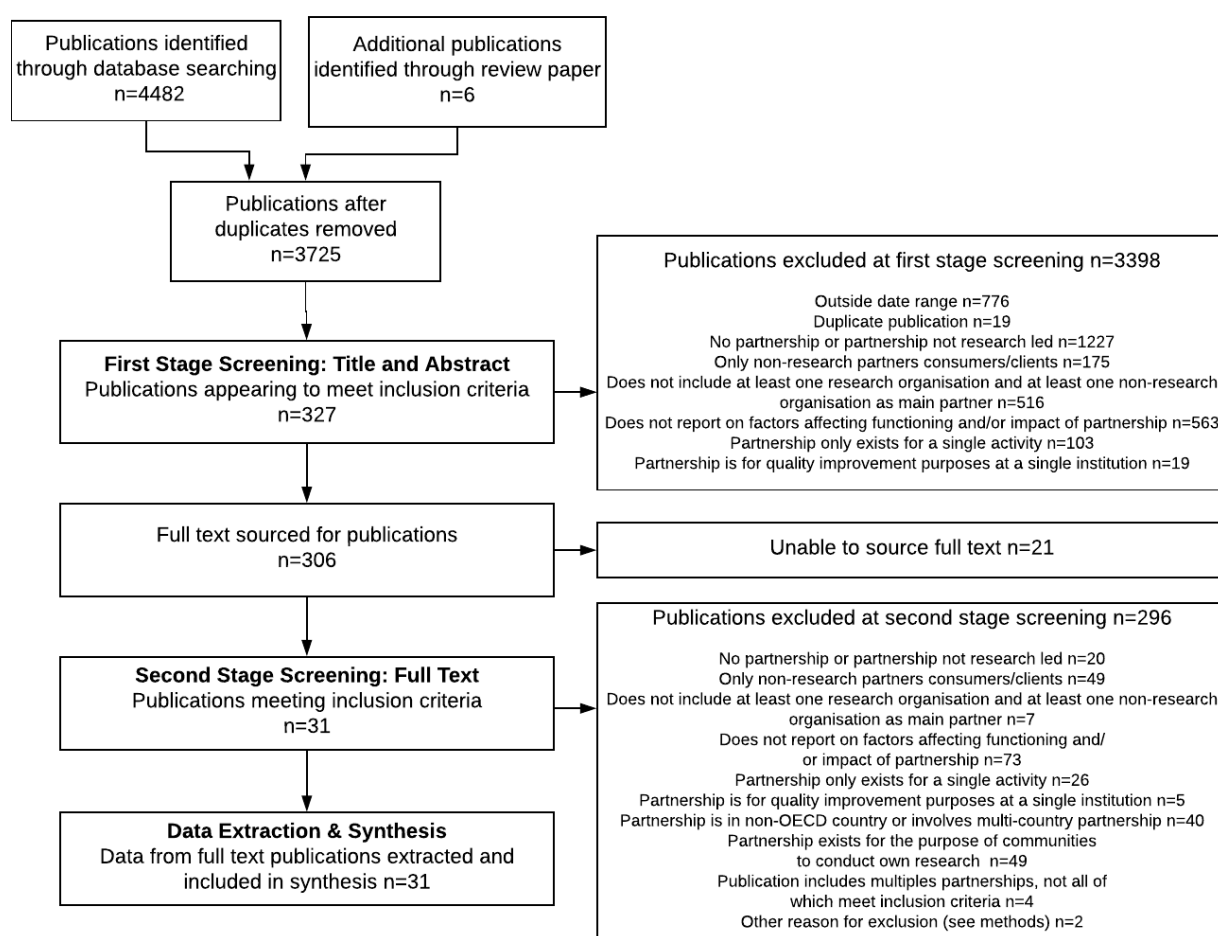


## 4.2 Characteristics of partnerships

At least 42 partnerships were assessed in the 31 included publications. It was not possible to accurately ascertain the number of partnerships assessed in two papers,[23,24] although the Sibbald et al paper included at least 25 partnerships based on the number of interviews conducted with researchers and knowledge-users.

Summary details of these publications and partnerships are described below in Table 2, with further detail of the publications presented in Appendix Table 1. Twenty one publications described one partnership and ten publications described more than one partnership. Ten publications reported a national scale partnership, 15 reported that the partnership scale was sub-national, two reported a city scale partnership and four did not describe the scale of their partnership(s). The majority of the publications described partnerships in the health sector (n=24), followed by three from the environment sector, and one each from the sectors of education; justice; welfare and the private sector (software engineering). The publications reported on partnerships primarily from the United Kingdom (UK; n=9 publications), Canada (n=7) and Australia (n=6).

[Appendix Table 2](#) provide additional summary characteristics of the partnership including information on types of partners, length of partnerships, information on the funder and if the partnership was based on an existing model or framework. Most partnerships described themselves as 'collaborations' (n=17), with other common terms including 'partnerships' (n=12) and 'transdisciplinary research collaborations/programs' (n=3). Some described themselves using more than one term. Six publications described one or multiple Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), which are funded collaborations in the United Kingdom between local providers of National Health Services (NHS) and NHS commissioners, universities, other relevant local organisations and the relevant Academic Health Science Network.[25]

In terms of number of agencies involved, over two thirds (n=21 publications) reported there being three or more agencies involved in the partnership(s), five described there being two agencies involved in the partnership(s), and five did not describe the number of agencies involved in the partnership(s). The most common types of agencies involved in the partnerships included universities (n=24 publications), government departments (n=17) and service delivery organisations (n=16).

Most publications (n=25) did not describe if the partnership(s) had a formal partnership agreement. Thirteen publications indicated that the partnership(s) were based on an existing model/framework. The three main existing models/frameworks that publications referenced in informing their partnership(s) were 'Engagement by design' (n=5), 'Integrated Knowledge Translation' (n=2) and 'Collaborative Research Model' (n=2).

Twenty publications reported that the partnership(s) included project(s), whereas the partnership(s) described in seven publications did not include project(s). Four publications did not report on whether or not the partnership(s) included project(s). Among the publications that reported on the length of the partnership, partnerships commenced between 1995 and 2014, with a range in length from 10 months to 13 years at the time of publication (most 2-5 years). Eight publications (26%) did not clearly describe when the partnership(s) commenced and 10 (32%) did not clearly describe the length of the included partnership(s).

**Table 2:** Summary characteristics of publications and partnerships

| Summary Characteristic | Publications (n) |
|---|---|
| **Publication describes >1 partnership (yes)** | **10** |
| **Partnership scale** | |
| National | 10 |
| Sub-national | 15 |
| City | 2 |
| Not described/unclear | 4 |
| **Partnership sector** | |
| Health | 24 |
| Environment | 3 |
| Other | 4 |
| **Partnership location** | |
| United Kingdom | 9 |
| Canada | 7 |
| Australia | 6 |
| Other | 9 |
| **Length of partnership*** | |
| 0-2 years | 4 |
| 3-4 years | 8 |
| 5+ years | 11 |
| Not described/unclear | 12 |
| **Partnership described as*** | |
| Collaboration | 17 |
| Partnership | 12 |
| Transdisciplinary research collaborations/programs | 3 |
| Other | 4 |
| Not described/unclear | 1 |
| **No. of agencies involved** | |
| Three of more agencies | 21 |
| Two agencies | 5 |
| Not described/unclear | 5 |
| **Type of agencies involved*** | |
| Universities | 24 |
| Government departments | 17 |
| Service delivery organisations | 16 |
| Research organisations | 10 |
| Other | 31 |

| Summary of Characteristics | Publications (n) |
|---|---|
| **Formal partnership agreement** | |
| Yes | 5 |
| No | 1 |
| Not described/unclear | 25 |
| **Existing model/framework** | |
| Yes | 13 |
| No | 6 |
| Not described/unclear | 12 |
| **Names of models/frameworks** | |
| Engagement by design | 5 |
| Collaborative research model | 2 |
| Integrated knowledge translation | 2 |
| Other | 4 |
| **Funder type for partnership(s)*** | |
| Government | 19 |
| Private sector | 3 |
| Other | 5 |
| Not described/unclear | 9 |
| **Infrastructure activities*** | |
| Working or project groups | 15 |
| Steering committees | 12 |
| Coordinating centres/operations teams | 10 |
| Other | 26 |
| Not described/unclear | 4 |
| **Communication activities*** | |
| Face-to-face meetings | 16 |
| Websites | 7 |
| Newsletter | 6 |
| Other | 39 |
| Not described/unclear | 7 |

*Could nominate more than one answer to the question*

Government was the most common type of funder or co-funder for the partnerships (n=19 publications); nine did not report on funder type, and three reported private sector funding. The National Institute for Health Research (NIHR) in the UK was the main funding body for partnerships reported in six publications (n=6, all CLARHRCs), Canadian Institute of Health Research (CIHR) funded three of the partnership(s) and the National Health and Medical Research Council in Australia and Netherlands Organization for Health Research and Development funded two partnerships each.

Appendix Table 4 describes the communication and infrastructure activities used within the partnerships. The most common infrastructure activities of the partnership(s) reported included working or project groups (n=15), steering committees (n=12) and coordinating centres/operations teams (n=10). The most common communication activities described were face-to-face meetings (n=16), websites (n=7) and newsletters (n=6). Note if these communication and infrastructure activities were described as being an enabling or inhibiting factor, they are also included in the assessment of partnership functioning and impact results below.

## 4.3  Assessment of partnership functioning and impact

Table 3 provides an overview of how partnerships were assessed (Refer to Appendix Table 5 for further information). The publications included in the assessment incorporated a range of methods to assess the factors that enabled or inhibited their partnership functioning and/or impact. The most common methods used was formal interviews (n=15 publications) and authors' own knowledge/reflections (n=15), followed by analysis of existing documents and/or data, used by 12 publications. Other data sources used were surveys (n=7), observations (n=6), collective exercises (n=3), case studies (n=3), informal interviews/discussions (n=2) and, a narrative (n=1). Publications often used more than one method to assess partnerships.

Twenty eight publications assessed the whole of the partnership(s) while 3 assessed particular component(s) of the partnership(s). Where year of assessment was provided (n=13), assessments were conducted between 2010 and 2017.

**Table 3:** Summary assessment of partnership(s)

| Summary Assessment of Partnership(s) | Publications (n) |
|---|---|
| **Data sources to assess partnership functioning and/or impact*** | |
| Formal interviews | 15 |
| Authors own knowledge/reflections | 15 |
| Analysis of existing documents and/or data | 12 |
| Surveys | 7 |
| Observations | 6 |
| Collective exercises | 3 |
| Case studies | 3 |
| Informal interviews/discussions | 2 |
| Narrative | 1 |
| Not described/unclear | 1 |
| **Description of functioning/impact applies to** | |
| Whole partnership | 28 |
| Component of partnership | 3 |
| **Analysis of outcomes by partnership stage (yes)** | 5 |

| Summary Assessment of Partnership(s) | Publications (n) |
|---|---|
| **Partnership enabling factors identified (yes)** | 27 |
| **Partnership inhibiting factors identified (yes)** | 22 |

*Could nominate more than one answer to the question*

## 4.4 Partnership enablers and inhibitors

Most of the publications described partnership enabling factors (n=27), and over two-thirds described partnership inhibiting factors (n=22) (Table 4 and 5). Figure 3 below, and Appendix Table 6, summarises the total numbers of enabling and inhibiting factors within each thematic area of the coding scheme. As described in Figure 3 the thematic areas of dynamic between partners, partnership operations - processes, and partnership structure and design had the most number of enablers and inhibitors.

Figure 3: Total number of enablers and inhibitors per thematic area
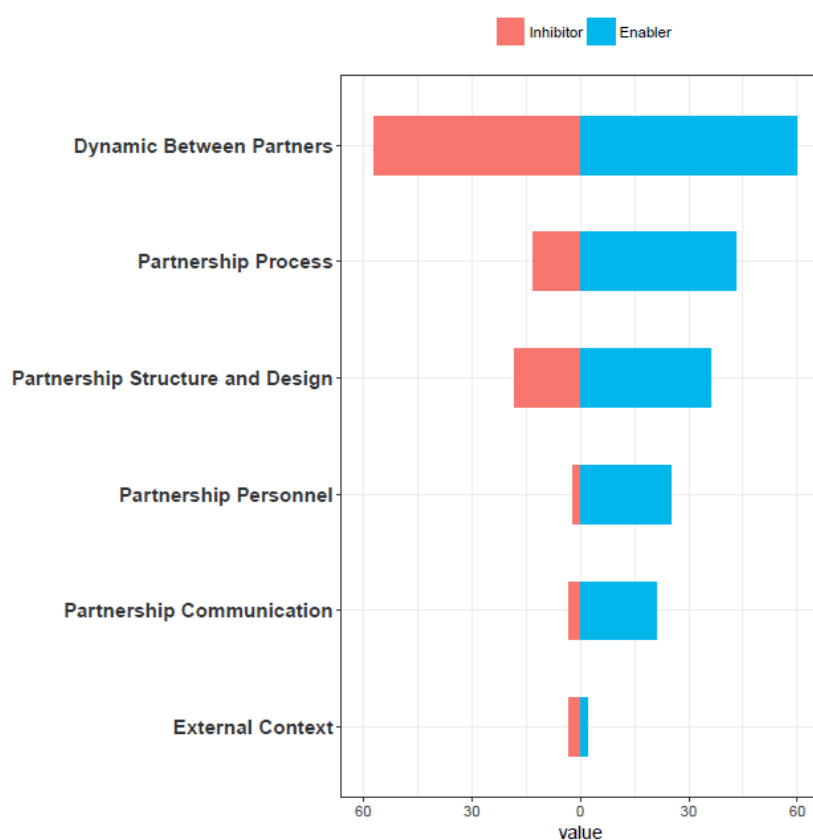


Table 4 and Table 5 describe the enabling and inhibiting factors included across the thematic domains. The text below summarises the factors identified, with particular focus on the most commonly identified factors (mostly those identified by five or more publications), or where a factor was identified as both an enabler and an inhibitor. Where results from publications about the UK CLARHRCs have a large influence on the results described, this is specifically noted; a full description of the factors identified from publications about CLARHRCs is included in Appendix 4.

**Table 4:** Enabling factors identified

| Enabler (n=27) | Publications (n) |
|---|---|
| **Partnership structured and designed** | **17** |
| Previous experience working together | 7 |
| Adequate funding to support partnership | 5 |
| Co-design of partnership | 5 |
| Adequate period of time to develop and implement partnership | 4 |
| Clear governance structure | 4 |
| Clear roles and/or functions of partners | 3 |
| Previous positive experience working in partnerships | 2 |
| Based on agreed needs and/or priorities | 2 |
| Supportive funding structures and/or requirements | 2 |
| Plan for how partnership will be sustained over time or clear exit strategy | 1 |
| Staged/staggered growth | 1 |
| No previous experience working together | 0 |
| **Dynamic between partners** | **24** |
| Shared vision, mission and/or goals | 12 |
| Feelings of trust between partners | 10 |
| Understanding or appreciating other partners perspectives | 8 |
| Reflective practice | 6 |
| Feelings of respect between partners | 5 |
| Sense of shared commitment to the partnership (partnership itself and/or its activities) | 5 |
| Geographical proximity | 4 |
| Mutual benefit from partnership | 4 |
| Common language developed or shared between partners | 2 |
| Sense of equality between partners | 2 |
| Recognise what success look like for all partners (not necessarily the same) | 2 |
| Mutual contribution from partners e.g. financial contribution, time contribution | 0 |
| Similar organisational cultures, "ways of working" | 0 |
| **How the partnership operated** | |
| ***Partnership personnel*** | **16** |
| Strong partnership leadership/governance | 8 |
| Team strengthening activities | 6 |
| Dedicated staff to operate partnership | 5 |
| Facilitative leadership | 2 |
| Existence of partnership champions | 2 |
| Continuity of participation in partnership (individuals, organisations) | 1 |
| Support from management/overall organisation | 1 |
| ***Partnership communication*** | **13** |
| Frequent/regular communication | 10 |

| Enabler (n=27) | Publications (n) |
|---|---|
| Other communication related | 6 |
| Adequate face to face communication | 4 |
| Well-structured meetings | 1 |
| *Partnership process* | **20** |
| Flexibility in approaches/implementation | 10 |
| Formal operational protocols/processes e.g. TOR, SOPs, project application process | 8 |
| Joint working on activities/outputs | 8 |
| Knowledge brokers role used | 7 |
| Foster a 'learning' culture | 3 |
| Shared decision making | 3 |
| Effective conflict resolution | 2 |
| Quickly produced outputs | 2 |
| No formal operational protocol/processes | 0 |
| **External context** | **2** |
| Enabling/favourable external environment | 2 |
| Resilience to changes in the external environment | 0 |

**Table 5:** Inhibiting factors identified

| Inhibitor (n=22) | Publications (n) |
|---|---|
| **Partnership structure and design** | **11** |
| Imbalanced representation of partners | 5 |
| Unclear roles and/or functions of partners | 5 |
| Structure did not promote collaboration | 3 |
| Single partner design of partnership and/or pre-determined design | 3 |
| Previous experience working together | 1 |
| Inadequate period of time to develop and implement partnership | 1 |
| No previous experience working together | 0 |
| Previous negative experience working in partnerships | 0 |
| Inadequate funding to support partnerships | 0 |
| No plan for how partnership will be sustained over time or no clear exist strategy | 0 |
| Speed of growth (too fast/too slow) | 0 |
| **Dynamic between partners** | **19** |
| Lack of shared vision, mission and/or goals | 8 |
| Different expectations for timelines | 8 |
| Differing expectations of partners for partnership | 7 |
| Sense of inequality between partners | 5 |
| Different organisational cultures, "ways of working" | 5 |
| Not understanding or appreciating other partners perspectives | 5 |

| Inhibitor (n=22) | Publications (n) |
|---|---|
| Does not recognise that success may look different for partners | 4 |
| Lack of common language between partners | 3 |
| Lack of reflective practice | 3 |
| Geographical distance | 3 |
| Partners find partnership resource intensive | 3 |
| Tension over ownership of partnership outputs | 2 |
| Lack of trust between partners | 1 |
| Lack of respect between partners | 0 |
| **How the partnership operated** | |
| *Partnership personnel* | **3** |
| Inconsistent or discontinuous participation of partners | 2 |
| Weak partnership leadership/governance | 1 |
| No dedicated staff to operate partnership | 0 |
| *Partnership communication* | **3** |
| Infrequent communication | 3 |
| Lack of/inadequate face to face communication | 0 |
| *Partnership process* | **10** |
| Partnership participation takes too much time/more than expected | 6 |
| Excessive funding pressures or control struggles | 3 |
| Inadequate incentives to participate | 2 |
| Unequal/no sharing of decision making | 1 |
| Formal operational protocols/processes | 1 |
| No formal operational protocol/processes | 0 |
| **External context** | |
| Inhibiting external environment | 3 |

## 4.5  Partnership structure and design

Of the 27 publications that described enabling factors, 17 identified factors which related to partnership structure and design, and of the 22 publications that identified inhibiting factors 11 identified factors which related to partnership structure and design. Figure 4 displays the sum for each enabling and inhibiting factor included in partnership structure and design.

The most common partnership structure and design enabler reported was previous experience working together, described in seven publications.

*'For many interview participants, having an established relationship meant that issues and barriers had been worked out prior to beginning the grant… Participants explained that often with established relationships comes a higher degree of trust'[23]*

However, one publication described previous working together as an inhibitor, as different ways of working was required for different partnerships.

*'We found some unexpected downsides to building on an existing collaboration…perhaps because of previous involvement in the collaborative evaluation, some KUs [Knowledge Users] had developed expectations of an active participatory role'[26]*

The next most common enabler related to funding; five publications identified adequate funding for the partnership as an enabler, while two described supportive funding structures or requirements as an enabler. No publications identified inadequate funding as an inhibitor.

Roles within partnerships was commonly identified as an enabler and inhibitor for multiple partnerships. Unclear roles and/or functions of partner (n=5) and imbalanced representation of partners (n=5) were the most commonly reported inhibiting factors related to partnership structure and design. Whilst several publications identified clear roles and/or functions of partners (n=3) and clear governance structure (n=4) as enablers.

'In many partnerships, knowledge-users took on an advisory role; for some, this was acceptable and expected. For others, however, this presented as a major challenge and a feeling they were not part of a true partnership'[23]

**Figure 4:** Partnership structure & design enabling and inhibiting factors



Partnership Structure and Design

> *'The model provides funding for a 5-year program of research, creating time for relationships between researchers and policy makers to be developed, and for a shared work program to evolve' (Ward)*
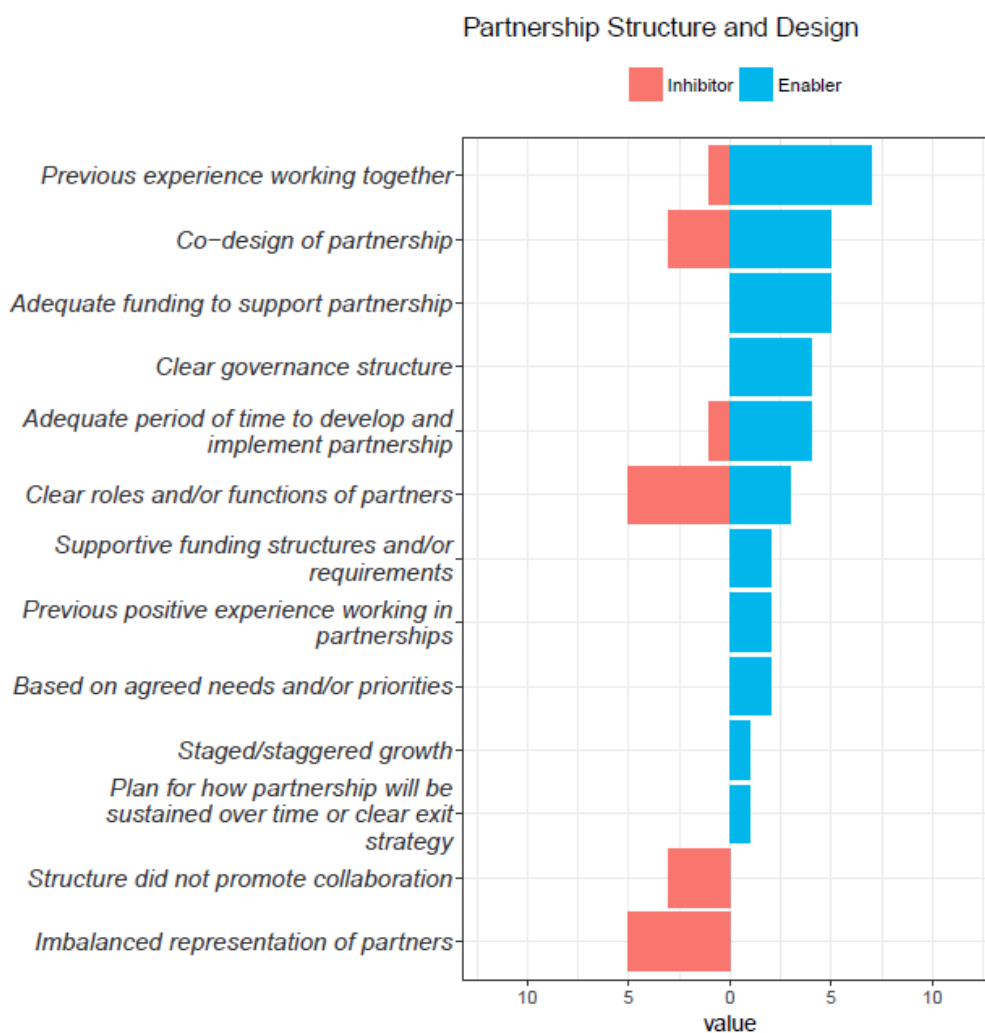
Relating to partnership roles, five publications (including n=2 CLAHRCs) described co-design of the partnership as an enabler, while three publications (including n=1 about CLARHRCs) described lack of co-design (single partner design and/or pre-determined design) as an inhibiting factor. Although not included in our coding scheme for data extraction, we noted during the synthesis of results that at least two publications reflected on partner heterogeneity and identified this as a partnership enabler.[23,27]

## 4.6   Dynamic between partners

Dynamic between partners was the theme where the greatest number of factors were identified; 24 of the 27 publications described partnership enablers and 19 of the 22 publications described partnership inhibitors. Figure 5 displays the sum for each enabling and inhibiting factor included in dynamic between partners.

**Figure 5:** Dynamic between partners' enabling and inhibiting factors
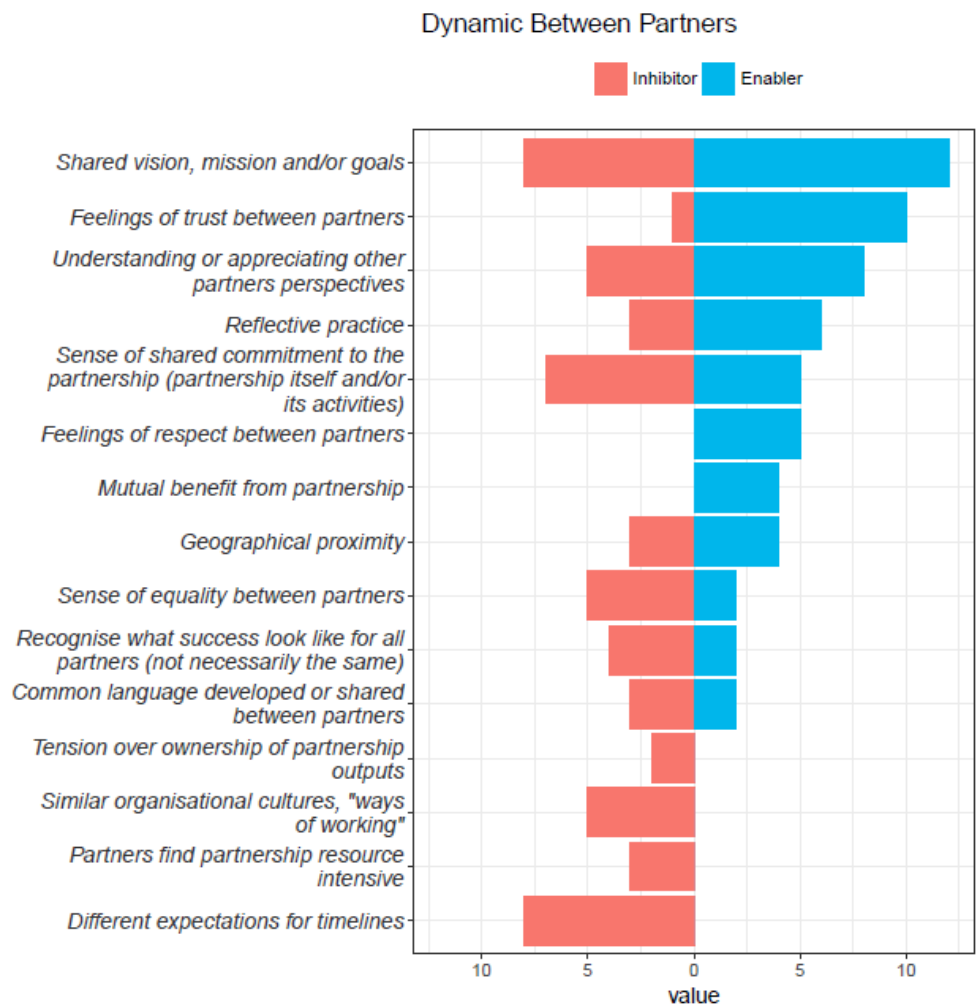


There were two clear groupings of enablers and inhibitors in relation to dynamic between partners. The first related to the collective sense (or not) of the partnership. The single most common enabler identified was having a shared vision, mission and/or goals (n=12), five publications identified a sense of shared commitment to the partnership and four mutual benefit from partnership as enablers.

*'...it was essential to engage and maintain a shared vision of the potential benefits of collaboration over a long period of time'[28]*

Similarly, a lack of shared vision, mission and/or goals was a highly identified partnership inhibitor (n=8). Other common inhibiting factors which related to the dynamic between partners included

differing expectations of partners for partnership (n=7), differing expectations for timelines (n=8), different organisational cultures, "ways of working" (n=5, including n=1 about CLARHRCs) and sense of inequality between partners (n=5).

> '....academic researchers focused more on scientific standards than on the understandability and practical usefulness of their findings. Policymakers ... were disappointed by the lack of policy relevance of the results and accused the researchers of being too focused on the scientific questions'[29]

> 'The majority of respondents identified the conflict between the time lines created by academic demands and the workplace parties need for quick responses'[30]

The second clear grouping under dynamic between partners related to relationships between partners, with feelings of trust (n=10) and respect (n=5) and understanding or appreciating other partners perspectives (n=8) commonly identified as enablers.

> 'Both researcher and health brokers reported that they had come to look at their own work through the eyes of others – they were able to change perspectives, to analyse their own work, and to adjust their work accordingly'[28]

> *'A second lesson learned by the TSCRC, as a collaborative research organization, was that trust and respect amongst the participants in every project had to be valued above all else' (Larkin)*

In contrast, five publications identified not understanding and/or appreciating the other partner's perspective as an inhibiting factor while only one identified lack of trust as an inhibitor.

Reflective practice (n=6 including n=3 from CLARHRCs) was one enabling factor that could be seen to straddle both groups (relationships between partners and the collective sense (or not) of the partnership) in relation to the dynamic between partners. A specific example of reflective practice was 'co-operative inquiry cycle (planning-action-reflection).[28] Conversely, three publications (including n=1 from CLARHRCs) identified lack of reflective practice as an inhibitor.

> 'Several process characteristics nevertheless contributed to the creation of synergistic outcomes. Active experimenting was highly valued in the Partnership: methods to contribute to health equity were tried out and reflected on. All partners agreed that the development of reflexivity and a 'critical mind' were important characteristics of a collaborative partnership'[28]

## 4.7   How the partnership operated

Factors relating to how the partnership operated were organised into three groups: process, communication and personnel.

Of the 27 publications that described enabling factors, 20 identified factors focusing on process, 16 on personnel and 13 on communication. Of the 22 publications that described inhibiting factors, 10 identified factors focusing on process, three on personnel and three on communication. Figure 6 displays the sum for each enabling and inhibiting factor included in the theme: partnerships process. Figure 7 displays the sum for each enabling and inhibiting factor included in partnership personnel and communications. There were substantially more enabling factors identified that related to how the partnership operated compared to inhibiting factors.

The most common enabler identified which related to process was having flexibility in approaches/implementation, identified by 10 publications. Examples of flexibility included flexibility to

change focus of planned research,[30] to change partnership and project targets,[23] setting aside specific funding to address emerging needs,[31] and local adaptation of funding, management and implementation structures.[29] The next most common enabler was formal operational protocols/processes identified by eight publications.

*'Part of the challenge is to allow researchers the flexibility to...find organic and evolving solutions to real problems...When you plan every aspect of the research over multiple years in a highly regimented and bureaucratic way, you suffocate the creativity from research...You revert back to working in silos because that's the easiest way to plan and guarantee particular outcomes'[31]*

*CLAHRCs appear to have pursued a strategy of flexible comprehensiveness in promoting greater integration of the research function within the local health care system, appreciating that more progress is likely to be made if advances are undertaken in a flexible way using a range of approaches that match the diverse aspects of the issue'[32]*

**Figure 6:** How the partnership operated (process) enabling & inhibiting factors
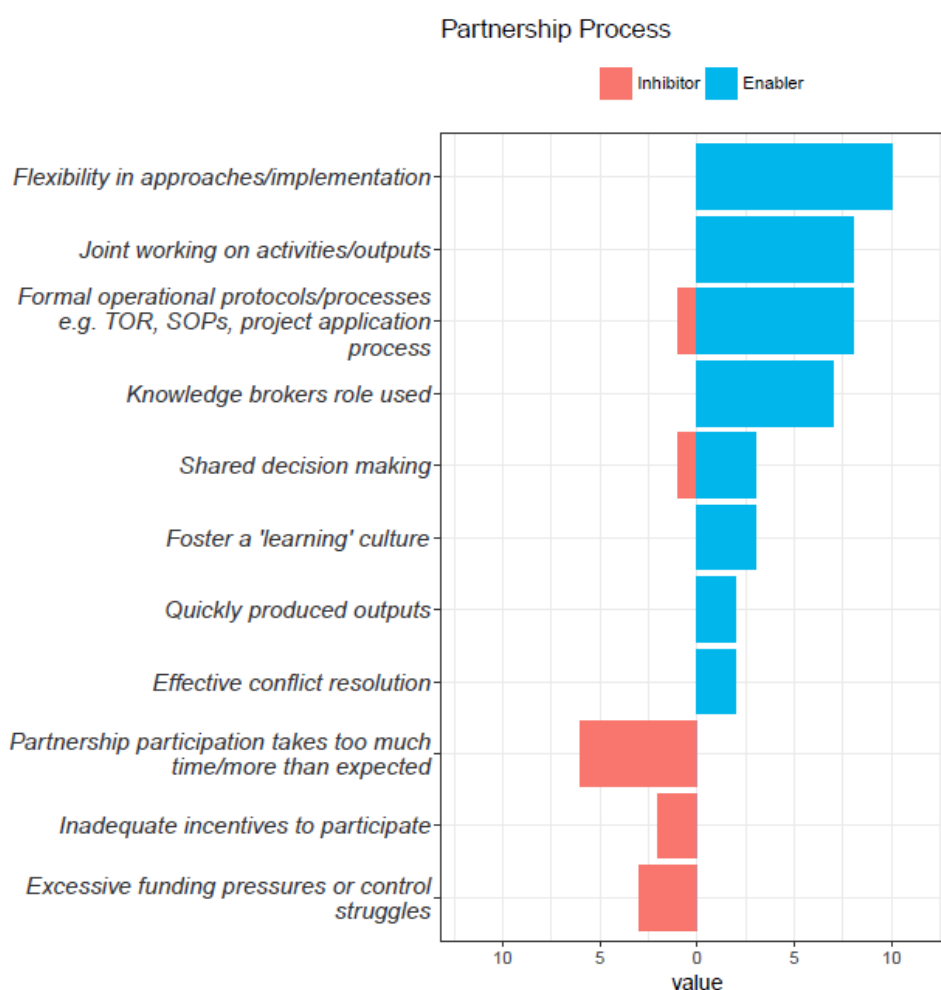


There was some overlap in publications that identified both flexibility and formal operational protocols/processes, with four identifying both as enablers.[24,29,32,33] Six publications identified flexibility as an enabler, but not formal operational protocols/processes,[21,23,30,31,34,35] and four identified formal operational protocols/processes as an enabler but not flexibility.[36-39]

Other common enablers related to process were joint working on activities/outputs (n=8 including n=3 from CLAHRCs) and using the role of a 'knowledge broker' (n=7 including n=2 from CLAHRCs). The role of a knowledge broker is to establish relationships between researchers and end-users (e.g. policy

makers, service organisations, consumers) and provide end-users with research results in formats that are easy to understand (definition adapted from k4 health website;[40] for more detail on knowledge brokering see Ward et al 2009[41]).

> *'Regardless of our intentional methods to push integration, it was only when specific tasks were identified that people started to interact'*[42]

> *A significant strength was the hub's commitment to communications and knowledge broking, and to employing communications staff with skills, experience and enthusiasm for transdisciplinary research. The team included the hub director, a communications manager, and three knowledge brokers – two to broker between hub researchers and research users in the two case studies; the third to broker between the researchers and the project funder/research user.*[31]

The most common inhibitor related to process was time. That participation in the partnership took too much time or more time than expected was identified in six publications.

> *'…we found that by consequence [of IKT model being new] everything took more time than anticipated. For instance, the creation of the steering committee's Terms of References took multiple drafts, teleconferences and meetings and was finally finished 18 months into the start of the project'*[43]

**Figure 7:** How the partnership operated (personnel and communications) enabling and inhibiting factors



Partnership Personnel and Communication
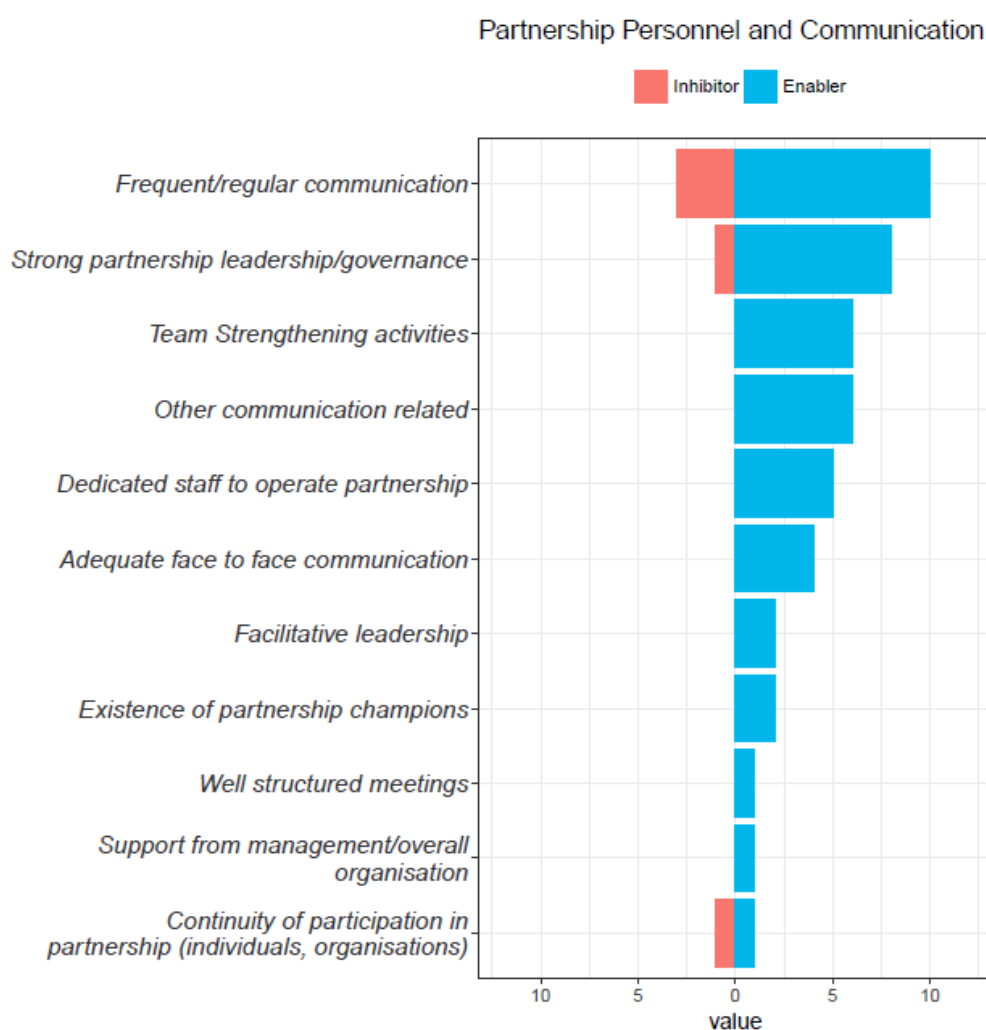
The most common enabler related to partnership personnel was leadership, with strong partnership leadership/governance identified as an enabler in eight publications, and two (both related CLARHCs) identifying facilitating leadership as an enabler.

*'Project teams are led by one or more leaders, who are regarded within and outside the team as credible and having real clout, connections, drive, enthusiasm, and tenacity'* [35]

Other common enablers relating to personnel were having dedicated staff to operate partnership (n=5) and team strengthening activities (n=6) such as offsite meetings combining workshops and social activities and interactive activities such as hackathons.[36] Very few (n=3) reported personnel related factors as partnership inhibitors.

Frequent/regular communication was identified as an enabling factor in ten publications, with infrequent communication identified as an inhibitor in three. Adequate face-to-face communication was specifically identified as an enabler in four publications. As described earlier, face-to-face meeting were the single most commonly identified communication activity of partnerships described (full list of communication activities described in Appendix Table 4).

> **'Participants acknowledged that regular, multi-modal communication was an important aspect of successful partnering. ...There was consensus that of utmost importance is that communication is regular and that all partners are kept informed' (Mitchell)**

*'Although many conversations did occur on the phone or via e-mail, the research faculty scheduled routine on-site visits several times a month ... This routine contact was essential to the success of the project as it allowed for the sharing of informal research ideas; in essence the "water cooler" effect for idea generation and sharing of expertise. Moreover, it allowed for a more "hands-on" data collection and recognition of potential research problems before months of data were lost due to miscommunication. This routine contact also assisted in the development of collegial relationships which in turn helped to foster mutual trust between practitioners and researchers'*[44]

## 4.8 External context

External context were less commonly identified as a partnership enablers or inhibitors than the other thematic domains – two publications described an enabling or favourable partnership environment as an enabler, while three publications described an inhibiting external environment.

# 5. Discussion

## 5.1  Summary of key findings

**Large and complex partnerships:** The 31 publications included in the assessment described enablers (n=27) and/or inhibitors (n=22) for at least 42 large research-led partnerships. Most of the partnerships were from the health sector and described partnerships from the UK, Canada and Australia, likely reflecting our exclusion of publications in languages other than English and the emphasis of health funding bodies and academic interests in applied health services research in these settings. The majority of partnerships were national or sub-national in scale and had three or more partner agencies, particularly from the university, government and service delivery sectors. This indicates the partnerships included in this assessment were large in size, and potentially complex. The most commonly discussed infrastructure and communication activities were working or project groups, steering committees, co-ordinating centres/operation teams, face-to-face meetings, websites and newsletters providing insights into the operational workings of the partnerships. Some of these activities were also identified as enablers indicating their possible utility.

**Diverse methods:** There was a diversity of methods used to collect information on partnership enablers and inhibitors, most commonly subjective measures such as interviews, authors' own knowledge/reflections, and analysis of existing documents/data were used. Direct observations were used on some occasions and always in combination with other collection methods.

**Partnership relationships is key**: Many of the commonly identified partnership enablers related to relationships, including feelings of trust or respect between partners, understanding or appreciation of others' perspectives and previous experience working together. Taken together, these finding highlight the importance of building and maintaining strong interpersonal relationships between individuals involved in the partnership. Other common enablers identified in this assessment, such as frequent/regular communication, team strengthening activities and dedicated staff to operate partnership, offer some suggestions about how positive relationships can be created, maintained and strengthened over time, and in turn contribute to partnership functioning and/or impact. Supporting this, multiple and varied opportunities for interaction was the most commonly identified enabling factor in an earlier review of integrated knowledge translation initiatives in healthcare.[12]

**Shared outlook and commitment:** Shared outlook and shared commitment was another key partnership enabler emerging from this rapid evidence assessment. The single most common enabler identified across the publications was having a shared vision, mission and/or goals, while a lack of a shared vision, mission and/or goals was the equal-most common inhibitor identified (along with different expectations for timelines). It is likely that creating and maintaining this collective view relates in part to the relationships between partners (described above), although it is not possible to assess from this assessment the causal pathway(s) between these two domains. Nonetheless, the importance of relationships and collective views as key partnership enablers is clear from both this assessment and a previous review of community-academic partnerships which had similar findings.[22] One mechanism to foster this collective view could be to engage in a co-design partnership process for some or all elements of the partnership; co-design was reported to be an enabler for some partnerships included in this assessment, with lack of co-design identified as an inhibitor for others. A co-design technique used in one partnership was the 'scenario approach': '....*Scenarios in this respect formed a language in which both scientists and policymakers could understand the results of the study*'.[33]

**Partner expectations and clarity of roles:** Another clear emerging area of importance for partnership design and operation is partner expectations and clarity of roles within partnerships. Unclear roles and/or functions of partners, and imbalanced representation of partners (which commonly related to

perceived researcher dominance over non-researchers), were commonly identified inhibitors in this assessment, while clear roles and/or functions of partners and clear governance structures were identified as enablers for multiple partnerships. Several time related enablers and inhibitors were also identified in this assessment. Participation in the partnership taking too much time, or more time than expected, was the most commonly identified process related inhibitor identified. Excessive time commitment was also the most commonly identified hindering factor in the previous review of community-academic partnerships.[22] These findings suggest that at the outset and throughout the life of the partnership there should be explicit agreement, acceptable to all partners, on individual and organisational role(s) and allocation of time and resources.[27] Other activities that may assist to alleviate some of these inhibitors are dedicated staff to operate partnership and or embedding training for researchers and/or non-researchers in the partnership.[28,45] Such capacity building initiatives may assist with ensuring partners have adequate skills and confidence to fulfil their roles, as well as better appreciate the roles of others within the partnership.

**Establish nurturing relationships:** Heterogeneity of partners were identified as both inhibitors and enablers. We found there was particular emphasis on inhibiting factor, including different expectations for timelines, different "ways of working", not recognising that success may look different for partners, and not understanding or appreciating others partner's perspectives. Differences were also reported to create operational challenges in terms of different areas of partner focus and what was considered success.[27] Conversely, although not included in our coding scheme initially, we noted during the synthesis of results that at least two publications had reflected on the value of the partner heterogeneity. In Sibbald et al[23] it was reported that partners worked together to use their different skillsets to create an effective partnership, and that this heterogeneity was integral – there was no reason to have a partnership if there was not an imbalance of knowledge and skills within it. These findings warn of the pitfalls of partner heterogeneity but also identify an opportunity for heterogeneity to be used as a clear enabler.

Some partnerships spoke about actively addressing these inhibiting factors by promoting innovation and seeking resources and different ways of doing things outside the research sector. For example one partnership[36] adopted IT methods (agile scrum project management) to deliver research outputs and another partnership developed three month research projects to condense timelines.[33] Another activity that could be undertaken to address differences could be to explicitly identifying the strengths of each partner and ensuring that this known and appreciated by other partners, as well as playing to partners strengths when planning partnership structures and activities. In addition, two commonly identified enablers, including among UK CLARHRCs, were joint working on activities/outputs and using the role of a 'knowledge broker' to act as a bridge between researchers and non-researchers. It is likely that joint working, when successful, not only results in a tangible product of the partnership but also the opportunity to build positive relationships between partners and contribute to a sense of shared vision and commitment (described earlier). Both joint working and a dedicated 'knowledge broker' role, also contribute to better understanding of different stakeholders needs and priorities; combatting the commonly identified partnership inhibitors of differing expectations and 'ways of working'.

**Strong leadership:** Strong leadership/governance was another common partnership enabler, which has also emerged as an enabler in earlier reviews.[12,22] Some of the commonly identified partnership inhibitors may have been mitigated had strong leadership/governance been in place, such as lack of clarity of partnership roles, differing expectations for partnerships and imbalanced representation of partners. Two partnerships specifically identified facilitative leadership as an enabler, an approach recognised for its emphasis on working together.

**Partnership operations 'what to do':** Operationally, both formal processes and flexibility in approach/implementation were commonly identified enablers among the partnerships assessed,

including instances where both were identified as enablers within the same partnership. This suggests that while it may be helpful to have formal processes in place, such as terms of reference and standard operating procedures, it is also important to maintain some degree of flexibility in the partnership approach and how it is implemented over time. Maintaining this flexibility is likely to be particularly important in complex environments, and environments undergoing rapid change, that is to ensure partnership structures and operations are agile enough to respond in a timely manner to ongoing changes.

## 5.2 Strengths and limitations of the assessment

This rapid evidence assessment has several strengths. Although there is no single agreed 'best practice' approach for conducting rapid evidence assessments, we followed the available published guidance. The database search strategy was comprehensive and contemporary, covering literature from 2015 to May 2018 and all sectors. Other than excluding partnerships that were exclusively for conducting community-led research projects, we included all types of large research-led partnerships, regardless of the partnership model or framework used and all types of partner agencies. We also included all types of partnership assessments, reflecting the wide variety in ways in which enablers and inhibitors of partnerships are identified and reported in the literature.

As with all reviews, this rapid evidence assessment has several limitations. Several of these are limitations common to all rapid evidence assessments, where it is necessary to truncate several systematic review processes to ensure the rapid evidence assessment can be completed in a timely fashion with available resources.[3-5] For this assessment, these included only double screening 5% of the records and not completing double extraction of information which may have resulted in some incorrect exclusion of potentially relevant records and inconsistent extraction of information. We also did not assess the quality of individual publications or the overall body of evidence, resulting in equal weighting given to all results regardless of the robustness of the partnership assessment method. We added some additional exclusion criteria at the second stage of screening to make best use of the available time and resources to complete the assessment.

Other key limitations of this assessment relate to the topic under assessment, including the likely bias in which publications assessments are published and thus available for inclusion. There was a wide variety in what information was presented in publications, and we were unable to extract information out separately for factors affecting partnership function and factors affecting partnership impact as planned. We may also have over-represented findings from the UK CLARHRCs, particularly from publications that did not identify which CLARHRC(s) they were reporting on.[19,20,32]

Taken together, although our assessment has probably not included all potentially eligible partnerships, and likely contains some gaps due to how partnership assessments were reported, we believe our results broadly reflect the key partnership enablers and inhibitors identifiable within published partnership assessments. The findings of this assessment are immediately relevant to inform how GenV will build partnerships, as well as other large research-led partnerships in OECD countries.

## 5.3   Lessons for GenV

The findings of this rapid evidence assessment can directly inform the detailed design and implementation of GenV Partnerships. Particular areas to prioritise based on the findings of this assessment are described below, particularly the importance of establishing and nurturing relationships and recommendations to operationalise and support the partnerships. The authors have also added their own recommendations.

### 1. Shared outlook and commitment

As the most common enabler across all partnerships having a shared vision, mission and/or goals should be a priority for GenV partnership building. A shared outlook includes two components a) the GenV Vision and b) the shared vision or set of goals for each particular partnership.  A shared outlook may be facilitated via:

- A clearly articulated GenV Vision communicated over the life of the partnership,
- Agreement on the purpose and expected outputs and outcomes of the partnership,
- Developing a shared narrative around common problems and solutions that the partnership is addressing e.g. scenario approach.[33]

### 2. Partner expectations are clear and acceptable

GenV will have multiple and varied partnerships that will change over time. Clear and acceptable partner expectations may be achieved for each partnership by:

- An explicit agreement as to 'what' each individual and organisations will contribute to the partnership in regards to roles, time and resources,
- Ensuring that adequate time is allocated to get partnership work complete, yet this time is not overly onerous, or perceived as such,
- Outlining what benefits partners will obtain from partnership participation (for example improved skills or access to training),[3,46]
- Shaping partners role and expectations through discussions with partners at the outset, letting them evolve over time, and revisiting as necessary.

### 3. Establishing and nurturing relationships

GenV can facilitate positive working relationships by:

- Allowing enough time to 'get to know each other' at all stages of the relationship,
- Being explicit about 'how' the partners will work together,
- Mapping teams' skills and knowledge to identify what each partner brings to the partnership,
- Promoting team strengthening activities such as off-site meetings including social activities,
- Co-design process, and
- Joint working on tangible partnership outputs.

## 4. Communication

GenV needs to maintain an appropriate level of communication and interaction with all partners to ensure partners are being keep up to date, feel included and relationships remain strong. This may include:

- A centralised communication system to facilitate regular and multiple modes of communication,
- Regular communication mechanisms such as face-to-face meetings, printed or online newsletters, up-to-date websites and social media posts
- Invitations to partners to attend GenV seminars and meetings outside of their 'direct' involvement in GenV.

## 5. Formal processes and flexibility

Our rapid evidence assessment identified some useful formal processes. While these formal processes should provide some over-arching structure, they should not be so rigid as to prevent flexibility in approach and implementation as new areas of interest emerge, new partners and/or funders join GenV (or old ones leave), and partners' interest change. These could include:

- Dedicated staff to operate partnerships
- Standardised principles or practices of working e.g. Terms of Reference
- Incorporating the use of project and working groups as these can be formed and disbanded as needed
- Embedding processes of evaluation, reflective practice and learning within the partnership e.g. partnerships evaluation framework, short 'after action reviews' at the completion of each GenV output,[47] and annual meetings of all GenV partners to reflect on GenV progress.

# 6. Conclusion

This rapid evidence assessment includes a large number of partnerships in OECD countries from a variety of sectors and confirms and extends finding of previous reviews that focused on particular types of partnerships.[12,22] Key findings of this assessment included the importance of establishing and maintaining positive relationships between partners, the need for a shared outlook and commitment to the partnership as well as clarity of partnership roles, and the importance of both formal processes and flexibility in operations. The assessment has also identified several mechanisms to help facilitate these, including frequent/regular communication, strong leadership/governance and joint participation in partnership design and outputs. The findings of this assessment will be used to inform the design of GenV partnerships, to maximise the likelihood of the partnerships success, and are also useful for informing the design and implementation of future large research-led partnerships.

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# 8. Appendices

## Appendix 1: Search strategies

### Ovid Medline

Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily, Ovid MEDLINE and Versions(R) 1946 to May 09, 2018

| | Searches | Results |
|---|---|---|
| 1 | research.tw,kf,hw. | 9362569 |
| 2 | (partnership* or collaborat* or cooperation or co-operation or (integrat* adj2 knowledg* adj2 translat*)).ti,kf. | 49959 |
| 3 | (process* or impact or success or inhibit* or implement* or facilitat* or enabler* or barrier* or lesson* or learn* or failure or factor* or function* or evaluat* or effect*).tw,kf. | 13484372 |
| 4 | (agenc* or organi#ation* or (research adj agenc*) or multiagenc* or multi-agenc* or (multi adj agenc*) or multidisciplin* or multi-disciplin* or (multi adj disciplin*) or multi-sector* or multisector* or (multi adj sector*)).tw,kf. | 510102 |
| 5 | health services/ or "health care economics and organizations"/ or health services administration/ or "health care quality, access, and evaluation"/ | 27301 |
| 6 | 1 and (2 or *Interinstitutional Relations/) and 3 and (exp *Government/ or *Public-Private Sector Partnerships/ or 4 or 5) | 3530 |
| 7 | limit 6 to (english language and yr="2000 -Current") | 2951 |

## Cochrane

| | Searches | Results |
|---|---|---|
| 1 | research:ti,ab,kw | 93224 |
| 2 | partnership or collaborat* or cooperation or co-operation or (integrat* near/2 knowledg* near/2 translat*):ti  (Word variations have been searched) | 2641 |
| 3 | process* or impact or success or inhibit* or implement* or facilitat* or enabler* or barrier* or lesson* or learn* or failure or factor* or function* or evaluat* or effect*:ti,ab,kw  (Word variations have been searched) | 896130 |
| 4 | government or "public sector" or "private sector" or public-private or "public private" or agenc* or organi?ation* or "health services" or health-services or "health care" or health-care or healthcare or "research agency" or "research agencies" or multiagency* or multi-agenc* or "multi agency" or "multi agencies" or multidisciplin* or multi-disciplin* or "multi disciplinary" or multi-sector* or multisector* or "multi sector" or "multi sectors":ti,ab,kw  (Word variations have been searched) | 80161 |
| 5 | MeSH descriptor: [Decision Making, Organizational] explode all trees | 57 |
| 6 | MeSH descriptor: [Multi-Institutional Systems] explode all trees | 23 |
| 7 | MeSH descriptor: [Organizations] explode all trees | 4090 |
| 8 | MeSH descriptor: [Government Agencies] explode all trees | 977 |
| 9 | MeSH descriptor: [Health Systems Agencies] explode all trees | 3 |
| 10 | #5 or #6 or #7 or #8 or #9 | 4164 |
| 11 | #1 and #2 and #3 and (#4 or #10) | 269 |

## Scopus

| | Searches | Results |
|---|---|---|
| 1 | (TITLE (research) AND TITLE (partnership* or collaborat* or cooperation or co-operation or (integrat* W/1 knowledg* W1 translat*) or "interinstitutional relation*" or "inter-institutional relation*") AND TITLE-ABS-KEY (process* or impact or success or inhibit* or implement* or facilitat* or enabler* or barrier* or lesson* or learn* or failure or factor* or function* or evaluat* or effect*) AND TITLE-ABS-KEY (government or "public sector*" or public-sector* or "private sector" or private-sector* or public-private or "public private" or private-public or "private public" or agenc* or organi?ation* or "health service*" or health-service* or "health care") OR TITLE-ABS-KEY (health-care or healthcare or "research agenc*" or multiagency* or multi-agenc* or "multi agenc*" or multidisciplin* or multi-disciplin* or "multi disciplin*" or multi-sector* or multisector or "multi sector*")) <br><br> Limit 5 to (English language and yr="2000 -Current") EXCLUDE books, book chapter, notes | 1,713 |

# Appendix 2: Double screening results

Author JG double screened a random 5% of the publications included in both the first and second stage of screening. Any discrepancies in the screening assignments by JG were discussed with the relevant author (who had conducted the initial screen) and a consensus decision reached about whether to include these publications in the review. The table below summarises the results of the double screening process.

| | Author conducting initial screen | Number of publications double screened by author JG | Number of publications with different screening results |
|---|---|---|---|
| First stage screening (title and abstract) | LD | 71 | 11 |
| First stage screening (title and abstract) | PP | 111 | 13 |
| Second stage screening (full text) | SD | 17 | 1 |

# Appendix 3: Included publications and partnerships results tables

## Appendix Table 1: Summary of included publications

| Author and year | Source of publication | Describes more than one partnership? | Name of partnership(s) described | Partnership sector | Partnership scale | Partnership location |
|---|---|---|---|---|---|---|
| Bowen (2016)[26] | Ovid-Medline | No* | Not described/unclear | Health | Sub-national | Canada |
| Bumbarger (2012)[37] | Ovid-Medline | No | Prevention Research Center at Penn State University and the Pennsylvania Commission on Crime and Delinquency (PRC-PCCD partnership) | Justice | Sub-national | United States of America |
| Dixon (2016)[43] | Ovid-Medline | No | GET-FACTS (Genetics, Environment and Therapies: Food Allergy Clinical Tolerance Studies) research study | Health | National | Canada |
| Duff (2009)[44] | Scopus | No | Tropical Savannas Cooperative Research Centre (TSCRC) | Environment | Sub-national | Australia |
| Edelstein (2016)[48] | Scopus | Yes | Use of Online Research (UOR) project Plus four populations of academic-community CRPs | Education | National | Canada |
| Ginis (2012)[42] | Ovid-Medline | No | SCI Action Canada [SCI = spinal cord injury] | Health | National | Canada |
| Heaton (2016)[35] | Scopus | No | Collaborations for Leadership in Applied Health Research for the South-West Peninsula (PenCLAHRC) | Health | Sub-national | United Kingdom |
| Hinchcliff (2014)[49] | Scopus | No | Accreditation Collaborative for the Conduct of Research, Evaluation and Designated Investigations through Teamwork (ACCREDIT) | Health | National | Australia |
| Hurley (2010)[50] | Scopus | No | University of Nebraska–Lincoln and Boys Town Research Partnership | Welfare | Not described/ unclear | United States of America |
| Janamian (2014)[51] | Scopus | No | Centre for Research Excellence in Primary Health Care Microsystems | Health | National | Australia |
| Jansen (2015)[39] | Ovid-Medline | Yes | Academic Collaborative Centres (ACC) for Public Health | Health | Sub-national | Netherlands |
| Kislov (2014)[20] | From Gagliardi Review | No | CLAHRC - not named | Health | Sub-national | United Kingdom |

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* Other parts of the paper reflect on research-knowledge user partnerships, but the section extraction for this review (on barriers to participating) is specific to the partnership under a planning grant.

| Author and year | Source of publication | Describes more than one partnership? | Name of partnership(s) described | Partnership sector | Partnership scale | Partnership location |
|---|---|---|---|---|---|---|
| Kramer (2010)[30] | Ovid-Medline | Yes | Not described/unclear - series of three research projects with researchers and health and safety associations | Health | Sub-national | Canada |
| Krebbekx (2012)[27] | Scopus | No | Dutch Health Broker Partnership | Health | Sub-national | Netherlands |
| Larkin (2012)[52] | Ovid-Medline | No | Not described/unclear | Health | Not described/ unclear | United Kingdom |
| Lindahl (2014)[38] | Scopus | No | Swedish Future Forests programme | Environment | National | Sweden |
| Littlecott (2017)[53] | Ovid-Medline | No | Avon Network for the Promotion of Active Ageing in the Community (AVONet) | Health | Sub-national | United Kingdom |
| Martin (2013)[54] | Ovid-Medline | No | Leicestershire, Northampton and Rutland CLAHRC | Health | Sub-national | United Kingdom |
| Mitchell (2017)[31] | Scopus | No | The Landscape and Policy Hub (LaP Hub) | Environment | Sub-national | Australia |
| Oivo (2017)[36] | Scopus | Yes | Three partnerships - three empirical research projects: <br> - Cloud Software <br> - Need for Speed <br> - Experimental Software Engineering Industrial Laboratory project (ESEIL) | Private Sector: software engineering | National | Finland |
| Payne (2011)[28] | Ovid-Medline | No | Cancer Experiences Collaborative (CECo) | Health | National | United Kingdom |
| Perkins (2011)[45] | Ovid-Medline | No | The Australian Rural Health Research Collaboration | Health | Sub-national | Australia |
| Pinto (2009)[46] | Scopus | Yes | 'CBO&researcher' partnerships in general - Not a specific partnership | Health | City | United States of America |
| Rycroft-Malone (2016)[19] | Ovid-Medline | Yes | Three CLAHRCs - pseudonyms used | Health | Sub-national | United Kingdom |
| Sibbald (2014)[23] | Scopus | Yes | Multiple - involved researchers and knowledge users funded under the integrated knowledge translation funding opportunities from the Canadian Institutes of Health Research | Health | Not described/ unclear | Canada |
| Smith (2015)[32] | Scopus | No | CLAHRC | Health | Sub-national | United Kingdom |

| Author and year | Source of publication | Describes more than one partnership? | Name of partnership(s) described | Partnership sector | Partnership scale | Partnership location |
|---|---|---|---|---|---|---|
| Soper (2013)[21] | From Gagliardi Review | Yes | - Cambridgeshire and Peterborough CLAHRC<br>- South West Peninsula CLAHRC | Health | Sub-national | United Kingdom |
| Stewart (2015)[24] | Scopus | Yes | Not described/unclear | Health | Not described/ unclear | Canada |
| The Writing Group for the National Collaborative on Childhood (2018)[29] | Scopus | Yes | National Collaborative on Childhood Obesity Research | Health | National | United States of America |
| Wehrens (2010)[33] | Scopus | No | Centre for Effective Public Health in the Larger Rotterham area | Health | City | Netherlands |
| Wutzke (2017)[34] | Ovid-Medline | No | The Australian Prevention Partnership Centre | Health | National | Australia |

## Appendix Table 2: Summary of included partnerships

| Author and year | Name of partnership(s) | How partnership described | Number of agencies in partnership | Type of agencies in partnership | Funder type | Year partnership commenced | Length of partnership |
|---|---|---|---|---|---|---|---|
| Bowen (2016)[26] | Not described/ unclear | Not described/ unclear | Not described/ unclear | - Government department(s)<br>- Practitioner groups<br>- Service delivery organisations<br>- Universities | Government | 2012 | Not described/ unclear |
| Bumbarger (2012)[37] | Prevention Research Center at Penn State University and the Pennsylvania Commission on Crime and Delinquency (PRC-PCCD partnership) | - Collaboration<br>- Partnership | Three or more | - Government department(s)<br>- Universities | Not described/ unclear | 1998 | 13 years+ still going in 2011 |
| Dixon (2016)[43] | GET-FACTS (Genetics, Environment and Therapies: Food Allergy Clinical Tolerance Studies) research study | Partnership† | Three or more | - Community-Led Groups<br>- Government department(s)<br>- NGOs/non-profit<br>- Universities | Government | 2013 (first steering committee meeting March 2014, interviews at two year mark happened in 2015 so assuming commenced in 2013) | Steering committee had been active for 13 months at time of assessment |
| Duff (2009)[44] | Tropical Savannas Cooperative Research Centre (TSCRC) | Cooperative research centre | Three or more | - Community-Led Groups<br>- Government department(s)<br>- NGOs/non-profit<br>- Research organisations<br>- Universities | Not described/ unclear | 1995 | Not described/ unclear |
| Edelstein (2016)[48] | Use of Online Research (UOR) project Plus four | Partnership | Three or more | - Community-Led Groups | Not described/ unclear | 2009 | Not described/ unclear |

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† Overall partnerships is a study, this publication is reporting on the steering committee for the partnerships specifically.

| Author and year | Name of partnership(s) | How partnership described | Number of agencies in partnership | Type of agencies in partnership | Funder type | Year partnership commenced | Length of partnership |
|---|---|---|---|---|---|---|---|
| | populations of academic-community CRPs | | | - NGOs/non-profit<br>- Education advocacy group<br>- Research organisations<br>- Universities<br>- Teacher union<br>- Publicly funded media and information group | | | |
| Ginis (2012)[42] | SCI Action Canada [SCI = spinal cord injury] | Partnership | Three or more | - Community-Led Groups<br>- Government department(s)<br>- NGOs/non-profit<br>- Service delivery organisations<br>- Universities | Government | 2007 | 5 years [5 year grant awarded in 2007] |
| Heaton (2016)[35] | Collaborations for Leadership in Applied Health Research for the South-West Peninsula (PenCLAHRC) | Collaboration | Two | - Service delivery organisations<br>- NHS Trusts: government provide health service delivery<br>- Universities | Government | 2008 | 5 years |
| Hinchcliff (2014)[49] | Accreditation Collaborative for the Conduct of Research, Evaluation and Designated Investigations through Teamwork (ACCREDIT) | Collaboration | Three or more | - Government agencies<br>- Private sector/industry<br>- Universities | Government | Not described/ unclear‡ | Not described/ unclear§ |

‡ The paper reports on 2011-2015 funding for the partnership, but states that the partnership follows from an earlier project.
§ Under the current funding period, the partnership existed since 2011 but it also states that the partnership emerged from a previous project (cannot tell from this publication if it is the same partnership)

| Author and year | Name of partnership(s) | How partnership described | Number of agencies in partnership | Type of agencies in partnership | Funder type | Year partnership commenced | Length of partnership |
|---|---|---|---|---|---|---|---|
| Hurley (2010)[50] | University of Nebraska–Lincoln and Boys Town Research Partnership | Partnership | Two | - Service delivery organisations<br>- Universities | Not described/ unclear | 2004 | Not described/ unclear |
| Janamian (2014)[51] | Centre for Research Excellence in Primary Health Care Microsystems | Partnership | Three or more | - Government department(s)<br>- Practitioner groups<br>- Research organisations<br>- Universities | Government | 2011 | 5 years |
| Jansen (2015)[39] | Academic Collaborative Centres (ACC) for Public Health | Collaboration | Three or more | - Government department(s)<br>- Local Government<br>- Research organisations<br>- Service delivery organisations<br>- Regional Public Health Service | Netherlands Organization for Health Research and Development | Not described/ unclear | Not described/ unclear |
| Kislov (2014)[20] | CLAHRC - not named | Collaboration | Not described/ unclear | - Service delivery organisations<br>- Universities | Government | 2008 | 5 years |
| Kramer (2010)[30] | Not described/ unclear - series of three research projects with researchers and health and safety associations | Partnership | Three or more | - Other government agencies<br>- Private sector/industry<br>- Research organisations<br>- Universities<br>- Unions | - CRE-MSD<br>- CIHR [the two lead research organisations]<br>- WSIB-RAC | Not described/ unclear | Varied - three partnerships reported on, one 15 months, one three years, one four years |
| Krebbekx (2012)[27] | Dutch Health Broker Partnership | Partnership | Three or more | - Government department(s)<br>- Service delivery organisations<br>- Universities | Not described/ unclear | 2008 | 2 years |

| Author and year | Name of partnership(s) | How partnership described | Number of agencies in partnership | Type of agencies in partnership | Funder type | Year partnership commenced | Length of partnership |
|---|---|---|---|---|---|---|---|
| Larkin (2012)[52] | Not described/ unclear | Partnership | Two | - NGOs/non-profit<br>- Universities | Not described/ unclear | Not described/ unclear | Not described/ unclear |
| Lindahl (2014)[38] | Swedish Future Forests programme | - Collaboration<br>- Transdisciplinary<br>- Program | Three or more | - Research organisations<br>- Universities | - Private sector<br>- Philanthropy<br>- Universities | 2009 | 3 years |
| Littlecott (2017)[53] | Avon Network for the Promotion of Active Ageing in the Community (AVONet) | Collaborative | Three or more | - Government department(s)<br>- NGOs/non-profit<br>- Service delivery organisations<br>- Universities<br>- Volunteers (unspecified which type of organisations involved with)<br>- Older adults (service users) | Government | 2008 | 10 months - was a grant to establish a sustainable collaborative (i.e. kind of set up funding). |
| Martin (2013)[54] | Leicestershire, Northampton and Rutland CLAHRC | Collaboration | Three or more | - Service delivery organisations<br>- Universities | Government | 2008 | 5 years |
| Mitchell (2017)[31] | The Landscape and Policy Hub (LaP Hub) | - Collaboration<br>- Transdisciplinary research collaboration<br>- Transdisciplinary research program/Hub | Two | - Government department(s)<br>- Universities | Government | 2011 | 4 years |
| Oivo (2017)[36] | Three partnerships - three empirical research projects:<br>- Cloud Software<br>- Need for Speed | Projects | Three or more | - Government department(s)<br>- Private sector/industry<br>- Research organisations | - Government<br>- Private sector | Cloud Software - 2010-2013 Need for Speed 2014-2017 ESEIL - 2012-2017 | Cloud Software – 3 years Need for Speed 3 years ESEIL 5 years |

| Author and year | Name of partnership(s) | How partnership described | Number of agencies in partnership | Type of agencies in partnership | Funder type | Year partnership commenced | Length of partnership |
|---|---|---|---|---|---|---|---|
| | - Experimental Software Engineering Industrial Laboratory project (ESEIL) | | | | | | |
| Payne (2011)[28] | Cancer Experiences Collaborative (CECo) | Collaborative | Three or more | - Community-Led Groups<br>- Service delivery organisations: Four largest hospices in England and hospital cancer centres<br>- Five UK Universities: Lancaster, Liverpool, Manchester, Nottingham and Southampton | Government | 2006 | Four years estimated** |
| Perkins (2011)[45] | The Australian Rural Health Research Collaboration | Collaboration | Three or more | - Government department(s)<br>- Service delivery organisations<br>- Universities<br>- Training Institute | Government | 2002 | Not described/ unclear |
| Pinto (2009)[46] | 'CBO&researcher' partnerships in general - Not a specific partnership | Collaboration | Three or more | - Service delivery organisations<br>- Universities | Not described/ unclear | Not described/ unclear | Not described/ unclear |
| Rycroft-Malone (2016)[19] | Three CLAHRCs - pseudonyms used | Collaboration | Not described/ unclear | Not described/ unclear | Government | 2008 | 5 years |
| Sibbald (2014)[23] | Multiple - involved researchers and knowledge users funded under the | Partnership | Not described/ unclear | Specific Agencies not described - partnerships involved | Government | Varied - integrated knowledge translation grantees | Varied (multiple partnerships included) |

** The total grant is for five years from 2006 but this paper is reporting findings before the end of the five years.

| Author and year | Name of partnership(s) | How partnership described | Number of agencies in partnership | Type of agencies in partnership | Funder type | Year partnership commenced | Length of partnership |
|---|---|---|---|---|---|---|---|
| | integrated knowledge translation funding opportunities from the Canadian Institutes of Health Research | | | researchers and knowledge users | | awarded 2005-2009 | |
| Smith (2015)[32] | CLAHRC | Collaboration | Three or more | - Service delivery organisations<br>- Universities | Government | 2008-2013 | 3 years |
| Soper (2013)[21] | - Cambridgeshire and Peterborough CLAHRC<br>- South West Peninsula CLAHRC | Collaboration | Three or more | - Service delivery organisations<br>- Universities | Government | 2008 | 5 years |
| Stewart (2015)[24] | Not described/ unclear | Collaboration | Not described/ unclear | - Practitioner groups<br>- Research organisations | Not described/ unclear | Not described/ unclear | Not described/ unclear |
| The Writing Group for the National Collaborative on Childhood (2018)[29] | National Collaborative on Childhood Obesity Research | - Collaboration<br>- Partnership | Three or more | - Government department(s)<br>- NGOs/non-profit<br>- Service delivery organisations | - Government<br>- Philanthropy<br>- Centers for Disease Control and Prevention, NIH | 2007 | Ongoing 10 years |
| Wehrens (2010)[33] | Centre for Effective Public Health in the Larger Rotterham area | Partnership | Two | - Government department(s)<br>- Research organisations | Netherlands Organization for Health Research and Development | Not described/ unclear | Not described/ unclear |
| Wutzke (2017)[34] | The Australian Prevention Partnership Centre | Partnership | Three or more | - Government department(s)<br>- Private sector/industry<br>- Research organisations | - Government<br>- Private sector | 2013 | 5 years |

# Appendix Table 3: Details of included partnerships

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| Bowen (2016)[26] | Not described/ unclear | University of Ottawa | Winnipeg Regional Health Authority | Canadian Institute of Health Research (CIHR) | Not described/ unclear | No | | No |
| Bumbarger (2012)[37] | Prevention Research Center at Penn State University and the Pennsylvania Commission on Crime and Delinquency (PRC-PCCD partnership) | Prevention Research Center at Penn State University | The Pennsylvania Commission on Crime and Delinquency | Not described/ unclear | Not described/ unclear | Yes | Interactive Systems Framework (Wandersman et al. 2008) as a conceptual model for understanding such partnerships | Yes |
| Dixon (2016)[43] | GET-FACTS (Genetics, Environment and Therapies: Food Allergy Clinical Tolerance Studies) research study | Not described/ unclear - assume one of the nine lead universities | Not described/ unclear | Canadian national health granting council | Yes Developed terms of reference for steering committee (and wider partnership is a five year grant so assume also have partnership agreement for that) | Yes | Integrated Knowledge Translation (IKT) | Yes |
| Duff (2009)[44] | Tropical Savannas Cooperative Research Centre (TSCRC) | Charles Darwin University (assuming this as this is where the cooperative | | Not described/ unclear | Not described/ unclear | Yes | Adaptive collaborative landscape management (ACLM)[††] | Yes |

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[††] It appears they designed their approach on building social networks to adaptively improve landscapes through changed management which is now (i.e. later) termed ACLM.

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| | | research centre is based) | | | | | | |
| Edelstein (2016)[48] | Use of Online Research (UOR) project Plus four populations of academic-community CRPs | Not described/ unclear | Not described/ unclear | Not described/ unclear | Not described/ unclear | No | | Yes |
| Ginis (2012)[42] | SCI Action Canada [SCI = spinal cord injury] | Not described/ unclear | Not described/ unclear | Social Sciences and Humanities Research Council (SSHRC) | Not described/ unclear | Not described/ unclear | | Yes |
| Heaton (2016)[35] | Collaborations for Leadership in Applied Health Research for the South-West Peninsula (PenCLAHRC) | Not described/ unclear | 13 NHS Trusts | National Institute for Health Research (NIHR) | Not described/ unclear | Yes | Engagement by Design | Yes |
| Hinchcliff (2014)[49] | Accreditation Collaborative for the Conduct of Research, Evaluation and Designated Investigations through Teamwork (ACCREDIT) | Not described/ unclear - assume is the Centre for Clinical Governance Research, Australian Institute of Health Innovation, University of New South Wales[‡‡] | Not described/ unclear | Australian Research Council (Linkage Grant Scheme) | Not described/ unclear | Not described/ unclear | | Yes |
| Hurley (2010)[50] | University of Nebraska–Lincoln | Center for At-Risk Children's | Father Flanagan's Boys Town | Not described/ unclear | Not described/ unclear | No | | Yes |

[‡‡] As all authors have this affiliation and is funded by an ARC linkage grant - only universities can access ARC funding directly

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| | and Boys Town Research Partnership | Services (CACS) at the University of Nebraska–Lincoln | | | | | | |
| Janamian (2014)[51] | Centre for Research Excellence in Primary Health Care Microsystems | University of Queensland | Australian Association of Practice Managers (AAPM); Australian Commission on Safety and Quality in Health Care (ACSQHC); Australian General Practice Accreditation Limited (AGPAL); Australian Government Department of Health (DoH); Australian Primary Health Care Nurses Association (APNA); Australian Primary Health Care Research Institute (APHCRI); Chronic Illness Alliance (CIA) Improvement | NHMRC | Not described/ unclear | No | | No |

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| | | | Foundation (Australia) (IFA); Royal Australian College of General Practitioners (RACGP) | | | | | |
| Jansen (2015)[39] | Academic Collaborative Centres (ACC) for Public Health | Not described/ unclear | Not described/ unclear | The Netherlands Organization for Health Research and Development (ZonMw) | Yes | Not described/ unclear | | Yes |
| Kislov (2014)[20] | CLAHRC - not named | Not described/ unclear | Not described/ unclear | NIHR | Not described/ unclear | Yes | | Yes |
| Kramer (2010)[30] | Not described/ unclear - series of three research projects with researchers and health and safety associations | Two: Institute for Work & Health (IWH) and the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD) | Not described/ unclear | Appears a mix of internal and external funding but not clear source of funding "These research projects were initiated with development funding received from CRE-MSD and CIHR [the two lead research organisations], and continued with major grant funding from the WSIB-RAC" | No | Yes | Both centres have used a collaborative-research model as their dominant technique for facilitating knowledge transfer | No Paper describes three partnerships, although each was a single research project i.e. one project per partnership |
| Krebbekx (2012)[27] | Dutch Health Broker Partnership | A university research team at | Officials from four Dutch | Not described/ unclear | Not described/ unclear | Yes | The collaborative research framework | No |

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| | | the Amsterdam Medical Centre | municipalities | | | | | |
| Larkin (2012)[52] | Not described/ unclear | Not described/ unclear (although assume De Montfort University, Leicester as affiliation of first author) | Not described/ unclear (although assume Carers Federation, as affiliation of two of the three authors) | Not described/ unclear | Not described/ unclear | Not described/ unclear | | Not described/ unclear |
| Lindahl (2014)[38] | Swedish Future Forests programme | Forest Research Institute of Sweden | Swedish University of Agricultural Sciences and Umeå University | Swedish Foundation for Strategic Environmental Research (MISTRA), the Swedish forestry industry and the universities involved | Not described/ unclear | Not described/ unclear | Not described/ unclear | Yes |
| Littlecott (2017)[53] | Avon Network for the Promotion of Active Ageing in the Community (AVONet) | Not described/ unclear | Not described/ unclear | Lifelong Health and Well-Being (LLHW) research initiative (managed by the Medical Research Council) | Not described/ unclear | Not described/ unclear[§§] | | No |
| Martin (2013)[54] | Leicestershire, Northampton and Rutland CLAHRC | University | Nine NHS organisations | NIHR | Not described/ unclear | Yes | Engagement by design | Yes |
| Mitchell (2017)[31] | The Landscape and Policy Hub | University of Tasmania | Australian Government | Australian Government | Not described/ unclear | Not described/ unclear | | Yes |

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[§§] Introduction describes 'Structuration Theory' but it may be being used as a theory to guide research around how collaborations are working (rather than to inform the collaboration itself).

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| | (LaP Hub) | | environment department | | | | | |
| Oivo (2017)[36] | Three partnerships - three empirical research projects: <br> - Cloud Software <br> - Need for Speed <br> - Experimental Software Engineering Industrial Laboratory project (ESEIL) | Not described/ unclear | Not described/ unclear | Cloud Software - Finish Government N4S - not described ESEIL - Tekes (National funding organization) and 5 industrial partners | Not described/ unclear | Not described/ unclear | | No - Partnerships are projects |
| Payne (2011)[28] | Cancer Experiences Collaborative (CECo) | Not described/ unclear | Not described/ unclear | National Cancer Research Institute (NCRI) | Not described/ unclear | Not described/ unclear | | Yes |
| Perkins (2011)[45] | The Australian Rural Health Research Collaboration | Not described/ unclear | Not described/ unclear | Partners and infrastructure funds from NSW Health | Not described/ unclear | Not described/ unclear | | Not described/ unclear |
| Pinto (2009)[46] | 'CBO&researcher' partnerships in general - Not a specific partnership | Not described/ unclear | Community Based Organisations in HIV prevention in NY city | Funder of CBOs was New York City Department of Health and Mental Hygiene | Not described/ unclear | Not described/ unclear | | Yes |
| Rycroft-Malone (2016)[19] | Three CLAHRCs - pseudonyms used | Not described/ unclear | Not described/ unclear | NIHR | Not described/ unclear | Yes | Engagement by design | Yes |
| Sibbald (2014)[23] | Multiple - involved researchers and knowledge users funded under the | Not described/ unclear (review of multiple partnerships) | Not described (review of multiple partnerships) | Canadian Institutes of Health Research | Not described/ unclear | Yes | Integrated knowledge translation (IKT) | Yes |

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| | integrated knowledge translation funding opportunities from the Canadian Institutes of Health Research | | | | | | | |
| Smith (2015)[32] | CLAHRC | Two universities | Local healthcare system | NIHR | Not described/ unclear | Yes | Engagement by Design | Yes |
| Soper (2013)[21] | - Cambridgeshire and Peterborough CLAHRC<br>- South West Peninsula CLAHRC | CLAHRC-CP the University of Cambridge, PenCLAHRC the Universities of Exeter and Plymouth | CLAHRC-CP Cambridgeshire and Peterborough NHS Foundation Trust and local health and social care providers. PenCLAHRC is a collaborative partnership of all the NHS trusts in the South West | NIHR | Not described/ unclear | Yes | Engagement by Design | Yes |
| Stewart (2015)[24] | Not described/ unclear | Multiple partnerships - community-based primary health care teams and the Strategic Patient-Oriented Research Networks of Primary and Integrated Health Care Innovations | Multiple partnerships | Not described/ unclear | Not described/ unclear | No | | Not described/ unclear |
| The Writing | National | Centers for | The U.S. | Centers for | Yes | Not described/ | | Yes |

| Author and year | Name of partnership(s) | Name of lead research agency | Name of lead non-research agency | Name of funder | Formal partnership agreement? | Based on existing model/framework | Name of models/framework based on | Partnership includes projects? |
|---|---|---|---|---|---|---|---|---|
| Group for the National Collaborative on Childhood (2018)[29] | Collaborative on Childhood Obesity Research | Disease Control and Prevention, NIHR, the Robert Wood Johnson Foundation | Department of Agriculture | Disease Control and Prevention, NIHR, the Robert Wood Johnson Foundation, and since 2010, the U.S. Department of Agriculture | Memorandum of understanding | unclear | | |
| Wehrens (2010)[33] | Centre for Effective Public Health in the Larger Rotterham area | Academic research department of public health at Rotterdam Erasmus MC | Rotterdam Public Health Services | Netherlands Organization for Health Research and Development | Yes | Yes | Academic Collaborative Centres for Public Health | No |
| Wutzke (2017)[34] | The Australian Prevention Partnership Centre | HCF Research Foundation | NHMRC, the Australian Government Department of Health, the New South Wales (NSW) Ministry of Health, ACT (Australian Capital Territory) Health | National Health and Medical Research Council (NHMRC) and funds allocated by the NHMRC are 'matched' by industry partners either in dollars or in kind | Yes | No | | Yes |

## Appendix Table 4: Partnership infrastructure and communication activities

| Author and year | Name of partnership(s) | List of infrastructure activities | List of communication activities |
|---|---|---|---|
| Bowen (2016)[26] | Not described/unclear | - Steering committee<br>- Provincial forum<br>- Two separate pre-proposal events as well as proposal development activities*** | Face-to-face meetings |
| Bumbarger (2012)[37] | Prevention Research Center at Penn State University and the Pennsylvania Commission on Crime and Delinquency (PRC-PCCD partnership) | - Steering committee<br>- Evidence-based Prevention and Intervention Support Center which functions as a unit within the PRC Penn University<br>- EBP Grantees & Community Coalitions | - The summary of Research of communicated through:<br>- Policy brief<br>- Fact sheets<br>- PowerPoint presentation<br>- Social media channels<br>- 3min YouTube clip |
| Dixon (2016)[43] | GET-FACTS (Genetics, Environment and Therapies: Food Allergy Clinical Tolerance Studies) research study | - Steering committee<br>- Working or project groups | - Annual/formal communications plan<br>- Face-to-face meetings<br>- Remote meetings<br>- Webinars |
| Duff (2009)[44] | Tropical Savannas Cooperative Research Centre (TSCRC) | Adaptive collaborative landscape management | - Newsletters<br>- Publications<br>- Face-to-face meetings<br>- Websites |
| Edelstein (2016)[48] | Use of Online Research (UOR) project Plus four populations of academic-community CRPs | Knowledge broker role | Not described/unclear |
| Ginis (2012)[42] | SCI Action Canada [SCI = spinal cord injury] | Working or project groups | Not described/unclear |
| Heaton (2016)[35] | Collaborations for Leadership in Applied Health Research for the South-West Peninsula (PenCLAHRC). | - Director (program and or research)<br>- Working or project groups | - Reports<br>- Summary of Research<br>- Face-to-face meetings<br>- Think tanks |
| Hinchcliff (2014)[49] | Accreditation Collaborative for the Conduct of Research, Evaluation and | - Steering committee | - Other presentations |

*** Categorised as infrastructure as the 'work' of the partnership was to develop a proposal i.e. these were not just for the purpose of communications.

| Author and year | Name of partnership(s) | List of infrastructure activities | List of communication activities |
|---|---|---|---|
| | Designated Investigations through Teamwork (ACCREDIT) | - Chief operating officers of each partner organisation form a steering committee that provides high-level leadership and input into research activities. | - Seminar series |
| Hurley (2010)[50] | University of Nebraska–Lincoln and Boys Town Research Partnership | Scientific Advisory Board | - Face-to-face meetings<br>  Remote meetings |
| Janamian (2014)[51] | Centre for Research Excellence in Primary Health Care Microsystems | - Executive committee/Board<br>- Working or project groups | - Newsletters<br>- Face-to-face meetings |
| Jansen (2015)[39] | Academic Collaborative Centres (ACC) for Public Health | - Steering committee<br>- Co-ordinating centre/operations team<br>- Coordinator with double appointment at university and PHS<br>- Working or project groups<br>- Joint knowledge-development groups consisting of researchers, practitioners, and policymakers were formed to combine research evidence with local context-sensitive information. | - Newsletters Publications<br>- Summary of Research<br>- Websites |
| Kislov (2014)[20] | CLAHRC - not named | - Executive committee/Board<br>- Steering committee<br>- Working or project groups | - Face-to-face meetings<br>- Fortnightly learning sessions<br>- Monthly cooperative inquiry sessions for change agents |
| Kramer (2010)[30] | Not described/unclear - series of three research projects with researchers and health and safety associations | - Steering committee<br>- Working or project groups | Not described/unclear |
| Krebbekx (2012)[27] | Dutch Health Broker Partnership | Working or project groups | - Face-to-face meetings<br>- National meetings & workshops |
| Larkin (2012)[52] | Not described/Unclear | Not described/unclear | Not described/unclear |
| Lindahl (2014)[38] | Swedish Future Forests programme | - Executive committee/Board Director (program and or research)<br>- Scientific Advisory Board<br>- Co-ordinating centre/operations team<br>- Working or project groups (Scenario analysis; Thematic working groups; Integration projects) | Websites |

| Author and year | Name of partnership(s) | List of infrastructure activities | List of communication activities |
|---|---|---|---|
| | | - Future Forests programme management and researchers invited researchers, experts and stakeholders from outside the programme to help analyse and synthesize particularly complex research questions.<br>- Thematic working groups included both natural and social scientists and sometimes stakeholders and practitioners. ForSA also had the capacity to initiate 'integration projects' for the specific purpose of fostering cross-disciplinary integration within the programme (Future Forests 2009). Such projects included researchers from several disciplines (i.e. humanities scholars as well as natural and social scientists) and some non-academic actors.<br>- A panel of practitioners was set up to: (1) contribute personal/practical knowledge; (2) discuss research results generated by the researchers with other researchers and fellow panel members and (3) put scientific research into practice (Future Forests 2009). But this was disbanded. | |
| Littlecott (2017)[53] | Avon Network for the Promotion of Active Ageing in the Community (AVONet) | Co-ordinating centre/operations team | Not described/unclear |
| Martin (2013)[54] | Leicestershire, Northampton and Rutland CLAHRC | Not described/unclear | - Reports<br>- Other presentations<br>- Face-to-face meetings<br>- Externally oriented publicity materials |
| Mitchell (2017)[31] | The Landscape and Policy Hub (LaP Hub) | - Director (program and or research)<br>- Steering committee<br>- Co-ordinating centre/operations team<br>- Eight working or project groups | - Newsletters<br>- Face-to-face meetings<br>- Websites |
| Oivo (2017)[36] | Three partnerships - three empirical research projects:<br>- Cloud Software | Steering committee | - Face-to-face meetings<br>- Think tanks<br>- Workshops |

| Author and year | Name of partnership(s) | List of infrastructure activities | List of communication activities |
|---|---|---|---|
| | - Need for Speed<br>- Experimental Software Engineering Industrial Laboratory project (ESEIL) | | - Quarterly review meetings (every partner expected to participate)<br>- Plenary presentations<br>- World café-type workshops<br>- Research bazaars<br>- Hackathons<br>- The results from the past quarter were presented with demos, posters, presentations, etc. |
| Payne (2011)[28] | Cancer Experiences Collaborative (CECo) | - Executive committee/Board<br>- Director<br>- Working or project groups<br>- Co-ordinating centre/operations team<br>- Independent advisors involved for critical appraisal of performance and guidance on strategy | - Remote meetings<br>- Websites<br>- Online forums involving researchers, service users and clinicians |
| Perkins (2011)[45] | The Australian Rural Health Research Collaboration | - Co-ordinating centre/operations team<br>- Community-based advisory council<br>- Executive officer manages the Collaboration and taking action on decisions | - Face-to-face meetings<br>- Bi-annual research colloquium in which researchers and clinicians present their findings to a rural audience with international keynote speakers, senior state policy makers and managers |
| Pinto (2009)[46] | 'CBO&researcher' partnerships in general<br>- Not a specific partnership | Not described/unclear | - Summary of Research<br>- Other presentations<br>- Face-to-face meetings |
| Rycroft-Malone (2016)[19] | Three CLAHRCs - pseudonyms used | Not described/unclear | - Events<br>- Learning opportunities<br>- Projects |
| Sibbald (2014)[23] | Multiple - involved researchers and knowledge users funded under the integrated knowledge translation funding opportunities from the Canadian Institutes of Health Research | Steering committee | Not described/unclear |
| Smith (2015)[32] | CLAHRC | - Executive committee/Board<br>- Scientific Advisory Board<br>- Co-ordinating centre/operations team | Face-to-face meetings |

| Author and year | Name of partnership(s) | List of infrastructure activities | List of communication activities |
|---|---|---|---|
| | | - Working or project groups<br>- Theme management groups | |
| Soper (2013)[21] | - Cambridgeshire and Peterborough CLAHRC<br>- South West Peninsula CLAHRC | - Director (program and or research)<br>- Working or project groups | - Workshops on evidence-based practice<br>- Research fellowship schemes<br>  Access to all facets of CLAHRC activity |
| Stewart (2015)[24] | Not described/unclear | Working or project groups | - Newsletters<br>- Face-to-face meetings<br>- Websites<br>- One-on-one interactions<br>- Web based communication platform |
| The Writing Group for the National Collaborative on Childhood (2018)[29] | National Collaborative on Childhood Obesity Research | - Steering committee<br>- Scientific Advisory Board<br>- NCCOR External Scientific Panel (NESP)<br>- Co-ordinating centre/operations team<br>- The Coordinating Center<br>- Working or project groups<br>- Planning committee | - Annual/formal communications plan<br>- Annual reports<br>- Newsletters<br>- Face-to-face meetings<br>- One-on-one interaction<br>- Remote meetings<br>- Websites<br>- Webinars<br>- Think tanks<br>- Social media channels<br>- Workshops |
| Wehrens (2010)[33] | Centre for Effective Public Health in the Larger Rotterham area | - Steering committee<br>- Co-ordinating centre/operations team<br>- Two coordinators (one from each partner)<br>- Advisory board | - Reports<br>- Other presentations |
| Wutzke (2017)[34] | The Australian Prevention Partnership Centre | - Executive committee/Board<br>- Governance<br>- Authority<br>- Co-ordinating centre/operations team | Summary of Research |

# Appendix Table 5: Details of partnership assessment

| Author and year | Name of partnership(s) | Year of assessment | Description applies to whole or part of partnership? | Source of data | Did they analyse by partnership stage? | Did they report on enablers? | Did they report on inhibitors |
|---|---|---|---|---|---|---|---|
| Bowen (2016)[26] | Not described/ unclear | 2014 | Whole partnership | Formal interviews | No | Yes | Yes |
| Bumbarger (2012)[37] | Prevention Research Center at Penn State University and the Pennsylvania Commission on Crime and Delinquency (PRC-PCCD partnership) | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | Yes |
| Dixon (2016)[43] | GET-FACTS (Genetics, Environment and Therapies: Food Allergy Clinical Tolerance Studies) research study | 2015 | Component of partnership | - Authors own knowledge/reflections<br>- Formal interviews | No | No | Yes |
| Duff (2009)[44] | Tropical Savannas Cooperative Research Centre (TSCRC) | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | No |
| Edelstein (2016)[48] | Use of Online Research (UOR) project Plus four populations of academic-community CRPs | 2016 (estimated from publication date) | Whole partnership | - Analysis of existing documents and/or data<br>- Formal interviews<br>- Surveys | No | Yes | Yes |
| Ginis (2012)[42] | SCI Action Canada [SCI = spinal cord injury] | Not described/ unclear | Whole partnership | Informal interviews/discussions | No | Yes | Yes |
| Heaton (2016)[35] | Collaborations for Leadership in Applied Health Research for the South-West Peninsula (PenCLAHRC). | Unclear; sometime after 2013 -2015 | Whole partnership | - Analysis of existing documents and/or data<br>- Formal interviews<br>- Four case studies | No | Yes | No |
| Hinchcliff (2014)[49] | Accreditation Collaborative for the Conduct of Research, Evaluation and Designated Investigations through Teamwork (ACCREDIT) | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | Yes |
| Hurley (2010)[50] | University of Nebraska–Lincoln and Boys Town Research Partnership | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | No |
| Janamian (2014)[51] | Centre for Research Excellence in Primary Health Care Microsystems | Not described/ unclear | Whole partnership | Formal interviews | No | No | Yes |

| Author and year | Name of partnership(s) | Year of assessment | Description applies to whole or part of partnership? | Source of data | Did they analyse by partnership stage? | Did they report on enablers? | Did they report on inhibitors |
|---|---|---|---|---|---|---|---|
| Jansen (2015)[39] | Academic Collaborative Centres (ACC) for Public Health | 2013-2014 | Whole partnership | - Formal interviews<br>- Surveys | No | Yes | Yes |
| Kislov (2014)[20] | CLAHRC - not named | 2010-2011 | Whole partnership | - Analysis of existing documents and/or data<br>- Formal interviews<br>- Observations<br>- Case study | No | No | Yes |
| Kramer (2010)[30] | Not described/ unclear - series of three research projects with researchers and health and safety associations | Not described/ unclear | Whole partnership | - Analysis of existing documents and/or data<br>- Formal interviews<br>- Observations | No | Yes | Yes |
| Krebbekx (2012)[27] | Dutch Health Broker Partnership | 2010 | Whole partnership | - Analysis of existing documents and/or data<br>- Case study | Yes | Yes | Yes |
| Larkin (2012)[52] | Not described/ Unclear | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | No |
| Lindahl (2014)[38] | Swedish Future Forests programme | Not described/ unclear | Whole partnership | - Analysis of existing documents and/or data<br>- Authors own knowledge/reflections<br>Surveys | Yes | Yes | Yes |
| Littlecott (2017)[53] | Avon Network for the Promotion of Active Ageing in the Community (AVONet) | 2010 | Whole partnership | - Formal interviews<br>- Surveys | No | No | Yes |
| Martin (2013)[54] | Leicestershire, Northampton and Rutland CLAHRC | 2010-2011 | Whole partnership | - Analysis of existing documents and/or data<br>- Formal interviews<br>- Observations | Yes | Yes | Yes |
| Mitchell (2017)[31] | The Landscape and Policy Hub (LaP Hub) | Not described/ unclear | Whole partnership | - Analysis of existing documents and/or data (Literature review) | No | Yes | Yes |

| Author and year | Name of partnership(s) | Year of assessment | Description applies to whole or part of partnership? | Source of data | Did they analyse by partnership stage? | Did they report on enablers? | Did they report on inhibitors |
|---|---|---|---|---|---|---|---|
| | | | | - Authors own knowledge/reflections<br>- Surveys | | | |
| Oivo (2017)[36] | Three partnerships - three empirical research projects:<br>- Cloud Software<br>- Need for Speed<br>- Experimental Software Engineering Industrial Laboratory project (ESEIL) | Not described/ unclear | Whole partnership | - Authors own knowledge/reflections | No | Yes | No |
| Payne (2011)[28] | Cancer Experiences Collaborative (CECo) | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | Yes |
| Perkins (2011)[45] | The Australian Rural Health Research Collaboration | Not described/ unclear | Whole partnership | Not described/ unclear | No | Yes | No |
| Pinto (2009)[46] | 'CBO&researcher' partnerships in general - Not a specific partnership | Not described/ unclear | Whole partnership | Formal interviews | No | Yes | Yes |
| Rycroft-Malone (2016)[19] | Three CLAHRCs - pseudonyms used | 2009-2014 | Whole partnership | - Analysis of existing documents and/or data<br>- Informal interviews/discussions<br>- Observations<br>- Stakeholder group and interpretative forum | Yes | Yes | Yes |
| Sibbald (2014)[23] | Multiple - involved researchers and knowledge users funded under the integrated knowledge translation funding opportunities from the Canadian Institutes of Health Research | Not described/ unclear | Whole partnership | - Formal interviews<br>- Surveys | No | Yes | Yes |
| Smith (2015)[32] | CLAHRC | 2009-2012 | Component of partnership | - Analysis of existing documents and/or data<br>- Authors own knowledge/reflections | No | Yes | No |

| Author and year | Name of partnership(s) | Year of assessment | Description applies to whole or part of partnership? | Source of data | Did they analyse by partnership stage? | Did they report on enablers? | Did they report on inhibitors |
|---|---|---|---|---|---|---|---|
| | | | | - Formal interviews<br>- Observations<br>- Narratives | | | |
| Soper (2013)[21] | - Cambridgeshire and Peterborough CLAHRC<br>- South West Peninsula CLAHRC | 2012 | Whole partnership | - Analysis of existing documents and/or data<br>- Formal interviews<br>- Surveys<br>- Case studies<br>- One day workshop | Yes | Yes | Yes |
| Stewart (2015)[24] | Not described/ unclear | 2012-2017 | Whole partnership | Authors own knowledge/reflections | No | Yes | No |
| The Writing Group for the National Collaborative on Childhood (2018)[29] | National Collaborative on Childhood Obesity Research | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | No |
| Wehrens (2010)[33] | Centre for Effective Public Health in the Larger Rotterham area | 2008-2010 | Component of partnership | - Analysis of existing documents and/or data Collective exercises (e.g. workshops, mapping activities)<br>- Formal interviews<br>- Observation | No | Yes | Yes |
| Wutzke (2017)[34] | The Australian Prevention Partnership Centre | Not described/ unclear | Whole partnership | Authors own knowledge/reflections | No | Yes | Yes |

## Appendix Table 6: Summary of identified partnership enablers and inhibitors

| Partnership Factors | Publications |
|---|---|
| **Enabling** n=27 | N |
| Dynamic between partners | 24 |
| Partnership operations –partnership process | 20 |
| Partnership structure and design | 17 |
| Partnership operations –partnership personnel | 16 |
| Partnership operations – partnership communication | 13 |
| Other enablers reported (not otherwise categorised) | 10 |
| External context | 2 |
| **Inhibiting** n=22 | N |
| Dynamic between partners | 19 |
| Partnership structure and design | 11 |
| Partnership operations – partnership process | 10 |
| Other inhibitors reported (not otherwise categorised) | 8 |
| Partnership operations – partnership personnel | 3 |
| Partnership operations – partnership communication | 3 |
| External context | 3 |

# Appendix 4: CLAHRC enablers and inhibitors results tables

The UK CLAHRCs are described in the publications by Kislov, Heaton, Martin, Rycroft-Malone, Soper and Smith.[19-21,35,5432]

## Appendix Table 7: Enabling factors identified among CLAHRC publications

| Enabler (All publications reporting enablers n=27; CLAHRC n=6) | CLAHRC publications (n) | All publications (n) |
|---|---|---|
| **Partnership structure and design** | | |
| Previous experience working together | 2 | 7 |
| Co-design of partnership | 2 | 5 |
| Adequate period of time to develop and implement partnership | 2 | 4 |
| Staged/staggered growth | 1 | 1 |
| Dynamic between partners | | |
| Reflective practice | 3 | 6 |
| Shared vision, mission and/or goals | 2 | 12 |
| Understanding or appreciating other partners perspectives | 1 | 8 |
| Feelings of respect between partners | 1 | 5 |
| Geographical proximity | 1 | 4 |
| Mutual benefit from partnership | 1 | 4 |
| Sense of equality between partners | 1 | 2 |
| Recognise what success look like for all partners (not necessarily the same) | 1 | 2 |
| **How partnership operates** | | |
| *Partnership personnel* | | |
| Strong partnership leadership/governance | 2 | 8 |
| Facilitative leadership | 2 | 2 |
| Support from management/overall organisation | 1 | 1 |
| *Partnership communication* | | |
| Frequent/regular communication | 1 | 10 |
| Other communication related | 1 | 6 |
| *Partnership process* | | |
| Flexibility in approaches/implementation | 3 | 10 |
| Joint working on activities/outputs | 3 | 8 |
| Knowledge brokers role used | 2 | 7 |
| Formal operational protocols/processes e.g. TOR, SOPs, project application process | 1 | 8 |
| Foster a 'learning' culture | 1 | 3 |
| Quickly produced outputs | 1 | 2 |

*This table only reports enables in the CLAHRC publications*

## Appendix Table 8: Inhibiting factors identified among CLAHRC publications

| Inhibitor (All publications reporting inhibitors n=22; CLAHRC n=6) | CLAHRC publications (n) | All publications (n) |
|---|---|---|
| **Partnership structure and design** | | |
| Imbalanced representation of partners | 2 | 5 |
| Structure did not promote collaboration | 2 | 3 |
| Single partner design of partnership and/or pre-determined design | 1 | 3 |
| **Dynamics between partners** | | |
| Lack of shared vision, mission and/or goals | 2 | 8 |
| Different expectations for timelines | 1 | 8 |
| Sense of inequality between partners | 1 | 5 |
| Different organisational cultures, "ways of working" | 1 | 5 |
| Does not recognise that success may look different for partners | 1 | 4 |
| Lack of reflective practice | 1 | 3 |
| Geographical distance | 1 | 3 |
| Partners find partnership resource intensive | 1 | 3 |
| Lack of trust between partners | 1 | 1 |
| **How partnership operates** | | |
| *Partnership process* | | |
| Excessive funding pressures or control struggles | 1 | 3 |
| Inadequate incentives to participate | 1 | 2 |
| Unequal/no sharing of decision making | 1 | 1 |
| **External context** | | |
| Inhibiting external environment | 1 | 3 |

*This table only reports inhibitors in the CLAHRC publications*