



PHIRE - Public Health Innovation and Research in Europe

SUMMARY REPORT

**Mark McCarthy, Kristina Alexanderson, Cláudia Conceição,
Floris Barnhoorn, Olivier Grimaud, Zuzana Katreniakova,
Laura Narkauskaité, Amanda Saliba, Marvic Sammut, Walter Devillé,
Margaretha Voss, Dineke Zeegers**

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EUPHA
European Public Health Association
P.O. Box 1568
3500 BN Utrecht
The Netherlands

PHIRE has been coordinated by the European Public Health Association (EUPHA).

Associated partners were:

School of Public Health (EHESP), France

Faculty of Public Health (FPH), United Kingdom

Institute of Hygiene (LIH), Lithuania

Karolinska Institute, Sweden

Ministry of Health, the Elderly and Community Care (MHEC), Malta

Netherlands institute for health services research (NIVEL), The Netherlands

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1. Summary

Public health innovation and research contribute substantially to levels of health, social development and economic growth.

PHIRE (Public Health Innovation and Research in Europe) was a collaboration between seven partners, co-funded by the European Union and drawing on the expertise of members of the European Public Health Association (EUPHA).

Expert reports were made on the national impacts of eight **innovation** projects of the European Union's first Public Health Programme 2003-2005. Impacts were stronger when there was national policy readiness and trans-national advocacy. All the projects continue as European collaborations.

PHIRE identified 75 public health **research programmes and calls** across 16 countries that opened in 2010. They were usually listed within broader medical research fields, and health promotion, environmental, health determinants and organisational research were also evident. Levels of funding, and use of the Structural Funds for public health research, were unclear.

PHIRE organised national stakeholder **workshops** and meetings – for researchers, research funders, ministries of health and civil society. Research could be more clearly focused towards national health strategies, and translated as public health innovations across Europe.

Ministries of Health, working with research councils, independent funders and the health services, can promote public health research to meet current health challenges. **National public health associations** can support development of research capacities and translation into practice.

The EU's coming research programme, **Horizon 2020**, can strengthen national public health research systems through coordination, and support advances in public health policy and practice across Europe.

Recommendations from PHIRE

1. **Support national public health research**

Health policies and innovations must be evidence-based. Funds should be allocated to gain knowledge from policies and practice – including learning what is not effective. National research strategies must include public health objectives.

There is much variation between countries in levels of public health research, and across different research fields and topics.

European countries should identify public health research within national health research systems, clarify and improve levels of funding, and align research calls and programmes with national health plans.

2. Support public health innovation

Knowledge from research contributes to public health innovation. There should be research within public health interventions, policies and practice

Independent civil society organisations, including national public health associations, are important contributors in uptake and implementation of public health and social innovations

European countries should promote innovation and research through health and civil society organisations working in the public interest and taking the place of commercial organisations elsewhere in the economy.

3. Support European priority and coordination of public health research

Only a very small proportion of current EU funding is directed towards public health research.

The coming Horizon 2020 programme will have a wide range of mechanisms to support research in member states.

European countries, within Horizon 2020, should prioritise health care and health determinants research, and coordination mechanisms for public health research – including through the European Research Council, Research Infrastructures, ERA-Nets, Joint Programming and national Structural Funds.

2. Why PHIRE?

PHIRE (Public Health Innovation and Research in Europe) has been led by the European Public Health Association (EUPHA) with co-funding by the Health Programme of the European Commission.

PHIRE has addressed the uptake of public health innovation, and support for public health research, at national level, and the implications at European level.

The process drew on expertise of researchers within EUPHA and on dialogue between stakeholders at national workshops and meetings. The findings are presented here in synthesis. Much more – both national and European – can be found on the PHIRE webpage www.eupha.org/phire.

What level of research?

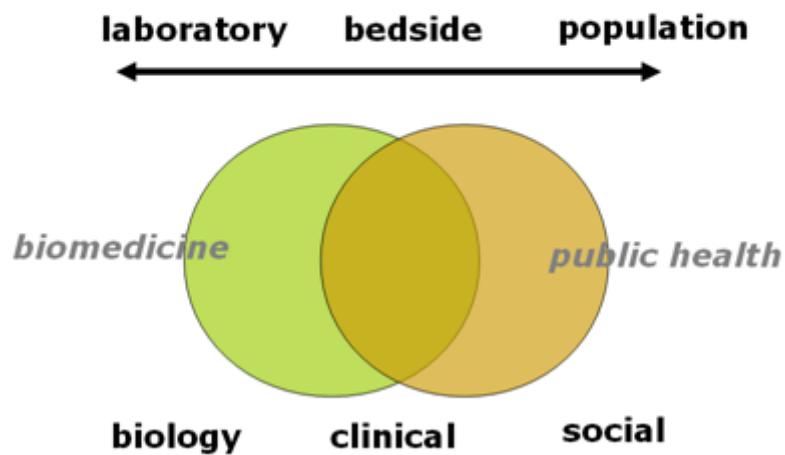


Figure 1 Fields of health research

PHIRE has described the uptake of knowledge for innovation in public health, and the development of research to provide knowledge – looking at national systems across Europe. Health research provides the scientific base for professional knowledge and practice. Scientific methods are used to investigate the spectrum of phenomena from molecules to societies. Within the health sciences, public health research is complementary to biomedical research: it addresses the causes and control of disease, the promotion of health and the working of the healthcare system.

Following the advances in control of infectious diseases through environmental control, public health practice now contributes importantly to the reduction of the non-communicable diseases – so-called ‘diseases of affluence’ – through understanding of social behaviour, policy interventions and improvement of health services.

Sustaining public health interventions and practice requires sustaining the research base. The European Public Health Association brings together researchers and practitioners from across all European countries. It provides an annual forum for cross-disciplinary meeting (the European Public Health Conference), a high-quality scientific journal (the European Journal of Public Health) and a framework for collaborations – such as PHIRE – between scientists, professionals and organisations.

Innovation

The slow-down in the Europe economy has drawn attention to the drivers of development. One factor is the value of innovation, which leads (potentially) to more effective and efficient production of goods and services, and (potentially) to competitive advantage in global markets.

The health sector benefits from innovation. Public health draws from a range of disciplines, including epidemiology, clinical, behavioural, social and management sciences. Public health is constantly evolving, and there is growing understanding of how to prevent disease and injury, and promote efficient and effective healthcare.

The European Union’s Treaty proposes achieving a ‘high level of human health’ for its 500 million citizens. The primary responsibility for this lies with the Member States, through the Ministries of Health, but the European Commission’s Directorate for Health and Consumers (‘DG Health’) provides support and coordination between countries.

Also, a small proportion of EU funding – around €20m – has been allocated annually to the Health Programme to support coordinated innovations in practice across member states. PHIRE has investigated this path for innovation in health at European level.

Research

Innovation is built on research. The more economically advanced countries spend a higher proportion of their greater national wealth on research, and the European Union, through the European Commission’s Directorate for Research and Innovation (‘DG Research’) has encouraged all countries to invest more in research – as a stimulus for economic growth and social improvement.

Research in all European countries is led through public funds. The private sector funds near-market research in a proportion of industries, but the main areas of fundamental and exploratory research depend on public funding. Similarly, public health research is not oriented to for-profit, marketable goods, but is needed to promote continued innovation in health.

PHIRE has focused on these two themes across Europe. It has assessed the uptake of eight different innovations at pan-European level; and it has reviewed national systems and programmes for public health research.

A definition of public health research

Public-health research operates at a complex level between scientists, individuals and society. And the issues that public-health research addresses – how to improve the health of the population, and how to ensure the effective and efficient organisation of health care – are of direct concern to governments themselves. The following definition of public health research, which gave a broad meaning, was used:

"Public-health research refers to the organized quest for new knowledge to protect, promote and improve people's health. It:

- is undertaken at population or health services level, in contrast to laboratory (cellular) or clinical (individual) health research;
- differs from public-health practice (which also uses scientific methods), as it is designed to obtain generalisable knowledge rather than to address specific programmes for service delivery;
- is usually goal-oriented, addressing questions of policy relevance, and may be published in either academic journals or reports; and
- uses a range of observational methods, including surveys, registers, data sets, case studies and statistical modelling, and draws on disciplines including epidemiology, sociology, psychology and economics, and interdisciplinary fields of environmental health, health promotion, disease prevention, health-care management, health-services research and health-systems research."

(BMC Public Health 2009, 9:203 doi:10.186/1471-2458-9-203)

3. Background

The European Public Health Association has contributed to two previous projects in this area.

SPHERE (Strengthening Public Health Research in Europe) was initiated after a discussion at the EUPHA annual conference in 2002 (in Dresden), which reflected on the limited support being given to public health research in the European Commission's 6th Research Framework Programme. Funded through a competitive application in the Policy Research theme, *SPHERE* reviewed research publications across six fields of public health research – health promotion, health services, environmental health, health management, communicable disease control and genetic epidemiology – showing substantial inter-country variations, with lower rates particularly in the EU eastern and southern member states.

A following project, *STEPS* (Strengthening Engagement in Public Health Research), was funded through a competitive application to the Science in Society theme. It gave particular attention to the 12 member states joining the EU in 2004-2007. It demonstrated the interest and importance of civil society in support for public health research – taking the role of public interest where there is no commercial interest – and held workshops across stakeholders in public health research. A particular finding was the importance for these countries of the EU's Structural Funds, which had within them substantial allocations for research and innovation, but mostly directed towards commercial research and innovation rather than for public services such as health and education.

Several other cross-European studies have also provided insight on health research by country, three examples are: EuSANH - European Science Advisory Network for Health¹; HSR-Europe - Priorities in fields of health services research²; RICHE – a platform and inventory for child health research in Europe³; Reviewing public health capacity in the EU⁴; and FAHRE - Food and Health in Europe⁵.

A further rationale for PHIRE has been organisational development for EUPHA. Public health researchers and practitioners are brought together in EUPHA in two ways. The formal members of EUPHA are the national public health associations – paying annual subscriptions according to the strength of their own membership. (EUPHA does not receive commercial sponsorship). Also, individual researchers and practitioners may join any of 20 EUPHA Sections, which are based on public health topics such as epidemiology, nutrition and occupational health. PHIRE was created to assist these cross-European structures develop.

¹ EuSANH: European Science Advisory Network for Health www.eusanh.eu/

² HSR-Europe (2011). Health services research: helping tackle Europe's health care challenges. Utrecht, NIVEL.

³ RICHE - a platform and inventory for child health research in Europe.

http://ec.europa.eu/research/health/public-health/health-promotion-and-disease-prevention/projects/riche_en.html

⁴ Aluttis, C. et al. (2012). Reviewing public health capacity in the EU. University of Maastricht.

http://ec.europa.eu/health/social_determinants/docs/ev_20111212_co17_en.pdf

⁵ FAHRE – Food and health in Europe <http://www2.spi.pt/FAHRE>

4. Our Methods

PHIRE was a 30-month project, starting in September 2010 and finishing in February 2013. It was divided into two fifteen-month phases, designed first to together collect information, and then to discuss and report⁶.

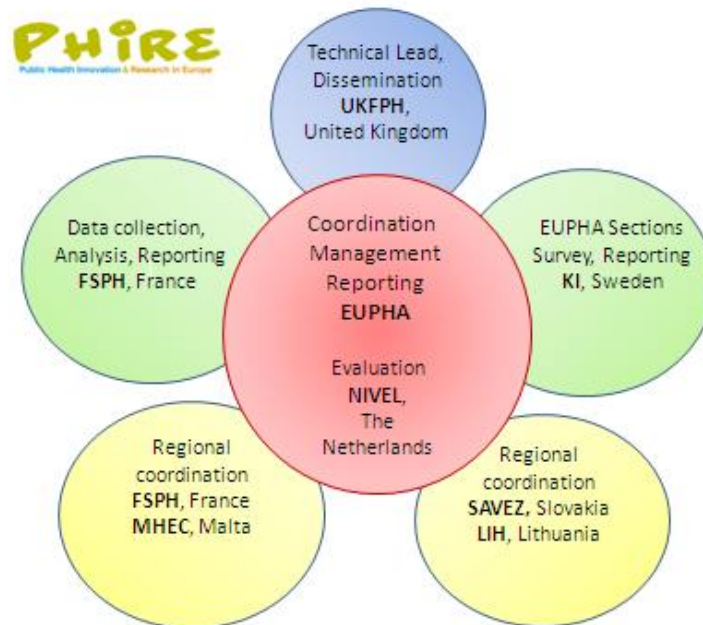


Figure 2 Organisations and partners in PHIRE

PHIRE brought together seven partner organisations (Figure 2), and individuals within these organisations gave their ideas and energy to the project. EUPHA took responsibility for coordination, management and reporting, and the UK Faculty of Public Health (UKFPH, the United Kingdom public health professional association) developed the technical coordination, analysis and dissemination. The French School of Public Health (EHESP) led on the profiles and programmes, and the Karolinska Institutet (KI) led the work on uptake of innovation projects. Coordination of national data and workshops was organised through four regional leads – EHESP, Institute of Hygiene, Lithuania (LIH); Slovak Public Health Association (SAVEZ); and Ministry of Health, the Elderly and Community Care, Malta (MHEC). Evaluation was undertaken by the Netherlands Institute for Health Services Research (NIVEL). Management meetings were held in the Netherlands, near the EUPHA office at Utrecht, and also structured around the European Public Health conferences held in Amsterdam (2010), Copenhagen (2011) and Malta (2012).

⁶ The proposal made for this work to the European Commission's 2009 Health Programme call was approved technically, but a considerable cut of the budget was made on the proposed EU co-funding. Significant alterations had to be made to the PHIRE project plan in the negotiation period, including shortening the period of the work, redesigning the collection of data and severely limiting the funds offered for national reporting. These cuts reduced the delivery of the project in significant ways, particularly in achievement of full country reporting.

4.1. Phase 1 Collecting information

Health innovation across Europe – work with the EUPHA Sections

The objective of this part of PHIRE was to assess how far innovation projects funded by the European Union's Health Programme have been taken up into national public health practice. PHIRE identified 198 projects that were supported during the first three years of the Health Programme. Seven EUPHA Sections chose eight innovation projects for the study. Criteria for the projects to be chosen included that they were applicable across European countries, and should have started from calls between 2003 and 2005, so as to have been finished before the start of PHIRE.

Table 1 The eight innovation projects in PHIRE

Projects from EU Public Health Programme 2003-2005	Project objective	EUPHA Section
CHOB - Children, obesity and associated avoidable chronic diseases	Address marketing of unhealthy food to children in Europe.	Food and nutrition
CSAP - Child Safety Action Plans, Phase I	Indicators and good practice leading to national plans	Injury prevention and safety promotion
EAAD - European Alliance Against Depression	Community-based catalogue of "best practice" materials and interventions	Public mental health
ENHIS - Implementing Environmental and Health Information Systems in Europe	Develop indicators of children's environmental health situation	Environment related diseases
EUCID - European Core Indicators in Diabetes Mellitus	Comparability of datasets for risk and care of diabetes	Chronic diseases
HA - Healthy Ageing	Literature and recommendations on promoting health of older people.	Public mental health
URHIS-I European system of urban health indicators	Describing urban health through standardised measures	Urban public health
VENICE - Vaccine European New Integrated Collaboration Effort	To share knowledge and best practices in immunisation programmes	Public health epidemiology

The seven Section Presidents and the PHIRE coordinators developed a generic questionnaire with items covering different types of impact of the project and factors hindering and/or promoting such impact in a country. The questionnaire was semi-structured with possibilities to make own comments. This was used for a web-based survey to country informants for each of the eight projects.

The survey was administrated by the Karolinska Institutet, Stockholm. Section Presidents mainly used Section members as country informants. When that was not possible, they were pragmatic

and creative in contacting other respondents in countries. Responses by country and proportion of informants are shown in Figure 3:

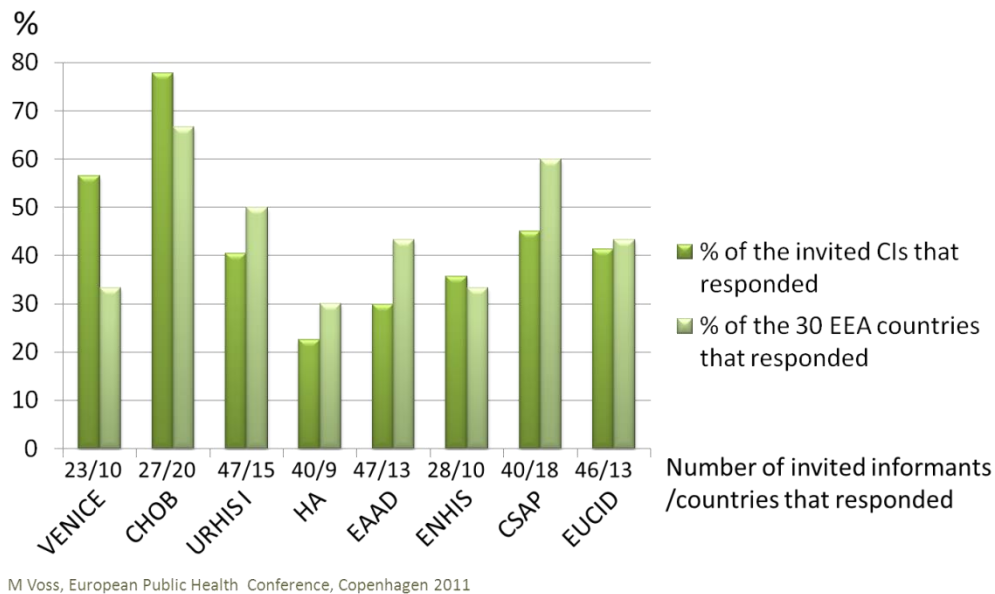


Figure 3 Response rates in PHIRE surveys

The data from each of the eight innovation projects were put together per country in reports which were made available for the national workshops in the second period of PHIRE. To analyse the reports together, the data items were supplemented by internet information – all the chosen innovations had, to some degree, information available on project websites about their consortia and country contacts.

It is not clear how far there was bias from the informants. They had to be experts in their fields (drawn from members of the EUPHA thematic Section) to be able to make their judgements. Country informants who had been involved in the original project were more than twice as positive about impacts compared with those who were not within the project; which may reflect either bias or greater knowledge of the specific project activities compared with other academic Section members.

Programmes of health research

To achieve representative information, and to be inclusive of the EUPHA members, PHIRE sought to gain information from all EU countries, plus from Norway and Switzerland. To achieve this, four PHIRE partners were grouped for each region to be responsible for overseeing seven countries. There are National Public Health Association members of EUPHA in almost all EU countries, with the exception of Cyprus, Greece, Ireland and Luxembourg. At the European Public Health conference in Amsterdam in November 2010, the objectives and activities of PHIRE were approved by the EUPHA Governing Council, and meetings were organised with representatives from member associations to seek their cooperation.

The work of the first phase of PHIRE was to collect information on public health research programmes. The definition of ‘public health research’ developed for SPHERE was used, and the National Associations were asked to find and report any open call for research opened during

2010 (or the latest available year up to 2011). In a minority of countries no programme call was made, while in the rest a wide variation in styles of calls and programmes was found. The collected responses were reviewed and sorted into categories, and these were then refined in between the project partners.

4.2. Phase 2 Workshops and Synthesis

National workshops

During this phase, the EUPHA member associations were each invited to organise a national workshop with two purposes: to review and revise materials collected in the first part of PHIRE; and to promote engagement of stakeholders in considering public health research, both nationally and at European level. Materials provided for the workshop included the Country Profile of research structures, the analysis of innovations by country, and the country reports on health research calls and programmes in 2010.

Three themes were to be addressed – innovation, structures and European dimensions. PHIRE guidance suggested a session inviting a small number of stakeholders from research, research management and the health sector – including ministries if possible. A format for the report was provided, covering the areas indicated and providing some detail on the attenders of the event.

Workshops were achieved in 16 countries. In three others, the national associations conducted internal discussions, and in one country without a national association there was full information provided from the Ministry of Health. In four countries, to supplement national associations, a visit was made by a PHIRE partner, and for six countries no participation was achieved (Table 2).

Table 2 Participation of countries in PHIRE Phase 2 reports

Type of participation	Countries
National meetings with Ministry of Health	Austria, Cyprus*, Czech Republic, France Italy, Latvia, Lithuania, Malta, Netherlands Norway, Poland, Romania, Slovakia, Slovenia Sweden, United Kingdom
National associations internal discussion	Finland, Germany, Portugal
Key informant from Ministry of Health	Ireland
PHIRE country visits	Bulgaria, Greece*, Denmark, Estonia
No contacts achieved	Belgium, Hungary, Iceland, Luxembourg* Spain, Switzerland

(* country with no national public health association member of EUPHA)

Synthesis and dissemination

Work for PHIRE was completed by the partners. The major work-package reports for the project, and PHIRE materials on public health research at national and European levels, were organised and presented on the web pages of EUPHA. A shorter PHIRE Report (this document)

was developed and circulated for comment and feedback from a range of experts before final publication.

Further aspects of dissemination of the results of PHIRE included the PHIRE Platforms held at the EPH annual conferences in 2011 and 2012, and development of scientific papers intended for publication.

5. Our Findings

Innovation

The innovation study looked at eight projects that had originally been funded by the European Commission's Directorate for Health in the period 2003-2005. These projects were chosen because of their range of subjects, their relevance for public health action and the possibility for use across European countries.

In all, 298 informants were invited and 123 gave replies (41% response), covering between nine and twenty countries respectively for the eight projects. More than half of the countries were reported to have been engaged with the original project, and a quarter of the respondents had also been engaged.

Projects differed in the impacts. Child Safety Action plans were considered to have strong policy impacts in particular countries; URHIS showed greater visibility with municipalities than with national governments. VENICE and EUCID connected strongly with academics and professionals, and others (eg EAAD) with public and media. Some positive statements for the projects are shown (Table 3).

Table 3 Selected replies of informants on impacts

Innovations	Selected replies
CHOB	CHOB has sometimes contributed to reducing perceived barriers in combating the negative effects of food marketing, including "lack of cooperation between national organisations"; "lack of experience" and "lack of material resources".
CSAP	Participation ensured maintained momentum and provided a focus for child safety activities.
EAAD	Our message got easily across but did not always result in positive response from persons in power.
ENHIS	Project was crucial and the only driving force and methodological, technical help.
EUCID	The project contributed in part to the increase the awareness of diabetes burden and suboptimal care.
HA	The results could be interpreted as a synergy of projects with similar directions.
URHIS-1	The fact that our country was involved in this project facilitated the further research in the field of urban health.... The project gave a great opportunity to assess the feasibility of data collection on urban level.
VENICE	It helps to compare one's own data with other MS, to see how other countries obtain their data and to obtain ideas how to tackle certain problems locally from the experiences of other countries.

Project relevance – Three of the eight innovation projects, EAAD, HA and CHOB, were considered of ‘high’ relevance by a majority of the informants, and seven of the eight projects were of ‘high or moderate’ relevance.

Country Relevance – All the projects were considered to have shown some aspects of country relevance, some more at governmental, some at local and some at academic and professional levels.

Dissemination – Knowledge of the project had reached at least five types of stakeholder groups for more than two-thirds of countries for the highest-scoring project, down to ten per cent for the lowest (see Figure 3 below)

Awareness – The informants described awareness of the projects (particularly) across national health authorities, government, universities and professional organisations (see Figure 4).

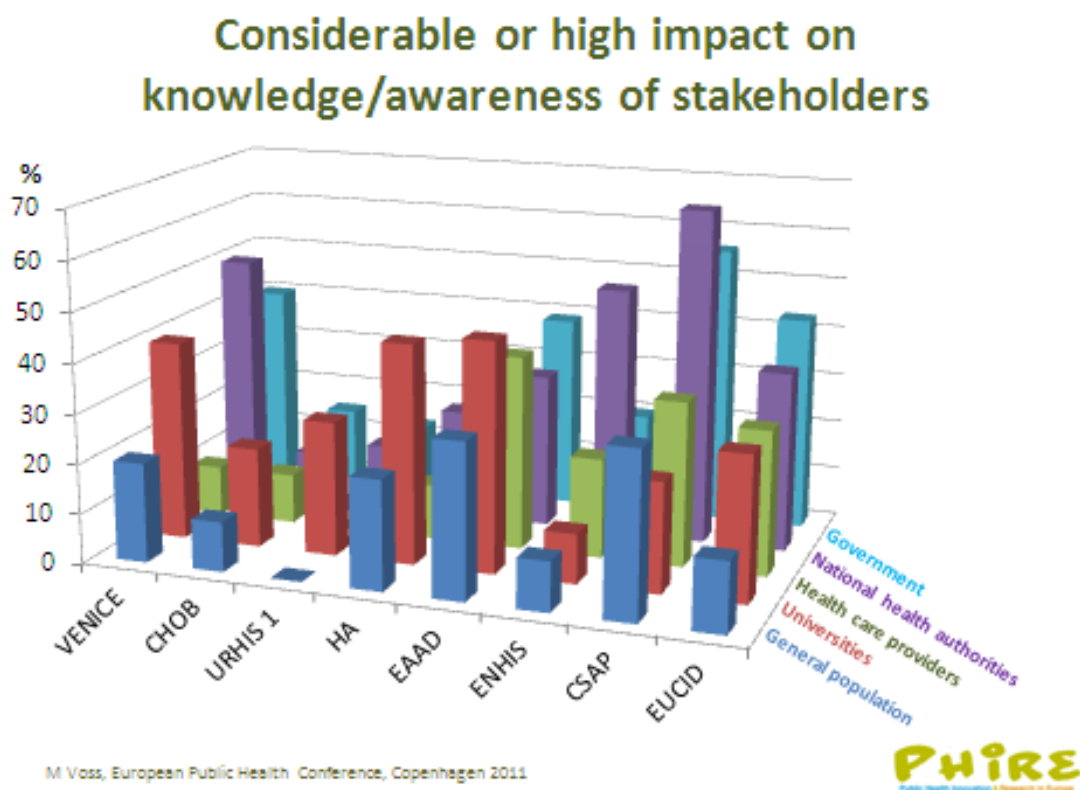


Figure 4 Country informants' perceptions of innovation impacts

Research systems

Stakeholder workshops and national reports following the PHIRE template were submitted for about half of European countries. In countries where the EUPHA National Public Health Association could not engage (Table 2), supplementary information was gained through one-to-

one meetings and written comments. A small number of countries held stakeholder meetings, but followed their own agenda rather than that of PHIRE.

While all countries had national research strategies – mainly stating their intention to increase the proportion of GNP spent on research. A minority had a research strategy indicating fields of health to be prioritised, and only a few identified public health research for priority.



Figure 5 Scheme for national health research structures

Research commissioning structures include the Ministry of Science (or non-ministerial agency such as a research council), Ministry of Health and other funders. Often ‘mixed organisations’ allocate funds both internally and externally. Academic decisions are usually devolved to specialised committees of experts from the research performers (Figure 5).

Another line of funding, in only a minority of countries is through the health system – either directly from the Ministry of Health, or through an agency, or from the health system (eg region, health insurance agency) itself. This pattern is much more varied: several ministries of health demonstrate no competence in health research, leaving all decisions to the ministry of science (or agency), while others are much more active in developing both fundamental and applied research.

A third line of funding is from independent organisations, including foundations, patient groups and charities.

Within health research budgets, lines specifically for fields and topics of public health research are not well developed. Frequently, calls are of a general nature, described by disease and without a problem statement. As a result, biomedical research projects may be revised to fit the new call, and continue to gain the largest percentage of funds. It is therefore also difficult to state the level of funding allocated to public health research within a country.

Public health programmes and calls

Research programmes and calls relevant to public health were reported for 16 countries; no such programmes or calls were announced in nine countries (all were EU new member states, plus Portugal, but some countries which had no research call in 2010 had calls in adjacent years); and information was not available for five countries.

We found open calls under the broad title of public health or population research in 2010 in France, Ireland, Lithuania, Norway, Spain, Sweden and UK. The calls were usually from the

national research council, and ranged from aetiological to intervention studies, with some countries including health services research. France and UK had research calls related to research methods. In France, this was a call specifically for new cohort studies. In UK, the call was to develop methodologies (for clinical as well as public health studies), and included research on study design and analysis, reviews and evidence synthesis, patient and health outcomes, and methods for complex interventions.

There were 24 calls described as “disease control”, including areas of cancer, mental health (and dementia/Alzheimer’s disease), cardiovascular diseases (including diabetes) and renal failure. Some countries, for example Lithuania, listed a full range of diseases, while Denmark and UK broadly cited ‘chronic diseases’ and ‘chronic non-communicable disease prevention’ respectively.

There were four calls for communicable diseases research, three for environmental research, and one (Denmark) for food safety as well as food/nutrition research. Health promotion, with ‘social determinants’, included calls on eating behaviour, sexual health, alcohol, tobacco and addictions and health behaviour in young people. Health services and systems research included broad calls (five countries) and calls directly for social insurance data, patient-user research, nursing, health technology assessment and research for management. Two calls were classified by target group: research on ageing and on youth.

It proved impossible to make even a pragmatic estimate of spending specifically on public health research from the data currently available. In some countries, funding for medical research comes from research councils, health services and independent sources, but the allocation to public health research within this is unclear. Some countries declared no calls for public health research in 2010: while they may support biomedical research, their health ministry has no role in allocation of the funding. Structural Funds were being used in support of health research in several new member states, but were not clearly identifiable and not necessarily for public health research.

European dimensions – Horizon 2020 and Structural funds

Ministries of Health generally did not yet have a position on the content of the European Union’s Horizon 2020 Research Programme. However, there can be participation in discussion through different processes and structures: Finnish Ministry of Health, for example, has raised issues on public health research

From 24 reports, ten countries reported a position of the Ministry of Health on the use of structural funds for public health research in 2014-twenty.

Issues relating to connections between European and national health research included: managing co funding; harmonization with EU research priorities; levels of participation in EU-level networks and projects; support to national applications to EU funded research; influencing EU research agenda-setting; participation in discussions of research at European level.

6. Reflections

Strengthening innovation from public health knowledge

PHIRE has, for the first time, made an assessment of cross-European innovation, drawing on public health knowledge. For all the innovation projects, there were results supporting some uptake at national level. In some instances, the innovations contributed directly to policy or service development - examples reported included Child Accident Safety Plans in Scotland (CSAP) and use of the European Action Against Depression (EAAD) approach in primary care services in Austria.

All eight projects had continued European collaboration up to the present time, reflecting commitment by European and national civil society organisations.

Moreover, the findings emphasise that ‘innovation’ exists actively beyond the commercial sector.

PHIRE found that uptake of innovations at national level was favoured when policy-makers were ‘prepared’ and ready to use the knowledge – examples include the child obesity project and the national vaccination programmes. A national champion organisation was also beneficial. Uptake was less successful when there has been little national activity for the innovation, or when national systems are very different – for example, in the diabetes registers. There is a need for continued targeting of policy initiatives, at regional and local levels as well as national levels. Civil society organisations can provide significant support for this.

Building coordination of national research strategies for public health

Research contributes to economic development through innovation – and, as much in the public and not-for-profit sector of national economies, such as health, as through the commercial sector. All EU countries have systems for public health knowledge through innovation and research (Figure 6).



Figure 6 Health research system

Most health research is funded by national governments through systems administered by Ministries of Science or Education, or their agencies. Independent of country size, a diversified range of funding sources for public health research – for example, from regional authorities responsible for the healthcare system, funding through health insurance agencies, or disease-based charities concerned with prevention – appears to be beneficial.

PHIRE found 75 different calls and programmes in European countries in 2010 that encompassed public health research. Many of these, however, were within broader programmes and calls for medical research: public health was specifically identified in a minority, and it was not possible to determine total spending on public health research.

This is the first time there has been an assessment of the collective contribution by European countries to public health research. It can start a path that will link research programmes, supported by public funds with development and integration of knowledge, and lead on to evidence-based innovation in public health practice.

National institutes of public health, often directly funded by Ministries of Health, are being matched by universities and other research organisations as the range of academic expertise relevant for public health research develops. It is important for ministries of health to understand the total funding for, and production of, public health research in their country, and to ensure that sufficient funding is directed to public health research.

The European Structural Funds, managed directly by EU member states (often through their ministries of finance), are an important opportunity to support public health research that can

lead to innovation, and economic and social development. Finance for capital buildings and employment in public health should be allied to the development of services and direction of policies in support of the national health plan.

Information on calls and programmes that can support public health research should be more readily available: only one EU country (France, in INSERM) had a single-point database on public health research. Broader research databases, held by more countries, need to be searchable by public health categories – including research on health determinants and behaviours. Joining research with objectives for the national health plan should be an important concern of ministries of health.

Increasing the EU contribution to public health innovation and research

In a global setting, European countries contribute about a third of all publications in the field of public health. Europe is culturally and intellectually well placed to develop leadership in this area.

New areas of biomedical research are engaging with epidemiology. Human genetic variation requires statistical analyses of large population cohorts: and it is crucial that the physical, social and economic measures are linked to the biological measurements on individuals to gain worthwhile evidence of causal relationships – both of causation of disease and also of means for health improvement. The large and high quality registers of several European countries can and should contribute here.

The European Union operates through three main organisations – the Council of Ministers (member states), the European Parliament (elected through parties within member states) and the European Commission (proposer and implementer of policy).

Preparation by member states for decisions by the Council of Ministers is undertaken by national representations in Brussels. However, working groups are aligned with the European Commission's Directorates. Thus, Ministries of Science advise on research priorities and funding allocations, with little reference to Ministries of Health. Similarly, Ministries of Health advise on health concerns, but have little opportunity to comment on research objectives. Moreover, the broader range of stakeholders of concern to public health are also not sufficiently engaged.

While there are inter-service meetings between health and research within the European Commission, this is not well reflected in national representation.

The European Treaty states that research is a separate responsibility, to be fulfilled independently of policy areas. However, the content of the research programme is open for discussion. Member states can recommend greater attention to public health research within the European research agenda.

The rationale for European collaboration in health research is that

- threats to health, both short or middle term, occur across all member states – for example, the chronic diseases, obesity, emerging infections, demographic changes;
- the full range of scientific expertise necessary to guide public health intervention and practice can be provided by the contributions of each member state.

Methodology

Policies and programmes of public health research, and the uptake of innovations, are not well known and understood across Europe. PHIRE created learning between health research funders, researchers, practitioners and policy-makers at national level. As 'organisational development' for EUPHA, PHIRE showed both the interest of national public health associations and individual public health experts – and also some gaps. There is equally a need for greater collaboration of formal organisations – governmental and institutional – to strengthen the development and use of public health knowledge in Europe

The innovation projects chosen in PHIRE from the European Commission's Public Health Programme were broad-based, and covered a majority of EU countries. Nevertheless, it was challenging for them to achieve both scale and depth at the low levels of funding - usually a maximum EU co-funding of €2m over three years (and with 40% of the funding provided by non-commercial partners within the project). Gaining a full range of national partners is challenging, and there is a trade-off between achieving knowledge on uptake of innovation in all countries and working in greater depth in fewer countries

The reports used in PHIRE were from experts with knowledge in their fields: they were subjective assessments, and not validated through objective measures. For the health research system profiles and programmes, our knowledge was extended through internet searches. Until there is formal funding for coordination of public health research and innovation by the European Commission, or through mechanisms ERA-Watch, EUPHA can continue to promote incremental coordination and collaboration. It should also be possible to develop the targets and endpoints within the European Commission's Health Programme project documentation for systematic 'ex-post' evaluation of impacts and uptake.

7. Conclusion

PHIRE has made a first assessment of the impacts of eight public health innovations across Europe, and the public health research systems that create new knowledge.

It has shown the inter-relatedness of European countries, and the opportunity for collaboration to achieve benefits for all citizens.

Public health must be a strong identifiable stream within medical research and also research on broader health determinants and policy interventions – social welfare, food, energy, transport, trade and energy.

Full recognition of public health research is needed within investigator-led research (European Research Council)

Careers and capacity-building, including researcher exchange and project support, require focus and attention

Public Health requires research infrastructures, especially in building the databases needed for cross-European analyses of environmental, social and economic determinants, health outcomes and of impacts of interventions

Coordination of research programmes is needed, including through EU initiatives such as ERA-nets, Joint Programming, Infrastructures and use of the Structural Funds by Member States.