ScotPHN report

Public Health Reform Programme - Leadership for Public Health Research, Innovation and Applied Evidence

Propositions Paper (October 2018)

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Introduction

By the August Stakeholder event for the Leadership in Public Health Research, Innovation and Applied Evidence Commission, we had collectively identified a number of "fixed points" and a range of stakeholders' views/expectations of what Public Health Scotland's (PHS) role in this area would be, which were the areas where it needed to collaborate with, or support, others across the Scottish public health landscape, and what influence it needed to bring to bear.

A summary of the themes which emerged at that meeting has been created and is available for those who wish to see it.

We agreed that the Short Life Working Group would work with all of this material to create more firm propositions of what the new agency's functions should be. This document is a compilation of these propositions in four areas:

- the essential public health services of PHS;
- how it might function as a research hub for Scotland (and as a regional hub within the UK context);
- what its role would be in developing and supporting skills and training for the Research community and for the Policy and practice community; and
- how PHS would provide a Knowledge Service and its role in supporting the Scottish Digital and Health Care Strategy.

The documents presented here are not wonderfully polished, final documents for rubber-stamping. They are very much "work in progress" that we hope will be used to clarify and sharpen our collective thinking. As participants on the day, you will have a chance to explore these areas; think through the strengths and weaknesses associated with the propositions; and identify the opportunities and challenges that they create in moving us forward.

As with the August event, discussion will be broader than these propositions, but ensuring that we can start firming up the core functions of PHS in relation to public health research, innovation and applied evidence is our next key milestone.

We look forward to discussing all these issues with you in Perth and in the weeks thereafter.

David Hunter
Chair, LPRIAE Short Life Working Group.

Proposition – EPHO10

Expert Commentators – Phil Mackie, Mahmood Adil, Rebecca Sludden

Public Health Scotland and Essential Public Health Operation 10 - Advancing public health research to inform policy and practice

Background

At the August Stakeholder Event, those participating agreed that the fundamental research functions of public health system in Scotland should adopt the WHO European Essential Public Health Operation 10 (EPHO10) as the basis for how it develops its role in relation to public health research in Scotland.

EPHO10 recognises that research in all its forms - descriptive; analytical; experimental; or experiential – is fundamental to informing policy development and service delivery. The main aims of EPHO10 are to develop and maintain a system that:

- uses research to enlarge the knowledge base that supports evidence-based policy-making at all levels;
- develops new research methods, innovative technologies and solutions in public health;
- establishes and sustains partnerships with research centres and academic institutions to conduct timely studies that support decision-making at all levels of public health.

In this short paper, a proposition that sets out the specific role of Public Health Scotland (PHS) in creating this capability in the Scottish public health system is presented. Building on the key questions which the commission set itself, the proposition describes if the role of PHS is relevant to the outcome areas identified as part of EPHO10.

Proposition

EPHO10 Area	Comment
10.1 National capacity to develop PH research.	PHS should provide research capacity, collaborate/support its development, and seek to influence capacity.
10.2 Adequacy of available resources (e.g. databases, information technology, human resources) to implement research.	PHS should provide resources to agreed Scotland-wide standards, collaborate/support others in developing and using such resources, and seek to influence research funders and institutions.
10.3 Planning for the dissemination of research findings to public health colleagues (e.g. publication in journals, websites).	PHS should provide an accessible knowledge service and support the use of evidence in developing policy and practice.
10.4 National evaluation of the development, implementation, and impact of public health (and public health service) research efforts.	PHS should provide ways of assessing the impact of its own research and collaborate in national approaches to academic and wider research assessment processes.
10.5 Fostering innovation among staff.	PHS should provide support for its own staff and support development across the public health system.
10.6 Extent of Governmental support for research into and monitoring of best practices	PHS should support approaches to service and practice evaluation and collaborate in national assessment of these processes.
10.7 Active use of research evidence in designing and supporting policy in the field of public health.	PHS should be an exemplar in using research to design and delivery its own services and support the use of evidence as part of health in all policies approaches.
10.8 Capacity for the collection, analysis and dissemination of health information.	PHS should be trusted provider of health information and a collaborator and influencer of others in this field.
10.9 Capacity to carry out research on the social determinants of health (and their influence on health) in order to shape and target policy.	PHS should provide strategic leadership in this area and collaborate and influence widely in developing and enhancing this capability.
10.10 Mechanisms for ensuring that policies, priorities and decision-making are consistent with evidence of the effectiveness of their implementation.	PHS should be a provider of policy evaluation capacity in Scotland and support health impact and inequalities assessment as part of its health in all policy approach.

The Need for a Research and Innovation Function

There is a clear aspiration that PHS will be research and evidence led. Given also that the existing national public health agencies in Scotland are already undertaking a range of research supporting and commissioning functions, it seems pertinent to ask what sort of function will need to be established within the new organisation.

Based on the existing functions, and building on the emerging themes from the first Leadership for Public Health Research, Innovation and Applied Evidence (LPHRIAE) stakeholder event, a number of potential functions can be identified. These are:
1   research commissioning: research procurement; support for external funding;
2   research mobilisation, impact and innovation;
3   research governance: formalising a research governance framework; monitoring research activity; and
4   research ethics & review arrangements: institutional review boards; research advice.

In this initial function paper, existing background is provided from within other national Public Health organisations within the other three UK nations, or from work currently being undertaken within Scotland.

Strategy and Priorities for Research

NHS Health Scotland (HS) currently does not have its own research strategy but recognises the requirement and importance of such a vehicle. Outlining the organisation's research priorities would be useful in determining what research activity is generated in future and that any research commissioned or undertaken aligns to the corporate strategy. Over the years the policy environment has been continually looked at to inform decisions on research priorities and areas of research.

National Services Scotland's (NSS) Public Health and Intelligence (PHI) Research and Innovation Strategy 2015-2018[1] published in May 2015 sets out its broad strategic direction to embed research and innovation across its roles and services. The strategy is divided into two key areas: research innovation portfolio development, and research and innovation support infrastructure including implementation of research governance. This builds on the NSS wide Research, Development and Innovation Strategy 2012-2017[2] that outlined a strategic framework for research and innovation across their business units and whose strategic aims were similar in themes to the priorities identified in other UK agencies (detailed below).

NSS Public Health and Intelligence (PHI) have a Research and Intelligence Service that identifies priorities for health protection research, collaborating with academics and other partners.

A new Health Research Strategy - *Delivering Innovation through Research - Scottish Government Health and Social Care Research Strategy[3]* - by the Chief Scientist Office (CSO) launched in October 2015. The strategy sets out how the CSO can support Scotland

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[1] Document provided internally.
[2] http://www.hps.scot.nhs.uk/resourcedocument.aspx?id=6141
[3] http://www.cso.scot.nhs.uk/?s=research+strategy

to be recognised as a health science nation on an international platform over the next five years. Four areas were identified as critical to the strategy's success: efficient R&D support for research; partnership with Scottish patients and public; targeted deployment of resources and investing in the future.

Healthcare Improvement Scotland (HIS) published a research strategy in 2012 as a means to systematically develop support for delivery of high quality research across their organisation. The strategy was to support the formation of sustainable research collaborations with academic and other external research units. A new research strategic plan[4] published in 2016 was designed to support what had worked well and what other functions could benefit from greater access to research and the wider research community. Development of the new strategic plan identified a number of principles for consideration and these are summarised as follows: capacity, patient and public involvement, external partnership and collaboration, research translation and application, clearly defining research activity, and building on success. Specific mention must go to the aim of establishing collaborative research activity, working with primary research organisations, and involving Healthcare Improvement Scotland staff to address identified research priorities of the organisation.

Public Health England (PHE) have a strategy for research, translation and innovation (2015)[5] detailing their five priorities: knowledge, infrastructure, capacity, innovation and communication.

Public Health Wales' (PHW) research strategy (2015) sets out their commitments to develop and sustain an organisational culture that generates and uses research efficiently and effectively[6]. The strategy outlines their framework for research conduct and governance including the management structure; research priorities; environmental matters such as capacity, support, collaborations and communication; and knowledge generation and mobilisation. The R&D Divisional/Directorate Groups put in place operational plans to support the implementation of PHW research strategy and support the prioritisation and development of research topics within each service area[7].

A new research and development strategy for the Health and Social Care sector in Northern Ireland was published in 2016 - *Research for Better Health & Social Care: A Strategy for Health & Social Care Research and Development in Northern Ireland (2016-2025)[8]* has very similar priorities to the PHE strategy: strengthen links between research and better policy making and quality of health and social care, increasing success in competing for additional funding, enhance the current research infrastructure, emphasising relevant research whilst effectively disseminating the findings.

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http://www.healthcareimprovementscotland.org/previous_resources/policy_and_strategy/research_strategic_plan.aspx
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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/453993/Research_translation_and_innovation_strategy_final.pdf
6 http://research.publichealthnetwork.cymru/files/7014/8708/7189/PHW_Research_Strategy_report.pdf
7

http://www2.nphs.wales.nhs.uk:8080/PHWRandDDocs.nsf/($All)/8F4520A7DA2EEF1C80257EFC0036E83B/$File/PHW%20Research%20Strategy%20report%20(E).pdf?OpenElement
8 https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/research-and-development-strategy-2016-25_1.pdf

1 Research Commissioning

- **Research Procurement**

NSS National Procurement is the centre of procurement expertise for health established as part of the wider procurement reform activity across the Scottish public sector however, there is no specific reference to research commissioning within their national procurement interim strategy 2016-2018.

HIS's procurement services are provided by the Scottish Ambulance Service under a shared service arrangement which also includes HS. However, HS has a corporate research commissioning function delivered by the Research Services Team with support from the Scottish Ambulance Service.

As stated within their strategy for research, translation and innovation PHE doesn't commission research. Their mandate from Government, agreed with the Department of Health, refers to 'undertaking and contributing to research and development in areas relevant to its functions'.

PHW Research Strategy 2015-2018 refers to projects commissioned by PPHW from academic and other partners. On occasion PHW also commission partners to assist them in projects (which HS has also done on occasion).

HSC R&D Division of the Public Health Agency in Northern Ireland periodically issue calls for commissioned research on specific topics. Applications for opportunity-led awards can take many forms and often require differing levels of input from HSC R&D Division. HSC R&D Division supports needs-led commissioned research derived from an on-going systematic process to identify and prioritise research needs, and opportunity-led commissioned research derived from ad-hoc opportunities to exploit partnership funding. For needs-led research the HSC R&D Division works with users of research (policy-makers, practitioners and commissioners), generators of researchers, patients, clients, carers and others to determine priority research areas.

- **Support for external funding**

Health and Social Care Research and Development (HSC R&D) Division of the Public Health Agency in Northern Ireland create opportunities for researchers to compete for research funding on a wider UK or international basis. A research and development funding commitment in the form of an annual contribution to NIHR was announced in 2012. This significant investment enables Northern Ireland-based researchers to lead on applications for NIHR research opportunities alongside their colleagues from the United Kingdom (UK). HSC R&D Division's Enabling Research Awards (ERAs) are designed to support researchers in their acquisition of funding through NIHR Evaluation, Trials and Studies (NETS) research programmes. The maximum value of an award under this programme is £40,000. A collaboration launched in 2006 involving the United States of America, Republic of Ireland & Northern Ireland aims to generate valuable discoveries and innovations which are transferable to the marketplace, or will lead to enhancements in health, disease prevention or healthcare. HSC R&D Division also offers funding for various Fellowships, programmes and Awards[9].

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[9] http://www.research.hscni.net/funding-opportunities

PHE receive external research funding from various sources including Department of Health, other government departments, international funding, European Commission programmes, UK businesses, not for profit organisations and UK higher education institutions[10]. In 2013/14 PHE had some £35M in funding invested of which more than £29.5 million was attracted from external research funders. £8.5M of the external research funding was from sources outside the UK[11]. PHE acknowledge research must be of sufficient quality to compete for funding nationally or internationally. Funded research projects would enhance the recruitment and retention of research staff, development of research expertise and opportunity for research to inform practice and services throughout the country.

PHW Research and Development office receives core funding from Welsh Government's Division of Social Care and Health Research to support the development and delivery of high quality research activity and deliver central research management and governance functions to ensure PHW complies with the research governance framework. PHW have funding opportunities for research studies, research training and career development, and funding to support research.

2   Research Mobilisation, Impact and Innovation

Innovation involves the successful development, implementation and acceptance of a new idea to transform outcomes and effect positive change. Knowledge transfer plays a pivotal role in this process, which includes the effective and timely incorporation of research-based evidence into practice, to maximise impact. Initiatives designed to improve the impact of research across health and social care, have the potential to affect groups, communities and the population as a whole through better health and social care and, improved service design and delivery. Additionally, closing gaps in current understanding by effective transfer of the best available evidence and expertise will deliver improved research performance. In 2013/14 Health and Care Research Wales commissioned a Knowledge Transfer Task and Finish Group[12] to assist in identifying enablers and barriers to the progression of research knowledge translation in health and social care. Recommendations of the group have been considered and shared with relevant stakeholders to ensure the impact of research features seamlessly in the economic and innovation activities planned in Wales.

NSS PHI has a Research and Intelligence Service that are responsible for translating research into public health policy by evaluating various health protection programmes to assess their impact and inform accordingly. In addition, they ensure findings are shared in ways that promote good practice, effective service delivery and provide health benefits for Scotland.

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[10]

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575237/Annexe_PHE_external_research_funding_2015_to_2016.pdf
[11]

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/453993/Research_translation_and_innovation_strategy_final.pdf
[12] https://www.healthandcareresearch.gov.wales/knowledge-transfer/

Within PHI innovation has been widely undertaken over the years however, much was done on a low key, ad hoc basis. A key action of PHI's Research and Innovation Strategy 2015-2018, therefore, is to fully scope and understand the range of PHI innovation activities, explore additional opportunities to develop this work with internal and external partners collaboratively, and better integrate innovation with their research agenda. Strengthening their research and innovation portfolio remains a focus for PHI by building on their expertise and research reputation.

In addition, PHI recognise that all research and innovation proposals need to be assessed in terms of their likelihood to be translated into practice ('evidence into action'), and their impact on the quality of services and by creating collaborations with wider sector partners for the benefit of the NHS and wider society.

HIS's new research strategic plan acknowledges that assessing organisational impact is challenging due to the many factors that influence the effectiveness of their work such as local and national policy, social, political and economic factors, and readiness of the context. HIS aim to develop an approach to assess their impact as an organisation through the use of theory-based evaluation methods, and will work with partners to define methods that are practical and support HIS's planning and corporate decision-making processes.

HSC R&D Division recognises that research findings should be translated as quickly and efficiently as possible and so had offered funding under a Knowledge Exchange Scheme (currently under review) with the aim that this will improve the impact and reach of research. The funding was used to enable effective two-way exchange among researchers who have generated new knowledge, and research users who require an evidence base.

PHE's strategy for research, translation and innovation states PHE adds value by focusing research on the most important public health questions and by directly using research results to improve recommendations and guidance for policy and practice or to share with the commercial sector. The outcomes of the 2014 UK Research Excellence Framework (REF 2014) demonstrated strength, depth and relevance in public health research activity in many universities around the UK.

To support academic public health PHE established a nationwide Academic Public Health Research Support Network, based largely upon the holders of honorary contracts from PHE. Integration into a national network would help to ensure a flow of robust, generalizable findings to stimulate innovation in other areas[13].

3   Research Governance

- **Formalising a Research Governance Framework**

The UK Health Research Authority launched a new framework for UK health and social care research[14] on 16 October 2017. The new policy framework sets out principles of good practice in the management and conduct of health and social care research in the UK. It

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/453993/Research_translation_and_innovation_strategy_final.pdf
[14] http://beta.hra.nhs.uk/planning-and-improving-research/policies-standards-legislation/uk-policy-framework-health-social-care-research/

replaces the separate Research Governance Frameworks in each UK country with a single, modern set of principles for the whole UK. The Framework has been developed by the Health Research Authority and the health departments in Northern Ireland, Scotland and Wales, following public consultation. The new policy framework applies to health and social care research involving patients, service users or their relatives or carers. This includes research involving them indirectly, for example using information that the NHS or social care services have collected about them.

PHE work with partner organisations such as the Health Research Authority (HRA) to ensure effective, efficient governance arrangements are in place for research and related activities.

In PHW a R&D Strategic Group was set up to provide strategic direction and leadership for research within the organisation, and oversight of the research governance process. The R&D Strategic Group is chaired by the consultant leading for research and development, and consists of research leads from each R&D Divisional/Directorate Group.

In Northern Ireland the Health and Social Care Research and Development (HSC R&D) Division is part of the Public Health Agency. HSC R&D Division ensures that researchers can work within an environment that supports, encourages and facilitates them. Specifically, the R&D Division enable research governance processes to be as efficient as possible.

A unified PHI Research Governance Framework[15] was published in 2015, which built upon the previous research governance policies within Information Services Division and Health Protection Scotland. As part of this PHI is required to undertake an annual review of its Research Governance Framework and an annual review of CSO Research Governance Standards for NSS.

HIS register all their primary research activities with a central Research Governance Team, who are responsible for making sure research is of good quality by implementing the Research Governance Framework for Health and Community Care (now replaced by the new framework for UK health and social care research as noted above).

In response to most of the research commissioned and undertaken by Health Scotland is of a service development or improvement nature or evaluation and therefore largely out with the remit of an NHS Research Ethics Committee and the requirement that every Health Board must operate under a research governance framework. HS has developed their own internal Research & Evaluation Governance Framework (REGF) over the last couple of years. The REGF provides a structure for ensuring the proper management, design and monitoring of research and evaluation activities so that research and evaluation undertaken by or on behalf of Health Scotland meets the highest quality and ethical standards. In this instance 'research and evaluation' is defined as the whole range of different type of activities that aim to investigate, ask questions or inquire about, explore, generate, discover or analyse knowledge or evidence. The REGF applies to all of the research and evaluation activities directly undertaken by HS, or to which HS contributes funding, staff or other resources. This includes research and evaluations externally commissioned by HS, as well as research and evaluation activities undertaken by HS staff.

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[15] Available via an internal website for PHI staff, GENSS.

Like PHI, Health Scotland undertakes an annual review of its REGF and an annual review of CSO Research Governance Standards for Health Scotland.

- **Monitoring Research Activity**

PHE maintain a register of studies involving PHE to provide assurance that all research meets the necessary governance standards to minimise risks to the organisation, to its staff as investigators and to people who consent to be study participants. A PHE organisation-wide group (currently titled PHE R&D Group) agree specific metrics with each PHE directorate/major research groupings and monitor their achievements. Where appropriate, the PHE R&D Group will advise on actions or initiatives that might accelerate progress and support the deputy director for research, translation and innovation to implement these.

The Research and Development office within PHW aims to capture all research activity, particularly where individuals are engaged in projects based primarily in other organisations or projects commissioned by PHW from academic and other partners.

The Research Services Team within HS perform a similar function, systems are in place to capture all research activity, commissioned research and non-commissioned research, including where staff may be involved in research activity out with the organisation.

All primary research activities undertaken by HIS are registered with a central Research Governance Team, who are responsible for ensure the research is of good quality by implementing the appropriate research governance framework.

PHI maintains a database of all individuals/organisations who currently have contractual access to PHI data, e.g. Honorary Research Contracts and Research Passports and has a fully integrated research and innovation register.

4   Research ethics & review arrangements

- **Institutional Review Boards**

A Research Ethics and Governance Group (REGG) has been established by PHE to support research led by PHE staff. Chaired by an external academic, the REGG comprises a panel of experts drawn from across PHE and external lay members.
The remit of the group is to review PHE led research and service evaluation proposals that involve human participants, their data and or their tissues, advising on appropriate routes to ethics review and conformity with relevant legislation. The Group will also advise on whether PHE should act as sponsor for particular studies. During 2015 to 2016 the REGG reviewed and agreed sponsorship for 18 PHE research studies, 9 evaluations, and 1 market research study[16].

All PHW research projects are required to undergo a formal corporate risk review process. The R&D office is responsible for assessing the project against risk criteria to categorise the research into a risk category. Projects with high corporate risk require a full risk review by key members of the Corporate Team and the R&D Strategic Group. Projects with medium corporate risk receive a virtual Risk Review by key members of the Corporate

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[16] https://www.gov.uk/government/publications/phe-research-annual-review

Team whereas projects with low corporate risk receive an internal risk review by the R&D office.

Within HS all research and evaluation projects that are perceived to be of high risk in that they have raised quality concerns and or ethical sensitivities are required to undergo an ethical review by a Research Development Group (RDG). The RDG reports to Health Scotland's Corporate Management Team annually, and will only review research and evaluation projects that are out with the remit of a NHS Research Ethics Committee (REC). The purpose of the RDG is to:
- provide ethical advice and guidance, and to ensure that all research undertaken by HS is ethically sound and adheres to the ethical principles of the REGF; and
- have a wider role in promoting a positive research culture and environment within HS for example by building skills and confidence, providing support and reassurance, and promoting consistency and quality.

The PHI Research and Innovation Strategy 2015-2018 seeks to establish a PHI Research & Innovation Support Office to help PHI staff to develop and use their research and innovation skills and expertise. One of the proposed tasks for the support office is to support approval applications, for example, ethics, NHS Board R&D, and the Public Benefit and Privacy Panel if appropriate.

- **Research Advice**

The Health and Care Research Wales Ethics Service provides independent advice and support on the extent to which proposals for research comply with ethical standards.

The HSC R&D Division supports researchers based in Northern Ireland as well as those in Health and Social Care Trusts or other bodies who use the outputs from research findings. In recognising health and social care research as a global endeavour the HSC R&D Division forms effective partnerships and close working relationships with counterparts in the other UK administrations and in Ireland, the European Union and the United States of America.'

Northern Ireland's HSC R&D Division is supported in its role by a Strategic Advisory Group (SAG) who provide advice on:
- developing and implementing an R&D Strategy for the HSC, and encouraging an evidence-based approach to health and social care;
- ensuring that the strategy maximises the use of HSC R&D resources to meet the needs of the wider HSC; and
- new developments affecting HSC R&D.

HIS's Research Governance Team can provide information and guidance on research activities. Oversight of progress against operational plans that inform development of the strategic plan is provided by the Research Management Group. An annual progress report against the strategic plan is presented to the Quality Committee.

Within Scotland, research advice is available from NHS Research Scotland; however, this is primarily aimed at clinical research and linking industry and NHS clinical researcher units. Both HS and NSS do provide limited internal research advice.

5   An Initial Proposition for Discussion

This paper sets out the existing functions within Scottish national public health organisations located in the context of the other UK-wide agency approaches.

As an initial proposition for discussion, PHS should continue to provide the existing four functions outlined above, harmonised into a single approach to commission, mobilise, govern, and ethically review its work within the context of an agency research strategy.

It must also continue to support the research activities of its public health workforce with a wide range of collaborators in academic and service settings.

However, more broadly PHS could develop:

- a clear statement of its role as a research collaborator in the context of:
  o providing data and data science advice and capacity for clinical research trails and public health research;
  o providing professional advice and skills for joint research collaboration;

- its role in identifying priorities for public health research and influencing research funders and academic research providers to support work in priority areas.

- its role in fostering greater research collaborations across the whole of the public health landscape in Scotland.

Proposition – AcMedSci 'Regional Hub'

Expert Commentators - Laurence Moore, John Frank, Tom Barlow

The Commission

The overarching task for the commission is to identify options for the following, in relation to research, innovation, and applied evidence:

- what should PHS be doing as part of its own work?

- how should PHS work to support others in the wider public health landscape?

- how should PHS use its position to influence external agencies and functions that have an impact of public health in Scotland?

The August event focused on <u>what</u> PHS should do, using these questions as a guide.

The challenge for the October event is to define <u>how</u> PHS achieves these actions, based on feedback on what the research community needs of PHS are.

This document focuses on the research element of the Commission, seeking to provide a basis for discussion of how PHS can lead, facilitate, disseminate and train for research to address public health priority evidence gaps.

We provide two areas for discussion. These draw on the feedback from the first workshop and aim to provoke discussion about the concrete functions and activities that PHS would undertake in relation to research.

1) A proposal for a 'hub approach'; and

2) Potential functions of PHS in leading, facilitating, disseminating research and supporting training.

More detail on existing examples is provided for reference in the Annex.

A HUB APPROACH

The Academy of Medical Sciences, in its work on the future of public health research, proposed the establishment of a network of regional 'hubs', acting as centres of engagement between practitioners and researchers. The aim would be that these build on existing national and regional public health structures and together can form a UK-wide network - with each hub having the freedom to innovate and respond to local need. Such hubs are actively being pursued by Public Health England.

PHS could act as a 'hub' for Scotland, as per this proposal, linking with an emergent wider UK network. Characteristics of this hub model might include:

- a central co-ordinating and management function combined with links into:
  - local areas and organisations;
  - existing networks for practice and research;

- a focus on engagement and collaboration between research, practice, and policy, covering the entire knowledge-into-action cycle;

- source of expertise in specific methodological or topic areas, that is accessible to colleagues at the local, regional, and national level;

- driver of capacity-building and training throughout the rest of the public health system; and

- a degree of continuity and contact with the proposed hubs in the rest of the UK, but governed independently and responsive to Scottish context/need.

Examples of similar models that can be drawn upon are provided in the Annex.

Funding, organisational structure, and location will also be important operational questions to be considered as part of any 'hub' role for PHS, but for now the focus is on function.

We wish to explore and take views at the workshop on this general proposition and the specific functions for PHS described below.

The types of questions which may need to be considered include:
- what do you see as the strengths and weaknesses of a hub model?
- who should the hub link with in terms of existing networks and organisational structures?
- wow to ensure flexiblity & responsiveness?
- Should PHS activities' be organised by discipline (e.g. health economics), PH priority (e.g. place & community, early years, mental wellbeing), traditional 'domain' of PH (e.g. health services, health improvement...); or at all?
- how can PHS draw on, incorporate, or support existing networks in this area e.g. Health Economics Network for Scotland)?

HOW SHOULD PHS LEAD AND SUPPORT PUBLIC HEALTH RESEARCH?

A number of potential functions through which PHS can lead and support public health research in Scotland are described below. These reflect the feedback from the first workshop and discussions within the Short-Life Working Group.

We have not placed any restriction on potential functions in terms of breadth, number, and feasibility, in order to encourage feedback on a wide range of options and to encourage refinements or alternative proposals. This will comprise the first half of the workshop exercise.

In considering these functions, it may be useful to reflect on:

- what difference, if any, would these functions make to your work (positive or negative)?
- how might these functions work best in practice?
- What – if any - difficulties can you see with these approaches and how might they be overcome?

	Doing & commissioning	Guiding & facilitating	Disseminating	Training
Funding, commissioning, doing in-house research: • Seed projects for further development • Areas of unmet need unlikely to be supported through traditional funding bodies/schemes	15 ▓	░		
Engaging with and influencing funding bodies within Scotland and rest of UK		▓		
Developing policy models[1] which use research evidence to predict the relative impacts of different options for action	▓		▓	
Conducting and promoting evaluability assessments[2] as part of routine practice at the local and national level	▓	░		░
Horizon scanning function to identify emerging public health challenges and opportunities that impact on the research agenda	▓	▓		
Mapping of the following for specific priority areas, using a combination of literature review & stakeholder engagement (with research producers, users, communities & patients): • Existing evidence and gaps[3] • Ongoing research in Scotland[4] • Priorities for future research to inform practice & policy	▓		▓	
Liaising with existing structures/processes for use and linkage of secondary data, to support timely and secure access to 'research-ready' data		▓		
	Doing & commissioning	Guiding & facilitating	Disseminating	Training

e.g. Within PHS e.g. HDR-UK and Administrative Data Research Programme		(shaded)		
Providing a specialist advisory function in specific methodological or topic areas e.g. health economics e.g. evaluation work and evaluability assessment e.g. sources of external funding		(shaded)		(light shaded)
Undertaking evidence synthesis & review in response to identified needs, including recommendations for action & research			(shaded)	
Producing evidence briefings for different audiences			(shaded)	
Establishing & supporting research development networks[5] which bring together multiple stakeholders (practice, policy, research, public) to take forward research priorities on specific topics e.g. themed by 6 PH priorities or 3 PH domains		(shaded)	(shaded)	(shaded)
Running events (virtual/in-person)[6] - to provide evidence-informed CPD, disseminate findings, & identify priorities		(shaded)	(shaded)	(shaded)
Supporting & promoting online portals/tools that help bring practice & academia together on research questions of relevance (e.g. PHINDER[7])		(shaded)		
Undertaking training needs analysis				(shaded)
Providing/commissioning training courses on identified gaps				(shaded)

PhD placements – both internally and externally funded and jointly held with academic institutions and the third sector	17			
Attachments for public health specialty registrars and other health professionals in training				
Secondments and joint roles between PHS, academia, policy & practice (including NHS, local authorities, third sector), available to a range of staff groups				
Others…as suggested by workshop attendees				

Annex: Examples of existing practice

Three examples of hub models or collaborative networks are described below:

As part of the Health of the Public 2040 project, the Academy of Medical Royal Colleges (https://acmedsci.ac.uk/file-download/41399-5807581429f81.pdf) made a proposal "to develop regional hubs of engagement between practitioners and researchers to integrate health of the public research and health and social care delivery, building on existing national and regional public health structures, which together can form a UK-wide network." Further discussion around implementation [in England] suggested that regional hubs should build on existing networks and include a wide range of sectors, far beyond biomedicine, and that they [regional hubs in England] should be coordinated by a national overarching body while individual hubs maintain freedom to innovate Hubs could be virtual rather than geographical. Leadership for hubs could come from Public Health England, its equivalents in the devolved nations, and the Faculty of Public Health (https://acmedsci.ac.uk/file-download/56798340).

Academic Health Science Networks (AHSNs) have been established [in England] to deliver change in the way the NHS identifies, develops and adopts new technologies and are predicated on partnership working and collaboration between the NHS, academia, the private sector and other external partners within a single AHSN. AHSNs aims are to align education, clinical research, informatics, innovation, training, education and healthcare delivery to improve health outcomes by translating research into practice, developing and implementing integrated health care services, and supporting knowledge exchange networks to build alliances across internal and external networks and actively share best practice, and provide for rapid evaluation and early adoption of new innovations (https://www.england.nhs.uk/ourwork/part-rel/ahsn/).

Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) are English collaborative partnerships between a university and the surrounding NHS organisations, focused on improving patient outcomes through the conduct and application of applied health research. They create and embed approaches to research and its dissemination that are specifically designed to take account of the way that health care is increasingly delivered across sectors and a wide geographical area (https://www.clahrcprojects.co.uk/about).

The Fuse collaboration is made up of the 5 North East Universities with close links to policy and practice partners in the region. Its rapid response facility AskFuse is designed to carry out research for local authorities seeking reviews, quick evaluations etc. Fuse has also pioneered an embedded researcher approach which has involved working with a local authority over the past 2 years or so (http://www.fuse.ac.uk/). More broadly, FUSE is a member of the NIHR School of Public Health Research, bringing together 13 UK universities into a single research collaboration (see: https://sphr.nihr.ac.uk/).

Wider examples from across Scotland include:

1. An example of a policy model of this kind is NHS Health Scotland's Informing Investment to reduce health Inequalities (triple I) tool - http://www.healthscotland.scot/tools-and-resources/informing-interventions-to-reduce-health-inequalities-triple-i

2. Evaluability assessment is a systematic process to assess the feasibility of, and options for, monitoring and evaluation of a change in policy or services. More information can be found here: http://whatworksscotland.ac.uk/publications/evaluability-assessment-a-systematic-approach-to-deciding-whether-and-how-to-evaluate-programmes-and-policies/

3. An example of a mapping exercise for existing evidence is the Centre for Homelessness Impact's evidence map, which was developed with the systematic review centre the Campbell Collaboration, and which provides an interactive guide to evidence on interventions for homelessness - https://www.homelessnessimpact.org/gap-maps

4. An example of a mapping exercise for ongoing research is that undertaken by the Drugs Research Network for Scotland - https://docs.google.com/forms/d/e/1FAIpQLSdCunqlTFgp7vApwac81iGOyx2lc5i5yjyN0DzBN26auXuPAg/viewform

5. An example of this model is the research development groups run by the DECIPHER centre in Wales/Public Health Wales, whose membership included people from policy, practice, and the public, as well as multiple academic disciplines. These groups would be responsible for picking up ideas identified through workshop events, develop a project plan to take the idea forward and deliver a protocol or funding proposal.

6. Examples of events with a similar model include:
   a. The very successful QI Connect webinars from Healthcare Improvement Scotland, albeit with a CPD/practice focus rather than a research one
   b. Seminars organised by the Drugs Research Network for Scotland, which bring together academics, policymakers, practitioners, people with lived experience, families and carers to discuss a specific topic e.g. https://drns.ac.uk/reducing-drd-seminar/
   c. Health Challenge Wales events, which were marketed largely as CPD events with 'experts' providing up to date info on key applied topics of interest to practice/policy (so an incentive to attend) yet where the focus of discussion and something everyone was asked to fill in, being opportunities for research/evaluation of an emerging priority or a local innovation

7. PHINDER is an online portal (https://phinder.ning.com/) which aims to bring together public health research and practice by capturing new and forthcoming UK interventions that have the potential to impact on population health and bringing them to the attention of public health researchers, therefore encouraging and enabling more research into issues that are a high priority for public health policy and practice.

Expert Commentators – Laurence Moore, Steven Marwick

Developing the skills necessary skills for leading, facilitating, disseminating, guiding and training for evaluation and other public health research areas – the role of Public Health Scotland

Background

At the August Stakeholder Event, gaps in the skills available to support research, innovation and applied evidence were identified. These focussed on evaluation and (public) health economics. In reality these two areas are existing *known* gaps and there are likely to be a wider number of possible areas for public health research development.

The Academy of Royal Medical Colleges' strategic development framework "Improving the health of the public by 2040" identified a wide range of research and innovation disciplines including:

- Architecture;
- Computer science;
- Demography;
- Design;
- Education;
- Engineering;
- Environmental Sciences;
- Ethics;
- Geography;

- Informatics & Data Science;
- Law;
- Mathematics;
- Statistics
- Political Science;
- Behavioural Science;
- Social Sciences;
- Life Sciences.

In addition, the Academy noted that developing a *"highly skilled, research-aware health of the public workforce will also be essential to ensure that the UK health and social care systems function in a way that supports the health of the public."* The characteristics of such a workforce were seen as including:
- quantitative skills to collect, link, analyse, visualise and interpret data;
- study design and interpretative skills for large-scale experimentation and evaluation; and
- developing research capacity to support in global public health research.

In this short paper, a proposition that sets out the specific role of PHS in leading and supporting the development of such a research skills capability in the Scottish public health system is presented. The proposed role of PHS in relation to the key

recommendations from the Academy report is outlined, building on the key questions which the commission set itself.

Proposition

Improving the health of the public by 2040 - Recommendation	PHS Does	PHS Supports	PHS Influences
Capacity building for data science – Recommendation 3 We recommend that higher education institutions and key research funders (such as Research Councils and Wellcome) further enhance training pathways in informatics for health that are open to a wide range of disciplines. The aim should be to help build a critical mass of expertise in the UK to process and analyse the full range of available data now and in the future to understand and improve the health of the public.			
Capacity building in (post first degree) education and training – Recommendation 4 We recommend that higher education institutions: • incorporate opportunities for learning about health in a wide range of disciplines relevant to the health of the public; • incorporate these broader disciplines into public and population health courses; and • consider mechanisms for building joint modules between public and population health and these other disciplines to foster transdisciplinary approaches to learning and research.			
Enhancing transdisciplinary research – Suggested action Public health research has traditionally been collaborative, but a number of barriers will need to be overcome to facilitate joint working in health of the public research. A recurring theme in this project has been the need to move beyond professional silos and address health needs holistically… It is important to build research around 'question-focused' groupings with shared goals rather than the traditional disciplinary-based groupings. Greater			

flexibility for individuals to move between disciplines related to health of the public is also required. Approaches which foster this include "team science" and the co-location of researchers.			
Reframing and revitalising public health for the health and social care community – Recommendation 5 We recommend that, through education and training, health and social care practitioners are: • better equipped with an understanding of the drivers and interventions that affect the health of the public and the relevance to their practice ;and • able to engage with research, and evaluate and use evidence. This should be taken forward by the relevant training and regulatory bodies for each of the Professions, such as the Faculty of Public Health for public health professionals.			
Strengthening undergraduate medical curricula Recommendation 5.1 We recommend that the Medical Schools Council, in collaboration with the General Medical Council and other relevant stakeholders, should undertake a review of competencies within the existing undergraduate medical curricula to identify opportunities to embed, strengthen and develop health of the public training and its broader application in clinical practice.			
Recommendation 5.2 We recommend that higher education institutions and their medical schools should develop and maintain intercalated BSc, Masters and MB-PhD degrees in health of the public to encourage further study and develop further capacity in this area.			
Recommendation 5.3			

We recommend that, as proposed in the Royal College of Physicians' 'Research for All', all doctors have appropriate grounding in research and in particular the core principles and methods of quantitative research that underpin health of the public research. All doctors should have opportunities for long-term research throughout the course of their training, preferably linked to an academic department and further opportunities in the course of other continuing professional development.			
Recommendation 5.4 We recommend that the Medical Royal Colleges, led by the Royal College of Physicians and the Faculty of Public Health, should establish a special interest group to develop a credential in health of the public research. This credential should encompass qualitative and quantitative research methods including health informatics and bioinformatics, clinical epidemiology and prevention, health economics, qualitative methodology, behaviour change, intervention methodology including the development and evaluation of complex interventions, and the wider determinants of health. Opportunities for credentialing should be provided for all trainees and not just those who wish to pursue a career in public health.			

Expert Commentators – Ann Wales, Julia Green, Phil Mackie

Delivering the Applied Evidence element of the Leadership for Public Health Research, Innovation and Applied Evidence Commission in the light of the Digital Health and Care Strategy: What could Public Health Scotland do?

Background

The Leadership for Public Health Research, Innovation and Applied Evidence (LPHRIAE) Commission is required to be aware of, and respond to, existing Scottish policy in describing the functions of the new organisation.

The purpose of this paper to set out a proposition outlining how the Digital Health and Care Strategy should inform the way in which Public Health Scotland (PHS) can delivering information and knowledge mobilisation. This includes PHS' role in leading, facilitating, disseminating, guiding and training in translating knowledge into action across the Public Health landscape.

Scotland's Digital Health and Care Strategy – Setting the Context.

Governance and implementation plans for the Digital Health and Care Strategy, and the business case for the next stage of the Knowledge and Decision Support programme, are currently under development. This means it is not possible to put forward a definitive proposition at this time. However it does present a potential opportunity for PHS to engage with, and help shape the Digital Health and Care Strategy implementation plans at this formative stage.

Digital Health and Care Strategy objectives relevant to the Public Health Scotland plans for applied evidence and knowledge mobilisation are to:
1. expand the use of knowledge mobilisation and decision support tools and services, to support frontline practice, self-management and shared decision-making;
2. provide dynamic data capability, with machine learning where appropriate, that enables a forward looking predictive view that supports modelling and continuous improvement of future health and care services, finance and workforce;
3. support the development and implementation of common information standards across the Scottish Public Sector;
4. harness the power of data to better understand the drivers of inequalities and poor public health outcomes, and use this to develop new digitally based services and interventions that can make a difference; and
5. promote and facilitate appropriate, safe and secure access to clinical, biomedical, social care and other data about individuals for approved research in the public

interest, including through managed collaborations between the public third and industry sectors, and academia.

In the context of the LPHRIAE commission the word "data" is to be interpreted as meaning all forms of knowledge, whether research or experientially based, and that knowledge mobilisation refers to applied evidence functions. As such, this represents the sorts of functions that need to be created.

The following are some suggestions on how the functions of PHS can be developed to build engagement and collaboration between LPHRIAE and other Public Health Reform Programme commissions and these Digital Health and Care Strategy objectives.

Potential Actions – for Discussion

The LPHRIAE could propose that:

1) The existing knowledge services functions within NHS Health Scotland and NSS Public Health and Intelligence that will be transferred to PHS are brought together to create new Public Health Scotland Knowledge Service (PHSKS).

2) PHSKS should outline what would be mutually beneficial, collaborative working models across the national and local Public Health functions, taking account of the proposals for the Knowledge and Decision Support Programme. For example, Virtual Hub or Distributed Team approaches and some shared posts might be considered. There may be a case for creating a single integrated Applied Evidence and Decision Support Hub that partners with statutory and third sector organisations in a distributed network model.

3) PHSKS should continue to build on current collaboration to establish a framework of interoperability processes, and standards, asset ownership and access arrangements. This will enable PHS, Digital Health and Care Strategy implementation plans and Knowledge and Decision Support Programme to access and share datasets, research knowledge, knowledge brokerage, analytical expertise and tools. This will facilitate development of knowledge mobilisation and decision support across the spectrum of need from individual to population levels. A key element of this framework will be defining and implementing the digital standards and architecture to enable interoperability and integration of large public health datasets with the new Digital Health and Care Platform.

4) PHSKS should define its unique contribution to developing and implementing the strategic action plan led by the Knowledge and Decision Support Programme and

Scottish Library and Information Council, facilitating collaboration across NHS, public and school libraries to support health and wellbeing.

More broadly, PHS should develop is transformational role in applied evidence so that it can:

5) Collaborate in the planning of priorities proposed for the Knowledge and Decision Support Programme supports population health improvement as well as individual care, self-management and service delivery.

   At present, these priorities include:
   a. using data- and knowledge-driven innovation to optimise combined care pathways, based on personal outcomes, for people with multiple conditions, including physical and mental health conditions;
   b. using insights from data and research knowledge to drive decision support for prevention, early detection and intervention for Type II diabetes, COPD and other long term conditions;
   c. designing data-informed triaging methods, which use self-management and community services to reduce waiting times due to avoidable requests for investigations and referral;
   d. improving safe and appropriate prescribing for people with polypharmacy (taking multiple medicines) by linking outcomes and prescribing data; and
   e. using insights from digital data and knowledge to create: (i) digital tools to support young people with emergent mental health issues; and (ii) new insights into risk factors and interventions that support early detection and intervention for young people at risk of mental health issues.

6) Engage at an early stage to scope complementary responsibilities with the proposed future Knowledge and Decision Support Programme. This clarification will maximise synergy in their common areas of activity – producing actionable intelligence, data-driven and knowledge-based decision support. This will enable PHS and Knowledge and Decision Support Programme to work together to support the full spectrum of decision-making – ranging from care and support for individuals, and self-management, to operational service development, to improving health at community and population levels.

7) Work with the Knowledge and Decision Support Programme and the Digital Strategy Workforce Development domain to develop Knowledge Broker roles and skills. This would include supporting data, information and knowledge specialists within Public Health Scotland and in the wider health and social care system, to design and deliver knowledge mobilisation and decision support services. These skills will range from engaging stakeholders in creating and using decision support tools, to processing and synthesising data and knowledge using classic approaches and new artificial intelligence methods, to produce decision support solutions.

A high-quality, high-functioning, collaborative Knowledge Service for Public Health Scotland

Vision

PHS will be evidence and intelligence-led in order to ensure that public health advice and guidance for the population of Scotland is based on the best available evidence. A well-organised, well-resourced and innovative knowledge service will play a critical role in contributing to evidence reviews, public health intelligence, evaluation and research commissioning through the identification, retrieval, organisation, curation, governance, translation and mobilisation of knowledge in PHS and collaboratively across the public health network in Scotland.

What will the new agency do?

It is proposed that the core functions of an effective knowledge service will include:

- Evidence search and summary, combining formal research with contextual and experiential knowledge
- Horizon scanning and current awareness
- Provision of Public Health-focussed knowledge tools and resources to ensure access to an appropriate evidence base
- Provision of information management tools and resources to ensure high quality and transparent governance and management of the research and publishing process
- Development and delivery of information literacy skills training to facilitate and ensure effective and appropriate use of knowledge resources
- Provision and management of a knowledge and research repository in order to manage, promote and ensure future accessibility of the knowledge and research output of the new public health body and its legacy organisations, as well as to measure and demonstrate the impact of PHS's knowledge and research
- Provision of tools, resources and advice to facilitate and guide improved organisational knowledge management
- Provision of tools, resources and advice to facilitate and support organisational and workforce development
- Knowledge governance to ensure transparent, legal and ethical management and use of knowledge
- Creating connections and supporting person to person knowledge exchange
- Dissemination of knowledge through a range of communication channels.

How will it collaborate with and support others in their work?

The knowledge function has a key role to play in promoting and facilitating knowledge mobilisation, working collaboratively with colleagues across the new public health body, with the wider public health workforce, and through working in partnership with

Knowledge Services across Scotland to mobilise knowledge effectively and efficiently to enable its uptake and use. Key contributions of the function in relation to knowledge mobilisation will include:

Knowledge Generation

The knowledge function has a clear role to play in contributing to evidence collaboratives around key priority areas. Public Health Librarians will search the evidence base in order to identify relevant formal and grey literature, as well as highlighting gaps in the literature and providing easily applicable evidence summaries.

Targeted horizon scanning and current awareness services will identify new and emerging evidence and topics of interest and relevance to the Public Health community across Scotland.

Knowledge Management

The knowledge function will work in close partnership with internal and external colleagues to identify, gather, organise, summarise and present knowledge and information in order to facilitate its synthesis, interpretation and commentary by evidence and intelligence specialists.

Provision and management of digital and print tools, resources and collections, including, but not limited to, databases, journals, books and reference management software to PHS and the wider workforce.

Strategic knowledge management is essential for an evidence-based organisation. The knowledge function will facilitate and promote use of tools and resources which encourage knowledge management, sharing and use.

A knowledge service will provide information management tools, resources, training and advice in order to manage the research process professionally and transparently, ensuring adherence to governance standards.

The knowledge and research output of the new body and its legacy organisations (i.e. its organisational memory) will be managed, curated, preserved, promoted and made accessible to the Public Health workforce through development of an open access repository in order to derive maximum value from the work of these organisations and to measure and demonstrate the impact of this work

Knowledge Application

Knowledge Services will work with knowledge services colleagues in special and territorial Boards to promote a co-ordinated, collaborative approach to delivery of evidence searches and summaries for the public health workforce, highlighting key evidence sources and content to support action by the Public Health community.

Provision of information literacy skills training will enable colleagues to make best use of the knowledge resources available to inform and evidence their work.

The service will provide knowledge in actionable formats, such as evidence summaries, checklists, decision support and decision aids in order to facilitate the application of knowledge.

Who will it collaborate with?

The function will work in close collaboration with evidence, intelligence and research colleagues, searching, identifying, gathering and managing relevant evidence to contribute to prioritised work areas. The service will also contribute in this way to the Public Health Evidence Network Scotland (PHENS), providing a specialist knowledge contribution to the work of this network.

It will also work in close partnership with organisational and workforce development colleagues to ensure that the workforce has the knowledge and resources required for personal and professional development.

The service is well placed to provide a range of knowledge advice, guidance and support to projects, services and developments across the new public health agency, as well as through provision of a search and summary service.

Through collaboration and partnership working with Knowledge Services colleagues across NHS Scotland, the knowledge function will deliver co-ordinated knowledge support to the Public Health workforce in Scotland by acting as knowledge brokers across local, regional and national levels. This will be facilitated by development and support of a Community of Practice for knowledge specialists with a particular remit for public health, offering opportunities for enhancement of core skills, as well as capacity building and increased influence and advocacy across the system.

The service will also seek to increase and improve cross-sectoral collaboration with colleagues to ensure a joined-up approach to knowledge support for the public health workforce in its widest sense, including working with public libraries to support self-management of health and well-being.

The service will work with a range of networks and systems to promote the range of specialist public health resources available to the workforce and to facilitate understanding and use of these resources to ensure an evidence-informed approach to public health work. The service will advocate for and influence the procurement of a broad range of public health-relevant electronic information resources to ensure that the needs of the workforce are met.

The service will collaborate with its counterpart knowledge services in Public Health England and Public Health Wales to develop best practice across the UK.

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