

School for Public Health Research

1.	Project reference:	Final report date:	
	SPHR-FUS-PH106-KNS	31 March 2018	
2.	Project title:		
	Co-creating an agreed set of theoretically and empirically-informed knowledge sharing principles for the SPHR research programme		
3.	Lead investigators on project:		
	Professor Rosemary Rushmer (Fuse)		
	Other NIHR School collaborators (name, School for Primary Care/Social Care Research) on project:		
	N/A		
Names and roles of others involved in project (e.g. include fixed term contract researchers and external collaborators / partners):			
<p><u>SPHR Co-leads:</u> Halliday(Lilac); Lafortune and Mattocks (Cambridge Institute of Public Health); Vamos (Imperial College London); Kneale (UCL); Salway (Sheffield); Egan (LSHTM); de Vocht (Bristol).</p> <p><u>SPHR researchers:</u> Kathryn Cassidy Sarah Dinsdale Karen McCabe (all Teesside University)</p> <p><u>External collaborators:</u> Policy and practice partners from each member of the SPHR</p>			
4.	Project start date:	Project end date:	Duration:
	1 May 2017	31 March 2018	11 months
5.	Project objectives originally outlined in proposal:		
	<p>Rationale and summary: Getting research evidence to inform practice and policy is neither straight-forward nor guaranteed. In clinical areas it is estimated that it can take 17 years for impact (IoM 2000, Morris 2011), in public health across non-politically neutral contexts, it can take considerably longer – perhaps 70 years (Proctor 2012). The burgeoning cognate discipline of knowledge exchange and translational research focuses on reducing the knowledge-to-action gap. Across the 8 members of the SPHR there are examples of good practice in working closely with policy and practice partners (PPPs) to produce and share useful research evidence. Much is to be gained by harnessing this expertise. Using an interactive approach, workshops brought together the same members of each centre (along with PPPs) to share ‘what works’ in sharing knowledge two-way across boundaries to create useable</p>		



knowledge. Following a review of reviews, two Delphi questionnaires introduced the existing evidence-base on knowledge exchange approaches and data collection was supported by in-depth stakeholder interview to critically question and establish the feasibility, acceptability, utility and transferability of the approaches shared. Iteratively a set of knowledge sharing principles was collectively established across participants (and therefore SPHR centres).

Adherence to the principles will help to ensure that SPHR research programme is based on both current thinking and best practice in creating and sharing research with PPPs to facilitate usefulness, uptake and impact.

Overarching aim: for SPHR centres to work together in a timely way to help shape the ongoing SPHR research programme to encourage the creation and uptake of useful evidence

Aim: to co-create an agreed set of theoretically and empirically-informed knowledge sharing principles to inform the SPHR research programme.

Design:

A hybrid collaborative and learning-set design (IHI 2003) was used to mobilise the collective learning across SPHR centres, alongside a stakeholder evaluation (Ovretveit 1998), and included an interactive workshop approach to bring SPHR members together to share and learn in a focused way (Baumbusch, Kirkham et al. 2008 Kislov, Walshe et al. 2012).

Objectives:

1. To create a cadre of SPHR members and their PPPs (practice and policy partners) with senior national practitioner / policy input and lay representation.
2. To carry out a rapid review of reviews.
3. To use the extant literature to construct a 2-stage Delphi questionnaire
4. To organise two workshops where this cadre can come together and engage in reciprocal learning around best practice in producing and sharing useful research evidence. By:
 - a. Sharing the evidence base on 'what works' in producing and sharing research with PPPs.
 - b. Identifying and sharing good practice through a stakeholder analysis of work undertaken within the 8 centres.
5. To draft knowledge sharing principles for comment and consensus

Key Parameters:

Timely deliverables: The research commenced following the launch of SPHR (May 2018) and needed to report in time to inform the ongoing schedule of the SPHR research (mid-October 2017), **so this was an intense period of collaboration.** Writing-up and producing outputs followed until March 2018.

Consensus on the principles: It is important that, within the timeframe and resource available, multiple data sources are incorporated in the principles (extant literature, current good practice, views of multiple stakeholder groups giving situated and professional expertise) - so that **the principles are shaped by this consensual process and are not imposed.**

6. Briefly describe and explain the reason(s) for any changes to the project originally outlined in proposal:

The process as outlined (section 8 below) was largely adhered to with two exceptions made in response to the nature of the emerging data.



1. The first Delphi questionnaire was based on knowledge sharing activities and approaches as identified in the extant literature ('what works' in sharing knowledge with PPPs and other stakeholders). The original intention was to use the Delphi technique to get SPHR members and other stakeholders to narrow down the Delphi list to those approaches most effective in sharing public health knowledge and to identify their current usage (if any) across the SPHR. However, overall the data from the first Delphi showed such a high degree of consensus and current usage with all the identified approaches that a second round Delphi would not have achieved a further refinement of the factors. Instead, at the suggestion of SPHR members attending the first workshop at which the results of the first Delphi were shared, draft principles were constructed from this data and shared for comment in the second Delphi. The draft principles were shared with the SPHR Executive at their October meeting in Bristol (and one week in advance of this) for comment.
2. A final step in the process was added. The principles were developed as an iterative process. During workshop two (and in light of the feedback from the SPHR Executive and ongoing good practice interviews) the *wording* of the draft principles (but not necessarily their meaning) was changed. Not all SPHR collaborators had been able to attend workshop 2 so the draft principles were once again shared with the SPHR collaborators for comment, clarification, input and amendment. This created an additional step in the process. The principles were once again amended in light of comments and re-circulated for final checking. This final version of the principles (and supporting online material) was submitted to the SPHR Executive at their Sandpit event in November 2017.

7. Brief summary of methods, findings against objectives, and conclusions (2-4 pages max):

Methods and process (emergent findings are reported iteratively, as they shaped the ongoing research)

Creating a cadre of SPHR members (meets objectives 1 & 5). A member of the SPHR led on behalf of each centre to: **a)** identify team members for inclusion in the workshops, recruiting *up to four people* to take part on behalf of their centre. A senior academic (lead), a junior researcher (capacity building), a communications / knowledge exchange person (direct relevance to their role) and a PPP of their choice. This ensured that debate was enriched by the views of people who stand in a different relationship to the research process (i.e. research producers, evidence mobilisers and evidence-end-users). **b)** Centre leads were also asked to identify 1-2 positive examples of good practice in creating and sharing research evidence with PPPs taking place at their centre and also (if willing) one example that did not 'work'. These examples were shared in workshop 1.

A rapid review of reviews (meets objectives 2, 3, 4 and 5) on what works in creating and sharing useful research evidence was undertaken by Fuse researchers (extant theoretical and empirical evidence-base). There are approx. 70 reviews of knowledge exchange, knowledge sharing and effective approaches to creating impact (between 2004 and 2014). The Fuse research team (four members) individually assessed the relevance of these reviews to public health research (methods, topics, and contexts). Then collectively agreed a final list to be included in the review of reviews. 32/70 reviews were included. Data extracted included, approaches and activities shown to be effective in sharing knowledge across practice, professional, policy, and sector boundaries and identification of contextual barriers and facilitators.



Headline Findings The current drive behind the REF is to urge academics to ‘create impact’ (push-model), whereas existing literature turns this idea upside-down. The extant evidence-base suggests that research that takes account of end-users needs, knowledge, and context is more likely to be considered relevant, useful and used, facilitating its own uptake (pull-model). Research that addresses current priorities, works-around contextual barriers, engages local stakeholders and decision-makers in the process and has actionable messages about implementation is more likely to influence practice and policy. In addition, it suggests that regular engagement between those producing the research and evidence end-users (or other stakeholders) will ensure the continued relevance of the work and the likely ‘ownership’ of the results and motivation to implement any helpful findings. Taken together this suggests that in public health participatory designs where new knowledge may, (at least in part), be co-created will be inherently more likely to have knowledge sharing built-in. However, PH research encompasses many research designs and not all benefit from close ongoing engagement with end-users (e.g. within trials where knowledge of interim results may ‘contaminate’ later data collection). The Canadian Institutes of Health Research (CIHR)’s extensive evidence-base on translational research in public health distinguishes between ‘integral knowledge translation’ (sharing and exchange views throughout the research process akin to participatory designs) and ‘end-of-project knowledge translation’ (akin to dissemination of results). Therefore, in line with this approach, one possible approach for SPHR would be to assign different guidance on knowledge sharing to different research proposals according to research design and research paradigm. Alternatively, a higher-level, more abstracted set of principles could be developed that would apply to all research across the School. The feasibility and acceptability of either alternative needed to be explored with participants.

Research governance approvals: Whilst undertaking these initial stages of the research process, ethics committee approval was also obtained via Teesside University ethics committee. **NB:** as there was not time to obtain NREC approval, NHS members were not able to complete the Delphi questionnaire (unless they completed it as a member of the public). All participants at the workshops completed a consent form to allow their contribution to the workshop debate to be recorded and treated as data.

The workshops (meets objectives 1.3.4 & 5) Drawing upon the collaboratives approach (see IHI 2003). Participants were brought together in two workshops to encourage dialogue and reciprocal learning supported by educational input (the extant evidence-base) with reflection time and data collection built-in between workshops (Schon 1983). Workshop 1 (July 2017, London), workshop 2 (September 2017, Darlington).

Delphi questionnaire round one: (meets objectives 3, 4, and 5). Rationale: within the literature many activities, mediums, approaches, times and places in which to share knowledge were identified (each with some reported success). It was clear that, what works in one context may not work elsewhere, or work in the same way. This led to two conclusions: i) that hard-and fast prescriptive approaches to knowledge sharing were unlikely to be possible or helpful and that ii) as these promising activities were drawn from multiple contexts and research areas, it was unclear which, if any, would ‘work’ within PH research in the UK.

The first Delphi questionnaire categorised these promising activities into actions that could be taken before, during and after the research process, to investigate if current SPHR practice included any of these and if so, their perceived success (according to SPHR academics and their PPPs), and to identify any perceived barriers to use. We anticipated that this would give us a list of knowledge sharing activities identified as effective in the literature and confirmed as such, within the good practice of the SPHR members. The questionnaire was circulated via Bristol Online Surveys to the SPHR centre leads and they shared this through their centre’s circulation list to include academics, PPPs and other



stakeholders. This took place in early July. (N = 49 53% academe, 31% local or national government, 10% VCS, 6% other.)

Summary of findings: In the first Delphi, we asked members and stakeholders to reflect on the types of things they did to facilitate knowledge sharing at different stages of the research process, how often they did them and how important they felt they were. We found that there was consensus amongst academics and PPPs on several key points, i.e. where more the 50% of them were doing something frequently and felt that it was very important. These were - before starting their research: identify key stakeholders; explore the usefulness of the research; foster trust and respect among colleagues; agree deliverables; agree roles and responsibilities. During research there was consensus around enhancing relationships and mutual respect. Towards the end of the research process, activities centered around: raising awareness of research findings; obtaining feedback from stakeholders on the research findings; identifying and exploring pathways to the implementation of research findings. Two key areas in which it appeared that respondents were less clear as to their importance and were, therefore, less likely to be engaged in these activities were: developing contingency plans and considering wider political sensitivities. When we probed the latter point at workshop one, participants felt that they did not want these sensitivities to be a driver for research. In analysing the data from the first Delphi, we also explored the differences between academics (53% of respondents) and those from the third and public sectors (PPPs, 41% of respondents). Some small disparities emerged in the responses given by these groups. There was less variability in views from PPPs and they are generally more positive in relation to all the statements with higher occurrences of frequently or sometimes and very important or moderately important. At the first workshop, one of the public-sector participants commented that she believed this was because almost all the activities were a good idea in principle. At the beginning of a research project, academic researchers were more likely to work with PPPs in order to: consider resource implications; outline what needs to be measured; identify research priorities. At the end of a project they were likely to try to: inform policy and guidelines; identify and build relationships with emergent stakeholders; build understanding of the value of research; support the incorporations of findings into practice. End of project reports, policy recommendations and recommendations more generally emerged as being preferred by PPPs, whereas academics were more likely to value and produce academic publications – although the gap here does not appear as wide as one might expect. Finally, the first Delphi also revealed the area where there was more variability between what people did, and what they felt was important, this was in how to share knowledge outside the research process. Summary reports and informal meetings and conversations were the only ways of sharing knowledge that everybody used frequently and felt were very important. The methods being used most frequently were less interactive, i.e. dissemination events and conferences, and more targeted approaches, e.g. workshops and training events are less well used and considered somewhat less important.

Workshop 1 shared the first round results of the Delphi to prompt debate about what different stakeholders believe helps in the creation and sharing of useful research evidence (stakeholder views) and the implications of these. Each SPHR centre presented at least one example of what they considered to be good practice in their centre's work in creating and sharing useful research evidence with PPPs, to further facilitate and open discussion of what works across contexts. (11 academic and 8 PPPs attended)

Good practice interviews (meets objectives 1, 4, and 5). 22 in-depth semi-structured telephone interviews were carried out including at least one academic and one PPP associated with each SPHR centre. Participants were asked what worked for them in collaborating and communicating across epistemic boundaries and what helped and hindered in sharing knowledge two-way. They were asked why they felt that this was the case, and what opportunities and challenges were present and



the extent to which they felt that their experiences might be transferable across contexts. (N = 22, 8 academic, 5 hybrid academic / practice and 9 PPPs).

Summary of qualitative findings Views and opinions collected within the workshops and from the in-depth interviews largely supported the extant literature, that 'what works' in sharing knowledge depends on what knowledge is being shared, with whom, when and for what purposes.

"So, yeah what I am trying to say is that there are different ways of knowledge sharing, and it's very difficult to have a – 'this is what you should do'." (academic)

All participants acknowledged the complexity of public health research and the non-politically neutral contexts in which it occurred. Participants spoke widely of the need to understand the context of public health practice and decision-making in order to gain insight into why even 'good evidence' (robust, proof of effectiveness, etc.) may not be useful and remain unused. Greater understanding was needed of previous decisions (history) and what had already been tried, differing timescales, the decision-making process, procurement rules, commissioning constraints, performance pressures, and financial constraints. Sometimes systems configurations meant that research looking at only one aspect of a larger issue could not address wider blockages and untangle how large-scale problems were inherently tied to other problematic areas, so evidence may not be useful.

"I could not stress enough the importance of any knowledge translation being dependant on an up-to-date understanding of the local systems. At least the systems that are relevant to the level of the research, if you see what I mean. There is something about just capturing that and showing how the findings would fit and how they would go forward. That's at the heart of it." (PPP)

There was some criticism from PPPs that they believed "the sharing is academics sharing with each other" rather than with relevant external stakeholders and that knowledge exchange was only about dissemination, an after-thought that was not built into any other area of the research process. Almost everyone agreed that the most successful sharing of knowledge did not occur at the end of projects but came from long-term (non-exploitative) trusting relationships across the academe – practice/policy boundary, where different collaborators shared an issue and brought different skills, knowledge and expertise to bear in order to "provide realism" (PPP) into the research. This might mean via participatory approaches but not necessarily:

"There's ways of communicating that engage and can help generate some ownership [by PPPs]... the earlier the better is a principle, isn't it, that people [PPPs] want the research...have asked for it, they are signed up to it, they are involved, key people are either part of the steering groups and even if they don't want to be actively involved in the research itself, they understand that in 12 months' time or 18 months' time.", that the next steps would be A, B and C and there is some buy-in to that." (PPP)

Participants believed that there would be PPPs who would be willing to listen or could be a research team member or give counsel. Alongside this, all participants wanted the principles to apply across all SPHR research, whatever the design or topic area, and that even in the most contested areas of research, or controlled designs there would be benefit in sharing different knowledge types in some way.

"...because there is a place for a random controlled trial, there is a place for secondary statistical analysis that doesn't necessarily involve control, that doesn't involve kind of the same level of collaboration... I guess the thing with the principles is that what we want people to do is to reflect, build robust proposals that create mechanisms for appropriate ways of working that bring about knowledge mobilisation but that, without trying to push people into particular types of research design. (PPP)

What was important was to engage at the outset with the idea of sharing knowledge;

"...people are designing their questions, methods and methodologies, that they're thinking about how they're going to write up what they're doing, how they're going to make it translatable and usable, if you like, so that they're thinking, 'are people going to be able to use this?'" (academic)

Everyone acknowledged the need to tailor evidence for the desired audience to make it accessible. Academics identified that the same evidence can be used in different ways at different times and that once "out there" evidence took on a life on its own, making it difficult to decide who the audience really was, or to ensure that evidence was interpreted accurately. Academics also acknowledged that PPPs sometimes want definitive answers whereas research findings may be more nuanced than this.



There was some call to develop new methods and that the principles provide an opportunity for research teams to be more creative in their approaches without *“losing your quality and rigour”*. Participants agreed that the principles needed to be clear and concise, and that supporting material would be needed to help people’s thinking. They also believed that reviewers would need to be made clear about what the principles were trying to achieve. There were concerns among participants (mainly academics) that without effective and ongoing communication around the principles they would lose momentum and they could become merely a *‘tick-box exercise’* within a funding bid with people asking themselves the question – *“how do I meet this – what do I need to do to get through this”*. Several participants (PPP and academic) strongly suggested that adherence to the principles be monitored closely:

“almost as a ‘how will you make sure that these standards are complied with? Not, ‘will you comply with the standards?’ because everybody will just go, ‘yes’” (PPP).

PPPs were optimistic that this could begin a culture change across PH research to *“mak[e] sure that it [SPHR research] speaks to the decision makers”* and that if the principles were embedded the SPHR could become a front-runner in PH research in relation knowledge sharing. Continued communication of the principles across SPHR was considered to central to changing culture and changing research practice. The aspiration was that knowledge sharing become *“everybody’s business not somebody’s job”*, (PPP) rather than, as currently, where:

“quite often it [knowledge sharing] gets farmed out to people who are interested in it and really want to do it” (academic).

There was a wider acknowledgement that sharing knowledge and expertise, either to create new knowledge together or to share research findings with the most appropriate audience might not be as straightforward as abiding by a set of principles (although this might be a starting point). The reason for this were multiple, but included, on a practical level, the increasing number of PPPs within local authorities who now have an interest in PH issues and the fragmentation of PH teams.

Epistemological challenges were also widely discussed as participants acknowledged that what academe does and what practice does are different, not simply the terminology and timescales, but that actual interests, concerns and *“what counts”* differs.

“...[PPPs] want to deliver it and see how to make it better and if it’s not working, they want to know how to make it better the next time [action].” (PPP)

Whereas academe favours *“understanding”* and *“world class evidence”*. PPPs questioned the usefulness and feasibility of national and international research to the *“here and now”*. Performance pressures on academics require them to publish, but journal conventions, and what is deemed publishable, may mitigate against practice and policy-oriented research and outputs.

“It made me think that when you’re producing outputs for practitioners and stakeholders and policy makers as opposed to for academic audiences and journals, it’s not just about the language; there is actually a difference in what people are interested in. I think researchers need to challenge and question that difference. Why are academic journals not interested in the kinds of things that are of interest to people delivering services? What is the reason for that?” (academic)

Drafting the principles: (meets objectives 4, and 5). There was unequivocal consensus between what the extant literature identified as effective in sharing knowledge (theoretical and empirical knowns) and the views of the SPHR members emerging from the first round of the Delphi and good practice interviews (situational knowledge and practical wisdom). Based on this consensus six high level, broad purpose, knowledge sharing principles were drafted. **NB:** Constructing the principles to be high level (literally, in-principle, with no specifics) enables SPHR researchers to build knowledge sharing into their research design, *as is fitting*, at the beginning of the application process. It acknowledges their expertise in their cognate area and gives them time to reflect on how their methodology, research context, and any topic sensitivities shape the best ways to share knowledge (with whom and how) before, during and after the research process. Supporting material provides prompts and starter questions to consider.



Delphi questionnaire 2: (meets objectives 3, 4, and 5). The second Delphi questionnaire was used to share the draft principles widely for comment and input. Additional questions were added that asked respondents about their views on how the principles might be used within the SPHR programme. The circulation process was the same as before (out to centre leads and then issued widely across their centre's circulation list). N = 73 (39 academe, 34 non-academe). **NB:** quantitative views on the principles are shared below with the principles themselves.

Headline findings In Delphi 2, the 73 respondents gave views on how the principles should be used: to constitute a mandatory section on the SPHR application form, (Strongly Agree and Somewhat Agree = 78.1%); supporting material should be available as guidance for SPHR applicants, (Strongly Agree and Somewhat Agree = 97.3%); that it was important that the principles applied to all PH research designs (Strongly Agree and Somewhat Agree = 77.8%); that SPHR applicants were able to interpret the principles according to their research design and topic area, (Strongly Agree and Somewhat Agree = 91.8%); that the final report should report back on planned and actual knowledge sharing activity, (Strongly Agree and Somewhat Agree = 94.5%). Respondents also shared their views on how knowledge sharing activities should be reviewed and assessed: that reviewers should be asked to assess responses to the principles and actual knowledge sharing activities (Strongly Agree and Somewhat Agree = 80.8%); that guidance should be provided to the reviewers to carry out the review (Strongly Agree and Somewhat Agree = 98.6%); and that (in line with other major funding bodies) at least one reviewer should be a PPP or lay member (Strongly Agree and Somewhat Agree = 89%). With regards to how knowledge sharing activities should be supported more widely respondents reported that: knowledge sharing activities should be funded within SPHR (Strongly Agree and Somewhat Agree = 93.2%), that development opportunities should be provided to skill researchers in knowledge sharing and knowledge exchange theory and activities (Strongly Agree and Somewhat Agree = 91.75%), and that SPHR should consider hosting knowledge exchange meetings where stakeholders and potential knowledge users can come together to debate strategic priorities and help shape research agendas (Strongly Agree and Somewhat Agree = 88.95%). With regards to engaging PPPs in SPHR research opinion was more mixed but still supportive: that evidence of engagement with PPPs should be provided before SPHR applications are submitted Strongly Agree and Somewhat Agree = 75%, Somewhat disagree and Completely Disagree 15.3%); and that SPHR applications should include at least one PPP or lay member as a co-applicant, (Strongly Agree and Somewhat Agree = 60.5%, Somewhat Disagree and Completely disagree 23.9%). These last two points may reflect the conflicted areas in which some PH researchers work (e.g. tobacco control) but need not preclude them from working alongside carefully selected PH practitioners perhaps.

Workshop 2 (meets objectives 1, 3, 4, and 5). September 2017 (Darlington) shared the draft principles, supporting material and the Delphi feedback on the principles for debate (see below). Suggestions were made on re-wording the principles for clarity. Whilst the principles themselves needed to be concise, it was reinforced that supporting material to expand upon them, give examples and provide additional material to consider, would be helpful as supporting web-material, if the principles are to be adopted as part of the application for SPHR funding (on the application form). The need to keep the principles as high-level concepts was re-emphasised, as participants believed that this allowed researchers to interpret them in light of their own particular research design, methods, topic area, and context. (N = 15, 9 academic, 3 academic / practice, 3 practice).

Process for final sense-checking and consensus: (meets objectives 1 and 5). The principles and supporting material were shared with the SPHR Executive at their meeting in Bristol in October 2017 (and in advance) for comment and input. Feedback led to some slight amendments to the principles. Given these slight changes, and that some collaborators had not been able to attend the second workshop, the principles and supporting material were once again circulated for comment across the collaborating SPHR centres. Feedback was taken and some changes were made to the supporting



material. The principles and supporting material were then circulated once again for final approval and passed on to the SPHR executive with the supporting material for inclusion in their November 2017 Sandpit meeting.

Findings and Concluding Outputs (in relation to the objectives):

QUESTION FOR THE SPHR APPLICATION FORM

Q: How will the proposed research address the 6 SPHR knowledge sharing principles?

You should consider all 6 principles, if one, or more does, not apply in your research you should provide a strong justification of this. As a programme of applied research there is an expectation that such circumstances should be rare and exceptional.

- **Clarify your purpose and knowledge sharing goals** - What do you want your findings to do, or to change?
- **Identify knowledge users and stakeholders** - Who would be interested in this research, or need to know about it?
- **Design the research to use the expertise of the knowledge users and stakeholders** - How will you design the research to benefit from knowledge users' expertise and knowledge?
- **Agree expectations** - How will you get a shared understanding what is expected of everyone and what can be achieved?
- **Monitor, reflect and be responsive in sharing knowledge** - How will you know if your knowledge sharing activities have met your goals?
- **Leave a legacy** - How can you develop, capture and sustain any benefits?

WEB MATERIAL

Background

The six principles below, are informed by: the extant literature; examples of good practice across the 8 SPHR centres; examples of principles from other funding bodies in the UK and internationally, views of academics, practice and policy partners and other stakeholders involved in sharing knowledge and working collaboratively across academe-policy boundaries in public health and agreed collaboratively across the 8 centre members of the SPHR.

Overall, research that takes account of end-users needs, knowledge and context is more likely to be considered relevant, useful, and used. Regular engagement with research end users and stakeholders enables research to remain relevant in changing contexts. Additionally, such approaches contribute to the democratisation of the research process and addresses the impact and return-on-investment agendas.

However, exactly 'what works' in creating and sharing useful and useable knowledge to help address public health issues, varies according to the topic, context and nature of the research. The principles are therefore 'high-level' to enable applicants to consider the issues, and decide what they mean, and how they apply, in any particular piece of research, whilst maintaining the integrity of that research.

The principles are listed below (in bold), with some clarification (in italics). You should identify how each principle applies in your proposed research and provide a rationale and justification. Addressing these is mandatory. The bullets points may provide helpful prompts and starter questions to illustrate issues you might wish to consider, but they may not be relevant in every case. NB: Although the principles are numbered and appear sequentially below, they may not (and need not) occur in that order.



The 6 SPHR knowledge sharing principles

1 Clarify your purpose and knowledge sharing goals - What do you want your findings to do, or to change? (Delphi 2 result: Strongly Agree and Somewhat Agree = 98.7%)

(for example: add to knowledge (challenge, refute, establish), raise awareness, provide insight, empirical evidence, raise awareness, influence practice, influence policy)

Consider

- The NIHR SPHR is a programme of applied research and the expectation is that there should be an identifiable benefit to policy-makers or practitioners in PH, the populations they serve, or the wider health system in the UK.
- A useful phrase might be: 'We aim to share knowledge / work together with... in order to...'

2 Identify knowledge users - Who would be interested in this research, or need to know about it? (Delphi 2 result: Strongly Agree and Somewhat Agree = 94.4%)

(for example: certain individuals, groups, organisations, decision makers, communities, the public, other researchers)

Consider:

- Why is the topic of interest to the end-users you identify?
- Who will be affected by any changes (benefit or loss)?
- Who has the authority and / or connections to influence any changes?
- Who has an understanding of the context, culture, language and terminology, current priorities, up-coming changes involved in the area of study?

3 Design the research to incorporate the expertise of the knowledge users - How will you design the research to benefit from knowledge users' expertise and knowledge? (Delphi 2 result: Strongly Agree and Somewhat Agree = 95.8%)

(for example: establishing the RQs, contributing to the proposal, via consultation, advisory / steering groups, knowledge users as co-applicants, as researchers, in data interpretation, in preparing written materials, in helping to share the knowledge, or in its implementation.)

Consider:

- How will you engage knowledge users, when, and by what means?
- How can you embed these activities in the design?
- Can you build-in early gains for knowledge users to maintain enthusiasm?
- What will it take to resource engagement activities (time, people, money)?
- How will the rigour of the research process be ensured?

4 Agree expectations - How will you get a shared understanding what is expected of everyone and what can be achieved? (Delphi 2 result: Strongly Agree and Somewhat Agree = 94.4%)

(for example: an agreement, or terms of reference that spell out roles, timelines and deliverables.)

Consider

- What will 'success' look like to the different knowledge users?
- How will you deal with unexpected or unwelcome findings?
- Consider that the perspectives of some stakeholders may be irreconcilable (conflicting and competing). Is it possible (or desirable) to engage all stakeholders if they are strongly conflicted? What strategies can help deal with any adverse reception to your findings?
- How will you manage potential conflicts between different knowledge users and stakeholders?
- Who will be responsible for any diffusion of the findings, (passive e.g. published papers), dissemination (targeted: e.g. policy briefs, lay summaries for communities), or implementation (active: putting findings into action)?

5 Monitor, reflect and be responsive in sharing knowledge - How will you know if your knowledge sharing activities have met your goals? (Delphi 2 result: Strongly Agree and Somewhat Agree = 95.9%)

(for example: reaching practitioners, policy-makers or communities beyond the sites you are closely engaged with).

Consider:

- Are you reaching potential knowledge users across multiple contexts?
- How can you put in place proportionate processes to assess your knowledge sharing approach?
- How will you remain open to new or changing opportunities to share the knowledge generated?



6 Leave a legacy - How can you develop, capture and sustain any benefits? (Delphi 2 result: Strongly Agree and Somewhat Agree = 94.5%)

Knowledge sharing builds, and rests upon, trusting relationships and conversely will falter if engagement is seen as instrumental and exploitative. The complexity of PH systems is that while organisations and structures disappear relationships may endure and open-up new possibilities.)

Consider

- How can relationships be sustained or extended beyond specific projects (if appropriate), and for what purpose?
- Can wider links be made to enable new relationships to be built?
- What written materials will capture any learning for all audiences?
- Can skills, expertise and other intangibles be left behind as a legacy?
- Report back on and publish on your knowledge sharing efforts to the funders and via publication.

CONCLUDING REMARKS

The six principles and supporting material represent SPHR members' own views on what they want (and have agreed) to see in the SPHR programme regarding sharing knowledge across boundaries. These views reflect, and were widely supported by, the extant literature on 'what works' in knowledge sharing and many of the centres had interesting examples of knowledge sharing practices with their PPPs and communities. High-level, broad purpose knowledge sharing principles that apply across all research in the SPHR were overwhelmingly supported. Wide support for the persistent promotion of the principles and the need to embed them in the application and review processes was considered to be important if the principle are to impact on the research conducted under the auspices of the SPHR. PPPs, in particular, were optimistic that this could be the opportunity for the SPHR to be at the forefront of knowledge sharing amongst UK funding streams and that it offered researchers the opportunity to be creative in developing new knowledge sharing methodologies. There was widespread support for an evaluation of the impact of the principles in due course and of their refinement.

8. Plain English Summary (400 words max)

Please provide a summary of the project, including background, findings and conclusions:

Getting research evidence to inform practice and policy is neither straight-forward nor guaranteed. Overall, research that takes account of: what public health knowledge is needed; the context in which it will be used and what the people using it already know, is more likely to be considered relevant, useful, and used. Regular engagement with people who will use the research or those interested in it, or affected-by it, allows research to remain relevant in changing contexts. Such approaches contribute to the democratisation of the research process and any beneficial changes that result help justify investment made in research. Knowledge can be shared as interested parties collaborate to create new knowledge together or, more traditionally, as researchers communicate their research findings.

The aim of the research was to learn 'what works' (and is working) in sharing knowledge effectively and to use this to agree knowledge sharing principles across the School for Public Health Research (SPHR) centres to guide researchers. All 8 SPHR centres participated with centre-leads co-ordinating their contribution. The six principles below, are informed by: existing literature on 'what works' in sharing knowledge (review of 37/70 reviews); shared examples of good practice across SPHR; examples of principles from other funding bodies in the UK and internationally, views of academics, practice and policy partners and others involved in sharing knowledge and working collaboratively in public health (22 in-depth interviews). The principles were agreed across the SPHR centres and their membership via two questionnaires (52 people (26 academe and 26 non-academe) and 73 people (39 academe and 34 non-academe) replied respectively) and in two workshops with 19 and 15 participants. The data collection took place between May–October 2017.



	<p>What works in creating and sharing useful and useable knowledge to help address public health issues, varies according to the topic, context and nature of the research. The principles are therefore broad-purpose to enable applicants to consider the issues, decide what they mean, and how they apply in any particular piece of research, whilst maintaining the integrity of that research. The principles are designed to be part of the application for funding and review processes of SPHR and supported by additional web material. The six principles are: clarify your purpose and knowledge sharing goals; identify knowledge users and stakeholders; design the research to use the expertise of the knowledge users and stakeholders; agree expectations; monitor, reflect and be responsive in sharing knowledge; leave a legacy.</p> <p>401 words</p>
<p>9.</p>	<p>Keywords Please provide up to 8 keywords that relate to the research undertaken in this study:</p> <p>Knowledge sharing principles Knowledge exchange Knowledge translation Translational research Knowledge Impact</p>
<p>10.</p>	<p>Dissemination – please detail planned or published articles in peer-reviewed journals (including web links):</p> <p>Paper writing is ongoing. Four papers are planned as follows:</p> <ul style="list-style-type: none"> • An analysis of the process of co-creating knowledge sharing principles across partners in a national funded research programme (SPHR) (for Millbank Quarterly in the first instance). • An analysis of the ‘gaps’ between academic and practice partners in terms of desired and current approaches to knowledge sharing (for JPH) • A review of the barriers to creating high-level, meaningful knowledge sharing principles (for Implementation Science) • A theoretical paper drawing upon Deleuze and Guattari to explore the spatialities and temporalities of knowledge sharing as a form of assemblage (journal TBD)
<p>11.</p>	<p>Impact – please use this space to capture information (e.g. data, case studies, quotes, ‘thank you’ emails etc.) that can be used now and in the future to effectively and concisely demonstrate the impact of your project:</p> <p>Policy and practice partners and other stakeholders from the collaborating SPHR centres (including local authority members, Public Health England members, NHS England members, NICE members, members of the WHO Evidence into Policy Network (EVIPNet), VCS, members of the public, the SPHR Executive) were involved in the creation of the principles, via their participation in the Delphi process, the workshops, as part of the good practice examples and the good practice interviews. Once we are clear what role the principles and supporting material will play in the SPHR programme (e.g. the application for funding process and reporting – the outcome) we will provide feedback to participants to inform them on the uptake of the principles, and thank them for their participation.</p>

As a direct results of the workshop one closer links between NICE and the SPHR Executive were established (via Moni Choudhury), to allow the unanswered questions that arise from NIHR funded research to feed into the SPHR research programme for consideration.

This is an under-pinning project to inform the SPHR processes and how its researchers think about and engage with and involve stakeholders (outside academe) in their own research. The impact of this project may only be identifiable if (and as) the principles are embedded in the SPHR application for funding and reporting processes

12. Patient, public and practitioner involvement and engagement - please summarise your progress to date in implementing your plan for PPIE. Please provide comment on your experiences, any changes made and lessons drawn:

(from above) Policy and practice partners and other stakeholders from the collaborating SPHR centres (including local authority members, Public Health England members, NHS England members, NICE members, members of the WHO Evidence into Policy Network (EVIPNet), VCS, members of the public, the SPHR Executive) were actively involved in the creation of the principles (co-creation), via their participation in the Delphi process, the workshops, as part of the good practice examples and the good practice interviews). Once we are clear what role the principles and supporting material will play in the SPHR programme (e.g. the application for funding process and reporting – the outcome) we will provide feedback to participants to inform them on the uptake of the principles and thank them for their participation.

It was *very difficult* to gain research governance approvals given the co-created nature of the design and in the timescales available. Three main difficulties arose. 1) In the time available - we were not able to get NHS ethical clearance and had to omit NHS staff as participants unless they participated as members of the public. 2) Data protection issues: the Delphi questionnaire was circulated via the circulation lists of the SPHR centres (for confidentiality purposes), however, this caused some concern regarding data protection legislation. We had to include a caveat in the Delphi questionnaire to say that if somebody on the circulation list (who had received the Delphi questionnaire) did not want to be contacted for research purposes (even though they were on the mailing lists of the centres) that they had to contact the administrator of the centres to make these wishes known and to be removed from the list for research purposes. 3) Researching the process: to be able to collect data at the workshops (i.e. to count the discussion as 'data') we were required to get all participants to complete a consent form for participation in the workshops (this was to ensure that junior academics did not feel compelled to take part in the research because they could not refuse as it was part of their job requirements). In practice *none* of these potential ethical issues were raised as concerns by *any* of the participants.

Participants who were from outside academia were grateful for being included and provided valuable insights into the challenges of mobilising research evidence (given the political and financial context). An overarching finding is that they are often *not unaware of research evidence, but simply unable to deploy it*, suggesting that communication and education are largely sufficient, but that system barriers remain considerable barriers to impact.

13. Any other information:

It will take time for the knowledge sharing principles to embed in the SPHR programme. There would be merit in investigating the utility and acceptability of the principles (to all stakeholders) in due course. Care should be taken to explore the extent to which the principles foster two-way knowledge sharing (not just the uptake of research evidence) but the inclusion of stakeholders and



evidence-ends users in the creation of new knowledge and if that increases the perceived relevance and usefulness of research generated under the SPHR programme.

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Department of Health and Social Care Disclaimer:

The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NIHR School for Public Health Research, NIHR, NHS or the Department of Health and Social Care.