Supporting Knowledge Mobilisation within the NIHR HPRUs

Learning from the first year

21 May 2021

Introduction and overview

From April 2020, the 14 NIHR funded Health Protection Research Units (HPRUs) and the one HPRU Developmental Award holder have had knowledge mobilisation (KMb) as a core part of their activity. All the HPRUs have developed a KMb strategy and submitted a return in April 2021 capturing their first year's activities (proforma attached in Appendix A).

The April return asked HPRUs to summarise their strategic approach and describe how they had supported knowledge mobilisation including through the release of findings and dissemination (see definitions below). HPRUs were also asked to describe how they were developing knowledge mobilisation skills within their researchers and challenges that they thought it would be helpful to share across the HPRU community.

This report summarises the learning from those returns and the supporting KM strategies.

EViR Definitions:

Release of Findings	Diffusion, passive activities, and supportive policies to make research findings available and accessible to the general public and other audiences.
Dissemination	An active approach of spreading research findings to the target audience via determined channels using planned strategies.
Knowledge Mobilisation	Actively bringing stakeholders together to share, respond to, and act upon research findings.

Background - HPRUs

There are fifteen HPRUs including one holder of an HPRU Development Award (The Centre for Environment Health and Sustainability (CEHS) at Leicester University*), together they have a wide ranging research portfolio encompassing the following priority areas.

Priority Area

1. Emergency Preparedness and Response (Kings)
2. Environmental Exposures and Health (Leicester*)
3. Environmental Exposures and Health (Imperial)
4. Environmental Change and Health (LSHTM)
5. Chemical and Radiation Threats and Hazards (Imperial)
6. Blood Borne and Sexually Transmitted Infections (UCL)
7. Respiratory Infections (Imperial)
8. Emerging and Zoonotic Infections (Liverpool)
9. Gastrointestinal Infections (Liverpool & Warwick)
10. Healthcare Associated Infections and Antimicrobial Resistance (Oxford)

11. Healthcare Associated Infections and Antimicrobial Resistance (Imperial)
12. Vaccines and Immunisation (LSHTM)
13. Behavioural Science and Evaluation (Bristol)
14. Modelling and Health Economics (Imperial)
15. Genomics and Enabling Data (Warwick)

As the list makes clear, some institutions have multiple HPRUs and some only one. A couple of priorities are addressed by two different institutions. There is an interdependence between many of the priority areas.

Background - Knowledge Mobilisation Guidance

A draft strategic framework (see Appendix A) was developed for the HPRUs by Lola Oyebode and Noel McCarthy with input from Clare Thomas and Lesley Wye in January 2021 . This referenced *Using Evidence: What Works* and techniques to bridge the gap between evidence and practice. As well as emphasising the need for action across the research cycle, it underlined the importance of strategic stakeholder engagement. Further guidance was provided in March 2021 by the Centre for Engagement and Dissemination. The March guidance reiterated the messages from the January framework and emphasised that a strong approach to knowledge mobilisation

- Influences the whole research cycle including the original research question
- Strategically engages stakeholders including patients
- Uses the full toolbox of influencing techniques and channels
- Recognises the serendipitous nature of knowledge mobilisation and creates an environment to support that
- Evaluates and learns from impact.

Overview

It is evident from the returns that the HPRUs have taken the KMb agenda seriously, but they are on a journey of development. The HPRU KMb Network facilitated by the Bristol HPRU has been a great support on this journey.

A number of HPRUs have developed creative evidence-based strategies that align different KMb approaches to their different strategic objectives. Some have made considerable efforts to weave KMb into everything that they do, in one HPRU's words creating a culture in which KMb "is in the DNA of the HPRU".

The first year of operation of the HPRUs also coincided with the SARS-CoV-2 pandemic. For many of the HPRUs their work became central to the government's efforts to monitor and control the pandemic. Their research had immediate impact nationally and in some cases globally. Researchers had to rapidly develop communication skills as they were called upon by the media to explain their research findings and give expert commentary.

The pandemic also created challenges, even for those whose work was gaining so much attention. SARS-CoV-2 related work consumed a lot of time, meant a lot of work was reactive and prevented a more strategic approach. The lack of face to face interactions also presented challenges for internal and external engagement.

Support for Knowledge mobilisation & communication

The amount of dedicated staff time given to support knowledge mobilisation within the HPRUs varies, but is generally quite small. The largest reported, in terms of dedicated staffing, is 0.2 WTE of a KMb specialist who also had underpinning administrative, communications and research support. The smallest was 0.03 WTE with no dedicated underpinning support. The KMb leads did not always have expertise in KMb. There is also one HPRU that has an interface and implementation theme (which can support KMb) with a £500k budget.

KMb leads are well embedded in the governance structure of their HPRU's with the majority being part of the management team. Some have KMb as a standing agenda item on the management team agenda.

Communication support is very variable. Many HPRUs rely on administrative staff, rather than communication specialists, or rely on support from their institution's communication team. The largest dedicated communication support was 0.2 WTE. Only one HPRU provided evidence of a communications strategy.

Budgets for communication activities such as publications (including open access) and stakeholder engagement also varied. Some HPRUs had no budget or only a few thousand pounds. The maximum identified was £145k.

Knowledge Mobilisation Strategies

Many of the strategies submitted followed closely the framework set out in January (Appendix B), adapting the framework to their programme of work and context.

It was good to see some HPRUs demonstrate how they would promote KMb across the whole research cycle and tailor their knowledge mobilisation activity to the different types of research (see Appendix C for examples). Some included a 'theory of change' and others signalled plans to develop one (see Appendix D for an example).

Some HPRUs described how they were engaging staff in the KMb strategy development and embedding KMb within their HPRU (see Appendix E as an example). Others did not describe how HPRU staff had been involved, leaving questions about the broader buy-in to the KM strategy and its goals.

One KMb strategy benefited from an underpinning communications strategy laying out the target audiences, their needs and preferences and how to reach them (see extract in Appendix F).

While the strategies were strong on ambition, many lacked specific targets and time frames. A few had a systematic approach linking aims to objectives and targets (see Appendix G for an example).

Knowledge Mobilisation Activity and Achievements

The pandemic has strengthened the links between many of the HPRUs and policy makers. A number of the HPRUs provided powerful examples of direct policy influence and engagement. Many of the HPRUs are represented on SAGE and other committees central to the government's management of the pandemic. One gave an example of developing skills in policy makers needing to make sense of evidence by running "teach in" sessions to help policy makers understand mathematical modelling.

Dissemination

Dissemination spreads research findings to the target audience via determined channels using planned strategies. Only a few HPRUs described a strategic approach, underpinned by an audience analysis, to their dissemination activities. In part, this was attributed to the pandemic driving a largely reactive approach. There were a number of good examples of strategies tailored to audiences. One HPRU used interactive data analysis and visualisation tools to support dissemination of Covid related work. One described translating research findings into policy briefing documents designed to facilitate conversations with policy makers and the public. A number of HPRUs saw the beneficial links between their PPI and KM activities "we built off of our past PPIE successes and organised opportunities for public engagement in our research processes".

Release of Findings

This includes policies to make research findings available and accessible to the general public and other audiences. Many of the HPRUs flagged their success in publishing outputs in high impact journals including open access journals. COVID-19 related outputs received a great deal of media attention. Research outputs received high Altmetric scores. One HPRU developed a wide range of COVID-19 related interactive modelling and visualisation apps, software and analytical tools (available on their websites) to promote access to their findings, but predominantly for people working in the field. Few HPRUs had undertaken activities to make their findings more accessible to the public and other audiences including hard to reach groups. However, one described how their online webinars had enabled them to reach more diverse audiences.

Researcher Development

The importance of developing knowledge mobilisation skills within their research workforce was universally acknowledged in the KMb strategies but not always evident in the April updates. Some HPRUs said that the pandemic had prevented them undertaking KMb training. Many had or were planning to include training and the identification of training needs as part of their researcher induction programme. One HPRU is planning a programme of placements for their researchers that will facilitate knowledge mobilisation. Behavioural Science and Evaluation (Bristol) produced a webinar on KM and comms for their and other researchers, now available on YouTube. Genomics and Enabling Data (Warwick) also produced an introductory video on Knowledge Mobilisation, again available on YouTube. Healthcare-Associated Infection & Antimicrobial Resistance (Oxford) plans to build on the resources already in existence within PHE. They plan to develop these into a toolkit for the HPRU and potentially more widely (see Appendix H).

Collaborations

Working collaboratively with local and central government, other HPRUs, academic partners and PHE is central to the work of many of the HPRUs. The returns did not always make clear how the collaborations supported KMb as opposed to the research itself. One described how members of PHE for each of their research themes are involved in knowledge mobilisation theme meetings, to share end user perspectives when planning knowledge mobilisation activities for each project. Another, highlighted how their partnership with a body with relevant expertise, the Policy Institute, would facilitate knowledge mobilisation. The Policy Institute employs engagement mechanisms such as policy briefings and Policy Lab workshops to facilitate active conversations with policymakers, practitioners and the public.

Conclusion, collective challenges and opportunities

Despite significant variation in knowledge mobilisation capacity, there is appetite and enthusiasm across the HPRUs to work more closely with their stakeholders to reach wider audiences and increase the impact of what they do. In the guidance provided in April we suggested that a strong approach to KMb would involve the following.

- Influences the whole research cycle including the original research question
- Strategically engages stakeholders including patients
- Uses the full toolbox of influencing techniques and channels
- Recognises the serendipitous nature of knowledge mobilisation and creates an environment to support that
- Evaluates and learns from impact.

The evidence provided to us has demonstrated good examples of practice in each of these areas. The most intangible, the serendipitous nature of knowledge mobilisation, is possibly one of the most evident. Many HPRUs have grasped the opportunity provided by the pandemic of an evidence hungry policy customer. And it was good to see examples of training and tailored briefings to support that engagement.

The April return asked HPRUs to identify learning and issues for other HPRUs. The issues raised provide an important set of supplementary signposts to a successful KMb strategy.

- KMb requires a strategic approach, with clear milestones, prioritising activities that will unlock the biggest opportunities for impact.
- Different research areas require different KMb approaches.
- Embedding KMb in projects from their inception can create a positive KM culture throughout the HPRU.
- The pandemic has presented both challenges and opportunities for the HPRUs. Several have questioned how they can build on the current momentum, and whether there is translatable learning for the future and less high profile areas of research?

There is a strong desire to work together on this agenda and appreciation of the HPRU network as a place to share learning and discuss issues. There are particular opportunities to develop shared training resources. We hope this report will contribute to the collective learning across the HPRUs.

APPENDIX A

HRPU KM – Interim Reporting requirements – Year 20/21

1. Understanding the KM capacity and capability within the HPRU	
1. KM lead	
● Working Time Equivalent	
● Relevant expertise (training or direct experience in KM)	
● Role within HPRU governance structure	
● Contact details	
Communications team	
● WTE	
● Budget for dissemination and KM activities	
Other support for KM	
● WTE	
● Description (e.g. other staff/students)	
2. Strategy **(**up to 500 words)	
Please summarise your strategy for developing your dissemination and knowledge mobilisation capacity across the *duration of the HPRU contract.* Attach your full strategy (if available) as an appendix	
3. Release of findings **(**up to 200 words)	
○ Overview of 20/21 activity and approach, Key achievements, Key challenges	
4. Dissemination **(**up to 200 words)	
○ Overview of 20/21 activity and approach, Key achievements, Key challenges	
5. Knowledge mobilisation (up to 300 words)	
○ Overview of 20/21 activity and approach, Key achievements, Key challenges	
6. Collaborations (up to 200 words)	
These include partnerships that are supporting your knowledge mobilisation activity including other HPRUs, PHE, local authorities etc ○ Overview of 20/21 activity and approach, Key achievements, Key challenges	
7. Researcher development (up to 200 words)	
○ Overview of 20/21 activity and approach, Key achievements, Key challenges	
8. What learning from your KM activities would you want to share with other HPRUs?	

Appendix B

Knowledge mobilisation in NIHR Health Protection Research Units

Knowledge mobilisation is about bringing together different communities to share knowledge to catalyse change. Knowledge mobilisation is a two-way process which enables advances in health protection research to create benefits for patients and the public; supporting research informed decision-making by policy makers, public health practitioners, the public, and other stakeholders.

Effective knowledge mobilisation involves:

- researchers who engage with the policy, practice, research and public communities where their research can make a difference, as part of devising their research questions, to ensure that they address important questions in a useful way
- researchers influencing decision-making processes in policy, practice and elsewhere through having a 'seat at the table' alongside other approaches to dissemination
- increasing understanding of the value of research, including limitations, among those who can use research findings.

This strategy addresses how to mobilise knowledge generated by health protection research units (HPRUs), and to develop expertise and establish a culture in partner organisations to improve their capacity to draw on research evidence.

Applying and developing evidence and theory informed approaches

Theory and evidence informed approaches

We aim to apply evidence or theory-based approaches to knowledge mobilisation, building this evidence in the process.

One framework within which evidence-based approaches to knowledge mobilisation is presented in *Using Evidence: What Works.* This is a "discussion document" which summarises a project called The Science of Using Science, funded by the Wellcome Trust and the What Works Centre for Wellbeing (Breckon and Dodson, 2016; Langer et al, 2016). The aim of The Science of Using Science project was to review which interventions are most effective at increasing decision-makers' use of research evidence in various decision arenas. The project involved two "review of reviews".

1. A systematic review of systematic reviews of the evidence-informed decision making literature, which included 36 reviews of 91 interventions;
2. A scoping review of other social science interventions that might be relevant to knowledge mobilisation which identified more than 100 interventions.

Identified interventions were grouped within six underlying mechanisms of enabling research-informed decision-making. These are:

1. Awareness: building awareness and positive attitudes towards evidence use
2. Agree: building mutual understanding and agreement on policy-relevant questions and the kind of evidence needed to answer them
3. Access and communication: providing communication of and access to evidence
4. Interact: facilitating interactions between decision-makers and researchers
5. Skills: supporting decision-makers to develop skills in accessing and making sense of evidence
6. Structures and processes: influencing decision-making structures and their processes.

We will identify evidence-based approaches within this and other frameworks to promote knowledge mobilisation of the findings of our HPRUs.

Evaluating knowledge mobilisation and improving the evidence base for it in this area

As an expanding area of practice, knowledge mobilisation needs a developing underpinning evidence base. Knowledge mobilisation in health protection may also have some specific aspects. HPRUs will therefore evaluate the effectiveness of their knowledge mobilisation approaches. Proposals for this includes evaluation of the changes in the culture and expertise in mobilising knowledge across researchers and other partners, prospective studies of approaches employed and their effects, and observational studies including case studies.

Capacity building and training

Within HPRUs

As part of induction all new staff members will have individual or group discussions with the HPRU knowledge mobilisation leads, as appropriate. HPRUs will design appropriate fuller capacity development activities. For PhD students these may include 1) attachments in a practice or policy environment relevant to their research and 2) some post-PhD knowledge mobilisation fellowships to support knowledge mobilisation. For post-doctoral scientists this may include a piece of work on knowledge mobilisation such as evaluation of knowledge mobilisation activities in their area of work. Individual HPRUs may run their own KM training sessions.

Across HPRUs

We will curate and develop online-training resources in knowledge mobilisation accessible across the HPRU network.

We will maintain a network that will iteratively develop a knowledge mobilisation framework for health protection incorporating learning across the area.

Knowledge mobilisation in Public Health England (National Institute of Health Protection) and across HPRUs

As the principal partner, knowledge mobilisation collaborations among wider Public Health England staff and structures and academic researchers is critical. This will include: development of relationships to support joint working in the area, engaging PHE stakeholders in framing the research questions addressed so that results will fit to policy and practice needs, and researcher input into policy and practice innovation and planning informed by research findings and expertise. PHE Knowledge and Evidence teams (e.g. Library Services, Evidence & Evaluation team etc.) have committed to collaboration with HPRUs to mobilise HPRU generated knowledge across PHE and a similar relationship is planned with these functions evolving in the National Institute of Health Protection.

For cross cutting HPRUs, a similar relationship with subject area HPRUs will target method development to meet the needs of these users. Examples could include co-production of user-guides and interfaces with these users to increase and improve the implementation of these methods.

Effectiveness in this area of strategy will be evidenced by overall collaborative structures and processes as well as the role of these in case study examples.

Engagement with wider policy-makers, professionals, industry and the public

This will include identification of stakeholders for and on whom the research of each HPRU has the potential to impact and developing relationships to allow their expertise in and engagement with the

research from planning to dissemination. We will also work with our HPRU Patient and Public Involvement and Engagement leads when considering knowledge mobilisation with the public.

This may include stakeholder workshops to steer research directions, perhaps using approaches such as a Theory of Change in setting out assumptions, preconditions, interim steps and outcomes needed to reach the impact. These will also increase appreciation of differences of understanding and mental maps and mindlines across groups and individuals, as well as varying organisational cultures, to guide effective communication.

Planning, implementing and reflections on this activity will provide a record for reporting and material to allow improvement in these approaches.

Technologies for knowledge mobilisation

The knowledge mobilisation partnerships within and across HPRUs will use the full range of relevant technologies to support knowledge mobilisation. As noted above, collaborative relationships across research, practice and policy process are at the centre of this. However more specific tools including accessible data sets, data visualisation interfaces, easily usable software implementations of methods, policy papers, and briefing documents including lay summaries, and social media communication will be co-produced in support of mobilising knowledge generated by the HPRUs.

Measuring impacts and the role of knowledge mobilisation in this

HPRUs will evaluate their knowledge mobilisation activity annually, reporting within two domains a) capturing the breadth of knowledge mobilisation activities and impact, b) an in-depth case study. Case studies within each HPRU, or where appropriate jointly across more than one HPRU, could consider the approaches to knowledge mobilisation for a piece of work that offers substantial added value or impact.

January 2021

APPENDIX C:

Supporting KMb across the research cycle, aligning and tailoring the approach to different research areas

Example 1: Knowledge Mobilisation Strategy for the NIHR HPRU in Environmental Exposures and Health Development Award at the University of Leicester

We will identify evidence-based approaches and frameworks to promote knowledge mobilisation of the findings of our HPRU. The KM processes adopted will be relevant to each project and engagement with stakeholders will help tailor each project. This will require early engagement, willingness and capacity of stakeholders to engage, and the level of appropriate resource effort required to mobilise the knowledge will need to be anticipated and established.

We have established five pillars to delivering knowledge KM effectively and efficiently:

1) LEVERAGE expertise and established resources, networks and dissemination channels from within PHE, HSE and NIHR, including the HPRU KM network;
2) ALIGN with current policy development by building awareness of national and local policy landscapes to ensure relevant research and KM are taking place;
3) EMBED knowledge mobilisation as a core element of HPRU PhDs and within each project area;
4) ITERATE our KM approaches through sustained stakeholder engagement;
5) EVALUATE our plans, processes and outputs to ensure continuous improvement.

We will apply an iterative process to KM wherever possible (see Figure 1 and the accompanying description of steps below). Processes will differ to some extent from project to project, with the level of iteration needed depending on the topic and the stakeholders. For all projects the first three steps illustrated below were carried out during the development of the HPRU proposal and were taken into consideration during the formulation of the research plans. However, our research plans will need to be updated regularly, as policy and stakeholder knowledge needs evolve over time.

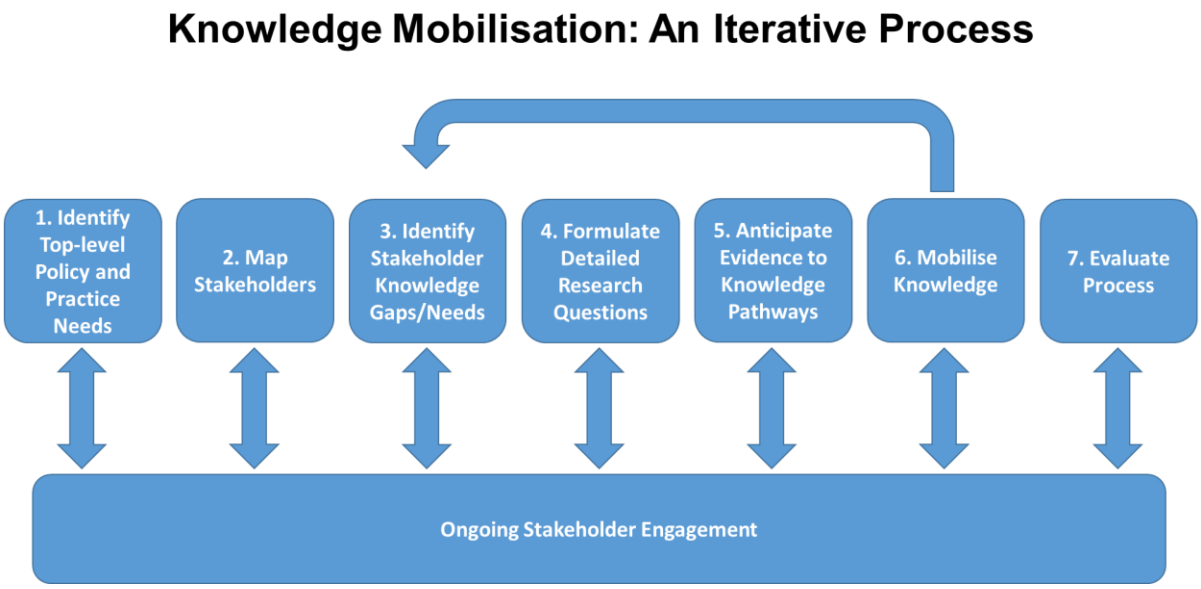


Figure 1: An iterative process for knowledge mobilisation highlighting sustained stakeholder engagement and feedback of knowledge mobilisation learning back into guiding the research.

Example 2:

Knowledge Mobilisation Strategy for the NIHR Health Protection Research Unit Respiratory Infections 2020 to 2025 - Table 1 Objectives mapped to effective techniques for KM

	Effective techniques for KM					
Objectives	Awareness	Agree	Access & communication	Interact	Skills	Structures & processes
O1. Consider where and how our research questions have been derived	By being explicit from the outset	The range of 'users/beneficiaries' of the knowledge generated		Testing relevance at the start through facilitating interactions between 'users/beneficiaries' and researchers	Developing skills to interact with 'users/beneficiaries'	
O2. Ensure that we maximise the benefits of a multi-disciplinary research team			Communication of and access to evidence to specialist and generalist end-users	Test perspectives from different disciplinary approaches	Developing skills to explain research to other disciplinary experts	
O3. Co-develop a Theory of Change	Communicating the KM strategy to internal and external stakeholders			Facilitating interactions between decision-makers and researchers through ToC development	In how to conceptualise and contribute to a ToC	Influencing decision-making structures and their processes using Theories of Change (e.g. diffusion, causal influences, macro-level drivers)
O4. Facilitate the translation of new tools into service at PHE			Communication of and access to evidence across within PHE			Providing tools for decision-making at practise and policy level.

O5. Maximise learning across the Imperial HPRUs	Of KM across Imperial (wider than the HPRUs)		Communication of and access to evidence across the ICL HPRUs		Develop appropriate skills in KM	
O6. Maximise learning across the fourteen HPRUs		Building a collective understanding of policy-relevant solutions for a range of health protection issues	Communication of and access to evidence across the HPRUs			

Example 3: National Institute for Health Research (NIHR) Health Protection Research Unit (HPRU) in Blood-Borne and Sexually Transmitted Infections at UCL

All research proposals must include a completed template, describing (amongst other things) how KM has informed the research question, the proposed study design and dissemination strategy.

The project proposal form will include the following questions:

1. How have KM considerations already influenced the development of the project proposal and what KM approaches will be incorporated into the project as it evolves? This will include a clear description of the likely stake-holders/end-users and a description of the conversations already had with these stake-holders/end-users to explain the importance of the topic, the feasibility of implementing any research findings, and the likelihood of these resulting in changes in the health of the public and/or patient groups.
2. Outline your plan for KM for the rest of the project including timeline, milestones, how you will monitor or measure your KM and proposed budget for this aspect of the research
3. Who is the named person in your team we can contact and share KM information with?
4. Outline what support you would like to action your KM plan, such as training or mentoring.

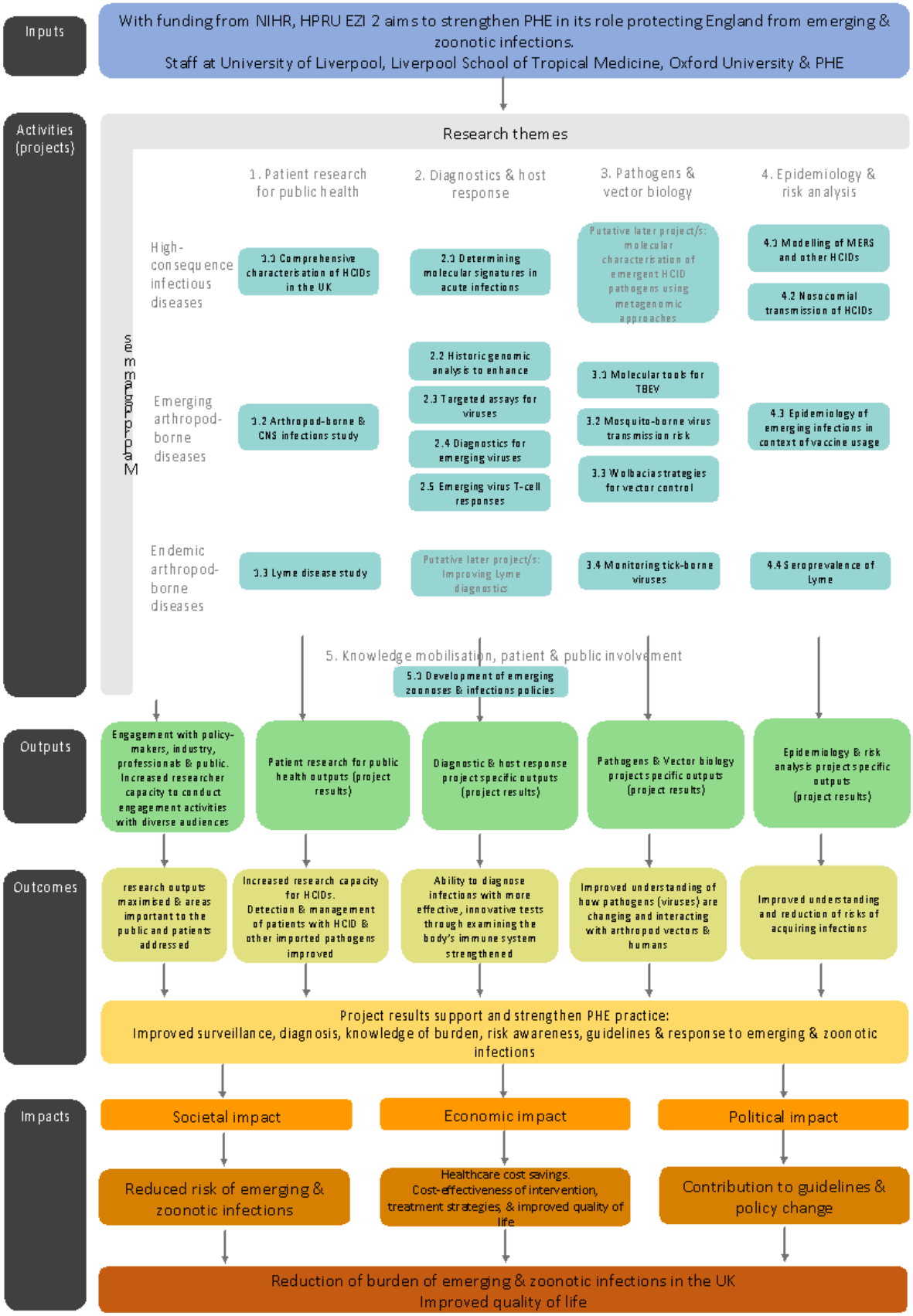
KM milestones will be added to each approved project form – these will include milestones that will differentiate between release of findings to the general public and dissemination to appropriate target audiences.

All KM plans will be reviewed by Theme Management Groups, including the lay members, and the KM lead, who will identify any opportunities to streamline KM between research projects and make recommendations.

The HPRU will embed KM in its reporting procedures - each Theme Management Group will be required to complete a report template outlining KM activities (and the potential impact of these). This information will be collated to identify models of good practice and knowledge sharing, to assess the success of our KM strategy, and to inform annual NIHR reporting.

APPENDIX D: Inclusion of a Theory of Change Model

Example: Initial HPRU EZI Theory of Change model



APPENDIX E: A knowledge mobilisation strategy built on strong engagement

Example: NIHR Health Protection Research Unit for Emerging and Zoonotic Infections

Overview of strategic approach

A theory informed approach to knowledge mobilisation agreed by all HPRUs will be used by the HPRU EZI to support researchers within the unit to plan and conduct knowledge mobilisation activities to maximise the impact of their work. Our strategy aims to establish a culture within the organisation to improve researchers capacity to draw on research evidence to inform policy and practice.

Through regular meetings with each theme, we support theme leads and researchers (PhD students/fellows) in effective planning, implementation and documentation of knowledge mobilisation activities. As part of their induction, all new staff members have discussions with the knowledge mobilisation team to introduce the concept, aims and activities relating to knowledge mobilisation within the Unit. Planning of knowledge mobilisation activities and horizon scanning to identify additional opportunities is embedded in all projects from their inception. Continued reflection and sharing of case studies of knowledge mobilisation activities to enable sharing of lessons learnt and fostering further engagement in knowledge mobilisation by researchers. Training needs are identified with researchers. Online training resources curated in partnership with other HPRUs are accessible to researchers who will be encouraged to utilise them.

As the principal end user of research outputs, development of relationships between Public Health England (PHE)/National Institute for Public Health (NIPH) and HPRU researchers is critical. Engaging with PHE/NIPH stakeholders/end users in development of research questions ensures research outputs are relevant to policy and practice innovation.
We will collaborate with other HPRUs where there a benefit in joint knowledge mobilisation activities.

Researchers are supported to develop relationships with wider policy-makers, professionals, industry and the public. We work closely with the Unit's PPIE lead when planning knowledge mobilisation activities to engage with the public and working with PPIE working group where appropriate.

We have established a knowledge mobilisation working group with representation from each of the four research themes and user representatives from local authorities' public health and port health teams.

We are working with researchers to Identify end users and other stakeholders for all themes/projects and map all people/organisations that will both benefit from and influence our research.
This stakeholder analysis informs our planning and enables joint KM activities where stakeholders overlap. A theory of change has been developed that depicts long term goals and overall aim of the HPRU. This visual representation enables a common understanding of the planned outputs, outcomes and impact of the projects within the Unit.

APPENDIX F: Underpinning communications strategy and impact

Example: Extract from NIHR Health Protection Research Unit in Behavioural Science and Evaluation (HPRU BSE) Communications Strategy

Our strategy is to plan effective, targeted and measurable communications based on the needs and preferences of key stakeholder groups. Priority will be given to research findings with the greatest potential impact. Specific campaigns and projects that support the aim of raising the HPRU's profile and highlight HPRU BSE research and strengths will be identified for implementation annually.

Audience needs and preferences and how to reach them:

Target audience	Needs and preferences	How to reach them	What will be different?
Public health practitioners (e.g. Directors of Public Health, Consultants in Public Health, Public Health Nurses, Sexual Health Consultants/Advisers)	Clear evidence with guidance for implementation. Preferably mediated through Public Health England/Directors of Public Health/NICE guidance.	Public Health England, Local authorities, WHO, CDC, ECDC Association of Directors of Public Health Conferences (LGA, PHE) National and specialist media (e.g. The Guardian, HSJ, Local Government Chronicle, King's Fund newsletter) HPRU Twitter HPRU website & blog NIHR dissemination and social media channels Through special interest organisations: e.g. for sexual health, addiction, vaccination etc. locally, nationally & internationally	Aware of and know how to access evidence to inform practice. Example: Flooding and mental health report

Example of Impact

Germ Defence: Behaviour change website to prevent spread if infection aimed at public. In collaboration with University of Bath, issued four media releases between May 2020 and March 2021 framed around key messages relevant at the time (viral load in home, easing of first lockdown, Christmas infection risk, roadmap for easing second lockdown). There were large spikes in website use after each media release, especially in May, when users leapt from a few hundred the day before release to over 33,000 on the day of release. Approx. 150 pieces of media coverage were achieved overall.

APPENDIX G: Linking strategic aims, objectives and time frames

Example: Knowledge Mobilisation Strategy for the NIHR Health Protection Research Unit Respiratory Infections 2020 to 2025 (extract)

3. Knowledge Mobilisation Aims

To foster a culture for effective knowledge mobilisation as described, we will:
A1. Consider the role of KM throughout the research cycle including the original research question(s)
A2. Strategically engage stakeholders including patients and public
A3. Uses the full toolbox of influencing techniques and channels
A4. Evaluate and learn from impact

3.1 Objectives

Our specific objectives mapped to these aims are as follows:
O1. Consider where and how our research questions have been derived (A1, A2)
O2. Ensure that we maximise the benefits of a multi-disciplinary research team (A1, A3)
O3. Co-develop a Theory of Change (A2, A4)
O4. Facilitate the translation of new tools into service at PHE (A3)
O5. Maximise learning across the Imperial HPRUs (A2,A4)
O6. Maximise learning across the fourteen HPRUs (A2,A4)

O1. Consider where and how our research questions have been derived (A1, A2)

This objective is applicable to every researcher and includes asking three specific questions at the point of generating research questions:
What is the relevance of this research to patients/public?
What is the relevance of this research to policy makers?
What is the relevance of this research to healthcare professionals?
What is the relevance of this research to private industry and the non-governmental sector?
It is recognised that different research questions will have greater relevance to different groups.
The ease with which researchers are able to identify relevance over the course of the HPRU will be a measure of success of the HPRU and also of the capacity development of individual researchers. As a collective, we will peer review work with these questions and ensure that these form part of all research protocols.
Targets:
Short-term: Include these questions (above) in each protocol
Medium/long-term: routinised consideration of these questions in all research meetings/exchanges
Medium/long-term: routinised consideration of these questions in all research meetings/exchanges

APPENDIX H: Developing a toolkit of resources for researchers

Example: Healthcare-Associated Infection & Antimicrobial Resistance Knowledge Mobilisation Strategy, University of Oxford and Public Health England (extract)

A wealth of resources to facilitate and enhance KM activities are already in existence within PHE. These existing tools and resources will be collated and assimilated, and relationships built with those with experience and expertise in KM principles and practice, such that knowledge can be shared and methods adopted within the Oxford HCAI & AMR HPRU. Curation and development of a single repository for online-training resources in knowledge mobilisation for access across HPRUs will be explored.

A toolkit of available resources (the 'KM Toolkit') will be developed and shared with project leads for cascade amongst staff, including information on KM principles and how to develop/share KM practices (see Methodologies section).

Within the HCAI & AMR Division, PHE, KM will be raised and championed to strengthen understanding and embed KM in PHE practice. The KM Toolkit will be signposted at the Divisional level and more widely through participation in PHE's network of 'Knowledge Advocates'. The importance of embedding KM early, at research inception, as well as via an evolving process throughout the research cycle will be addressed through exploring the inclusion of an Introduction to Knowledge Mobilisation session within the PHE HCAI & AMR Induction Programme, as well as its consideration in the annual Personal Development Reviews of staff.

a) The *PHE K2A (Knowledge to Action) framework (Figure 1)*- to support development of KM within projects. The K2A model aims to bridge the 'Know-Do Gap' between the data and evidence and good decision making and the development of effective policy and practice. It encourages the use of data and evidence by making it accessible, translatable and actionable. It includes a User Need process to inform ways to mobilise outputs by linking them to what users need in relation to data and evidence.

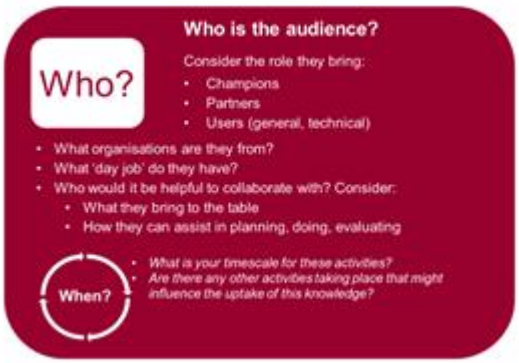


Figure 1. Schematic of Knowledge to Action Framework components

The PHE KM maturity model –a self-assessment tool which helps teams identify/map what they are already doing around knowledge mobilisation, what they would like to be doing, and plan ways to achieve this. Identifying strengths and weaknesses, and target areas for improvement.
It provides a benchmark, allowing teams to record and review progress and gives measures / indicators to show the types of activities that can be introduced to demonstrate progress against an outcome. The maturity model is adapted from the cross-government model which was produced by a cross-government working group, reflecting the Knowledge Principles for Government.

The KM Toolkit

We will engage with and provide the HPRU with a toolkit of resources that will help project teams to:

1) identify their KM aims, messages, audiences and means of communication (using the PHE-designed 'Knowledge to Action' - K2A - framework)
2) self-evaluate their current KM practices, strengths, areas for improvement (e.g. PHE 'KM Maturity Model' framework)
3) facilitate stakeholder mapping (e.g. using the PHE Stakeholder Mapping Tool)
4) design a communications plan, or provide links to communications teams – to facilitate meaningful communications with identified stakeholders
5) measure and evaluate impact (using for example the reporting template as described in section 3.4 Aim 4).