# Research Capacity at a Local government Level (REC@LL): Mapping Review and Rapid Systematic Review

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OCTOBER 2ND 2020

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# **BITE-SIZE SUMMARY**

Few instrumental models of local authority research systems (LARS) exist, particularly in the UK where health research systems are prevalent. Local government systems from countries, such as Sweden and the Netherlands, where health and local government functions are unified, may offer useful insights. More broadly, extensive literatures on qualitative aspects of university-community partnerships and communities of practice, such as trust, relationship building and community engagement, may inform how a local authority research system might operate.

# TITLE

Research Capacity at a Local government Level (REC@LL): Mapping Review and Rapid Systematic Review

# ABSTRACT

#### Structured summary

#### BACKGROUND

Local government occupies a potential key role in improving the wider conditions that improve population health. In comparison with health research systems, local authorities possess less well-developed infrastructures to plan, generate and interpret the evidence that is needed to determine interventions in preventive health, health promotion and public health more generally. Faced with a new landscape where public health functions have been incorporated within the political environment occupied by local government and where the wider perspective of health includes social care, local decision-makers need to be equipped with appropriately organized research capacity. However, relatively few models of local authority research systems are known to exist.

#### Objectives

To conduct a rapid review of potential and existing models of local authority-based research systems including cost, capacity, skills and support required.

#### METHODS

#### Eligibility criteria

Included studies were taken from UK and Ireland, Europe (High Income Countries only), Australia and New Zealand, Canada and USA, published between 1996-2020, and were focused on research systems with local government/local authority involvement. All included studies presented a model, framework or textual descriptive outline of a research system, either at a practical or conceptual level. Studies from Low- and Middle-Income countries were excluded as well as studies from High-Income countries considered to be of limited relevance to the UK (e.g. Japan, South Korea etc).

#### Information sources

We conducted a systematic mapping review of the literature, drawing upon six general health and social science databases: PubMed (MEDLINE); EMBASE; PsycInfo; Scopus; Social Science Premium Collection and Social Sciences Citation Index. We also searched six UKbased databases or library catalogues with a focus on health and/or social care (Applied Social Sciences Index and Abstracts (ASSIA); Health Management Information Consortium; Health Services Management Centre Online (University of Birmingham); Health Management Online; King's Fund Library Database and Social Care Online (Social Care Institute of Excellence)). We also undertook Google and Google Scholar searching (the latter using Publish or Perish software), follow-up of references and citation tracking.

#### Quality assessment

No appropriate evaluation criteria exist for the formal assessment of the quality of reports of research models or systems. Assessment of the included studies was based upon considerations of **relevance** (to a UK setting), **rigour** (quality of evaluation) and **richness** (level of detail of individual models or initiatives).

#### Synthesis of results

Studies were characterised as UK-based or Other Countries. Models of research systems were further assigned descriptors relating to whether they are considered instrumental (e.g. logic models), symbolic (e.g. conceptual models) or hybrid (combining both instrumental and symbolic elements). The descriptions of models were examined and characterised according to an emerging typology according to structural features and the relationship between the local government and academic partners.

#### RESULTS

Extensive searches confirmed that very few models of local authority research systems exist in the literature. The most recent and substantive UK work relates to the Local Authority Champions of Research (LACoR) project, funded by the Health Foundation. This includes a detailed logic model and attempts to explore the system within a complex systems context. Other promising research systems models relate to Academic Collaborative Centres (Netherlands) and Local and Regional R&D units in Sweden. Both of these models are characterised by integrated health and social care systems. Generic examples relate to the University-Community partnerships popularised within the United States. However, these may display wider ambitions to include research, teaching and service learning and often involve other community players, beyond local government. The literatures of Communities of Practice, Community Engagement, Knowledge Transfer Partnerships, Research Utilisation and the Engaged University may offer additional insights although only encountered serendipitously within the scope of this review project.

#### Included studies

From a total of 2,479 records (following removal of duplicates), 61 papers were assessed as eligible and were included for further data extraction. Nine models of research systems were prioritised for in-depth analysis in the rapid systematic review (Academic Collaborative Centre; Communities of Practice; Knowledge Transfer Partnership; Local Authority Champions of Research (LACoR) Logic Model; Local Government Knowledge Navigator. Locally based research and development (R&D) unit; Systems -focused research collaboration; University-Community Partnership; University-Local Government Research Collaboration).

#### Synthesis of results

The review team identified six types of research systems exemplified across the 37 examples (61 papers). These are:

- 1. The Centre-based system
- 2. The Partnership-based system
- 3. The Collaborative-based system
- 4. The Network-based system
- 5. The Community of Practice based system
- 6. The Whole System approach

These different models work from different assumptions relating to the power and governance structures within the system, the degree of location/co-location, physical presence and ownership of each system and the respective roles of academia and local government. The above systems can co-exist, can be evidenced at multiple levels within the participating organisations, and may even represent developmental stages in the evolution of a university-community collaboration. The Whole systems framework is depicted as the most appropriate response to the complex systems characteristics of both local government and research systems(1), compounded when both are combined.

#### DISCUSSION

#### Strengths and limitations of evidence

The review was conducted by an experienced team with access to specialist knowledge in, and experience of, the topic of research capacity development. Twelve database or library catalogue sources were searched, supplemented by extensive follow up of references and citation searching. Full text searching, via Google Scholar, and follow up of references in context, means that retrieval of candidate items is unprecedented. However, the conversion rate of retrieved hits to actual includes and of actual includes to those optimally meeting the client requirements was comparatively poor.

This review question challenges existing rapid review methodologies due to variability of understanding of what constitutes a "research system", the specific UK conceptualisation and label of "local authority" and variability in the labelling and recognition of models and frameworks. Furthermore, local government involvement and the existence of a model are poorly documented at an abstract level and therefore require a high proportion of full text checks for inclusion. The relevance of documents from other countries to the Bradford, UK context is variable given different organisational structures and cultures. Transferability of findings works better at a conceptual/theoretical level than at an instrumental, operational level. Indeed, the literature betrays strong academic ownership with a greater focus on conceptual principles of knowledge translation and research utilisation compared with pragmatic concerns about organisation of R&D units. The review team did attempt to address this imbalance through domain searching of UK local government Internet domains but few descriptions of actual local authority systems were found to exist.

#### Interpretation

While many models of research systems exist, few are specifically designed for the requirements of local authority research activity. The Local Authority Champions of Research (LACoR) model offers a potential blueprint for further development for a Bradford LARS. Useful lessons beyond the scope of this review may be learned from the experience of health research systems, particularly CLAHRCS. This line of investigation is specifically indicated by the perceived success of Academic Collaborative Centres in the Netherlands that closely evoke the operating principles of the UK CLAHRCS. Further insights may be gained

from the experience of locally focused R&D units in Sweden and from the general literature relating to University-Community partnerships.

Looking forward, whole systems approaches to local authority research systems (also explored in the Local Authority Champions of Research (LACoRS) review) seem to offer a realistic response to the requirements of the complex local authority and research systems. Commentators advocate complex adaptive systems-informed approaches and these may confirm a further interpretation of this report; namely that an optimal single research system may represent the simultaneous co-existence of different types of contributing research system including Centre, Partnership, Collaboration, Network and Community types.

#### OTHER

#### Funding

The School of Health and Related Research (ScHARR), University of Sheffield is delivering this review under contract to the Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust. Bradford Institute for Health Research is managing the mapping review and rapid systematic review on behalf of the NIHR project co-applicants.

# Glossary and list of Acronyms

Acronym	Definition
ACC	Academic Collaborative Centre
ASSIA	Applied Social Sciences Index and Abstracts
CIAO	Consortium Integrated Approach of Overweight
CLAHRC	Collaboration for Leadership in Applied Health Research and Care
CLAHRCS	Collaborations for Leadership in Applied Health Research and Care
COPC	Community Outreach Partnership
CPD	Continuing Professional Development
EMBASE	Excerpta Medica dataBASE
ESRC	Economic and Social Research Council
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HMIC	Health Management Information Consortium
LACOR	Local Authority Champions of Research
LARC	Local Authority Research Council
LARCI	Local Authority Research Council Initiative
LARIA	Local Area Research & Intelligence Association
LARS	Local Authority Research Systems
LGA	Local Government Association
MEDLINE	Medical Literature Analysis and Retrieval System Online
MRC	Medical Research Council
NHS	National Health Service
NIHR	National Institute for Health Research
PRISMA	Preferred Reporting Items for Systematic Reviews
PROSPERO	International Prospective Register of Systematic Reviews
PSSRU	Personal Social Services Research Unit
RCD	Research Capacity Development
REC	Research Ethics Committee

Acronym	Definition
Research Systems	'the people, institutions, and activities whose primary purpose operating at a local government level is to generate or support the production of high-quality context- sensitive knowledge to be used to inform decision-making on provision, maintenance and evaluation of services and facilities targeted at the local population. It can include mechanisms adopted to encourage the utilization of research' (Adapted from WHO definition(2)).
RIS	Research Information Systems
SOLACE	Society of Local Authority Chief Executives
SSCR	(NIHR) School for Social Care Research
SSRG	Social Services Research Group
SSRN	Social Science Research Network
TCR&D	Traditional Community Research and Development
TCRC	The Tufts Community Research Center
USA	United States of America
WHO	World Health Organisation

# INTRODUCTION

# Rationale

With few examples of Local Authority Research Systems (LARS) in the literature, most reports focus on how evidence is currently used in local government and the disconnect between academia and practice based public health and policy making. The client has identified a need to identify from the literature and examples of current practice possible models for a Bradford LARS including the necessary research and development leadership and infrastructure, ways to systematically involve the public and associated costs and the requisite local authority-based skills, training and career development.

The review team identified a need to conduct an extensive mapping review, searching across multiple published and grey literature sources, to identify potential accounts of research systems with local government involvement. This would be followed by a detailed analysis of candidate research systems, using a template-led approach, within the confines of a rapid systematic review framework.

# Objectives

To conduct a rapid review of potential and existing models of local authority-based research systems including cost, capacity, skills and support required.

# METHODS

# Protocol and registration

A review protocol was produced following client input into a specification document. The protocol was not eligible for inclusion within the PROSPERO registry given its mapping and rapid review status and because the review does not focus on health-related outcomes. The review protocol is available as an appendix to this report (Appendix 1).

# Eligibility criteria

The team faced several challenges in operationalising the review question. Local government refers differentially to different constituencies across the globe; for example, municipality, region, state, province, and county, making comparability to a UK local authority system challenging. Even within the UK local government administrations can differ greatly. For example the Local Government Association website (<u>https://www.local.gov.uk/about/who-we-are-and-what-we-do</u>) cites "district, county, metropolitan and unitary authorities along with London boroughs, the City of London Corporation....and 22 Welsh unitary councils".

Furthermore, the distinction between administrative responsibility for health and for other functions (such as Social Care, Education, Housing, Transport, Planning, Fire and public safety, Police, Libraries, Recreation and Leisure Services, Trading Standards, Waste Management, Refuse Collection, Recycling, Water Management, Local Tax and Rates Collection) is not meaningful in countries where unitary government functions exist. The idiosyncratic nature of the UK (English) local government system, which has been further confounded by the recent acquisition of responsibilities for public health, makes comparability across national boundaries even more problematic. As a consequence, local government systems (the focus of this review) from other countries may less directly relevant than experience from UK-based health research systems.

Finally, a research "system" can represent a whole system, designed to encompass all research activities within a particular constituency. Conversely, it may represent an extant subsystem, such as a training system or a mentoring scheme. An alternative perspective could define a system for a particular stage of the research process – such as in a funding system, an ethics system, or a dissemination system. Alternatively, elements of two proximate systems may combine to form a de facto system; for example, CLAHRC research systems did not typically maintain their own research offices or ethics systems. CLAHRC activity typically centred on the content of the research with these other research system functions being supplied, for example, by the research office or the ethics process of a major partner – for example, a large hospital trust.

#### Operationalising the eligibility criteria

In order to operationalise the mapping review the following definitions and limits to scope were used.

**Context:** Local government, i.e. non-central government, in high income countries as specified by geographical limitations. In some studies, "local" denotes geographically bounded evidence to facilitate service planning or benchmarking or comparisons with neighbouring areas. In other studies, "local" may not relate to strict geographic bounds but relates to a shared and identifiable context.

**Interventions:** Whole system models; current Whole Systems approaches and functional sub-systems considered to form essential characteristics of a viable whole system (e.g. training, funding etc).

For the purpose of this project, research systems are defined as:

'the people, institutions, and activities whose primary purpose operating at a local government level is to generate or support the production of high quality context-sensitive knowledge to be used to inform decision-making on provision, maintenance and evaluation of services and facilities targeted at the local population. It can include the mechanisms adopted to encourage the utilization of research' (Adapted from WHO definition(2)).

Practically, research systems may be based within a university or other academic organisation and housed as part of the university infrastructure. Less common examples may be sited within local government premises. Within network or collaboration models it may be challenging to identify a physical space that is associated with the research system, instead the locality concept represents the focal population of interest and their geographical vicinity. Research systems may also be associated with specific initiatives such as 'academics/researchers in residence'(3, 4), 'embedded researchers'(5, 6), 'impact officers', boundary spanners, or knowledge mobilisers, or evidenced in approaches such as 'translational research' or 'knowledge to action' strategies(7). Research systems may be involved in the production of research or the utilisation of research or both (within a single integrated system). All these enabling mechanisms require either shifting of funding resources on existing projects or funding specific to these activities(7).

**Models:** Conceptual and actual models of whole systems; conceptual and actual models of essential research functions or subsystems.

**Dates:** 1996-2020. In the absence of an agreed landmark date, to act as an appropriate limit, an arbitrary period of 20 full years plus January-September 2020 was determined for the search.

**Geographical limitations:** UK and Ireland, Europe (High Income Countries only), Australia and New Zealand, Canada and USA.

Languages: English or English Abstract (based on summary or machine-assisted translation).

**Publication status:** Academic literature, or grey literature, or formally documented project/programme pages etcetera.

**Study status:** Empirical quantitative or qualitative research, academic theoretical/conceptual papers, descriptive research, case studies

#### Information sources

Searches were conducted of the following information sources Ovid MEDLINE (1996 – 2020); Ovid EMBASE (1996-2020); Ovid PsycINFO (1996-2020); Scopus (1996-2020); Web of Science (1996-2020); Social Science Premium Collection (1996-2020) and ASSIA (2015-2020).

In addition, searches were conducted of the following UK-specific sources (1996-2020) Social Care Online (Social Care Institute for Excellence), the Health Management Information Consortium (HMIC), Health Services Management Centre Online (via the University of Birmingham; <u>www.birmingham.ac.uk/facilities/hsmc-library/library-</u> <u>resources/index.aspx</u>), Health Management Online (via NHS Scotland; <u>www.shelcat.org/nhml</u>) and the King's Fund Library Database (<u>http://kingsfund.koha-</u> <u>ptfs.eu/</u>). However, with the exception of HMIC and the Social Care Online database, retrieval results from these UK health-oriented sources were poor, reflecting the specific local government emphasis of the review topic.

Subject searches and citation searches were conducted of Google Scholar using the Publish or Perish desktop software. With the exception of Social Care Online (16//09/2020) all other sources were searched on 14/09/2020). In addition, searches were conducted of UK government Internet sites, using the site:gov.uk command. and other country equivalents. Selected named Internet sites were also browsed (see **Appendix 1 – Protocol**).

#### Search

The full electronic search strategy for PubMed MEDLINE is available as Appendix 2. Other electronic search strategies are available from the authors on request. Date limits covered 1996-2020. Language limits were applied to retrieve English language material only.

#### Selection of sources of evidence<sup>+</sup>

Following piloting of the inclusion criteria and team discussion for consistency and clarity the remaining retrieved bibliographic results were divided between the three members of the review team. Due to the tight time constraints single independent screening by each reviewer was utilised. Queries were resolved with reference to the review methodologist and topic expert (AB). A summary of the inclusion and exclusion criteria and how they were interpreted is given in Table 1.

Table 1-	Summary	of finalized	inclusion	and	exclusion	criteria
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Research System Focus	High Income Country	Local Government Role	Models/ Frameworks	Overall
Yes – Include Article has at least equal focus on research system, setting context i.e. not just topic of research	Yes – Include Europe, North America, Australia, NZ (NOT Middle East or Far East)	Yes – Include Local Government, Local Authority, Municipality, Metropolitan area, District Council, County Council, Borough Council	Include Mention of Model, Framework, Concept, Theory or System	Include
No – Exclude Article is about a research "topic" e.g home care or waste water	No – Exclude Africa, South America, Asia, Latin America	No – Exclude Industry, Commerce, Health Service only, NHS- University partnerships etc.		Exclude
Can't Tell - Full Text <i>Mention of</i> "research" but unclear particular focus	Can't Tell - Full Text International perspective, no details of setting or mixed countries including one high income.	Possible – Public Health or Social Care ( <i>i.e. potential local</i> <i>authority role but</i> <i>exact players not</i> <i>clear from</i> <i>Abstract</i> )		Can't Tell - Full Text
Refer Is this a "research system"?	Refer Any country where developmental status is unclear e.g. Hungary, Latvia, Turkey	Can't Tell - Full Text Participating organisations not clear – role may be fulfilled by local government e.g. housing, transport, etc	Unclear – No mention - Include	Refer

#### Data charting process

Included studies were divided between the three reviewers. Following piloting on four candidate studies and charting using a purpose-specific Google Form each reviewer independently extracted data for their assigned studies. At this point individual reviewers would make a final decision on inclusion/exclusion. Each included study was therefore agreed by two of the review team, with queries referred to the methodologist for a definitive verdict where not otherwise possible.

#### Data items

Data was sought for the following variables Ref Id; Author (Year); Publication Type; Geographical Location (Region and Country); Collaborating Partners; whether the paper describes a Model or Framework; a brief textual description of the Model/Framework (with accompanying comments on Model/Framework); Described Local Government Functions; Core Activities(8); Subsystems(9); Principles(8); Comments on Article; Follow Up References; Type of Initiative (if identified); Name of Initiative (if not on specified list and identifiable)

One data item was removed following piloting; a classification of research capacity Principles(8) was subsequently omitted. Not only are these principles poorly discriminated but also absence of explicit reporting could not be interpreted as a non-adherence to these principles. The review team decided that the presence of core activities(8) would provide a more reliable guide to the characteristics of each research system.

For models being evaluated as part of the rapid systematic review, data was sought for the following variables: Research Model/Initiative; Partnership and governance structures; Geographical context; High-level aims and key objectives; Core Activities(8); Research Capacity Subsystems(9, 10), Cooke et al, 2018); Research and implementation themes; Expected outputs/outcomes; Challenges; Lessons Learned; Model/Framework; Strengths and Weaknesses; Supporting References.

This data extraction template was based on a template for CLAHRC descriptions and logic models from a report for the National Institute for Health Research(11)

# Quality assessment of individual sources of evidence

Mapping reviews are characterised by their descriptive function. Quality assessment is not mandatory for such reviews. Furthermore, no evaluation criteria exist to assess reports of research models or systems. The team evaluated included studies according to **relevance** (to a UK setting) and **richness** (level of reporting detail of individual models or initiatives).

#### Synthesis of results

Frequencies were produced for most of the descriptive variables and presented as tables e.g. country, model and application (e.g. public health, social care, generic etc). Coded data was fed into the detailed description of models. As a model could be supported by multiple papers the team decided to produce one summary template per model. Given that reporting guidelines do not exist for mapping reviews the review team followed the proximate guidelines for reporting scoping reviews(12).

# RESULTS

# Selection of sources of evidence

From a total of 2,479 records, following elimination of duplicates, 329 references were deemed to merit inspection at full text. References were prioritised within three groups; those where the title and abstract closely matched the review question ("Probables"); those providing sufficient indication of content to suggest possible inclusion ("Possibles"); and those that required full text inspection to confirm that they were to be excluded ("Rule outs"). The requirement to identify local government involvement and to establish whether a model, framework or system description was present meant that a higher proportion of full text inspections was conducted than is typical for most rapid reviews. All references were examined for potential inclusion working, in turn, through these three successive categories.

A total of 329 full text articles was assessed for eligibility. 268 articles were excluded at the full-text examination stage. 61 papers were judged eligible and were included for further data

extraction. Main reasons for exclusion were "No Model described"; "No explicit Local authority/government involvement"; and "Low- and Middle Income or Excluded Countries".

37 models were identified within the 61 papers (12 of these models represented variants of University-Community Partnerships. Nine models of research systems were prioritised for indepth analysis in the rapid systematic review. Items excluded at full-text with reasons given are presented in Appendix 3. A PRISMA flow diagram for the overall study with final data for the rapid systematic review is provided in Figure 1(13).

Source	Date searched	Hits (or records obtained from searches)
Ovid MEDLINE	14/09/2020	464
Ovid PsycINFO	14/09/2020	302
Google Scholar	14/09/2020	219
Google Scholar	14/09/2020	201
Scopus	14/09/2020	483
Web of Science	14/09/2020	412
Social Science Premium Collection	14/09/2020	193
EMBASE	14/09/2020	149
ASSIA	14/09/2020	500
НМІС	14/09/2020	31
HMIC2	14/09/2020	53
Social Care Online (Social Care Institute for Excellence)	16/09/2020	47
Total before deduplications		3054

Table 2- Data sources and number of hits



# Characteristics of sources of evidence for Mapping Review

A total of 61 separate documents was identified, Brief characteristics of year, country, model type and topic area are presented in Table 3.

Authors	Year	Ref Id	Country	Type of Model	Topic Area
Adamuti-Trache & Hyle	2015	(14)	US	University-community partnerships (Engaged University):	Generic
Alexanderson et al	2009	(15)	Sweden	Locally based research and development (R&D) unit	Social welfare
Allen, Grace, & Martin	2015	(16)	England	Local Government Knowledge Navigator	Generic
Austin,et al	1999	(17)	US	University-community partnership (Agency-university partnership)	Social services
Berg-Weger et al	2013	(18)	US	Collaborative research education partnership	Social Justice Education and Research
Börjeson & Johansson	2014	(19)	Sweden	Practice research	Social work
Bowers	2017	(20)	US	University-community partnership	Generic
Buys & Bursnall	2007	(21)	Australia	University-community partnership	Generic
Carmichael et al	2013	(22)	England	Systematic reviews of evidence with case studies.	Local planning
Cheetham et al	2018	(5)	England	Embedded research (ER)	Public health
Cheetham et al	2019	(1)	England and Literature Review (UK)	Local Authority Champions of Research (LACoR) Logic Model	Generic
Clapton & Daly	2015	(3)	Scotland	Academic-in-residence	Children and families social work
Clark & Sinclair	2008	(23)	England	Partnership working	Children's Services Departments
Cooke	2002	(24)	UK	Research Capacity Development	Health and social care interface
Curtis, Fulton, & Brown	2018	(25)	England	Research utilization	Health improvement
Doe & Lowery	2013	(26)	US	University-Community Partnership (Community Outreach Partnership Center (COPC))	Civic engagement
Drabble et al	2013	(27)	US	University-community partnership (Collaborative Research Model)	Child welfare
Euerby & Burns	2012	(28)	Canada	University-Community Partnerships for Social Action Research (international development leadership Community of Practice)	Social Action
⊢lora et al	2000	(29)	US	Community Based	Conservation &

 Table 3 - Table of Included Studies (Mapping Review)

				Environmental Protection (Local Participation)	development
Guest et al	2018	(30)	US	Government-university-	Healthy Aging
Hart & Northmore	2011	(31)	UK	University-Community	Generic
Hoeijmakers, Harting, & Jansen	2013	(32)	Netherlands	Academic Collaborative Centre	Public health
Норе	2016	(33)	England	Knowledge transfer partnership	Housing
Jagannathan et al	2011	(34)	US	University-community partnership (Traditional community research and development (TCR&D) model)	Generic
Jansen, et al	2012	(35)	Netherlands	Academic Collaborative Centre	Public health
Jansen, et al	2015	(36)	Netherlands	Academic Collaborative Centre	Public health
Kaufman et al	2017	(37)	US	University-community partnerships (community engagement and translational science)	Health science
Kelly, & Lloyd- Williams	2013	(38)	UK	Co-production of research	Generic
Leeman et al	2017	(39)	US	Research Capacity Development	Generic
Martinez et al	2013	(40)	US	University-community partnership (The Tufts Community Research Center (TCRC))	Generic
Mawson	2015	(41)	England	University-Local Government Research Collaboration	Generic
Mawson	2019	(42)	England	University-Local Government Research Collaboration	Generic
Mazzucca et al	2020	(43)	US	Evidence-based public health	Chronic diseases
McCall et al	1999	(44)	US	University-community partnership (Interdisciplinary, University-Community, Applied Developmental Science Partnership)	Child development
McEwen et al	2008	(45)	UK	Knowledge Transfer Partnership	Family services
McNeish, Scott, & Maynard	2012	(46)	Literature Review (UK)	Evidence based commissioning	Children's services
Miao et al	2011	(47)	US	Community engagement	Youth violence prevention
Miller et al	2012	(48)	US	University-community partnership	Generic
Molleman & Fransen	2012	(49)	Netherlands	Academic Collaborative Centre	Health promotion
Nocon & Nilsson	2009	(50)	US & Sweden	University-community partnership	Generic
Nystrom et al	2018	(51)	Sweden	Regional research and development (R&D) unit	Eldercare and care of people with functional impairments
Nyström et al	2015	(52)	Sweden	Locally based research and development unit	Health and social care of older people

Nyström et al	2018	(53)	Sweden	Partnership working	Health and social services
Nyström et al	2020	(54)	Sweden	Systems -focused research collaboration	Preventive health
Percy-Smith, et al	2002	(55)	England and Scotland	Research Capacity Development	Generic
Power et al	2009	(56)	Wales	Research Capacity Development	Education
Rämgård, Forsgren, & Avery	2017	(57)	Sweden	Regional R&D department	Older people
Sanderson, Percy- Smith, & Dowson	2001	(58)	UK	Research Capacity Development	Generic
Steens, Van Regenmortel, & Hermans	2018	(59)96	Belgium	Academic Collaborative Centre	Child and Family Social Work
Strier	2014	(60)	Israel	University-community partnership	Generic
Suarez-Balcazar et al	2015	(61)	US	University-community partnership	Occupational therapy
Suarez-Balcazar et al	2004	(62)	Literature Review (US)	University-community partnership	Generic
Suarez-Balcazar et al	2005	(63)	US	University-community partnership	Occupational therapy
van Koperen et al	2014	(64)	Netherlands	Academic Collaborative Centre (Consortium Integrated Approach of Overweight (CIAO))	Obesity
Ward et al	2020	(65)	UK	CLAHRC	Public Involvement
Wehrens, Bekker & Bal(66)	2010	(66)	Netherlands	Academic Collaborative Centre	Public Health.
Wehrens, Bekker, & Bal(67)	2012	(67)	Netherlands	Academic Collaborative Centre	Public Health.
Wehrens,Bekker, & Bal(68)	2014	(68)	Netherlands	Academic Collaborative Centre	Public Health.
Wilkinson, Gallagher, & Smith	2012	(69)	UK	Knowledge Exchange	Social Work
Wilson & Lilly	2016	(70)	England	Local Government Knowledge Navigator	Generic
Winokur, Valentine, & Drendel	2009	(71)	US	Social work research center	Social work

NB. Studies are attributed to England, Scotland or Wales when appropriate at a study level. However, for reporting purposes these studies are aggregated within the overall numbers of UK studies.

# Synthesis of results of Mapping Review

We identified five principal different types of research system from the multiple instances retrieved by the literature search:

- 1. **Centre-based** typically hosted by University/academic department with local government partners/stakeholders.
- 2. **Partnership-based** bi-lateral accord between major academic and local government partner(s) perhaps with other local organisations e.g. industry, voluntary sector, public and resident groups. Academic partner is typically presented first.
- 3. **Network-based** topic-, discipline- or problem-based grouping of local or regional organizations with shared interest.
- 4. **Collaboration-based** federation of organisations that make longstanding commitment to undertake joint working on diverse problems and issues as they arise, mobilising expertise and resources as required.
- 5. **Community of practice-based** looser, more democratic grouping of organisations with shared interests that draws on interested parties as required and available.

Within these variants, further variation relates to whether the system type relates to a specific programme of work, work within a particular sector or discipline or generically to all local government activities. The above systems can co-exist – for example, where an overall collaboration is underpinned by key themes that are operationalised as networks (e.g. CLAHRC priority areas) or where time-limited communities of practice spring up within a wider centre, network or collaboration. Similarly, evolutionary development can take place, as when a Centre evolves more multi-partner interests and becomes a hub for a wider collaboration. Finally, systems can be research-specific or, particularly as in the case of university-community partnerships can relate to a spectrum of activities – for example research, teaching and service learning.

A final (sixth) variant relates to an emerging whole-systems approach where some of the above taxonomic distinctions become less important. In such cases, working across localities, disciplines or functions recognises that the interconnectedness in itself represents an important feature of the research system that defies being pigeon-holed.

Research systems with local government involvement were reported from eight different countries (see Table 4). Twenty-one included papers examined research systems in the UK, 21 in the US, one in Canada, one in Australia, eight in Sweden, 8 in the Netherlands and one each in Belgium and Israel (these numbers include one paper that covered both the US and Sweden). Three literature reviews were included.

Table 4 - Country of origin for the studies included in the mapping review

Country of Origin (Ref Ids)
Australia(21)
Belgium(59)
Canada(28)
England (1)(5, 16, 22, 23, 25, 33, 41, 42, 70)
England and Scotland (55)
Israel (60)
Netherlands (32)(35, 36, 49, 64, 66-68)
Scotland (3)
Sweden (15)(52, 53) (19, 51, 54, 57)
UK (24, 31, 38, 45, 58, 65, 69)
US (14, 17, 18, 20, 26, 27, 29, 30, 34, 39, 40, 43, 44, 47, 48, 61, 63, 71)
US & Sweden (37)
Wales (56)
Literature Reviews (1)(46)(62)

NB. Studies are attributed to England, Scotland or Wales when appropriate at a study level. However, for reporting purposes these studies are aggregated within the overall numbers of UK studies.

Topic areas examined within research systems also varied (see Table 5). Nineteen papers reported a generic focus on the local authority without narrowing the topic the topic. Seventeen papers reported topic areas broadly pertaining to social work/social services, sixteen reported topic areas broadly pertaining to public health (including health promotion), two reported on occupational therapy, and one paper reported on each of these topic areas: civic engagement; conservation and development; education; housing; local planning; public involvement; social action; and social justice and education research.

Table 5 - Topic areas examined within included mapping review studies

Topic areas	Study Ids
Child and Family Social Work	(3)(59)
Child development	(44)
Child welfare	(27)
Children's services	(46)(23)
Chronic diseases	(43)
Civic engagement	(26)
Conservation & development	(29)
Education	(56)
Eldercare/care of people with functional impairments	(51)
Family services	(45)
Generic	(38)(1)(16)(70)(39)(55)(58)(
	31)(20)(21)(48)(50)(60)(62)
	(14)(40)(34)(41)(42)
Health and social care interface	(24)
Health and social care of older people	(52)
Health and social services	(53)
Health improvement	(25)
Health promotion	(49)
Health science	(37)
Healthy aging	(30)
Housing	(33)
Local planning	(22)
Obesity	(64)
Occupational therapy	(61)(63)
Older people	(57)
Preventive health	(54)
Public health	(32)(35)(36)(5)(66)(67)(68)
Public Involvement	(65)
Social Action	(28)
Social Justice Education and Research	(18)
Social services	(17)
social welfare	(15)
Social Work	(69)(19)(71)
Youth violence prevention	(47)

#### Study selection of Models Literature

From a candidate list of 37 potential models, nine models of research systems with local government involvement were selected for analysis. While, in the absence of formal evaluation criteria, any selection will be subjective the models were selected to optimise the three considerations of rigour, richness and relevance (see Table 6).

 Table 6 - Characteristics of rigour, richness and relevance for the nine included models

Model	Rigour	Richness	Relevance
1. Local Authority Champions of Research (LACoR) Logic Model	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark\checkmark$
2. Local Government Knowledge Navigator	$\checkmark$	$\checkmark\checkmark$	$\checkmark \checkmark \checkmark$
3. Knowledge Transfer Partnership	$\checkmark$	$\checkmark$	$\checkmark\checkmark$
4. University-Local Government Research Collaboration	$\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$
5. Academic Collaborative Centres	$\checkmark\checkmark$	$\checkmark\checkmark\checkmark$	$\checkmark\checkmark$
6. Locally based research and development (R&D) unit	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$
7. Systems-focused research collaboration	$\checkmark$	$\checkmark$	$\checkmark\checkmark$
8. Communities of Practice	$\checkmark$	$\checkmark\checkmark$	✓
9. University-Community Partnership	$\checkmark$	$\checkmark\checkmark\checkmark$	✓

#### Study characteristics of Models Literature

Thirty-seven models were reported (although 12 of these were variants of universitycommunity partnerships) (see Table 3). Twenty included papers reported on universitycommunity partnerships, 10 reported on Academic Collaborating Centres (ACC), five reported on Research Capacity Development. Two papers reported on each of Knowledge Transfer partnerships, the Local Government Knowledge Navigator, locally based research and development (R&D) units, regional R&D units, and partnership working. One paper reported on each of these models: an academic-in-residence; a CLAHRC; a collaborative research education partnership; Community Based Environmental Protection (Local Participation); community engagement; co-production of research; embedded research (ER); evidence based commissioning; evidence-based public health; a Government-universitycommunity partnership; Knowledge Exchange; Local Authority Champions of Research (LACoR) Logic Model; practice research; research utilisation; social work research centre; systematic review of the evidence with case studies; and a systems-focused research collaboration.

Model	Authors Year (Id)	Country
*Academic Collaborative Centre	Hoeijmakers, Harting, & Jansen 2013 (32)	Netherlands
	Jansen, et al 2012(35)	Netherlands
	Jansen, et al 2015(36)	Netherlands
	Molleman & Fransen 2012(49)	Netherlands
	Steens, Van Regenmortel, & Hermans 2018(59)	Belgium
	Wehrens, Bekker & Bal 2010(66)	Netherlands
	Wehrens, Bekker, & Bal 2012(67)	Netherlands
	Wehrens, Bekker, & Bal 2014(68)	Netherlands

Table 7 - Models featured in the included studies within the Mapping Review

Academic Collaborative Centre (Consortium Integrated Approach of Overweight (CIAO))	van Koperen et al 2014(64)	Netherlands
Academic-in-residence	Clapton & Daly 2015(3)	Scotland
CLAHRC	Ward et al 2020(65)	UK
Collaborative research education partnership	Berg-Weger et al 2013(18)	US
Community Based Environmental Protection (Local Participation)	Flora et al 2000(29)	US
Community engagement	Miao et al 2011(47)	US
Co-production of research	Kelly, & Lloyd-Williams 2013(38)	UK
Embedded research (ER)	Cheetham et al 2018(5)	England
Evidence based commissioning	McNeish, Scott, & Maynard 2012(46)	Literature Review (UK)
Evidence-based public health	Mazzucca et al 2020(43)	US
Government-university-community partnership	Guest et al 2018 (30)	US
Knowledge Exchange	Wilkinson, Gallagher, & Smith 2012(69)	UK
*Knowledge Transfer Dortnership	Hope 2016(33)	England
*Knowledge Transfer Partnership	McEwen et al 2008(45)	UK
* Local Authority Champions of Research (LACOR) Logic Model	Cheetham et al 2019(1)	England and Literature Review (UK)
*Local Government Knowledge	Allen, Grace, & Martin 2015(16)	England
Navigator	Wilson & Lilly 2016(70)	England
Locally based research and development (R&D) unit	Alexanderson et al 2009(15)	Sweden
	Nyström et al 2015 (52)	Sweden
Partnarchin working	Clark & Sinclair 2008(23)	England
r arthership working	Nyström et al 2018(53)	Sweden
Practice research	Börjeson & Johansson 2014(19)	Sweden
Regional research and development	Rämgård, Forsgren, & Avery 2017(57)	Sweden
(R&D) unit	Nystrom et al 2018(51)	Sweden
	Cooke 2002 (24)	UK
	Leeman et al 2017(39)	US
Research Capacity Development	Percy-Smith, et al 2002(55)	England and Scotland
	Power et al 2009(56)	Wales
	Sanderson, Percy-Smith, & Dowson 2001(58)	UK
Research utilisation	Curtis, Fulton, & Brown 2018(25)	England
Social work research center	Winokur, Valentine, & Drendel 2009(71)	US

Systematic reviews of evidence with case studies.	Carmichael et al 2013(22)	England
*Systems -focused research collaboration	Nyström et al 2020(54)	Sweden
University-Community Engagement:	Hart & Northmore 2011(31)	UK
*University-Community Partnership	Bowers 2017(20)	US
	Buys & Bursnall 2007 (21)	Australia
	Miller et al 2012(48)	US
	Nocon & Nilsson 2009(50)	US & Sweden
	Strier 2014(60)	Israel
	Suarez-Balcazar et al 2015 (61)	US
	Suarez-Balcazar et al 2004 (62)	Literature Review (US)
	Suarez-Balcazar et al 2005 (63)	US
University-community partnership (Agency-university partnership)	Austin, et al 1999(17)	US
University-community partnership (Collaborative Research Model)	Drabble et al 2013 (27)	US
University-Community Partnership (Community Outreach Partnership Center (COPC))	Doe & Lowery 2013(26)	US
University-community partnerships (Engaged University):	Adamuti-Trache & Hyle 2015(14)	US
University-community partnership (Interdisciplinary, University- Community, Applied Developmental Science Partnership)	McCall et al 1999(44)	US
University-community partnership (The Tufts Community Research Center (TCRC))	Martinez et al 2013(40)	US
University-community partnership (Traditional community research and development (TCR&D) model)	Jagannathan et al 2011(34)	US
University-community partnerships (community engagement and translational science)	Kaufman et al 2017(37)	US
University-Community Partnerships for Social Action Research (international development leadership *Community of Practice)	Euerby & Burns 2012(28)	Canada
*University-Local Government	Mawson 2015(41)	England
Research Collaboration	Mawson (2019)(42)	England

\* Featured models are indicated with an asterisk

#### Selected Individual Models

#### UK Instrumental Models

Instrumental models offer a practical working model as a pragmatic template for similar contexts(10, 72, 73). They contrast with symbolic or conceptual models where applicability

may relate more to what is done rather than specifically how it is done. The academic literature tends to favour conceptual/symbolic models because of their greater applicability but the review team did identify one proposed instrumental model that draws upon recent local authority interview data.

# 1. Local Authority Champions of Research (LACoR) Logic Model

The closest model to the UK context of the review question is the Local Authority Champions of Research (LACoR) Logic Model(1). This was produced following a literature review and stakeholder interviews and focus groups. The model is contemporary, with the report being published in late 2019. The aim of the Local Authority Champions of Research (LACoR) study, funded by the Health Foundation, was to explore a culture of research and evidence use to improve population health could be embedded in local government. A report set outs findings from five work packages undertaken from January to October 2019, with implications of these findings for local government, academia and research funders(1). In addition to the logic model featured below the report also seeks to visually depict systems thinking.

Details of the Local Authority Champions of Research (LACoR) Logic Model follow:

# Partnership and governance structures

Report suggests that new governance arrangements are needed to facilitate co-production of new knowledge and its enactment in local organisations. Suggestions for these new governance arrangements summarised through five overarching themes: 1) aligning national and local policies, 2) developing local system-wide approaches, 3) evaluation of local programmes, 4) addressing political and cultural barriers, and 5) collective spaces for reflection. Report cites the suggestion that governance arrangements between local government and research establishments should be made explicit(74).

Within the logic model, data usage Outputs focus on practical use of data and include data sharing agreements and governance frameworks. Specifically, the report concludes that governance of data sharing needs to be addressed to overcome "protectionist" practices. The report gives an example of how an embedded researcher was able to help navigate a project through a Council's research governance process. By comparison local government data governance procedures may be perceived as inferior when compared with health, with implication that this perception stems from entrenched attitudes.

# Geographical context

Local government participants in three different anonymised local authorities across the UK (Rivertown, Belltown, Castletown). Logic model is therefore informed by experiences and data from three different localities.

# High-level aims and key objectives

Aimed to develop a proof of concept for embedding a culture of research and evidence use in local government focused on improving population health.

#### Core Activities (8)

Developing and sustaining research collaborations

Developing research priorities

Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	$\checkmark$
Hard wired into the organisation: making research core business	$\checkmark$	Proactive and timely communication of research opportunities [Access to research funding]	$\checkmark$
Patient and public involvement and engagement in research	$\checkmark$	Research governance support [As Output: Research governance frameworks]	$\checkmark$
Research education and learning [As Output: CPD opportunities to upskill staff] Internal investment: allocating resources to promote research capacity	$\checkmark$	Setting targets and monitoring performance Other	

#### Research Capacity Subsystems(9, 10)

1. Prioritisation	$\checkmark$	2. Mentoring	$\checkmark$
3. Leadership		4. Research facilitators	
5. Training	$\checkmark$	6. Funding	$\checkmark$
7. Networks and collaborations	$\checkmark$	8. Infrastructure	$\checkmark$
9. Evaluation, Metrics and Monitoring	$\checkmark$	10. Culture	$\checkmark$

#### Research and implementation themes

- Embedding a culture of evidence use within a Local Authority setting
  - Multiple types of evidence
  - Sources of evidence
  - Drivers of evidence/research use
  - Barriers and facilitators to evidence use
  - Practical examples
  - Relationships with university-practice collaborations.
  - o Contextual Factors
    - Organisational churn and fragmentation
    - Budgetary pressures
    - Data sharing
    - The wider context
      - Regulation at national level
      - Relationships with Universities •
    - Competing rewards and incentives
    - Different perceptions of co-production

- $\circ$  Collaboration
- Data usage; and
- o People.

#### Expected outputs/outcomes

Outputs occur when inputs combine together within the contexts as listed above. Inputs are designed to facilitate expansion of research usage or to provide stimulus for its use. Routine data usage increases and is used to inform services and planning, staff have opportunities to use their research skills, and people access developmental opportunities to increase research use. Collaborative opportunities are forged between researchers and academics.

Outputs fall within three key emerging themes; data usage, people and collaboration:

**Data usage** outputs focus on practical use of data (e.g. data sharing agreements and governance frameworks. They also look at how data and literature are accessed along with possibilities for facilitating research funding opportunities.

**People** theme focuses on equipping staff with necessary skills to make use of research. Outputs include career pathways, acknowledging links made between universities and LA to promote staff development, CPD opportunities, secondments, and creation of opportunities through conversational spaces. Relevant training addressed through collaborative masters and PhD projects between LA/Universities.

**Collaboration** outputs focus on how individuals and teams work together. Interdisciplinary opportunities and pathways between organisations are key outputs, (e.g. establishment of career pathways between LA/universities), along with clear engagement with elected members to ensure local political support.

Outcomes from Local Authority Champions of Research (LACoR) logic model: expected consequences that derive from outputs. Data usage outcomes (meso level) focus on how data is used within the LA and the wider implications for involving wider actors in research at the local level and new connections with actors between organisations. At micro level the focus is on how individuals can use data in relation to their role.

**People** theme is split into meso level outcomes (team and authority level changes e.g. capacity building and culture change). Micro level outcomes focus on individual staff and look how increased research opportunities for staff increase research confidence and understanding and subsequent impact on staff morale and performance.

**Collaboration** macro level outcomes relate to public involvement/accountability and need to embed culture from national level down, as well as local level up. At the meso level, collaboration outcomes link to accountability, reputation and the working together of universities and local authorities to achieve shared goals.

**Impact from the LACoR logic model:** Delivering change: the effect that the combination of outputs and outcomes has on the LA for embedding a research culture:

In a LA setting (variable context) inputs relating to research culture (mechanism) combine to produce processes for change (mechanism) resulting in outputs and outcomes which are aligned to embedding a culture of research use within a LA (outcome 1) which produce meaningful impact (outcome 2).

# Challenges

- Challenges of recruiting people with public health (local government) experience to academic roles and different rewards and incentives in local government and academia respectively.
- Maintaining academic independence and rigour when building trust with local government partners and still feeling able to be honest and to retain ability to challenge where needed.
- Embedding a culture of evidence use across entire local authority at a time of reduced funding and increased workloads
- Pace of organisational change and scale of challenges facing academia/local government.

# Lessons Learned

• Make research easy to access and understand (for non-academics). If possible, link to case studies involving real people.

- Make issue politically relevant and have continuous conversations about the work
- Make evidence message succinct, clear and easily digested
- Make research undertaken within the local authority very visible.
- Have processes that identify research as key component of decision making.
- Researchers need to understand decision-making and politics of decision-making processes.
- Build relationships, so people are confident to pick up the phone and ask.
- Engagement with elected members and chief officers is important
- Senior level buy-in (Chief Executive and corporate management team) is essential.
- Make sure researcher is properly embedded in the team, sits with them regularly and that they and their role are known to LA staff.

• Embedded researcher can facilitate conduct of research and evaluation by supporting LA staff throughout

• Encourage robust collection of data to support useful and informative evaluations and research.

• Let go: co-production relates to sharing power and control over every aspect of the research process; most crucially set a relevant, and jointly owned agenda. The key is to find a balance between relevance and rigour.

• Pooling, be open and stick at it: this is about the different pace and culture - the embedded research function should be viewed as an essential element of a multidisciplinary team. Transformational benefits extend both ways – requires ongoing commitment and understanding that, for mutual benefit, pooled resources (i.e. matched funding) are necessary.

• Longer more flexible funding is needed as sustainability/relationships are crucial for impact

• Think long-term: access and expectations need to be sorted over time to achieve actual impacts. Have part time researchers embedded for at least three years.

# Model/Framework

Model operates at micro, macro, meso levels. Follows classic Inputs, Outputs, Outcomes, Impact logic model format. Focuses on activities and resources, not structures. Overall model envisages research system as a "research culture".

## Strengths and Weaknesses

Model based on data collection using mixed methods approach. Involved multiple stakeholders, including representatives from universities and local government across the UK. Extends beyond Outputs and Outcomes to Impact (research culture, service improvement, population health/wellbeing, embedded and relevant research, understanding of context and user orientation, research driven policy and research active staff, improved staff morale.

Short timescale limited data collection. Although geographically, culturally and politically distinct, participating local authorities (n = 3) may not be representative of all local authorities. Interviewees/survey respondents may not represent views of others in local government. Model did not capture views of those outside local government, in funding bodies or among academics with or without experience of co-production in local government.

Supporting References Local Authority Champions of Research Project: A Report for the Health Foundation(1, 75) Figure 2 - Local Authority Champions of Research (LACoR) Logic Model



Figure 3 - Cut out of Local Authority Champions of Research (LACoR) Logic Model focusing on inputs



**INPUTS** 

#### UK Conceptual/Symbolic Models

Cooke and colleagues describe how activities associated with research capacity development (RCD) may fulfil "an emblematic (symbolic) role in signalling the importance of RCD within the organisations, networks or teams"(10). Viewed from this perspective any well-regarded initiative around the development of research systems can provide a catalyst or focus for local government mobilization for research. This section explores three initiatives that may contribute to development of a local government research culture even where exact replication may not be possible at a local level. These are the Local Government Knowledge Navigator, Knowledge Transfer Partnerships and a University-Local Government Research Collaboration.

#### 2. Local Government Knowledge Navigator (UK)

This initiative is the Local Government Knowledge Navigator in the UK. The scheme is a Partnership-based research system between academic research and local government partners. The long-term aim was to build effective research and development capacity' in local government.

#### Partnership and governance structures

The Knowledge Navigator programme refers specifically to a programme of work between 2013 and 2015. This programme has continued into 2016 under a different name – the Local Government Research Facilitator – which formed the second phase of the Knowledge Navigator programme. The programme aims to promote engagement between academic research and local government in the UK. The programme aimed to analyse local government's evidence needs, assessing the potential of existing ESRC funded research to meet these needs, and developing and piloting approaches to encouraging engagement between local government and academic researchers.

In phase 2 of the programme most funding was provided by the ESRC, with the Society of Local Authority Chief Executives (SOLACE) also contributing. A Steering Group comprising senior representatives of the ESRC, LGA and SOLACE was important to the success of the Navigator initiative.

#### Geographical context

In the UK local government is responsible for numerous public services which are relied on by the communities they serve. They also play important roles as community leaders and in co-ordinating local economic growth initiatives.

#### High-level aims and key objectives

To enable 'local government to connect with research and for researchers to connect with local government'. The programme seeks to develop better engagement between local government and academic researchers.

To identify and document councils' evidence needs, develop and pilot ways of meeting these needs, and enable local government to exert greater influence over future research agendas.

The long-term agenda was to build effective research and development capacity' in local government.

#### Core Activities{Gee, 2018 #2966}

Developing and sustaining research collaborations	$\checkmark$	Developing research priorities	$\checkmark$
Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	$\checkmark$
Hard wired into the organisation: making research core business	$\checkmark$	Proactive and timely communication of research opportunities	$\checkmark$
Patient and public involvement and engagement in research		Research governance support	
Research education and learning		Setting targets and monitoring performance	
Internal investment: allocating resources to promote research capacity		Other	

#### Research Capacity Subsystems (9, 10)

1. Prioritisation	$\checkmark$	2. Mentoring	
3. Leadership		4. Research facilitators	
5. Training		6. Funding	$\checkmark$
7. Networks and collaborations	$\checkmark$	8. Infrastructure	
9. Evaluation, Metrics and Monitoring		10. Culture	$\checkmark$

#### Research and implementation themes

As well as conducting research into the needs of local government, and highlighting examples to draw on, Phase One also saw the Knowledge Navigator pilot strategies for better linking local government and academics.

- Developing new partnerships;
- Raising the profile and accessibility of social science research within local government;
- Working with key local government organisations to identify current issues and challenges facing councils and commissioning reviews to address these issues;
- Developing proposals for creating a web-based connectivity hub for research and local government;
- Influencing new research projects and programmes;
- Exploring alternative and comparative funding models of research/local government engagement from other countries; and

• Developing a sustainable model for future engagement and networking between local government and universities.
## Expected outputs/outcomes

- Production of 'Need to know' reviews, the knowledge navigator was key to production of these.
- Exemplars of collaboration that were researched, written up and published demonstrate the benefits of councils working with and drawing on academic research.
- Web-based connectivity designed by the Navigator will provide a modern, digital space in which researchers and local authorities will be supported in linking up and in being made aware of what is available in their respective domains.
- Events bringing together academics and local government officials at which research is shared

#### Challenges

'There is a need for evidence about 'strategic' policy challenges, but often councils are looking for advice about narrower practical issues. The former calls for engagement at senior level, because this is where leadership and direction come from both in local government and the research world; whereas the latter points to the need to engage professional societies and academics who specialize in applied and practice-based research and teaching.'

#### Lessons Learned Model/Framework <Figure/Table>

Aspects of the initiative that worked include 'moving the agenda from examining the need, potential and challenges into the identification and piloting of ways of achieving 'connectivity', communication and engagement between local government and research'{Allen, 2015 #34}.

The importance of 'hands-on' facilitation in bringing research and local government together.

The importance of matching councils with research needs to those researchers who speak the right language and have an interest in the applied dimension of research. Requires co-production of research agendas and problem definition as well as of the analysis which follows.

#### Strengths and Weaknesses

Phase One 'mapped out the steps needed to create a productive relationship between councils and researchers' and 'demonstrated what can be achieved by piloting approaches to engagement'. Phase One helped to create 'momentum for change' in relationships between academics and local authorities, although it noted that this had increased from a low base.

Universities (and other collaborations) can provide additional support and capacity for research as well as practical help that benefits both partners as academics can gain insight and build relationships too. However, there are challenges around the use of academic research and evidence in local government, including a lack of capacity, and a sense that research is not always relevant or timely.

Supporting References (16, 70)

#### 3. Knowledge Transfer Partnership

Knowledge Transfer Partnerships (KTPs) vary in specific structure, however they typically involve the engagement of a university and local authority to improve evidence-informed practice. This type of research system is exemplified by the Wakefield-York Knowledge Transfer Partnership; the principal focus as the main data source for this summary. Processes in developing a KTP can include examination of the characteristics of current KTPs and the barriers to developing a KTP among staff involved, with strategies developed to address these. A literature review of knowledge exchange activities for sustainable development highlighted transdisciplinarity, participatory, practice-oriented, formal and informal interactions and networked as specific attributes. Outputs can include various strategies for embedding evidence-informed practice into local authority functioning including conferences, information on the staff Intranet, inclusion in the training plan, and as a requisite for re-registration, as well as a proposal for a network of research mentors. The terminology can be problematic, with 'transfer' implying a unidirectional knowledge flow; knowledge exchange may be more fruitful in terms of collaboration and partnership in research activity and utilisation.

#### Partnership and governance structures

The Knowledge Transfer Partnership (KTP) uses existing structures, a university and local government (often a specific department) with the aim of increasing engagement with evidence in policy and practice. A key example of this is the Wakefield–York Knowledge Transfer Partnership project, which aimed to increase the use of evidence (in a broad sense, including the views of service users and practitioner expertise in addition to research evidence) in the Wakefield Metropolitan District Council (WMDC)'s Family Services Directorate through a two-year KTP with the University of York(45). The Family Services Directorate incorporates adults' and children's services, including education. Funding came from the Technology Strategy Board and the Economic and Social Research Council (ESRC)(45).

Other examples from which this summary is drawn include: an academic Collaborative Centre in the Netherlands(32), an examination of a series of KTPs between a university and local authority in the North East of England(33), a review of the literature on evidence-based decision making(46), and an examination of R&D units focusing on care for older people in Sweden(52).

## Geographical context

The Family Services Directorate is a directorate of the Wakefield Metropolitan District Council, the local authority for the city of Wakefield(45). Local government in the UK is responsible for the delivery of public services, including public health, social care and education.

## High-level aims and key objectives

The Wakefield-York KTP aimed to encourage a culture of evidence-informed practice in the Family Services Directorate, by developing and employing strategies to overcome barriers to accessing, using and generating evidence in practice, at both the level of the organisation and the practitioner(45). This was to support a goal of developing and implementing a Research Governance Framework (RGF) across the Directorate, as recommended by the Department of Health.

Core Activities (8)

Developing and sustaining	$\checkmark$	Developing research priorities	
research collaborations			
Academic dissemination		Evidence based practice and	$\checkmark$
		knowledge transfer	•
Hard wired into the organisation:	$\checkmark$	Proactive and timely communication	
making research core business		of research opportunities	
Patient and public involvement		Research governance support	
and engagement in research			
Research education and learning	$\checkmark$	Setting targets and monitoring	
		performance	
Internal investment: allocating		Other	
resources to promote research			
capacity			

The Wakefield-York KTP was implemented in three phases(45):

- 1. Developing a RGF (which involved: undertaking a benchmarking survey of other local authorities' RGF systems; examining relevant literature; interviews with participants from the relevant local authorities; developing a list of 13 benchmarks from these data sources against which to assess WMDC's RGF);
- 2. Identifying current levels of research utilisation activity and associated barriers and drivers (including: examining barriers to evidence-informed practice in the literature; strategic discussions with the project staff group and Directorate management team; undertaking a staff survey on current research utilisation and activity, including barriers and facilitators, maintaining an outcomes approach; developing outcome measures [from the RGF/KTP] for staff);
- 3. Developing and implementing an improvement strategy (which involved: mapping existing engagement with research activity and use; mapping/collating barriers to research, evidence-informed practice and implementing the RGF [see below]; developing an improvement strategy to address these barriers see Outputs).

Hope (2016) developed a conceptual framework of specific attributes of knowledge exchange activities for sustainable development, based on the literature (and examined with reference to university-local authority KTPs in North East England)(33):

- Transdisciplinarity (integration/transcendence of different disciplines and also between academic and non-academic institutions);
- Participatory (broad range of stakeholders co-producing knowledge at the local, national and international level);
- Practice-oriented (combining the academic theory with practical industry and community experience);
- Formal and informal interactions (a range of interactions provide the basis to create and exchange knowledge);
- Networked (enduring social relationships and networks result from the interactions).

## Research Capacity Subsystems (9, 10)

1. Prioritisation		2. Mentoring	$\checkmark$
3. Leadership		4. Research facilitators	
5. Training: interventions that aim to increase skills and knowledge	$\checkmark$	6. Funding to develop RCD including bursaries and fellowships	
7. Networks and collaborations	$\checkmark$	8. Infrastructure	
9. Evaluation, Metrics and Monitoring	$\checkmark$	10. Culture	$\checkmark$

## Research and implementation themes

Research and implementation themes in the Wakefield-York KTP project largely focused on implementing the RGF, at a broad level, and developing strategies to address known barriers to evidence-informed practice and research activity and utilisation(45).

## Expected outputs/outcomes

Outputs of the Wakefield-York KTP project include diverse strategies for overcoming known barriers to evidence-informed practice. These include(45):

- Holding a research and evidence-informed practice conference for local authority staff and researchers/research organisations;
- A staff Intranet site containing information and advice on evidence-informed practice;
- Including evidence-informed practice in the Directorate's staff training plan;
- Promoting the use of research in supervision;
- Requiring evidence-informed practice for re-registration among social workers;
- The development of a proposal to establish a network of research mentors, and evaluating the project formally, sharing the findings across the organisation.

## Challenges

Challenges can include a lack of awareness, time, resources, accessible evidence, skills/confidence, training, motivation, commitment from senior management and awareness of the value of evidence-informed practice, as well as the culture of the organisation and having too many changes to deal with(45).

Semantics presents a further challenge; a focus on knowledge transfer rather than knowledge exchange can present a barrier to effective knowledge co-production, as 'transfer' implies a unidirectional knowledge flow(33). Contractual difficulties and fears over confidentiality present an additional barrier to effective knowledge exchange(33).

Several barriers to the role of knowledge transfer in evidence-based decision-making have been identified from the literature(46):

- The evidence may not address the questions that decision makers need to answer;
- The research may not be timely, and answers may not come soon enough for the decision-making process;
- Results may be phrased in a way that makes messages specifically relevant to decision makers' circumstances difficult to identify;

• Many decision makers do not have time to engage with research evidence.

#### Lessons Learned

- Ensure that change occurs at both an organisational level and an individual practitioner level(45).
- Involve the staff development team in order to facilitate sustainability(45).
- Collaboration may find it easier to facilitate knowledge production, rather than knowledge transfer and exchange, due to the major boundary spanning efforts required(32).

A literature review identified several factors that facilitate knowledge transfer within evidence-based decision making(46):

- Leadership that values EBP and supports a learning culture;
- Identification of an organizational EBP champion;
- Establishment of linkages with universities or partnerships with researchers;
- Involvement in networks that bring together EBP champions; and
- Access to technology i.e. internet and email Individual facilitators included:
- Exposure to research during higher education;
- Critical appraisal skills;
- Work experience in fields outside of children's services;
- Access to databases of evidence; and
- Being open-minded or having a personal dedication to inquiry/wanting to make a difference in the field.

An examination of local R&D units, focusing on care for older people in Sweden, reported that they possessed the requisite infrastructure to facilitate knowledge transfer(52).

## Model/Framework

The framework for the Wakefield-York KTP describes a process of implementation, with three phases relating to the development of an RGF, identification of current research utilisation, barriers and facilitators, and developing and implementing a strategy for improvement of evidence-informed practice(45). The focus is on activities, and the specific roles of each partner in the partnership between the university and local authority are not explicit.

#### Strengths and Weaknesses

A key strength of the Wakefield-York KTP is the identification of baseline research utilisation and barriers to evidence-informed practice, which the partnership then developed specific strategies to address(45). The examination of existing RGFs through a literature review and surveys and interviews with people from other local authorities with a RGF in place is also a strength. It is unclear, however, how successful the project was in achieving its knowledge transfer aims, as data from the evaluation is not available.

Supporting References (32, 33, 45, 46, 52)

## 4. University-Local Government Research Collaboration

This model describes a University-Local Government research collaboration in the UK. It represents a Partnership-based system, within an emphasis on equal collaboration, although hosted at a University. The Institute for Local Governance (ILG) is a research and knowledge exchange partnership, focussing on co-production of research drawing on practice experience and formal research processes. It has a broad theme of 'local governance'. It emphasises engagement with users at all stages of the research process form initial scoping through to delivery and dissemination.

## Partnership and governance structures

The ILG is a collaborative partnership between universities in the North East of England and local authorities, police and fire and rescue services. It is self-financing (apart from an initial start-up grant), with membership subscription, research and consultancy income. It has a board led by the Chairman of the Association of North East Councils and Leader of Sunderland Council. A Management Committee comprising senior representatives from across the Partnership, and chaired by the Chief Executive of Gateshead Council, oversees operational activities. A small team of 3 academic/professional staff, with senior experience in University research and public sector management, is hosted by Durham University Business School. Whilst holding a Chair in the University, the Director of the ILG is accountable to the Partnership for its work thus signalling joint management of the initiative by academia and practice. The work of the ILG is monitored by a performance management framework and it commissions independent bi-annual surveys of the views of its partners.

#### Geographical context

The initiative described is a University-Local Government research collaboration in the UK. The setting is the North East of England, and therefore includes partners in local government in this region together with North East Universities.

#### High-level aims and key objectives

The overarching aim of the initiative is to act as an intermediary between the Universities, brokering their academic services in local governance to public sector partners and helping in the design of research proposals and identifying appropriate academic suppliers. A key objective of the ILG has been to help achieve improvements in the cost effectiveness and quality of service outcomes by supporting politicians and managers in their pursuit of continuous improvement and innovation.

To address a range of organisational barriers to knowledge exchange.

To address how to put in place a critical mass of academic expertise which needed to be available to service the wide ranging requirements of public sector organisations

To address a lack of awareness of world class research capacity present locally, hence the need to establish a 'virtual' institute.

To assist the drawing together and promoting research capacity present in all the Universities.

Core Activities{Gee, 2018 #2966}

Developing and sustaining research collaborations

Developing research priorities

Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	
Hard wired into the organisation: making research core business		Proactive and timely communication of research opportunities	
Patient and public involvement and engagement in research		Research governance support	
Research education and learning		Setting targets and monitoring performance	
Internal investment: allocating resources to promote research capacity		Other	

#### Research Capacity Subsystems (9, 10)

1. Prioritisation	$\checkmark$	2. Mentoring	
3. Leadership		4. Research facilitators	
<ul><li>5. Training</li><li>7. Networks and collaborations</li></ul>	$\checkmark$	<ul><li>6. Funding</li><li>8. Infrastructure</li></ul>	$\checkmark$
9. Evaluation, Metrics and Monitoring		10. Culture	

## Research and implementation themes

The ILG identifies 'link persons' in each University, strengthening corporate commitment in local authorities to an agreed research agenda, bringing together academics and practitioners in research dialogue through various formal and informal events and partnership arrangements and a 'light touch' support role to practitioners, if necessary, as the research proceeds.

Processes include:

- internal competitive process (universities tender),
- members of the ILG team assist in drawing up a research specification,
- call for bids circulated within each university,
- partner (not ILG) involved in the decision to award the contract,
- university research team then works with the relevant partner ILG may offer light touch monitoring if required.
- Research agendas/themes are demand-led, coming from public sector partners research priorities are developed through dialogue between partners and the ILG.

Expected outputs/outcomes

- Brokered 100 research projects from inception to 2019, delivered via NE universities; wide range of policy and service areas covered with a key objective to drive improvements in cost-effectiveness and quality of service outcomes;
- Local economic development.

- 'Topic groups' formed to discuss and develop research agendas in specific key policy areas.
- Cross-cutting North East region-wide and sub-regional projects;
- Delivered events seminars, conferences, action research workshops, master classes.

## Challenges

- Financial pressures on research budgets in both public sector and higher education institutions the loss of research staff and organisational capacity.
- The income streams of activity have never covered the operational costs the ILG relies on running down its capital base.
- Leaders of academic and practice communities (including elected members) should give a clear sign of commitment in their organisations and are consistent in this regard over time
- It is necessary to cascade awareness of support for the approach down the tiers of each organisation otherwise research initiatives with other organisations can become bogged down by uncertainties, lack of commitment and an unwillingness to address difficulties.
- A key problem in academic-practice research collaborations is the pressure arising from high expectations on both sides to deliver quickly, and the associated requirement to measure outcomes and impact.
- During the last decade, performance measures in terms of research outputs have prioritised a competitive environment in which collaborative approaches have become relatively less attractive.
- In 2019 Durham University decided to no longer host the initiative.

## Lessons Learned

Mawson et al (2015) report that the ILG has recognised that in it can be valuable for academics and practitioners to meet on a regular basis to discuss and develop research agendas in specific policy areas.

The report found that successful take up of research and any subsequent impact is dependent on its reception and fit. The application of research is embedded in particular contexts whose organisational structures, politics, professional cultures and geography, influence the manner and extent to which research is taken up. They found successful projects required a two way flow of knowledge in which researchers and users bring to bear their experience and knowledge, the requirements of practice, and awareness of local context.

Co-production methods in which practitioners and university partners are involved from the very earliest stages of the research process is likely to be the most effective in yielding research use and impact, likewise having a key individual recognised as the contact point and representative in an organisations was cited as important in developing collaborative research activities.

## Strengths and Weaknesses

- A wide range of policy and service areas have been covered.
- To date there have been few research issues for which the model has not been able to provide research support to its Partners.

- More flexible and speedy tendering procedures are possible compared with conventional processes.
- Research themes are demand led from the practitioner community rather than arising solely from University Partners
- The model cannot be a 'one size fits all' model and has to be adapted and shaped to local circumstances.
- A key strength is its constitution. By formalising agreed research and knowledge processes and then applying them to the successful delivery of projects, it has developed mutual trust and enabled academic access and insights into the processes of policy development, management and service delivery of the public sector.

Supporting References (41, 42)

## Other Countries Instrumental Models

It proved challenging to identify models of direct practical relevance from outside a UK context. While the activities, structures and objectives, particularly in relation to the health of the community, were common with those required for a UK setting wider contextual differences were in evidence. For example, the UK has previously tended to separate health and social care research systems whereas other countries, such as the Netherlands and Sweden, follow a unitary model, at least at local government level. Furthermore, until recently the UK public health function did not lie with UK local authorities meaning that UK research systems are more typically in transition compared with the relative stability of other countries. We identified two research systems with potential applicability to the UK context, namely the Academic Collaborative Centre experience of the Netherlands and, by extension, a satellite initiative in Belgium, and the activities of locally-based research and development units in Sweden. These two models are analysed successively below.

## 5. Academic Collaborative Centres

Academic Collaborative Centres (ACCs) were developed in the Netherlands to foster collaboration and co-ordinate between policy, practice and research within public health(76). Several ACCs across various geographic regions and topics have been implemented, and these vary in terms of their core activities, however key features are contractual agreements for a long-term partnership, dual appointment staff (scientist-practitioners)(59)., the involvement of senior researchers, a focus on research relevant to key policy and practice concerns and a long-term commitment. Many research subsystems are used in ACCs, varying between ACCs. Outputs generally focus on public health improvement and ongoing collaboration.

Many challenges are reported, including power imbalances, tensions between different partners, expectations and funding issues. Enabling more space and opportunity to forge relationships between different partners can address some of these difficulties and power imbalances can be addressed by refocusing on policy and practice through commissioning and funding.

#### Partnership and governance structures

The Academic Collaborative Centres (ACCs) were developed in 2005(76), initiated by the Netherlands Organisation for Health Research and Development. ACCs aim to co-ordinate and facilitate knowledge-sharing and collaboration between policy, practice and research, with a focus on practice-based evidence in addition to evidence-based practice (see Figure 4)(35, 49, 59, 67, 68). ACCs function as 'boundary organisations'(59) and 'hybrid management configurations'(68). Multiple ACCs have been set up, mainly focusing on public health and health promotion, although some focus on social care and environmental health.



*Figure 4- The place of ACCs in co-ordination between policy, practice and research (From Steens et al. (2018)(59), Figure 1)* 

#### Geographical context

Since the 1970s, control over health promotion in the Netherlands has gradually shifted from the national levels to local levels(49). In the Netherlands, public health work is undertaken by the Regional Public Health Service (GGD), as commissioned by the local government(76).

## High-level aims and key objectives

To improve knowledge transfer and exchange, that is, the interactive interchange between policymakers, researchers and practitioners(77), in order to increase the production of socially relevant scientific knowledge and the utilization of such research evidence in policy and practice (77). The aim of these ACCs is 'to build a regional sustainable knowledge production network, to invigorate the responsiveness of current public health research, and to work on context sensitive and socially robust public health issues'(36) (p.2).

#### Core Activities (8)

It is worth mentioning that although broadly similar, different core activities were reported in relation to different ACCs. Activities reported are indicated below:

Developing and sustaining research collaborations	$\checkmark$	Developing research priorities	$\checkmark$
Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	$\checkmark$
Hard wired into the organisation: making research core business	$\checkmark$	Proactive and timely communication of research opportunities	$\checkmark$
Patient and public involvement and engagement in research		Research governance support	$\checkmark$
Research education and learning	$\checkmark$	Setting targets and monitoring performance	
Internal investment: allocating resources to promote research capacity		Other	

There are five key elements to ACCs(49, 59):

- 1. A contractual agreement between public health services (PHS) and university, to guarantee a long-term partnership;
- 2. Staff employed with a dual appointment at both the PHS and university;
- 3. Senior researchers' and professors' involvement in the centre;
- 4. Questions relevant to everyday public health practice drive research;
- 5. An intention for the ACC partnership to continue beyond the second four-year phase of the programme.

Dual appointment staff are referred to as scientist-practitioners, demonstrated diagrammatically in Figure 5(59).



Figure 5- The role of a scientist-practitioner (From Steens et al. (2018)(59), Figure 2)

#### Other elements include(35):

- A steering committee that meets frequently, and whose members lobby on numerous topics;
- Monetary investments (e.g. from university Faculties);
- Promoting the translation of PhD research evidence to practice;

- Managers creating conditions for knowledge sharing;
- Implementation of practice- and policy-based research projects;
- Student internships, shared training programmes, educational support for bachelors and masters degree programmes;
- Flexible workstations;
- An e-library and software provision;
- Access to health data files;
- Role model provision (through 'special awards').

One paper describes a procedure used by one ACC, called 'Small But Beautiful', where short (3-month) research projects address practical policy questions by focusing on interactive rounds of critical discussion, informally as well as formally, focusing on interactions between people from different agencies, with outputs not shared until consensus is reached(66).

## Research Capacity Subsystems (9, 10)

Again, like core activities, diverse research capacity subsystems were reported in relation to different ACCs. The key feature is **networks and collaborations**, however activity subsystems included the following:

1. Prioritisation	$\checkmark$	2. Mentoring	$\checkmark$
3. Leadership	$\checkmark$	4. Research facilitators	$\checkmark$
5. Training: interventions that aim to increase skills and knowledge	$\checkmark$	6. Funding to develop RCD including bursaries and fellowships	$\checkmark$
7. Networks and collaborations	$\checkmark$	8. Infrastructure	$\checkmark$
9. Evaluation, Metrics and Monitoring		10. Culture	$\checkmark$

## Research and implementation themes

Research and implementation themes sit broadly within, and peripheral to, public health, including health promotion, social care and environmental health. Research priorities and themes were agreed based on local need.

## Expected outputs/outcomes

Given that ACCs develop according to local need, specific outputs vary. Broadly speaking, the main outcome is ongoing improvement in regional public health policy and practice. Some examples are reported in the literature, for instance a programme theory for ACC Public Health Limburg is presented as a logic model(32) (Figure 6), listing proximal and intermediate outcomes, as well as the ultimate outcome. Ongoing collaboration between policy, practice and research represents another broad outcome. Proximal outcomes include:

- Mutual understanding of each other stakeholder's expertise;
- Collaboration on research funding applications and projects;
- Research skills and uptake of research;
- The generation of new knowledge, instruments and programmes, ready to be applied;
- The generation of new products and advice for public health professionals and policy officials, ready to be applied;

• Scientific and professional publications and presentations.

Intermediate outcomes include)(32):

- Long-term structural collaboration in managing real-world public health problems;
- Integrated collaborative networks connecting policy, research and practice;
- Regional Public Health Service (RPHS) functioning has fully integrated evidencebased practice;
- Socially relevant research important to professional practice being initiated by the university;
- Professional public health practice and policy that is underpinned by science.

Other ACCs report similar outputs (e.g. practical tools and knowledge(64)).

## Challenges

As with earlier sections, challenges reflect the diversity of the ACCs across different regions and addressing different problems:

- Lack of time to fulfil a boundary-spanning ambassadorial role, due to time needed to undertake the research)
- Competing priorities and contractual obligations (e.g. to produce internationally/nationally recognised research rather than local research)(35).
- Lack of time to organise regular meetings for some groups (e.g. thematic groups), and public health practitioners with competing priorities, such as health care or public health emergencies (e.g. the swine flu pandemic) )(32, 35).
- An over-emphasis on research, in terms of the set-up of the groups or the way they function, which could leave others (e.g. municipal actors) feeling less involved in the ACC(32).
- Expectations on both sides regarding publications the local research might be less traditionally publishable, whereas universities require high-impact publications for esteem ratings(36).
- Academic funding bodies rejecting funding proposals for being too practical and not scientific enough(36).
- Limited budgets from local authorities leading to priorities not being realised(36).
- Lack of interest in, or knowledge of the importance of, research evidence and evidence-based practice(36, 49).
- Tension between stakeholders over priorities or the functioning of the ACC(59).
- Budget cuts and/or policy changes(64).
- Broadening of the organisation, which can lead to increased complexity(67).
- Imbalance of power, with the balance of power favouring the universities at the expense of other partners(49).

## Lessons Learned

• Shifting the emphasis towards practice and policy rather than research has helped one ACC to become more practice-led. This was accomplished by making Public Health Services the requesters for ACC funding and integrating research into public health services(49).

- Enabling informal discussions between researchers, policymakers and practitioners on equal terms, regarding different perspectives and goals(66).
- Constantly re-evaluate the working relationship and address issues on an ongoing basis(67).

## Model/Framework

A classic logic model structure is reported with Inputs, Activities, Outputs, Proximal outcomes, Intermediate outcomes and Ultimate outcomes(32) (Figure 6).



Fig. 1. Programme theory of the Academic Collaborative Centre Public Health Limburg (ACCL), based on Frechtling [12].

#### Strengths and Weaknesses

Apart from the explicit involvement of the policy domain, Dutch ACCs are comparable to the Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), which aim to facilitate inter-professional and inter-organizational collaboration between universities and the National Health Service in the UK{Hoeijmakers, 2013 #621}.

Supporting References

(32, 35, 36, 49, 59, 64, 66-68, 76)

## 6. Locally based research and development (R&D) unit (Sweden).

This model examines the locally based Swedish research and development (R&D) unit setting. Social services in Sweden are the responsibility of the local municipality. In the 1990s local R&D units in health and social welfare sectors began to emerge, and by 2000 more than 80 units existed. There is a national legislative framework but local units have a high degree of self-determination. They are usually linked to Universities and shared employment between the unit and a university is common.

#### Partnership and governance structures

Swedish R&Ds are organised and directed by regions, counties, municipalities, and universities, interconnected in various partnerships and therefore function in various different ways. The R&Ds are mostly small units with limited resources, they work close to practice and are closely linked to universities. A decentralised service delivery system allows R&D units to work flexibly across different settings.

A network, R&D welfare, acts as a coordinator, functioning as an information and communication node for the local R&Ds. Public funding covers around half of the cost for the R&Ds, and further funding is covered by partner organisations, with additional funding from private or public research funds.

#### Geographical context

Social services in Sweden are the responsibility of the local municipality with 290 municipalities responsible for social services. All 21 Swedish counties have R&Ds, with most having at least two. The three most populated geographical areas in Sweden each have four or five R&Ds engaged in care of older people alone. Some R&Ds have their main focus on social services for children and families, others on caring for older or disabled people, while some are engaged in all these areas.

## High-level aims and key objectives

Mission statements vary across the different R&D units. However, one common theme relates to the need to promote creation and dissemination (transfer) of knowledge and to enhance the methodological development for staff in health and social care organisations(52). Many mission statements acknowledge that R&D units exist to benefit patients and other consumers of health and social care(52).

Nationally, the expectation exists that R&D units support and produce high quality and effective health and social care organisations, aid improvement of welfare services, facilitate development of evidence-based practice, and transfer knowledge about specific technology, service and treatment methods to partner organisations(52).

## Core Activities(8)

Developing and sustaining research collaborations	$\checkmark$	Developing research priorities	
Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	$\checkmark$
Hard wired into the organisation: making research core business		Proactive and timely communication of research opportunities	
Patient and public involvement and engagement in research		Research governance support	

Research education and learning	$\checkmark$	Setting targets and monitoring performance	
Internal investment: allocating resources to promote research capacity	$\checkmark$	Other	

#### Research Capacity Subsystems (9, 10)

1. Prioritisation		2. Mentoring	$\checkmark$
3. Leadership	$\checkmark$	4. Research facilitators	$\checkmark$
5. Training	$\checkmark$	6. Funding	$\checkmark$
7. Networks and collaborations		8. Infrastructure	
9. Evaluation, Metrics and Monitoring		10. Culture	

## Research and implementation themes

R&Ds are mainly engaged in managing evaluation and research projects and developing core competencies in partner organisations(52). Fewer activities relate to organisational and process development which required collaborative and capacity building strategies. R&D units were also engaged, to some extent, in national initiatives on building regional support structures in social services. R&D units had numerous ongoing activities with their partner organisations, although they were rarely around a specific theme or long-term strategy.

Several examples illustrate the different roles of the R&D units, in terms of how they model different developmental roles in relation to being either agent/actor or observer(15). Each example sought to make the experience-based knowledge of the practitioner more visible.

## Expected outputs/outcomes

- Developing core competencies
- Building regional support structures in social services
- Experience-based knowledge to become more visible through collaboration between social services organisations and R&D units in Sweden.

## Challenges

- Time-limited financial support for R&Ds, leading to high employee turnover
- R&D units engaged in disparate activities risk becoming fragmented and inefficient.
- Adherence to the needs and influences of many interested parties without a clear strategy.
- Lack of long term planning

## Lessons Learned

Local R&Ds could act as knowledge brokers (to inform, consult, matchmake, engage, collaborate and build capacity), change agents and researchers, but these overlapping roles

need clarified strategies and diverse skills(52). Improvement work should be permanently and fully integrated within the activities of the organisation, facilitation should be lasting and well-integrated, and relationship-building is required to enhance collaborative production of knowledge.

R&Ds might require a structure/mechanism to promote long-term learning to integrate the R&D mission with the strategies of the served organisations(52). The dangers of ad hoc projects are highlighted because they risk obstructing long term strategic development. Diverse competences are required if an R&D is to fulfil its mission.

Good relationships are emphasised in both papers(15, 52). This includes trust between R&D staff and employees in partner organisations. R&D units and their staff need to be close to social work practice, but also to dissociate themselves when needed{Alexanderson, 2009 #9}. They further need to acquire competences from research, social work practice and pedagogy. In this way the unit can function as a facilitator, bridging the gap between research and practice.

Improving knowledge transfer and organisational learning involves finding a strategy to engage managers and staff and secure an allocation of time and resources. If R&D units are to work they require an organisational structure that is open, dynamic and that regards quality improvement as an ongoing process. Evidence-based practice and R&D work must be understood as a broader framework in which different R&D roles are in play in a variety of local settings.

## Model/Framework

One model focuses on the different roles in R&D work: 'different positions in the model are defined by the degree of nearness to practice and by the degree of involvement in their developmental work (as agents/actors or as observers).'{Alexanderson, 2009 #9} The adviser is a distant supporter of practice, but still takes part in the design of the developmental work through their advice the reviewer investigates practice form a distance as an observer or spectator. The innovation supporter is involved in developing new methods in direct contact with practitioner. The pedagogue works close to practice, providing knowledge without being engaged in the practical (developmental work). The model has parallels with an organisational excellence model{Alexanderson, 2009 #9}. The model stresses that research utilisation is facilitated through a partnership between different kinds of research organisations and agencies within the social welfare sector. Local and regional R&D units are suggested as a facilitating factor.

Nyström et al (2015) outline core activities with embedded sub-categories 1. Management of evaluation and research projects, either by a) providing project managers or b) providing support to individual staff members performing a project or study 2. Competence development achieved by a) arranging training activities for groups of employees and b) facilitating organisation-wide information and knowledge dissemination 3. Organisational and process development in projects and other endeavours where the R&Ds were involved in a) enhancing collaboration and/or b) working with improvement and change for an entire organisational unit, such as an elder care ward.

#### Strengths and Weaknesses

R&D competence in change management and organisational learning is not entirely clear. This remains an important area for further development. Regional decision makers need to improve procurement skills to obtain intended outcomes from R&D activities

R&Ds operate quite differently with different core competencies indicates a potential for meeting multiple demands but also a challenge to achieve common strategies, especially as units intend to cooperate or merge.

Use of different R&D activities provides a fruitful opportunity to illuminate the experience that professionals who participate in R&D activity are given the opportunity to learn more about research findings

Supporting References

(15, 52)

#### Other Countries Conceptual/Symbolic Models

While many countries maintain their own research systems with an element of local government involvement it proved challenging to privilege and select models from other countries without explicit criteria to arbitrate on potential relevance. If a clear specification can be created for potential elements of a local authority research system then it may prove informative to revisit some of the other country models that share common functions. Typically, however, there was a general lack of conceptualisation around local government research systems. For this reason, we took a cue from the previously analysed Local Authority Champions of Research (LACOR) and included a more future-proofed model that draws on current preoccupations with systems thinking. It should be stressed, however, that systems thinking in the following context relates to the lens and overall approach utilised for research projects and activities within the local authority research system (i.e. the *target* of research) while the emphasis of the LACOR report was more on the conceptualisation of the research system (i.e. the infrastructure for research) within its wider environment. Complex systems in this latter context is briefly explored later in this report (Other Useful Models).

#### 7. Systems-focused research collaboration

This model examines the use of systems-thinking (ST) in public health as applied to research projects in a Swedish R&D unit setting. ST considers the complexity of a phenomenon and its context, and suggests that interventions are interdependent of each other and the environment. The model proposes that the approach could be beneficial for addressing complex problems and emphasises the importance of building a solid foundation for collaborative work and to promote ST among policy-makers. The model proposes to examine real-world problems, which may be difficult to define, to uncover the worldviews of system actors and to facilitate learning.

#### Partnership and governance structures

Systems-focussed research collaborations are presented. This model was used in the context of the Swedish R&D unit system, both with regional and national initiatives, in which the university collaborators participated in national and regional initiatives, with public health researchers, development functions, and managers. Swedish R&Ds are organised and

directed by regions, counties, municipalities, and universities, interconnected in various partnerships and therefore function in various different ways. The R&Ds are mostly small units with limited resources, they work close to practice and are closely linked to universities. The R&D units have a high degree of self-determination, with a national legislative framework but the system for service delivery is decentralised. This allows R&D units to work in a flexible way in different settings.

A network, R&D welfare, acts as a coordinator, functioning as an information and communication node for the local R&Ds. Public funding covers around half of the cost for the R&Ds, and further funding is covered by partner organisations, with additional funding from private or public research funds.

## Geographical context

Social services in Sweden are the responsibility of the local municipality with 290 municipalities responsible for social services. All 21 Swedish counties have R&Ds, with most having at least two. The three most populated geographical areas in Sweden each have four or five R&Ds engaged in care of older people alone. Some R&Ds have their main focus on social services for children and families, others on caring for older or disabled people, while some are engaged in all these areas.

## High-level aims and key objectives

The overarching aim is to aid stakeholders to explore and accommodate differences among competing worldviews, in order to enrich their understandings of the actual problems or change situations. The model focussed specifically on, and aimed to use, ST approaches to achieve double-loop learning as a process of thinking-together-in-practice, and shared mental models in research projects focusing on the implementation of healthcare policies and regional development programs.

Developing and sustaining research collaborations	$\checkmark$	Developing research priorities	$\checkmark$
Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	$\checkmark$
Hard wired into the organisation: making research core business	$\checkmark$	Proactive and timely communication of research opportunities	$\checkmark$
Patient and public involvement and engagement in research	$\checkmark$	Research governance support	$\checkmark$
Research education and learning	$\checkmark$	Setting targets and monitoring performance	$\checkmark$
Internal investment: allocating resources to promote research capacity	$\checkmark$	Other	

## Core Activities {Gee, 2018 #2966}

## Research Capacity Subsystems (9, 10)

1. Prioritisation	$\checkmark$	2. Mentoring	$\checkmark$
3. Leadership		4. Research facilitators	

5. Training	$\checkmark$	6. Funding	$\checkmark$
7. Networks and collaborations	$\checkmark$	8. Infrastructure	$\checkmark$
9. Evaluation, Metrics and Monitoring	$\checkmark$	10. Culture	$\checkmark$

## Research and implementation themes

Use of ST in practice requires;

- an understanding of how the system is organized, managed and led;
- an understanding of and an ability to manage system stakeholders and networks;
- an ability to conceptualize, model and understand dynamic change;
- and being able to manage content and infrastructure of explicit and tacit knowledge while understanding the role of information flows in change processes

To achieve systems change requires developing shared cognition and team mental models among key actors. These can;

- aid the formulation of collective expectations and explanations of tasks that the team is facing,
- enhance shared problem representation,
- facilitate communication and coordination of team activities.

## Expected outputs/outcomes

Facilitate sense-making as part of the development and the research process.

Uncover worldviews by working together with partners to visualize situations, processes and structures, to construct maps and models for enhancing shared knowledge and team mental models.

## Challenges

- Understanding and use of ST ideas in the public health literature is still poor.
- Research in public health is more interested in causes and effects of single interventions than the processes involved in creating change.
- It can be a challenge to change cognitions and behaviour.
- The process can be demanding for both individuals and groups.

## Lessons Learned

The model enhanced sense-making and mutual learning in partnerships. This led to better collaboration and enhanced the knowledge-development process. This was said to affect the way involved actors think.

For ST to be useful to policy-makers requires more detailed analysis of their views on how policy-induced change is understood; and how ST and knowledge of the system and targets groups can benefit from the development of healthcare and public health(54).

Challenges differ by country, system, culture and situation requiring that ST support be adapted to each. Individuals need to adapt their worldviews while organizational systems may need to consider changing and adapting to external inputs in new ways(54).

## Model/Framework

Figure 7- Main Features involved in a Regional Strategy From Nyström et al (2020)(54)



A Model of the Main Features Involved in a Regional Strategy to Build Organizational Capacity for Development, Improvement and Learning.

Figure 5 presents a model of the main features involved in a regional strategy to build organisational capacity for development, improvement and learning(54). The model includes sub headings relating to strategy for developmental and change, support structures, competence, culture, monitoring and follow-up and shows the relationship interactions between the managers, staff and clients/patients.

#### Strengths and Weaknesses

ST approaches can be useful for identifying and understanding patterns in systems(54).

The system-focused collaboration seemed to generate a conceptual shift in worldviews among some policy-makers that in turn affected multiple aspects of their work. The ST approach was reported to influence the overarching strategic direction or thinking across a program, while system tools exerted a lesser influence(54).

Obstacles remain in the use of ST, including a lack of buy-in from senior policy actors(54), perhaps because they continue to question the practical policy utility of ST(78), and a lack of tangible action following through on an abstract commitment to systems thinking(79). The complexity and the many levels and perspectives to adhere to for researchers and policy-makers in public health research make it challenging to gather both process and outcome data, whilst describing the strategies used to make ST transform from theoretical descriptions to practical (54).

## Supporting References (54, 78, 79)

## Other Useful Models

#### Complex systems

The Local Authority Champions of Research (LACoR) report represents one of the first attempts to capture local authority research systems within the context of complex systems. A systems approach is considered particularly appropriate given that the focus of local government on the upstream determinants of public health and reduction of inequalities. Given a focus on prevention, the wider determinants of health and the need to work across different government departments, the authors of the report, including acknowledged authorities on complex systems, advocate new methodological approaches as being best suited for evaluation purposes (Rutter et al., 2017). Such a complex systems approach can explore a focus on context, relationships, interconnections, multiple perspectives, feedback loops and emergence. Agents in a LG system are conceived as being interacting and connecting with one another in numerous, non-linear, unpredictable ways influenced by context (Health Foundation 2010). Such a complexity frame views local authorities as not just a single monolithic entity but as a 'social system' with internal (i.e. staff, structures, cultural values) and external (i.e. political environment, national directive) influences. In complex systems, exemplified by local authorities, change is not linear, and although the cumulative impact of multiple efforts to embed evidence use might be anticipated, their effects cannot be predicted.

Recently, Greenhalgh highlights the potential to use complex system approaches in the exploration and evaluation of research capacity and research systems {Greenhalgh, 2020 #2972}. This could well be a frame that the clients for this report may wish to explore in the future.

#### 8. Communities of Practice

Communities of practice-based research systems differ substantively from other focal examples as they are not exemplified at a complete system level but typically operate in conjunction with other structures e.g. the Centre-, Partnership-, Collaboration- or Network-models. [NB. For this reason some of the specific features of the following template are omitted]. This fluidity is appropriate given that the community of practice model can accommodate variations in size; longevity, and co-location/distribution and that they can be "long or short lived, co-located or distributed, homogeneous or heterogeneous, spontaneous or intentional, unrecognised or institutionalised". Furthermore, organisations can be interpreted as 'communities of communities'(80), or 'constellations of interconnected CoPs'{Wenger, 1999 #2992.

Examples of the community of practice research system are sufficiently distinct to merit a separate profile. In particular, assumptions about a more equal power base, the democratisation of research activities and a shared set of pre-existing values that are brought to bear within the collaborative working typify communities of practice systems. A classic evaluation of the UK CLAHRCs has drawn upon the community of practice model{Kislov,

2011 #2938}. This evaluation, although not focused on local authority involvement is sufficiently relevant to merit close examination.

A community of practice (CoP) is defined as 'a group of people who share a concern, a set of problems, or a passion about a particular topic, and who deepen their understanding and knowledge of this area by interacting on an ongoing basis'(81).

## Geographical context

One feature of communities of practice-based research systems is their independence from, or at the very least, redefining of, place. The literature of community engagement makes it clear that community may be defined in multiple different ways. A community of practice can operate, both symbolically and practically, over a physical locality, a wider region, nationally or even over international borders. However, this flexibility should not be allowed to take the challenges of establishment of a community for granted – any community requires considerable preparatory work in relationship building and in the sharing of values. For these reasons a model that overcomes local geographical limitations of distance and non-availability and yet that also harnesses some of the strengths of face-to-face contact and association with place would seem to represent the strongest variant.

## Core Activities (8)

Developing and sustaining research collaborations	$\checkmark$	Developing research priorities	$\checkmark$
Academic dissemination	$\checkmark$	Evidence based practice and knowledge transfer	$\checkmark$
Hard wired into the organisation: making research core business		Proactive and timely communication of research opportunities	$\checkmark$
Patient and public involvement and engagement in research		Research governance support	
Research education and learning		Setting targets and monitoring performance	
Internal investment: allocating resources to promote research capacity		Other	

## Research Capacity Subsystems (9, 10)

1. Prioritisation	$\checkmark$	2. Mentoring	$\checkmark$
3. Leadership	$\checkmark$	4. Research facilitators	
5. Training		6. Funding to develop RCD including bursaries and fellowships	
7. Networks and collaborations:	$\checkmark$	8. Infrastructure:	

9. Evaluation, Metrics and	10. Culture	
Monitoring		

#### Challenges

As a loose confederation based on mutual interests Community of Practice research systems are particularly vulnerable to potentially conflicting partners' agendas, the continuous process of organisational change and a volatile and inconstant membership(82).

#### Lessons Learned

Within the context of allied health, it was concluded that a Community of Practice framework offers a powerful model for enabling research capacity and productivity evidenced by publication(83). However, this represents an academic construction of research outputs and impact. The authors also acknowledge that research skills, confidence and growth develop over an extended period of time and success depends on skilled coordination and leadership.

#### Strengths and Weaknesses

To a certain extent, communities of practice are freed from the focus on "place" of the other systems. This can represent both a strength and a weakness in both engaging with a wider constituency but in dissipating the energies that a local focus might harness. Communities of practice models are particularly able to operate within a virtual environment which means that they can harness both practical/instrumental features, through the minimisation of constraints of distance and non-availability, and symbolic/conceptual features, in creating a "brand" behind which research system activities can be mobilised.

Community of practice models offer a multi-professional and multi-organisational structure, united by shared practice and a shared sense of belonging(82). They therefore offer an appropriate response to the challenges of the complex systems within which local authority research systems are required to operate.

Formation of community of practice-based research systems may be hampered by unfavourable contextual factors, while participants' identification with the collaborations may be influenced by "issues related to professional power, autonomy, and collegiality" (p.3)–as well

as their commitment to their parent institutions(82).

#### Supporting References

(82)(83){Wenger, 1999 #2992;Wenger, 2002 #2990}.

## 9. University-Community Partnerships

Generically, university community partnerships are complex community interventions that seek to improve the social environment in low-income neighbourhoods through community development. Specifically, they seek to achieve this through the three associated functions of research, teaching and service learning. A large proportion of the retrieved literature highlights this triple mission with some items being excluded because of a teaching or service learning emphasis and a relatively small number of documents focusing exclusively on the research function. Politically, university-community partnerships seek to rebrand the university as a social institution from neighbourhood bystander to responsible, engaged

citizen(84). The literature is clearly associated with the concept of the engaged university and knowledge translation activities.

It is important to recognise that the "community" partner of the partnership can take alternative forms aside from local government involving citizens' and residents' groups, grassroots organizations, community coalitions, and community leaders, voluntary and third-sector organisations(84). The role of the local government involvement is not always explicit. Genuine university-community partnerships work across the full spectrum of research activity from mutually engaging in defining research questions, designing data collection strategies, interpreting research findings, and disseminating research knowledge(84).

## Partnership and governance structures

Numerous models exist under the generic banner of University-Community partnerships. A dispersed model favours an entrepreneurial approach for individual faculty and student involvement, while a coordinated model requests faculty and students from different departments to work together toward a community-driven goal.

#### Geographical context

The University-community partnership model is particularly prevalent in the United States and, to a certain degree, represents a political response to the requirements of state-funded universities to meet the needs of their local communities. Increasingly, the model is being promulgated in other contexts and a specific application of a university-agency collaboration in Durham is highlighted as an additional relevant research system model benefitting from extensive local authority involvement.

#### High-level aims and key objectives

From the university perspective(31) the following aims are sought for increased civic engagement:

- 1. Public access to facilities
- 2. Public access to knowledge
- 3. Student engagement
- 4. Faculty engagement
- 5. Widening participation (equalities and diversity)
- 6. Encouraging economic regeneration and enterprise in social engagement
- 7. Institutional relationship and partnership building

## Core Activities (8)

Developing and sustaining research collaborations	$\checkmark$	Developing research priorities	$\checkmark$
Academic dissemination	✓	Evidence based practice and knowledge transfer	✓
Hard wired into the organisation: making research core business		Proactive and timely communication of research opportunities	✓
Patient and public involvement and engagement in research	✓	Research governance support	
Research education and learning	✓	Setting targets and monitoring performance	
Internal investment: allocating resources to promote research capacity		Other	

## Research Capacity Subsystems (9, 10)

1. Prioritisation	$\checkmark$	2. Mentoring	
3. Leadership		4. Research facilitators	
5. Training	$\checkmark$	6. Funding	$\checkmark$
7. Networks and collaborations	$\checkmark$	8. Infrastructure	$\checkmark$
9. Evaluation, Metrics and Monitoring		10. Culture	~

## Research and implementation themes

It is challenging to identify common research and implementation themes across so many diverse settings and examples of initiatives. Nevertheless, research can be characterised by community ownership of questions and by extensive consultation and strong community engagement in the research process. Unsurprising chronic disease(43) and disease prevention figure prominently in local initiatives as do neighbourhood issues such as homelessness(85) and youth violence(47, 86) and lifestyle concerns such as overweight and obesity(87).

#### Expected outputs/outcomes

- Funding for community organizations & researchers
- Learning opportunities
- Capacity & skill building
- Increased action & ownership

#### Challenges

- Collaborative research partnerships require high tolerance for complexity and ambiguity.
- Projects, priorities and needs of the organization change and partnerships experience staff turnover and conflicts of interest.

- Delays may occur in obtaining funding, gaining access to local authority data, developing protocols, and collecting data. Decision-making and necessary approvals across multiple organisations take time. Projects may require reshaping to accommodate diverse agendas.
- In such partnerships, researchers need to demonstrate flexibility in assuming different roles such as learner, facilitator, researcher, and advocate; possibly explaining the apparent success of insider researcher and researcher in residence schemes.
- Commentators note that methodological prejudice privileging positivist and quantitative methods often makes it difficult for researchers wishing to use qualitative or collaborative methods to gain access to funding agencies and publish in scientific journals(62, 71).
- Critics questions the rigour and science that may result from a lack of adequate detachment and disengagement from participants.

Conversely, community researchers recognize the congruence of a collaborative approach with their personal values and goals and, increasingly appreciate the value of impactful research for the community. Members of local authorities can offer insightful involvement and feedback from generation of topics through to validation of results. They can also offer routes into appropriate communication and dissemination channels.

#### Lessons Learned

Critics of university–community research partnerships maintain that they will take too long to achieve results; they will have to water down their rigour because of the need to find common ground within partnerships; the time taken for process rather than science is disproportionate; and community partners may lack understanding of research culture and processes. However, from our identified literature Winokur and colleagues rebut these, otherwise legitimate, concerns stating that they are manageable with good leadership on both sides and that early mutual success can blunt these criticisms(71).

#### Models/Frameworks

The literature includes numerous examples of university-community partnership systems of which a proportion relate specifically to research systems. Buys and Bursnall (2007) cite Sargent & Waters (2004)(88) in outlining an academic research collaboration model (See Figure 5)(21). However local government did not figure at all in the source document and only intermittently in the citing study.

Another prominent framework of university-community partnerships was identified from Suarez-Balcazar et al (62) see Table 7. It emphasises some qualitative factors required for partnership building and the creation of trust and mutual benefit.

## Strengths and Weaknesses

In multiple instances the academic partner is presented as the initiator with instances of a "community-university" label order comparatively less frequent. It is important to recognise that the narrative for university-community partnerships, as presented in the academic literature, is dominated by the academic discourse(89). While numerous papers acknowledge the community perspective the perspectives are largely martialled and authored by academic contributors.

Benefits from the university-community partnership literature include: (a) new insights and learning; (b) better informed community practice; (c) career enhancement for individuals involved with the partnership;(d) improvement in the quality of teaching and learning; (e)

increased opportunity for student employment; (f) additional funding and access to information; (g) more frequent and higher-quality publications; and (h) more rapid speed of internationalization(21). It is noticeable that these benefits spread across the three functions of research, teaching and service learning with the implication that synergies from across these areas may prove stronger than achievements where only one function is targeted.

# Supporting References (90)

Figure 8- Inductive process framework of academic research collaborations (Sargent & Waters, 2004)



University-community partnerships 75

Reprinted from Journal of Vocational Behaviour, 64, Sargent, L.D., & Waters, L.E., Careers and academic research collaborations: An inductive process framework for understanding successful collaborations, pp 308-319, 2004, with permission from Elsevier

 Table 8 - Framework from Suarez-Balcazar et al. (2004)(62) as summarised by Williamson et al (2016)(91)

Factor	Definition				
Gaining entry into the community	Previous personal experiences with partnerships influence this stage. Articulate mission, goals, roles, and expectations of the partnership.				
Key factors for develop common goal that mutue	<b>Key factors for developing and maintaining mutual collaborations</b> (working toward a common goal that mutually benefits both parties):				
Trust and mutual respect	Taking time to get to know one another and having a positive attitude about the collaboration.				
Adequate communication	Clear communication about project expectations, including benefits for all involved.				
Respect for diversity	Respecting differences in behavioural practices, preferences, and opinions.				
Culture of learning	Two-way learning, recognize learning opportunities for all members in the partnership, learning from one another.				
Respect culture of the setting	Respect and celebrate the culture of the community organizations, acknowledge differences between partners regarding their work setting.				
Develop action agenda	Research/project decided on collaboratively.				
The following are the context of the partnership:					
Potential challenges & threats	Examples: Time commitment Conflict of interest Budget cuts End of funding Power & resource inequality				
Recognizing benefits & outcomes	Examples: Funding for community organizations & researchers Learning opportunities Capacity & skill building Increased action & ownership				

## Results of Synthesis of Models

The synthesis was able to identify six types of research system exemplified across the 37 models. These are:

- 1. The Centre-based system
- 2. The Partnership-based system
- 3. The Collaborative-based system
- 4. The Network-based system
- 5. The Community of Practice based system
- 6. The Whole System approach

These different models work from different assumptions relating to the power and governance structures within the system, the degree of location/co-location, physical presence and ownership of each system and the respective roles of academia and local government.

The original question the review team sought to address related to the costs, capacity, skill and support issues in research systems. Much of this detail, with the exception of costs, is present in the detailed templates offered for the nine featured research systems. The absence of detail on cost is noted as a limitation of the information with which the review team was able to work. This suggests a further line for investigation, using primary data, within a formal; cost study.

The five individual systems (i.e. excluding the Whole System approach) can co-exist, can be evidenced at multiple levels within the participating organisations, and may even represent developmental stages in the evolution of a university-community collaboration. The Whole systems framework is seen as the most appropriate response to the complex systems characteristics of both local government and research systems, compounded when both are combined.

When viewing the systems as a whole, and the potential power dynamics captured in the assumptions underpinning each system, we found it helpful to invoke the classification proposed by Sibbald in a similar, but unrelated partnership context. The relationship with a local authority may be researcher-dominant, alternatively labelled, the token partnership. This may explain why local authorities are considered bona fide partners in the CLAHRC collaborations but only one two references relating to CLAHRC were retrieved by our local government strategy.

A second type of relationship is the asymmetric partnership. There are elements of this in the university-community partnership examples where the implied equality of the label is not realised in the more detailed accounts that we analysed. This was also identified as an issue in the analyses of the Academic Collaborative Centres and the Knowledge Transfer Partnerships.

Finally, there is the egalitarian partnership, embodied in the consultation for the Local Authority Champions of Research (LACoR) report, where the two cultures of university and local authority are recognised with the associated need to acknowledge the cultures, organizational constraints and drivers of both parties.

## Reporting biases for Models Review

The above discussion of the different types of partnership in evidence within the literature case studies further impacts upon the reporting of the featured initiatives. The desire to get published is largely an academic driver and so the motivation behind many of these accounts is to feature the academic context of the research system. This partly explains why published accounts maintain a conceptual, as opposed to pragmatic, focus. This equates to a researcher-dominant or token partnership. Within the featured case studies there are relatively few accounts authored by local government staff and even were they are involved their contribution is a supporting role. Partnerships are typically framed as university-community partnerships implicitly offering top-billing to the academic partner; an asymmetric partnership. The narrative that emerges from the Models review is therefore not one that is represented by an egalitarian partnership. Data from the Local Authority Champions of Research (LACoR) report goes some way to offering a local authority "voice" but one must remain critically aware of the prevailing meta-narrative that presents the academic view of research systems.

## DISCUSSION

## Summary of evidence

Although multiple instances of local government research collaboration exist it is noticeable that a limited number of models underpin these research systems. The challenge of working across academia and local government is conceived in terms of six different structures:

- 1. The Centre
- 2. The Partnership
- 3. The Collaboration
- 4. The Network
- 5. The Community of Practice
- 6. The Whole System

Within these six structures further variation relates to the level at which collaboration occurs (e.g. around a programme, topic, discipline or profession or locality) and whether research is compartmentalised as the purpose of the structure or whether research, teaching and service learning are included. The conceptual superiority of a whole systems approach has to be measured against the extra complexity and logistic challenge that each successive broadening of scope and/or activity has to accommodate.

Furthermore, these structures can fulfil an **instrumental** role (to deliver research) or a more **symbolic** role (in representing a coordinated response to the challenges of a particular locality or population)(10, 73). In some cases both roles are both fulfilled within the same structure (epitomised by a University Centre); in other cases complementary systems interface as where the symbolic role of the CLAHRC (in tackling chronic disease and long-term conditions) is underpinned by the infrastructure provided by a local hospital Trust research office. Sometimes, the bounds of such systems appear quite arbitrary as where postgraduate research opportunities (i.e. PhDs) are coordinated by a CLAHRC but where there is no overt link to the undergraduate teaching programmes and/or curriculum.

Common themes emerged across the featured models. Within the UK models, and some models from other countries, the challenges of navigating local authority governance and data

systems was highlighted. Frequent mentions of two cultures that struggle to understand each other and that have competing, and even conflicting, priorities were found across all models. The influence of austerity was highlighted given that, globally, some sectors e.g. social care are particularly challenged by difficulties in government funding. It is noticeable that the UK currently lacks many practical examples of successful local authority research models and the LACoR model, which has been prominently featured in this review, remains aspirational, though well-supported. It is noticeable that one of the main sources of value from the LACoR model is its attempt to capture a holistic system within a wider whole systems lens. Most of the features that it assembles within its comprehensive logic model are identifiable as individual elements in most of the other models, from which the accompanying level of detail may prove useful.

The review team particularly noticed a lack of detail regarding resources and costs. This may reflect, in part, the academic, rather than service, perspective of the included documents. The focus on governance and deep-seated cultural issues suggests that these fundamentals require resolution first in order to create a viable culture within which a local authority research system might subsequently operate.

#### Strengths and Limitations

The Mapping Review covered a wide variety of sources and involved systematic searches of multiple health, social care, general social sciences and regional (i.e. UK databases). However, the search terminology was diffuse – terms such as "research" lack precision but it would have been prohibitive to try to identify every possible relevant permutation of phrase searching. We found that "research and development" and "R & D unit\*" were precise but did not retrieve very comprehensive sets of results. The concept of models and frameworks is well-covered by a published search strategy that our team has developed. In this case, however, models or theories could relate to any aspect of the research paper – not specifically the research system. "Logic models" was more precise but these models could relate to a target intervention rather than to the research programme itself. We found that most models of research systems were conceptual models and therefore lacked the operating details required for replication at a local level. Nevertheless, the conceptual models offered a holistic view of the local government research collaborations.

Similarly, a large proportion of studies viewed at full-text, particularly those on universitycommunity partnerships, focused qualitatively on how to facilitate effective and successful partnerships rather than on the structural components of such a research model. Potentially, this evidence base could be useful at subsequent implementation stages of a research model. However, it is important to acknowledge that the search strategy retrieved these items serendipitously and so targeted search terms would be required. Alternatively, a recent systematic review specifically on university-community partnerships might offer a quicker and efficient way of accessing this evidence base, given that we have identified that such studies exist. It is important to recognise that motivation for writing up such partnerships largely originates from academia. This fact and the preference for "university-community partnerships" rather than "community-university partnerships" suggests that equal coverage of issues for both the main partners may prove unlikely. Furthermore, university-community partnerships may refer to links directly with public groups, groups of residents, and voluntary organisations and charities meaning that the role of local government may be neither visible, nor even prominent. For these, and similar, reasons some commentators have chosen to look qualitatively at the power dynamics within such structures.

A known limitation of rapid systematic reviews is the non-availability of identified items of potential value. This situation is compounded when the pandemic restricts availability of access to libraries and print items. Thirteen items were identified for inspection at full-text but were discovered not to be available within the review timescale. However, none of these items were drawn from the "Probables" (i.e. Likely include at Full Text), only two of these items derived from the "Possibles (i.e. Possible Include at Full Text") category with the remaining eleven belonging to the "Rule Out" (i.e. Likely Exclude at Full Text) category. It is therefore very unlikely that the findings of this review will be seriously compromised by the non-availability of relevant items.

## Conclusions

While many models of research systems exist, few are specifically designed for the requirements of local authority research activity. The Local Authority Champions of Research (LACoR) model offers a potential blueprint for further development for a Bradford LARS.

Useful lessons beyond the scope of this review may be learned from the experience of health research systems, particularly CLAHRCS. This line of investigation is specifically indicated by the perceived success of Academic Collaborative Centres in the Netherlands that closely evoke the operating principles of the UK CLAHRCS.

Further insights may be gained from the experience of locally focused R&D units in Sweden and from the general literature relating to University-Community partnerships.

Looking forward, whole systems approaches to local authority research systems (also explored in the Local Authority Champions of Research (LACoR) review(1)) seem to offer a realistic response to the requirements of the complex local authority and research systems. Commentators advocate complex adaptive systems-informed approaches(92). Such whole systems frameworks may confirm a further interpretation of this report; namely that an optimal single research system may represent the simultaneous co-existence of different types of contributing research system including Centre, Partnership, Collaboration, Network and Community types. If a whole systems approach is to be employed then a major consideration relates to the different models of university-community partnership, namely, should the whole system approach <u>only</u> relate to a research system or are synergies to be achieved by factoring in approaches related to teaching and service learning.

## FUNDING

## Funding

The School of Health and Related Research (ScHARR), University of Sheffield is delivering this review under contract to the Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust. Bradford Institute for Health Research is managing the mapping review and rapid systematic review on behalf of the NIHR project co-applicants.

## Appendix 1 - Protocol (REC@LL)

## ADMINISTRATIVE INFORMATION

This is a *de novo* protocol and does not directly relate to any existing systematic reviews. It is reported according to the PRISMA reporting guidelines for protocols(93).

## Registration

This review topic does not examine health outcomes and so is not eligible for inclusion in the PROSPERO Registry: No PROSPERO registration number.

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## Contributions

Drs Hock and Scope are the principal systematic reviewers for the mapping review and rapid systematic review. Dr Booth is the principal investigator, methodologist and third reviewer. Dr Booth has designed the rapid review methods and will act as guarantor of the review.

## Amendments

This version 1.0 dated 09/09/2020 is the original unamended version of the review protocol. Further versions will be documented in this document to reflect important protocol amendments

## Support:

This review is being conducted using the infrastructure and the facilities of the University of Sheffield.

## Sources

This mapping review and rapid systematic review is a sub-project, part of a larger study/project funded by the National Institute for Health Research (NIHR) Public Health Research Programme (project reference NIHR131797).
# Sponsor

Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust is managing the mapping review and rapid systematic review on behalf of the NIHR project co-applicants.

## Role of sponsor or funder

Parameters for the rapid review are specified in **Local Authority Research System in Bradford: Research Protocol**. The review protocol has been designed independently by the School of Health and Related Research (in consultation with representatives of the sponsor). The sponsor does not have any direct influence on the findings or reporting of the review findings.

# INTRODUCTION

## Rationale

With few examples of Local Authority Research Systems (LARS) in the literature, most reports focus on how evidence is currently used in local government and the disconnect between academia and practice based public health and policy making. The client has identified a need to identify from the literature and examples of current practice possible models for a Bradford LARS including the necessary research and development leadership and infrastructure, ways to systematically involve the public and associated costs and the requisite local authority based skills, training and career development.

## Objectives

To conduct a rapid review of potential and existing models of local authority-based research systems including cost, capacity, skills and support required.

# METHODS

## Methodology:

1. We will conduct systematic searches across health and wider science/social science databases

2. We will target additional UK-specific collections/databases (e.g. King's Fund, Health Services Management Centre), supplemented by Internet domain searching (and Google Scholar searching/citation searching

3. As an initial level we will descriptively map all retrieved items meeting the broad inclusion criteria plus any additional included items identified from review articles. Description of mapping methodology(94)

4. For a subset of identified types of study we will perform detailed data extraction against priority questions.

## Eligibility criteria

To be included in this review a publication should meet all of the following characteristics

**Context:** Local government, i.e. non-central government, in high income countries as specified by geographical limitations.

**Interventions:** Whole system models; current Whole Systems approaches and functional systems considered to form essential characteristics of a viable whole system (e.g. training, funding etc). For the purpose of this project research systems are defined as: 'the people, institutions, and activities whose primary purpose operating at a local government level is to generate or support the production of high quality context-sensitive knowledge to be used to inform decision-making on provision, maintenance and evaluation of services and facilities targeted at the local population. It can include the mechanisms adopted to encourage the utilization of research' (Adapted from WHO definition(2)).

**Models:** Conceptual and actual models of whole systems; conceptual and actual models of essential research functions.

Dates: 1996-2020

**Geographical limitations:** UK and Ireland, Europe (High Income Countries only), Australia and New Zealand, Canada and USA.

**Languages:** English or English Abstract (based on summary or machine-assisted translation).

**Publication status:** Academic literature, or grey literature, or formally documented project/programme pages etcetera.

**Study status:** Empirical quantitative or qualitative research, academic theoretical/conceptual papers, descriptive research, case studies

Information sources

All the following will cover 1996 – 2020 unless otherwise specified.

#### General health and social science databases

Pub Med: https://pubmed.ncbi.nlm.nih.gov/ EMBASE PsycInfo: https://search.proquest.com/psycinfo/advanced Scopus Social Science Premium Collection Social Sciences Citation Index

#### **UK databases**

Applied Social Sciences Index and Abstracts (ASSIA) via ProQuest Health Management Information Consortium Health Services Management Centre Online (via the University of Birmingham; www.birmingham.ac.uk/facilities/hsmc-library/library-resources/index.aspx ) Health Management Online (via NHS Scotland; www.shelcat.org/nhml) The King's Fund Library Database (<u>http://kingsfund.koha-ptfs.eu/</u>). Social Care Online

## Google Scholar subject searching

Using high specificity keywords from the longer list included for bibliographic database searching (below).

### Citation searching

Using Scopus, Web of Science and Google Scholar (Publish or Perish) as appropriate.

#### Internet domain searching

Searches of .gov.uk and other country equivalents.

#### **Prespecified named Internet sites**

Association of Directors of Public Health: https://www.adph.org.uk/category/publications/ Centre for Cities: https://www.centreforcities.org/research/ Kings Fund: https://www.kingsfund.org.uk/publications LARIA: https://laria.org.uk/2015/06/making-the-most-of-research/ Including: https://laria.org.uk/recentmembershipsurvey Local Authority Champions of Research Project: Local Governance Research Centre De Montfort: https://www.dmu.ac.uk/research/centres-institutes/lgrc/index.aspx Local Government association publications/resources: https://www.local.gov.uk/publications Including: From Analysis to Action KN review.pdf Making Research Count (MRC): https://www.kcl.ac.uk/scwru/pubs/index National Association of Local Councils: https://www.nalc.gov.uk/publications Open Grey: http://www.opengrey.eu/ Research in Practice: https://www.researchinpractice.org.uk/all/publications/ Research on Research Institute: http://researchonresearch.org/reports Research Unit on Research Utilisation: http://www.ruru.ac.uk/publications/ Social Care Institute for Excellence (SCiE): https://www.scie-socialcareonline.org.uk/ Social Care Research (SSCR): https://www.sscr.nihr.ac.uk/project-findings/ Social Policy Association conferences: http://www.social-policy.org.uk/what-wedo/publications/ Social Services Research Group (SSRG): http://ssrg.org.uk/publications/ The Joseph Rowntree Foundation: https://www.jrf.org.uk/reports WellcomeOpen: https://wellcomeopenresearch.org/ What Works Wellbeing: https://whatworkswellbeing.org/category/governance-anddemocracy/

## Named journals

Evidence and Policy Journal: <u>https://www.ingentaconnect.com/content/tpp/ep</u> Health Research Policy and Systems: <u>https://health-policy-</u> <u>systems.biomedcentral.com/</u> {included in MEDLINE] Public Policy and Administration: <u>https://journals.sagepub.com/home/ppa</u> Research, Policy and Planning: <u>http://ssrg.org.uk/journal/</u> Including: woolham-et-al-rpp-2017.pdf

#### Search strategy

Research AND 'capacity development' OR 'capacity building' OR 'capacity evaluation' OR 'community development' OR 'community building' OR 'building communities'

Education OR transport OR planning OR fire and public safety OR social care OR libraries OR waste management OR trading standards OR refuse collection OR recycling OR Council Tax collections OR housing OR planning applications

prioritis\* OR prioritiz\* OR mentor\* OR leader\* OR champion\* OR facilitat\* OR training OR funding OR bursar\* OR secondment\* OR attachment\* or shadowing OR fellowship\* OR network\* OR collaboration\* OR infrastructure\*

Research AND ('capability' OR 'capacity' OR 'productivity' OR 'output' OR 'strategy')

Research capacity

Research governance

Researcher development

Researcher career\*

System\* or model\* or modal or framework or evidence based

Local authority OR local authorities OR local government OR local governance OR local council\* OR county council OR metropolitan borough OR "provincial government" OR "territorial Government" OR "state government" (*Australia and US only*) OR municipal OR municipality OR municipalities OR district governments OR city governments OR "administrative collectivities" OR civic authorities OR local authority research council\* OR LARC OR LARCS OR Local Authority Research Council Initiative OR LARCI

#### Data management

Bibliographic references from databases and Google Scholar will be added to an Endnote reference management database. Simultaneously they will be imported into an Excel spreadsheet with customised drop-down menus. Abstracts will be coded for inclusion against the Inclusion criteria and then for topic content using an existing taxonomy. Once an overall map has been produced, data from a rich sub-sample of included records will be extracted using a Google Forms interface to a second Excel database.

#### Selection process

A pilot study selection exercise will involve a small sample of records e.g. 100-200 references being independently coded by the individual members of the review team. Verdicts will be compared and if the interrater reliability is rated as acceptable the remaining records will be distributed between the review team. If agreement levels are unacceptable then the exercise will be repeated until an acceptable rate of agreement is reached. A sample of excluded records will be reviewed to ensure that it is unlikely that these have been excluded in error. Where a verdict of unsure has been recorded by one reviewer these records will be passed on to a second reviewer

where agreement will be resolved by consensus. In the event of continued disagreement a third reviewer will be asked to arbitrate on eventual inclusion.

## Data collection process

Following piloting of a data extraction form, a user-friendly Google forms interface will be used to input data into a Google Sheets/Excel spreadsheet. Summary tables will be cut and pasted into the final report and a variety of frequency counts and aggregated responses will be produced for the summary report. In accordance with most rapid reviews, duplicate data extraction will not be possible. However, data will be iteratively checked and re-checked during writing of the final report.

## Data items

We anticipate that the extracted items will include the Author, year, ref id, country of origin, the type of local government, target population, the nature of the intervention, the outcomes measured, any results and any associated reports or publications. A process of memo-ing will be used to record reviewer observations for inclusion in the Discussion section.

# Outcomes and prioritization

We anticipate that we will code for "whole systems" and that we will also code whole systems and individual system reports against the following framework: {Cooke, 2006 #2967;Cooke, 2018 #2969}.

1. Prioritisation: Developing research priorities from consensus views of informed participants

2. Mentoring: where an experienced, highly regarded person (the mentor) guides another individual (the mentee) in the development and examination of their own ideas, learning and personal and professional development

3. Leadership: the process of influencing group activities towards the achievement of RCD goals

4. Research facilitators: individuals whose role is explicitly to promote and enable the conduct of a research by those with limited research experience.

5. Training: interventions that aim to increase skills and knowledge

6. Funding to develop RCD including bursaries and fellowships

7. Networks and collaborations: structures and functions that support people to work together to improve knowledge transfer, innovation, a research process or an output 8. Infrastructure: diverse activities used to enhance support of RCD; to include R&D departments, research directors, finance and contracts supports and IT infrastructure.

Other categories will include Evaluation, Metrics and Monitoring and Culture.

## **Quality Assessment**

Given this review is a mapping review and outcomes are not being formerly assessed there is no requirement for quality assessment at an individual study level. However, the review team will consistently document if the source of data is an evaluative (research or evaluation study) a descriptive study or a single case study.

#### Data synthesis

Given the requirement to identify conceptual or practical models of whole-systems or single interventions study data will not be quantitatively synthesised. Formal sensitivity analyses are not planned. However, the team will document the country of origin of the included studies and comparisons will be undertaken between the findings of those that are close to the UK context and those that are more distanced and relevance judgements made accordingly. A narrative summary and synthesis is planned together with thematic coding, depiction of models and basic frequency counts.

#### Meta-bias(es)

There will not be a formal assessment of publication bias. Nevertheless, the team will explore whether certain models are not present in the published literature, due to either prematurity or publication bias.

#### Confidence in cumulative evidence

As the deliverables from the rapid review do not include a formal analysis of outcome we will not perform an assessment of the strength of the body of evidence (e.g. GRADE or GRADE-CERQual). Nevertheless, we will narratively convey uncertainties relating to study findings, drawing upon the GRADE-CERQual components of methodological limitations, adequacy, coherence and relevance for each substantive body of evidence.

#### Deliverables

- 1. A graded entry 1:3:25 report format summarising the evidence base)
- 2. A technical appendix documenting review methods
- 3. Excel spreadsheets (with "map" and data extractions)
- 4. A reference management database (in universal RIS format containing all references included in the map/report)

## Timescales

Approximate Timescales (except for final deliverable)

Mapping Summary (Internal) – Week of Sept 21<sup>st</sup> Meeting and Verbal Update to Client – Sept 23<sup>rd</sup> Draft Report to Client – Sept 28<sup>th</sup> - 29<sup>th</sup> Meeting with Client – Sept 30<sup>th</sup> Final Deliverable – Oct 2<sup>nd</sup> 5pm.

Resources

2 days of project manager/methodologist 15 days of two senior reviewers

# Appendix 2 – Sample Search Strategy

Ovid MEDLINE	14/09/2020	Search history sorted by search number ascending
		1 "r&d unit".mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = 9
		2 "university-municipal collaboration*".mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]0
		3 "university community partnership*".mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]= 96
		4 "Academic Collaborative Centre*".mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] =.6
		5 1 or 2 or 3 or 4 = 111
		6 ((research adj1 development) or R&D or research capacity or research unit or research units or research governance or community based research or research collaboration or research strategy or research policy).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = 32134
		7 (Local authority or local authorities or local government or local governments or local governance or local council or local councillor or local councillors or local councils or locally based).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = 11316

8 6 and 7 46
9 (elected members or municipal or district council or district councils or district councillors or district councillor or county council or county councils or county councillors or county councillor or borough council or borough councils or borough councillors or borough councillor or town hall or town halls or civic health or municipalities or municipality or metropolitan).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = 69978
10 6 and 9= 137
11 (((social services or social work or children) adj1 families) or family services or Children services or childrens services or social care or public services).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] =.9002
12 7 and 11= 291
13 (((Education or transport or planning or fire) and public safety) or libraries or waste management or trading standards or refuse collection or recycling or Council Tax or housing or planning applications).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = 152356
14 7 and 13 = 612
15 6 and 12 = 3
16 6 and 13 = 238
17 5 or 8 or 10 or 15 or 16 = 517
20 limit 19 to (english language and yr="1996 - 2020") = 464

# Appendix 3 – Items Excluded at Full Text

Ref Id	Author (Year)	Title	Source	Reason for
				Exclusion
2810	Al Hallami & Brown	Scenarios of London local authorities'	Issues in	Not Model
	2014	engagement with evidence bases for	Educational	
		education policies	Research	
20	Association, Local Government 2013	Survey of research capacity in local authorities	Report	Survey only
2794	Atkins, Lou, Kelly,	Reversing the pipeline? Implementing	Implementation	Research
	Michael P, Littleford,	public health evidence-based guidance	Science	Utilization
	Clare, Leng, G & Michie, S (2017)	in english local government		
1976	Azrael, D. and	Greater than the sum of their parts: the	American Journal	Not local govt
	Hemenway, D.	benefits of Youth Violence Prevention	of Community	
	2011	Centers	Psychology	
30	Barratt, M (2003)	Organizational support for evidence-	Child & Family	Not models
		based practice within child and family	Social Work	
		social work: a collaborative study		
2765	Baum, H. S.	Fantasies and realities in university-	Journal of	Not Model
	2000	community partnerships	Planning	
2795	Beenstock I Sowden	Are health and well-being strategies in		Research
2755	S Hunter DI and	England fit for nurnose? A thematic	Health	utilization
	White, M (2015)	content analysis	i i cuitii	utilization
2802	Boswell, C & Smith, K	Rethinking policy 'impact': four models	Book Section	Not Local govt
	(2017)	of research-policy relations		_
2057	Bowen, S. and	A model for collaborative evaluation of	Journal of	Not local govt
	Martens, P. J. (2006)	university-community partnerships	Epidemiology &	
			Community	
			Health	
1336	Bradshaw, M	Combining social research with	Urban Policy and	Not Local govt
	2001	'community consultation' for more	Research	
105	Drowstor App D	Inclusive local planning outcomes	Lournal of Applied	Notmodel
192	Disani Daul Ramsover	Building a university-community	Besearch in	Not model
	Max and Wise 1	graduation and beyond An innovative	Higher Education	
	(2016)	undergraduate team approach		
373	Brooks, N & Schramm,	Integrating economics research,	Journal of	Not local govt
	R (2007)	education, and service	Economic	0
			Education	
2578	Brown-Luthango, M.	Community-university engagement: The	Higher Education	Not model
	2013	Philippi CityLab in Cape Town and the		
		challenge of collaboration across		
		boundaries		
6	Bryer, TA, Pliscoff, C	Promoting Civic Health Through	Book	Literature
	and Connors, AW	University-Community Partnerships:		Review
2001		Global Contexts and Experiences		<b>.</b>
2804	Carmichael, L, Barton,	Health-Integrated planning at the local	Land use policy	Not model
	H, Gray, S and Lease, H	ever in England: impediments and		
1252	(2013)	Opportunities	Rook	Not model
1222	2019	authorities and marketplaces to	BOOK	NULTIOUEI

		regenerate high streets		
2806	Cotterill, Sarah and Richardson, Liz 2010	Expanding the use of experiments on civic behavior: Experiments with local government as a research partner	The Annals of the American Academy of Political and Social Science	Not model
2807	Curtis, Kristina, Fulton, Emmie and Brown, Katherine 2018	Factors influencing application of behavioural science evidence by public health decision-makers and practitioners, and implications for practice	Preventive medicine reports	Not model
2808	Deverell, AC & Burnett, S (2012)	Need-to-know Cultures: an Investigation into Intra-organisational and Extra-organisational Knowledge Sharing Cultures in Local Government in the UK	Knowledge and Process Management	Research utilisation
2178	Dorling, H, Cook, A, Ollerhead, L & Westmore, M (2015)	The NIHR Public Health Research Programme: responding to local authority research needs in the United Kingdom	Health Research Policy and Systems	Not model
304	Ernsteins, R., Kaulins, J., Lice, E. and Stals, A. 2011	Integrated coastal management for local municipalities in Latvia: sustainability governance and indicator system	Book Section	Not model
868	Fabricant, Michael, Fisher, Robert and Simmons, Louise 2004	Understanding contemporary university-community connections: context, practice, and challenges	Journal of Community Practice	Not local govt
1867	Farquhar, S. A., Ryder, M., Henderlong, D., Lowe, R. A. & Amann, T. (2014)	Listening to Consumer Perspectives to Inform Addictions and Housing-Related Practice and Research	Global Journal of Community Psychology Practice	Not model
240	Foko, Thato, Phiri, Acheson Charles, Mahwai, Nare and Ieee (2014)	The e-Service Delivery in South Africa and the Contribution of Research Institutions such as the CSIR-Meraka Institute	Book	Not local govt
392	Freeman, ER., Brugge, D, Bennett-Bradley, WM, Levy, JI. and Carrasco, E R (2006)	Challenges of conducting community- based participatory research in Boston's neighborhoods to reduce disparities in asthma	Journal of Urban Health-Bulletin of the New York Academy of Medicine	Not local govt
2809	Gavens, L, Holmes, J, Buykx, P, De Vocht, F, Egan, M, Grace, D, Lock, K, Mooney, JD and Brennan, A 2019	Processes of local alcohol policy-making in England: Does the theory of policy transfer provide useful insights into public health decision-making?	Health & place	Research utilisation
1924	Glicksman, A., et al. (2014)	Building an integrated research/ policy planning age-friendly agenda	Journal of Aging & Social Policy	No model
23	Gonzalez, R, Llopis, J and Gasco, J (2013)	Innovation in public services: The case of Spanish local government	Journal of Business Research	No model
32	Hall, Brian 2006	Managing research in local authorities	Report	No model
8	Hansson, Johan, Höög, Elisabet and Nyström, M (2017)	Action research for multi-level facilitation of improvement in health and social care: Development of a change facilitation approach for a local	Action Research	No model

1138   Helgesen, MK and Hofstad, H   Determinants in Norwegian Local Government Health Promotion– Institutional Perspectives $\mathcal{K}$ The chapter is written as a part of Norwegian Research Council project   and Government More Government Mealth Promotion– Institutional Perspectives $\mathcal{K}$ The chapter and   No model     1278   Hoylman, EA 2017   The role of evidence-based research in the decision-making process as perceived by local board of education policymakers in West Virginia   Book   No model     2900   Hu, H., Allen, P., Yan, Y., Reis, R. S. and Supports for Research Evidence Use in State Public Health Agencies: A Latent Class Analysis   Journal of Public No model     1173   Iacono, M Pezzillo, Mangia, G. Canonico, P and (2010)   Governance Models in the Local Transport Industry: An Empirical Research on Tariff Integration Systems   Available at SSRN Not local govt 2441   Kagan, C., Lawthom, Goldstraw, K. 2017   Evidence-based medicine meets development   Journal of Public Not local govtResearch utilisation     2812   Kelly, MP, Atkins, L, Littleford, C, Leng, G and Michie, S 2017   The use of evidence in local public health decision-making: a systematic scoping review   Journal of Public Health   Research utilisation     2819   Keale, D, Rojas- Garcia, A & Thomas, J (2019)   The use of evidence in local public health decision-making: a systematic scoping review   Journal of Public Health   No Model policy and syst			R&D unit		
Hofstad, H 2014Government Health Promotion- Institutional Perspectives & The chapter is written as a part of Norwegian andGovernment Options in Health and1278Hoylman, EA 2017The role of evidence-based research in the decision-making process as perceived by local board of education policymakers in West VirginiaBookNo model2900Hu, H., Allen, P., Yan, Y., Reis, R. S. and Jacob, R. R. (2019)Research Full Report: Organizational State Public Health Agencies: A Latent Class AnalysisJournal of Public No model1173Iacono, M Pezzillo, Mangia, G. Canonico, P and (2010)Governance Models in the Local Transport Industry: An Empirical Research on Tariff Integration SystemsAvailable at SSRN Not local govt 1219Jansen, MWJ (2007) J., Diamond, J. & Goldstraw, K. 2017Mind the gap: Collaboration between practice, policy and research in local goviResearch on social dimensions of sustainable developmentSerialNot local govrResearch on utilisation2812Kelly, MP, Atkins, L, Littleford, C, Leng, G and Michie, S 2017The use of evidence in English local public health guidelines in local goviResearch on social dimensions of sustainableImplementation ScienceResearch utilisation2797Kneale, D, Rojas- Garcia, A, Raine, R & Thomas, J (2019)Obstacles and opportunities to using research evidence in local public health govires and opportunities to using research evidence in local public health Public health decision-making in EnglandNot Model systems2798Kneale, D, Rojas- Garcia, A, & Thom	1138	Helgesen, MK and	Determinants in Norwegian Local	and	No model
2014     Institutional Perspectives* The chapter is written as a part of Norwegian Research Council project     Options in Health and       1278     Hoylman, EA 2017     The role of evidence-based research in the decision-making process as perceived by local board of education policymakers in West Virginia     Book     No model       2900     Hu, H., Allen, P., Yan, Y., Reis, R. S. and Jacob, R. R. (2019)     Research Full Report: Organizational State Public Health Agencies: A Latent Class Analysis     Journal of Public No model       1173     Iacono, M Pezzillo, Mangia, G., Canonico, P and (2010)     Governance Models in the Local Transport Industry: An Empirical Partice, policy and research in local public health     Available at SSRN Not local govt 1219     Jansen, MWJ (2007)     Mind the gap: Collaboration between practice, policy and research in local public health     Thesis     No research system - only precursors       2441     Kagan, C., Lawthom, R., Clennon, O., Fisher, J., Diamond, J. & Goldstraw, K. 2017     Evidence-based medicine meets democracy: the role of evidence-based public health guidelines in local 2017     Journal of Public Health     Research utilisation       2797     Kneale, D, Rojas- Garcia, A, Raine, R & Thomas, J (2017)     The use of evidence in local public health public health decision-making: a public health d		Hofstad, H	Government Health Promotion-	Government	
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2505	Milofsky, C. and	Chaining and Virtual Organization in a	Journal of Applied	No Model
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	M.	partnerships: Lessons for practitioners	Planning C:	
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18	Rainey, C, Woolham, J	Research capacity, knowledge, skills and	London:	Snapshot'
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2817	Stokes, A. Roberts, C	Methods of knowledge exchange and	International	No model
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2475	Swanzen, R. and	Facilitating active citizenship in students	Book Section	No model
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	2016	community partnerships		

25	Taylor, Pat 2003	Partnerships between Health and Local Authorities: concluding remarks	Local Government	Opinion piece
			Studies	
2818	Van Der Graaf, Peter, Forrest, Lynne F, Adams, Jean, Shucksmith, Janet and	How do public health professionals view and engage with research? A qualitative interview study and stakeholder workshop engaging public	BMC public health	Research utilization
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988	Van Koperen, M., Hendriks, A. M., Van de Gaar, V., Ruiter, E. & Van Der Kleij, R. 2012	Dutch collaboration in research on the comprehensive integrated community approach to prevent overweight and obesity in children	Obesity Facts	No Model
1116	Walsh, et al 2015	Applying a behavioral model framework for disaster recovery research in local public health agencies: a conceptual approach	Disaster medicine and	No model
235	Wehrens, R. (2014)	Beyond two communities - from research utilization and knowledge translation to co-production?	Public Health	No Model
2819	Wilkinson, Gallagher, & Mark 2012	A collaborative approach to defining the usefulness of impact: lessons from a knowledge exchange project involving academics and social work practitioners	Evidence & Policy: A Journal of Research, Debate and Practice	No Model
19	Woolham, Stevens & Rainey 2016/2017	Research capacity and research governance in local authority settings in England: findings from a national survey in 2014	Research, Policy and Planning	National survey of local authority settings

## Appendix 4 - Coding for Core Activities{Gee, 2018 #2966}

- Developing and sustaining research collaborations
- Developing research priorities
- Academic dissemination
- Evidence based practice and knowledge transfer
- Hard wired into the organisation: making research core business
- Proactive and timely communication of research opportunities
- Patient and public involvement and engagement in research
- Research governance support
- Research education and learning
- Setting targets and monitoring performance
- Internal investment: allocating resources to promote research capacity
- Other...

## Appendix 5 - Coding for Research Capacity Subsystems (9, 10)

1. Prioritisation: Developing research priorities from consensus views of informed participants

2. Mentoring: where an experienced, highly regarded person (the mentor) guides another individual (the mentee) in the development and examination of their own ideas, learning and personal and professional development

3. Leadership: the process of influencing group activities towards the achievement of RCD goals

4. Research facilitators: individuals whose role is explicitly to promote and enable the conduct of a research by those with limited research experience.

- 5. Training: interventions that aim to increase skills and knowledge
- 6. Funding to develop RCD including bursaries and fellowships

7. Networks and collaborations: structures and functions that support people to work together

to improve knowledge transfer, innovation, a research process or an output

8. Infrastructure: activities used to enhance support of RCD; to include R&D departments, research directors, finance and contracts supports and IT infrastructure.

9. Evaluation, Metrics and Monitoring: activities to evaluate the impact of the R&D infrastructure activities

10. Culture: interventions designed to increase and extend familiarity with and receptivity for research.

Other...

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