

**Summary of the DFG Round Table Discussion on  
"Public Health Research in Germany: Criteria and Structures"  
Bonn, January 20-21, 2014**

The German Research Foundation (DFG) has invited members of its review boards as well as experienced researchers from Germany and abroad to discuss and define high-quality research criteria in the field of public health, which in turn could be used as a guideline when evaluating individual or cooperative grant proposals. The development of such guidelines should not only aid grant seekers but also reviewers and grants committees with regard to the application and evaluation process and also serve to increase success rates and thereby strengthen public health research in Germany. Moreover, the Round Table Discussion has addressed the topic of adequate DFG funding formats for example in the field of methodology research for public health.

**Ansgar Gerhardus, Bremen**, gives an overview of the historical development and current situation of public health research in Germany. It was not until 1992 that the German Ministry of Education and Research (BMBF) began to rebuild public health research in Germany by means of a more structured approach. The BMBF set up infrastructures, provided training, but also established chairs and initiated several Schools of Public Health (e.g. Berlin, Bielefeld, Bremen, Munich). However, after this initial phase, the BMBF programme concluded in 2000 and public health research could only be partially consolidated thereafter. This is in part due to a fragmentation of funding opportunities as well as a lack of a comprehensive national strategy to implement the results of public health research. In general, the role of public health in politics and society appears to be declining. This, combined with limited funding opportunities as well as the comparatively small number of Schools of Public Health leads to limited career perspectives for junior researchers and only few vacancies for senior academics. However, this picture is somewhat heterogeneous between different areas of public health research, and the sub-specialization observed over the past two decades could be seen as a sign of maturity of a research field. Particularly, epidemiology is strongly developed in Germany and has high scientific visibility abroad with new initiatives like the National Cohort that keep it competitive with other research areas. When developing criteria and guidelines for high quality public health research, the inherent multidisciplinary nature must be taken into account. Also, currently too few funded projects appear to reflect the interdisciplinarity that would be necessary for meaningful answers. Furthermore, interventions tend to be very complex and require different sets of criteria that account for the variable methods and settings. To develop these guidelines, a participatory and multidisciplinary approach should be used. A possible DFG funding instrument for emerging public health research topics could be the DFG Priority Programme.

**Janet Valentine, Medical Research Council (MRC)**, briefly describes the development in the United Kingdom. Both public funders as well as large charities fund public health in the United Kingdom. An important milestone was a series of strategic reviews at the beginning of the millennium. The observation that only a small fraction of funds target for example prevention research led to a concerted action by various funders. Both public funders and charities have joined forces to establish a national funding consortia with a joint programme.

These multi-funder programmes are better targeted at national needs and provide substantial resources also for larger, multidisciplinary research initiatives. While the multi-funder initiatives are now common standard in the UK, they need a clear remit. A current example are the UKCRC Public Health Research Centres, which were set up in 2008 and have just completed a successful renewal review in 2013. During the first phase, 20 m British pounds were provided for five centres. The next five-year funding period provides another 16 m British pounds until 2018.

Project funding schemes by the NIHR and the MRC are complementary, with the NIHR providing use-inspired funding in a two stage proposal scheme. The MRC targets more basic research in public health, such as methodological work and epidemiological cohorts. Also, the MRC has recently set up the rapid PHIND-scheme (Public Health Intervention Development Scheme). This scheme has very slim granting procedures which provide seed money to develop complex interventional approaches. All these programmes are run by standing committees that provide a broad overview of the public health field in the UK. In order to support funding decisions based on research impact, the Researchfish-online database was set up by the MRC which documents and measures economic, academic and social impact. When comparing public health research with other research fields by using this database, it was shown that there was a similar productivity rate and a stronger association with leveraging further funds, collaboration, and influence on policy decisions.

**Milo Puhan, Zurich**, describes the implementation of a centralized School of Public Health+ (SSPH+) in Switzerland. One of the main aims of this initiative is to join together the very fragmented organisation of public health at small university institutes and academic centres across Switzerland. By providing joint research infrastructure and training, this can provide leverage for further project funding through regional, national and international funding organisations. A comparable School of Public Health is implemented in the French-Speaking part of Switzerland, providing some competition on a national level.

For the Netherlands, **Martijntje Bakker** from **ZonMW** (the Netherlands Organisation for Health Research and Development) presents the Dutch approach to funding of public health research. ZonMW was founded in 2001 and is largely funded by NWO (the Netherlands Organisation for Scientific Research). Its remit follows the innovation cycle, i.e. funding of invention, development, experimentation, practice application, dissemination, implementation, scaling up, differentiation, invention etc. Both top-down as well as bottom-up approaches exist. Public health grant proposals are decided in a two-stage application process by review panels consisting of both researchers as well as practitioners. Ranking is conducted on relevance as well as on scientific quality, whereby the ranking matrix varies depending on the scope of the programme. Criteria for relevance are: Project's contribution to achieving the programme's aims; innovation, originality; potential impact for science/user/society; acknowledgement of diversity (gender, age, culture); knowledge dissemination and implementation. Criteria for quality are: SMART objectives; clear question; adequate and effective approach; an inspiring applicant/group; sound expertise, past performance, competencies; feasibility concerning time, budget, collaborations, availability. Funding is also provided for infrastructures. In collaborative centers, universities as well as local health authorities are teaming up to bridge the gap between research and practice.

After some initial problems, this now seems to work well. Individual projects are closely monitored including on-site visits. ZonMW also assesses the scientific and societal impact of its programmes.

**Frank Wissing, German Research Foundation (DFG)**, gives an overview of public health research funding in Germany with a special focus on the DFG. In Germany, public health research funding can be obtained from two sources: institutional funding (e.g. Helmholtz Association, Leibniz Association, German federal states/universities) and project funding (e.g. DFG, Federal Ministry of Education and Research (BMBF), charities). The Federal Ministry of Health (BMG) provides both institutional (e.g. RKI) and (small) project funding. The DFG is the self-governing organization for science and research in Germany and covers all branches of science and the humanities. A requirement for funding is that the knowledge to be generated also addresses the research community and is of scientific relevance. There is no panel dedicated to public health research alone. Public health is part of a group of subject areas that form the review board "Medicine" with several members. As the DFG provides generic, bottom-up funding instruments for individual research careers, individual projects as well as research consortia regardless of subject area, there is no necessity for dedicated public health funding instruments or programmes. In the case of research consortia, the DFG offers coordinated programmes. These can be at one location, but also spread over various sites. Topics for thematic calls can be submitted by the research community annually via the Priority Programme which provides project funding for open networks addressing defined topics. Funding international research projects can be achieved within the framework of joint agreements with other funding agencies (e.g. ESRC, ANR, NSFC). Alternatively, the DFG can provide project funding also for partners in developing countries or to a limited amount as an essential component of Research Units and Priority Programmes. Complementary to the DFG's bottom-up approach, the BMBF provides strategic selective project funding via thematic calls and programmes. The number of public health research proposals received by the DFG in its individual grants programme is comparatively low, but the funding rates are similar to those in the research field of medicine as whole. No large dedicated public health consortium is currently being funded by the DFG, previous examples include a Research Training Group in Heidelberg. Main criteria by which proposals are judged are novelty and scientific quality of a project. How this can be determined for and applied to public health projects needs to be discussed.

**Helmut Brand, Nijmegen**, presents current approaches and funding programmes of the European Union with a particular focus on HORIZON 2020. Brand understands public health as a broader concept as already described by Winslow in 1920, which, for example, also includes health systems research. Based on this definition, public health research is inherently close to politics. Universities should take action and implement more training and career opportunities. A current analysis of public health capacity in the EU highlights the discrepancies between different Member States. In Germany, for example, the capacity for knowledge development is comparatively well developed, but lacking in financial resources to put this knowledge into action. The EU provides two main funding opportunities for public health. While the DG Sanco Health Programme focusses more on initiatives for the implementation and application of public health measures, HORIZON 2020 provides

research funding in various health related areas. Whereas the overall budget allocated specifically to public health research is comparatively low (4%), many research areas have opportunities for public health questions in their remit. Funding areas dedicated to public health are “methodological aspects of public health research” and “research on knowledge translation”. While the current HORIZON 2020 programmes still need further specification, a working group has recommended the following aspects to be addressed by the upcoming calls: EU “added value”; health promotion aspects; disease prevention; health services research; health policy. Generally, more research should look into what works (problem solving) instead of confirming what is already known. As the discussions in preparation of HORIZON 2020 have shown so far, the public health community appears to be less well set up and organized compared to other professional societies for clinical research.

**Frank Verheyen, WINEG/Techniker Krankenkasse**, presents the perspective of a statutory health insurance (SHI) company in Germany. The TK is the largest German sickness fund. The current German system goes back to its implementation by Bismarck with a hallmark separation between payers and providers. This is different for example from the UK state health system, where payers and providers are integrated. Also, the German health care system is composed of many different interacting institutions of self-administration and stakeholders, all acting under a very complex set of laws and regulations. A strong focus is set on health promotion and prevention programmes within the SHI, the main activity of sickness funds in public health research is more in terms of evaluation of their own programmes and activities with an emphasis in health system research. Several examples are given in the presentation. Effects on public health are more indirect. These activities are tightly regulated and supporting free academic research is limited by the German Social Code Book (SGB) V.

**Peter Groenewegen** from the **Netherlands Institute for Health Services Research (NIVEL)** stresses the point that there is no clear cut distinction between health services research and public health research. The multidisciplinary character is essential to both research areas, and they usually address questions that are use-inspired and close to application. Combining societal need, co-investigators from different disciplines, a high scientific quality as well as the potential for generalization is a constant challenge when formulating – as well as reviewing – proposals. Academic collaborating centres that team up academic research, public health services, insurers as well as health care providers have been implemented in the Netherlands in order to provide adequate research infrastructures. Here, joint research projects are often conducted as part time PhD projects with so-called science-practitioners. Data from various sources are at the core of many projects. Therefore data-infrastructure are essential, not only for storing, but also for linking, pooling as well as validating the data. As an example, the NIVEL Primary Care Database was presented. Here, data are geocoded and linked to other data sources also on an individual basis through trusted third parties and in accordance with data protection regulation. Studies at the European level will also be of interest as the different health systems in the EU provide a “laboratory” for public health and health services research. To initiate these, the instruments of HORIZON 2020 should be used and the possibility of an ERA-Net further explored. Not only funding, but also legal, regulatory and ethical issues need to be harmonized to make

data sharing and cross border comparison viable. Thus a broad approach is needed and it would not be sufficient to include only selected centres of excellence in a few countries. As a first step, this must be achieved at a national level, as exemplified in the Netherlands advice given by the Council for Health Research in the area of “Securing Data Supply”. To assess the impact of research, a framework for health services and public health research needs to be determined.

**Eva Rehfuss, Ludwig Maximilians University Munich**, presents the discussion of complex interventions, offering three approaches to conceptualizing complexity. In its revised 2008 guidance the UK Medical Research Council (MRC) provides advice on the development, piloting and feasibility, evaluation and implementation of complex interventions, concentrating on complexity in the intervention itself. The 2013 approach to complex interventions by Mark Petticrew and colleagues distinguishes between characteristics of the intervention and characteristics of the intervention’s causal pathway. The third system-based perspective focuses on sources of complexity in the population, intervention, comparison and outcomes (PICO), as well as the interactions between all PICO elements with context. To develop interventions, logic models are needed and old methods need to be applied to new questions. To test and evaluate interventions, randomised approaches as well as neglected designs and qualitative methods should be applied. As a result of the ensuing discussion it became clear that to review such project proposals, it is not only necessary to integrate different specialist perspectives, but also to have reviewers with a broad background and awareness of the issues at stake.

**Holger Pfaff, Cologne**, gives a short introduction to mixed methods research. The integration of qualitative and quantitative methods, well known in the social sciences, needs to be adapted to public health research. More methods research is necessary to achieve this. Better defined standards are needed to increase the yield of such approaches. The challenge is to bring together the two worlds and expertise for this complementary approach. In addition, quality criteria for good mixed methods research in public health should be defined in order to better assess grant proposals and to successfully compete with other research areas where quality criteria are well established.

**Ulrich Mansmann, Ludwig Maximilians University Munich**, defines systems in public health research as conceptualized relationships between interacting units within the same or between different hierarchy levels. Designing a study requires the determination of the variables that are crucial and should therefore be collected as well as their intercorrelations. In addition, Bayesian networks and contrast simulations of results can help to model effects of interventions into a system. Systems science approaches should be added to the toolbox of public health research, along with specific methods research to develop these further. The complexity of public health systems has to be reflected in the model design and should also be addressed in project proposals.

**Osamah Hamouda** from the **Robert Koch Institute (RKI), Berlin**, addresses the issues of secondary data usage in public health research. The main tasks of the RKI include monitoring public health, health epidemic surveillance, concepts for prevention programmes

and conducting epidemiological research. These tasks require that own surveillance data and other primary data be linked with secondary data from health care providers such as the Kassenärztliche Vereinigung (KV) or billing data from pharmacies etc. Examples given are: measles vaccination monitoring using health insurance claims, linking cattle density with Shiga Toxin-producing E. coli, Hantavirus infections linked with beech forest fructification and HIV prevalence and treatment status. In Germany, this requires complex data linkage and approximations, whereas in countries like the Netherlands this data are already well-integrated and much easier to combine and analyze.

### **General Discussion and Outlook**

Public health research needs standards and cumulative knowledge to be developed further.

Possible **criteria** defining high quality public health research could be:

- Involving all relevant parties at all levels and defining benefits
- Justifying framework and context
- Connectivity to the system
- Considering translation issues
- Accounting for sufficient preliminary work/feasibility
- Appropriate design – different from fundamental research and clinical trials
- Adequate planning to further define hypotheses or interventions, no early shots
- Appropriate mix of methodologies and interaction between these
- PILE: policy, interdisciplinary, linked, evaluated

These criteria should be further developed and communicated to both applicants as well as reviewers. A publication in a relevant journal should help to define and disseminate these criteria further. A team of authors will follow this up.

Peer review has to acknowledge and reflect the complex and multidisciplinary nature of public health research. Proposals should be submitted in English to allow more experts from abroad to review proposals. Reviewers should be encouraged to make clear distinctions between essential deficits of the proposal and recommendations for improvements. Furthermore, the composition of review panels and review boards should reflect the multidisciplinary nature of public health research questions and approaches. To justify a Public Health Review Board in its own right, a sufficiently large number of proposals submitted to the DFG would be needed.

The existing funding instruments of the DFG should be explored further. One possibility discussed is a DFG Priority Programme on methods research. A further round table discussion should address this topic and define a competitive programme. Also put forward is the idea of linking a DFG Research Training Group with the National Cohort and thereby better addressing the need for training and capacity building.

A strategic evaluation of the German public health research landscape by the government, similar to the British or Dutch assessments, is recommended. This should be the basis for strategic planning of funding programmes and infrastructures.

In the meantime, further capacity building will be needed. In this context, university initiatives should not only be supported by the federal states but also by the federal government. A good example could be the Academic Translation Centres in the Netherlands (see presentation Groenewegen) or the Schools of Public Health in the United Kingdom (see presentation Valentine).