

Impact of innovations in national public health markets in Europe

Mark McCarthy¹, Kristina Alexanderson², Margaretha Voss², Claudia Conceição³, Olivier Grimaud⁴, Laura Narkauskaitė⁵, Zuzana Katreniakova⁶, Amanda Saliba⁷, Marvic Sammut⁷

¹ University College London, Department of Epidemiology & Public Health, London, United Kingdom

² Division of Insurance Medicine, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

³ Life and Health Sciences Research Institute (ICVS), School of Health Sciences, University of Minho, Braga, Portugal; ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal; Unidade de Clínica das Doenças Tropicais, Instituto de Higiene e Medicina Tropical (IHMT), Universidade Nova de Lisboa (UNL), Lisboa, Portugal

⁴ Département épidémiologie et biostatistiques, EHESP, Av du prof Léon Bernard, 35043 RENNES, France; Inserm, UMRS 707, research group on the social determinants of health and healthcare, UPMC, University of Paris 6, Paris, France

⁵ Institute of Hygiene, Researches and technology assessment division, Vilnius, Lithuania

⁶ Institute of Public Health – Department of Social Medicine, Faculty of Medicine, Safarik University, Kosice, Slovak Republic; Slovak Public Health Association – SAVEZ, Kosice, Slovak Republic

⁷ Ministry of Health, the Elderly and Community Care, Valletta, Malta

Correspondence: Mark McCarthy, UCL Department of Epidemiology & Public Health, 1-19 Torrington Place, WC1E 6BT London, UK, Tel: +44 20 74820156, email: m.mccarthy@ucl.ac.uk

Background: Social innovations can contribute to health and wellbeing. PHIRE (Public Health Innovation and Research in Europe) investigated the impacts at national level of innovation projects funded by the European Union Public Health Programme. **Methods:** Through the European Public Health Association, experts assessed the uptake of the eight public health projects, for 30 European countries. Their reports were assembled by country and, thereafter, national public health associations reviewed the reports. Following stakeholder workshops, or internal and external consultations, 11 national reports were produced which included discussion on the impacts of the public health innovations in national product markets. **Results:** In 11 countries, there were reports on the eight innovations for 45 (51%) of the possible public health markets. The innovations contributed positively to policy, practice and research, across different levels and in different ways, in 35 (39%) market, while competing innovation activities were recorded in 10 (11%) markets. The workshops also discussed contributing factors and limitations in dissemination and timing for policy cycles. **Conclusions:** The impacts of European Union social innovations in public health markets can be identified through national discussions. Further attention should be given to understanding drivers and incentives for successful public health innovations.

PHIRE (Public Health Innovation and Research in Europe), led by the European Public Health Association (EUPHA), has studied the uptake of public health innovations in European countries and assessed national public health research systems. This fifth article of nine in the PHIRE Supplement of the *European Journal of Public Health*¹ reports the impact of eight European public health innovations in 11 countries.

Introduction

Innovation is the first of seven 'flagship initiatives' set out in the European Union 'vision of Europe's social market economy for the twenty-first century'.² The Innovation Union will 'ensure that innovative ideas can be turned into products and services that create growth and jobs'.³ Europe has high levels of science research but is considered weaker than competitors in converting results into useable products, processes and organizational innovation. Proposals for improving this position in Europe include transfer of technology and knowledge between universities, business and institutions; more evaluation of applied knowledge and learning from uncertain or unexpected innovation results.⁴

Social innovation has been defined⁵ as 'the development and implementation of new ideas (products services and models) to meet social needs and create new social relationships or collaborations'. Organizational innovations can contribute to both efficiency and effectiveness. 'Innovation is not just about the originating idea, but also the whole process of the successful development, implementation and spread of that idea into widespread use'.⁶

The European Union Health Programme has funded projects within fields of health information, health threats and health promotion.⁷ The projects provide demonstration of public health innovations within public sector and health services markets, in ways similar to commercial products and services.⁸ In PHIRE (Public Health Innovation and Research in Europe), country experts recorded the national uptake of eight contrasting innovations that had been supported by the Public Health Programme.⁹ National public health associations then held national stakeholder workshops and made reports on innovation and research positions in their country. This article assesses the national perspectives on impacts of the European public health innovations at national level.

Methods

PHIRE was undertaken through the European Public Health Association (EUPHA), which has sections open to individuals with interests in thematic fields and a Governing Council with representatives of national public health associations. In Phase 1 of PHIRE, sections chose eight collaborative projects, within areas of health promotion, health threats and health services, which were funded by the European Union Public Health Programme between 2003 and 2005. The eight innovation projects chosen are presented in Table 1. Country informants recorded their perceptions of uptake, measured as relevance and dissemination, through a standardized on-line questionnaire.¹⁰

Responses for the eight projects by country were collated. They were provided to the national public health associations to support

Table 1 The eight innovation projects that were evaluated by PHIRE

CHOB—Children, obesity and associated avoidable chronic diseases. Assessed national efforts in control of advertising of harmful foods to children.
CSAP—Child safety action plans. A template for child safety action plans discussed with national organizations and ministries.
EAAD—European alliance against depression. Developed a model for recognition of depression in primary care with intent to reduce suicide.
ENHIS—Implementing environmental and health information systems in Europe. Through WHO, national environment and health indicators were collected.
EUCID—European core indicators in diabetes mellitus. The indicators related to health service provision and performance in diabetes care, for example, at regional level.
HA—Healthy ageing. Made a literature review of evidence for health promotion.
URHIS—European system of urban health indicators. Assessed the availability of multi-sectoral health indicators at municipal level across countries.
VENICE—Vaccine European new integrated collaboration effort. Compared immunization policies across countries.

Table 2 How national reports on the impacts of innovation were gained

In Austria, all national coordinators of the innovation projects were contacted by email and website documents were analysed. The board members of the national public health association provided additional information. The workshop had 12 participants.
In Cyprus, there is no formal national public health association. Researchers at the University of Nicosia contacted the Public Health Services of the Ministry of Health to determine the outcome, dissemination or policy from the eight innovation projects. Four people reported information.
In Finland, the impact, policy changes and lessons learned with the projects was assessed mostly by contacting the Finnish contact persons of the projects. Two people reported the information.
In Ireland, where there is no national public health association, information was provided by one person within the Health Research Board at government level.
In Italy, information was collected through a meeting of between health researchers and representative from the Ministry of Health (six people).
In Latvia, a list and description of the innovation projects were sent beforehand to participants at a workshop of 13 people, including the Ministry of Health.
In Malta, the PHIRE national experts' report was discussed by 11 people from the Malta Association of Public Health Medicine and other experts—senior officials of the Ministry for Health, public health directorates, academic departments and clinicians.
In Romania, the projects were reviewed at a workshop between 23 researchers and the Ministry of Health for their implementation, dissemination and impact.
In Slovakia, reports from national project representatives were discussed by nine people at a meeting held at the Ministry of Health, including officials, researchers and a civil society organization.
In Slovenia, after prior discussions, 11 representatives of the Ministry of Health and of the research and academic community met together and a report of the meeting was circulated.
In UK, a meeting was organized between 19 ministry officials, researchers and research funders and follow-up reports were also gained on the innovation projects.

stakeholder workshops and national reports by each national public health association, and published on the PHIRE web page.¹⁰ Stakeholder workshops were held in 15 countries and other internal and external discussions in nine countries, yielding 24 national reports. Eleven countries had reports including discussion of PHIRE innovation impacts and the approaches used for gathering information are shown in Table 2.

Results

Country uptake of innovations

In the 11 countries, country informants recorded 35 innovations in countries, 39% of a possible 88 markets (data available in Supplementary Table S1). The representatives at the workshops did not necessarily know enough about all the eight innovation projects to make informed comments themselves and the responses were incomplete for some markets. The innovation most frequently identified with having impacts was Child Safety Action Plans (CSAP), in seven countries (**Austria**, **Cyprus**, **Finland**, **Malta**, **Romania**, **Slovakia** and **UK**). A reason frequently noted in country workshop reports was that Child safety action plans (CSAP), while only a single-year project, laid foundations also for later collaborative projects—including a 4-year second phase (also funded by the Health Programme) called TACTICS. Contributing factors included the strong emphasis on knowledge transfer, research-based evidence of effectiveness of interventions and the perceived able leadership of the European Child Safety Alliance.

Three projects were concerned with harmonization of indicators. In European Core Indicators in Diabetes Mellitus (EUCID), support from the Ministry of Health was reported in **Cyprus**; impact on the national list of indicators in **Finland**; in both **Malta** and **UK** the project had initiated further EU projects. **Slovakia** saw the project impacting across epidemiological reporting and primary care education and in **Slovenia**, it provided a methodology for national

diabetes indicators. In Implementing Environmental and Health Information Systems in Europe (ENHIS), **Austria** noted that it led to engagement with the Federal Environment Agency; **Romania** noted that it had 'considerable' impact; **Slovakia** described national and regional implementation (since 2010) with factsheets; **Slovenia** used the methodology in the environment sector and **UK** also noted the development of factsheets for specific hazards. European System of Urban Health Indicators (URHIS) gave importance to urban health data in **Latvia**; stimulated research in **Slovakia**; was used for city health profiles in **Slovenia** and assisted within and trans-national comparisons in **UK**.

Four innovations were reported to have uptake across a smaller number of countries. European Alliance Against Depression (EAAD) contributed at different levels in four countries. It was: used in primary care services at a local level in **Finland**; used in two counties in **Ireland**; noted for the national health plan in Italy and influential in expert advice in **Slovenia**. Vaccine European New Integrated Collaboration Effort (VENICE) was identified by three countries: in **Latvia** it stimulated development of vaccination programmes; in **Malta** it informed policy decisions of the national immunization committee and in **Slovenia** it provided information for the national strategy. Children, obesity and associated avoidable chronic diseases (CHOB) was 'highly relevant and quite discussed' in **Slovakia**; influential with non-governmental organizations (NGOs) in **Slovenia** and noted for having brought collaboration with a national NGO partner in **UK**. Healthy Ageing (HA) had an impact at ministry level in **Finland**; in **Malta** it contributed to development of a national active ageing strategy and in **Slovakia** national activities were enabled through a regional public health authorities.

Competing activities

In five countries, 10 national reports (11%) indicated that there was already activity in the thematic field and the innovation was not

Table 3 Innovations reported to have academic impacts

EUCID	was noted to have published Journal Articles using the relevant data.
In Austria	a Master's Thesis analysed the process of the CSAP project.
In Finland	the final report of EAAD had been produced as a university course book.
Also	EAAD had been used as a case study in Ireland in a European booklet identifying projects that have impacted on policy and practice.
In Slovakia	URHIS had generated investment by PJ Safarik University in Kosice, Faculty of Medicine, Institute of Public Health for two researchers to further investigate the topic.
In Italy	discussion of VENICE noted that 40 million Euros per year were spent on vaccination programmes, yet only about 15 000 Euros are allocated to secondary research, data collection and data analysis. In the course of the H1N1 pandemic, there was also no secondary research conducted. Instead, results from research in other countries are used to plan, argue and implement the national vaccination strategy.

Table 4 Parallel academic activities reported within the fields of the innovation projects

CHOB:	in Cyprus there are projects studying child obesity. The Academy of Finland runs a programme on Health and Welfare of Children and Young People. In Italy childhood obesity research and health education programmes exist at national level, managed by the Ministry of Health and by the regions—many of them are directed towards the correct choice of food in schools. In Malta there has also been research conducted in this area, including through the European Children Obesity Study Initiatives (ECOSI) led by WHO.
EUCID:	the Finnish National Institute has a unit that studies diabetes prevention.
HA:	it was noted that there is a well-established tradition on aging research in Vienna (Austria), which has had a strong impact on the public awareness of aging problems and policies.
VENICE:	the Finnish National Institute for Health and Wellbeing undertakes vaccination research and international cooperation continuously. In Italy, all the areas covered by the innovation projects are also targeted by the national research programmes promoted by the Ministry of Health and the Ministry of Education, University and Research (MIUR). In the UK there is currently public health research in all the areas of the eight PHIRE tracer projects, including programmes of the National Institute for Health Research programmes, the Ministry of Health's own direct policy research programme and a number of programmes funded by the third sector (foundations for diabetes, mental health, etc.). However, it is not possible from the existing information systems to track research programmes specifically related to the eight tracer projects, so that there could be duplication.

reported to have had an impact (Supplementary Table S2). In **Austria**, the field of child health appeared to give little response to CHOB; in **Cyprus**, immunization policy was already engaged with the European Centre for Disease Control; in **Italy**, diabetes care indicators, child safety, prevention of childhood obesity and national immunization plan were reported as already incorporated in the National Health Plan, whereas needs for elderly health were under surveillance through regional observatories; in **Latvia**, competing institutional reorganization prevented active development of URHIS; in **Malta**, both a strategy for obesity and healthy ageing were already well established.

Wider perspectives

Further collateral activity and innovation in the project fields was described at some workshops, as indicated in Table 3, and complementary academic activity was also discussed (Table 4).

Although there was frequent discussion on child obesity at workshops, it was not necessarily on advertising of food to children—the specific objective of CHOB. In **Austria**, there was already a strong base for ageing research, before the Healthy Ageing project, while **Italy** indicated that national research programmes already covered several of the innovation areas.

From a different perspective, the workshop in **Latvia** addressed the value of links between researchers and civil society organizations. Civil society organizations like Papardes Zieds (Latvia's association for family planning and sexual health), Dia-logs (a support centre for those affected by HIV/AIDS and HIV/AIDS risk groups) and Latvian Diabetes Association, all have experience in research projects and could join in consortia including universities and municipalities. Achieving impact could be harder to assess in larger countries: for example, proposals for prevention in **Italy** need to be introduced and implemented through operative plans in each of 20 regions.

The strategies noted most often to spread the results were reports, websites and national conferences, seminars and lectures. In **Slovenia**, it was suggested that dedicated persons were the most

significant factors facilitating impact of the innovations. There could be latency in translating the results of projects, even if relevant, from the international level to the national public health decision level. However, speed may be faster where the topic is already a national priority in need of guidance, such as VENICE, or where there is direct initiation through community services, such as EAAD and URHIS.

Innovation could be hindered where public health stakeholders had weak networks (e.g. the researchers were not linked to national authorities responsible for adopting new policies) or there was a shortage of resources available to foster the impact of the projects. Relatively low priority may be given to topics not traditionally present in the national public health agenda. One Ministry of Health did not consider it appropriate or necessary to include information on all EU projects on their website, but would disseminate results obtained if the Ministry had contributed to financing the innovation.

Discussion

PHIRE identified 35 positive impacts, 39% of potential markets, for eight innovations in 11 countries and no impacts for 10 innovations, 12% of potential markets, in five of the countries. The Community Innovation Survey of 20 EU countries, while considering commercial rather than non-commercial or public sectors markets,¹¹ similarly found impacts in about a third of the innovation markets. Factors facilitating this included the interest and policy-readiness of local stakeholders. Although the results are limited by the methods available in a cross-national study, PHIRE indicates that European Union funding for collaborative projects has supported innovation in public health beyond traditional healthcare innovation fields.¹²

Reports of national impacts of innovations across European countries have not previously been made. The European Court of Auditors¹³ was critical of the first EU Public Health Programme, considering that projects had design weaknesses, and that project

coordinators could not demonstrate 'take-up' by target groups. Representatives of national ministries and health institutes interviewed were often unaware of what projects had been undertaken, of the results obtained. Most of the national stakeholders interviewed expressed that too little information on the outcomes of projects (whether ongoing or completed) was available to them. An 'ex-post' evaluation of the EU Public Health Programme 2003–2008,¹⁴ made by consultants to a tender from the European Commission Directorate of Health and Consumers, used methods including a desk study, e-survey, interviews and case studies. It found that the projects 'have strong potentials to contributing to the preparation, development and implementation of public health policy initiatives. The evidence of such contributions was, however, limited'. The projects 'also helped transmit experience/best practices to and from health stakeholders... however, the extent to which such transmission has actually taken place is not well documented'.¹⁴

CSAP appeared to have strong impacts through having a relevant, practical 'product' and good links between national NGOs and ministries of health. VENICE built cross-European interest to share knowledge and achieve innovations within an existing collaborative framework. EAAD was an example of a project with fewer countries, but which appeared to be meeting 'gaps in market' to the countries it targeted. URHIS was dealing with municipalities and EUCID with regional health-care information and therefore had lower visibility to people at central level (ministry, national associations). CHOB was the most difficult project to review, because it was working at a narrower political level—control of advertising to children—whereas most national policies and workshop discussions took a more general approach to childhood obesity (itself, a multifaceted and difficult field).

There were markets where the innovations were not reported as successful. Sometimes this was because of existing competitors; sometimes there was lack of dissemination or product champions. It is normal in the commercial world for products to fail as well as succeed, and for country variation according to cultural factors. Europe-wide businesses seek to control markets through techniques including advertising, pricing and social media. The innovations chosen in PHIRE were of high generality, relating to choices by professionals and decision makers rather than consumers. However, there is important knowledge and skills to be gained about social marketing to achieve higher targets for public health innovation.

Study methods

National workshops reports from 11 European countries are assessed in this analysis. More countries would have helped confirm the main trends, but the sample does include countries with large, moderate and small populations in Europe and reporting response rates in PHIRE were not strongly related to country size. The EU enlarged from 15 to 27 member states between 2004 and 2007, across the period reviewed by PHIRE, and the 'new' member states were less formally engaged and experienced when the innovations were initiated. But these member states also showed a stronger interest in cross-European collaboration, to enable their own social and economic progress.

National Reports in this analysis mostly drew on stakeholder workshops—111 people were reported to have been directly involved. This provided a broader base than individual expert reports, but qualitative reporting of the discussions was less standardized than the PHIRE questionnaire to experts.⁹ A systematic review has shown that evidence used for public health practice is neither perfect and complete, nor unequivocal; research findings are rarely definitive and always require interpretation in order to be implemented effectively.¹⁵ Further ethnographic work could track innovations in greater depth and examine the contextual factors contributing to uptake and (indeed) how innovations fall out of favour or are superseded. Although 'there is little evidence about

which strategies increase the use of evidence in population health policy and programmes',¹⁶ a review of innovations in service organizations has found that attributes positive for uptake include social influence and networks.¹⁷ The formation of networks was also identified as a positive feature of the European Public Health Programme by both the interim and ex-post reviews of the Public Health Programme.^{13,14}

Health services in EU member states form $\geq 10\%$ of the national economy. In contrast, the EU Public Health Programme in 2003 spent around €20 million, around 0.02% of the EU's then annual budget of €120 billion. There are also other ways that European funds contribute to health innovations—for example, the Structural Funds will remain an important source of support for social innovation in coming years.^{18,19}

Conclusion

PHIRE national reports identified impacts of eight European social innovations at national level in public health markets across 11 countries. PHIRE demonstrates the range and importance of public health innovations, which are a very small fraction of the many social innovations constantly occurring in national markets. Further work is needed in understanding the contexts, drivers and incentives for successful and useful public health innovations.

Supplementary data

Supplementary data are available at *EURPUB* online.

Acknowledgements

PHIRE was undertaken with the support of the Governing Council of EUPHA. We thank the PHIRE partners, EUPHA section presidents and country informants and national public health associations, country experts and officials who gave their time and knowledge.

Funding

PHIRE (Public Health Innovation and Research in Europe) received co-funding from the European Union Health Programme, agreement no. 2009 12 14.

Conflicts of interest: None declared.

References

- McCarthy M, Zeegers Paget D. Public health innovation and research in Europe: introduction to the Supplement. *Eur J Public Health* 2013;23(Suppl. 2):2–5.
- European Union. Europe 2020 *Flagship Initiative*. Innovation Union. COM(2010) 546 final. Brussels, 2010.
- European Union. *Impact assessment accompanying the Communication from the Commission 'Horizon 2020 - The Framework Programme for Research and Innovation'*. Brussels, 2011, COM(2011) 808 final.
- Seravalli S. Competitive European regions through research and innovation. *Different theoretical approaches to innovation policies. Working Paper (for the European Commission, 2009)*. Italy: Department of Economics, Università degli Studi di Parma.
- European Commission. *Guide to social innovation*. Brussels, 2013. Available at: <http://s3platform.jrc.ec.europa.eu/documents/10157/47822/Guide%20to%20Social%20Innovation.pdf> (date last accessed).
- UK Department of Health. *NHS Chief Executive's review of innovation in the NHS. Summary of the responses to the call for evidence and ideas*. London, 2011.
- European Commission. Health Programme – database. Available at: <http://ec.europa.eu/eahc/projects/database.html> (1 October 2013, date last accessed).

- 8 McCarthy M. Competitive markets for European public health research? *Eur J Public Health* 2007;17:235–6.
- 9 European Public Health Association (EUPHA). PHIRE. Available at: www.eupha.org/phire (1 October 2013, date last accessed).
- 10 Voss M, Alexanderson K, McCarthy M. Tracking uptake of innovations from the European Union's Public Health Programme. *J Public Health* 2013;23(Suppl. 2): 19–24.
- 11 Autant-Bernarda C, Chalaye S, Manca F, et al. Measuring the adoption of innovation. A typology of EU countries based on the Innovation. *Innovation: Eur J Soc Sci Res* 2010;23:199–220.
- 12 Faulkner A. Steering biomedicine: regulatory dynamics of therapeutic technologies in the European Union and beyond Innovation. *Eur J Soc Sci Res* 2012;25:355–61.
- 13 European Court of Auditors. *The European Union's Public Health Programme (2003–07): An effective way to improve health?* Luxembourg, 2009.
- 14 COWI. *Ex-post Evaluation of the Public Health Programme (PHP) 2003–2008*. Denmark: COWI A/S, 2011.
- 15 Orton L, Lloyd-Williams F, Taylor-Robinson D, et al. The use of research evidence in public health decision making processes: systematic review. *PLoS One* 2011;6:e21704.
- 16 Moore G, Redman S, Haines M, Todd A. What works to increase the use of research in population health policy and programmes: a review. *Evid Policy: J Res Debate Practice* 2011;7:277–305.
- 17 Greenhalgh T, Robert G, Macfarlane F, et al. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q* 2004;82: 581–629.
- 18 McCarthy M. Health and the European structural funds in the new member states. *Eur J Public Health* 2013;23:522–3.
- 19 European Commission, DG Regional and Urban Policy and DG Employment, Social Affairs and Inclusion. *Guide to social innovation*. Brussels, 2013.