

Postprint Version	1.0
Journal website	https://academic.oup.com/eurpub/article/doi/10.1093/eurpub/ckx062/3861126/Health-assessments-for-health-governanceconcepts?guestAccessKey=7c25f697-c70e-4fad-bab4-6f5621b4208e
Pubmed link	
DOI	10.1093/eurpub/ckx062

This is a NIVEL certified Post Print, more info at <http://www.nivel.eu>

Health assessments for health governance— concepts and methodologies

RAINER FEHR¹, KRISTINA ALEXANDERSON², CARLO FAVARETTI³, JUDITH DE JONG⁴, GIUSEPPE LA TORRE⁵, TEK-ANG LIM⁶, PIEDAD MARTIN-OLMEDO⁷, ODILE C L MEKEL⁸, KAI MICHELSEN⁹, NICOLE ROSENKÖTTER⁸, MARIEKE VERSCHUUREN¹⁰, CHIARA DE WAURE³, DINEKE ZEEGERS PAGET¹¹

¹ Fakultät für Gesundheitswissenschaften, Universität Bielefeld, Bielefeld, Germany

² Division of Insurance Medicine, Karolinska Institutet, Stockholm, Sweden

³ Istituto di Sanità Pubblica, Sezione di Igiene, Centro di Ricerca e Studi sulla Leadership in Medicina, Università Cattolica del Sacro Cuore, Roma, Italy

⁴ Health Care System and Governance, Netherlands Institute for Health Services Research (NIVEL), Utrecht, The Netherlands

⁵ Dipartimento di Sanità Pubblica e Malattie Infettive, Sapienza Università di Roma, Roma, Italy

⁶ Office for Scientific and International Affairs, Santé publique France, Saint-Maurice, France

⁷ Health Service Management Research, Escuela Andaluza de Salud Pública, Granada, Spain

⁸ Division of Health Data and Assessments, Health Care System, NRW Centre for Health (LZG.NRW), Bielefeld, Germany

⁹ Department of International Health, Maastricht University, Maastricht, The Netherlands

¹⁰ Centre for Health Knowledge Integration, Centre for Health and Society, National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands

¹¹ European Public Health Association, Utrecht, The Netherlands

ABSTRACT

Background: For better supporting the science-governance interface, the potential of health assessments appears underrated. **Aims:** To identify what various types of health assessment have in common; how they differ; which assessment(s) to apply for which purpose; and what needs and options there are for future joint development. **Methods:** This review is based on five types of health assessment: monitoring/surveillance/reporting, assessment of health impact, of health technology, of health systems performance, health-related economic assessment. The approach is exploratory and includes: applying an agreed set of comparative criteria; circulating and supplementing synoptic tables; and interpreting the results. **Results:** Two of the assessments deal with the question ‘Where do we stand?’, two others with variants of ‘What if’ questions. Economic Assessment can take place in combination with any of the others. The assessments involve both overall ‘procedures’ and a variety of ‘methods’ which inescapably reflect some subjective assumptions and decisions,

e.g. on issue framing. Resources and assistance exist for all these assessments. The paper indicates which type of assessment is appropriate for what purpose. Conclusions: Although scientific soundness of health assessments is not trivial to secure, existing types of health assessment can be interpreted as a useful ‘toolkit’ for supporting governance. If current traces of ‘silo’ thinking can be overcome, the attainability of a more unified culture of health assessments increases and such assessments might more widely be recognized as a prime, ‘tried and tested’ way to voice Public Health knowledge and to support rational governance and policy-making.

INTRODUCTION

Health governance, defined as ‘the actions and means a society adopts to organize itself for promoting and protecting the health of the population’,¹ involves numerous actors and is subject to multiple constraints. For example, whenever governance is required, there is the challenge to comprehensively identify policy options and adequately assess their respective merits. Also, the stakes are high for health-related governance; opposing views and (vested) interests prevail. Governance-supporting approaches therefore need to be based on scientific rigour and independence. Obviously, the existence of relevant research is not sufficient.² A multitude of projects and collaborations attempt to better understand and design the science-governance interface. Approaches include ‘Transdisciplinarity’,³ ‘Public Policy Making’,^{4,5} ‘Transformative research’⁶ and ‘Consequentialist epidemiology’.⁷ Some strands of debate focus on access to health information, propagating comprehensive information infrastructure; others refer to evidence-based policy- and decision-making, with ‘evidence’ meaning quality-assured and sound information or knowledge. A range of initiatives focusses ex- or implicitly on this interface, some of them responding to a perceived lack; for a non-exhaustive overview: see table 1.

[TABLE 1]

One widely used conceptual model for supporting the science-governance interface is the so-called action cycle: Assessment–Policy development–Assurance/Implementation (and Evaluation).⁸ Although this model registers ‘assessment’ as a first and crucially important element, in most of the literature from science-policy projects and collaborations, the topic of ‘assessments’ is rarely (if ever) discussed.

Without ignoring ‘real world’ limitations, this paper is led by the assumption that the potential of health assessments for supporting governance is not fully developed yet—neither from the supply nor the demand side.

Assessment may be defined⁹ as a ‘formal process of evaluation of a process or system, preferably quantitative but sometimes necessarily qualitative. Examples include ... assessment of the efficacy of preventive and therapeutic regimens’.

Today, we face a wide range of specific health assessments: of status, needs, impact, performance etc., associated with practice projects, comprehensive experience, and sophisticated infrastructure.

All these assessments aim to support evidence-informed policy-making and practice, mostly within, and sometimes also beyond, the health sector. The assessments are meant to contribute to solving real-world problems; they follow a stepwise procedure

and integrate a range of methodologies. The stepwise procedure often includes (i) preparation incl. ‘scoping’, e.g. on data needs and division of labour, (ii) the actual assessment, leading from input to analysis and synthesis and then to output, (iii) interpretation, presentation and utilization of results. Some or all of these steps may involve participation of stakeholders, other societal actors, and possibly the public at large. The methodologies typically include factual description, scientific analysis, and evaluative elements; the aspiration is to integrate these components adequately. The borders between the assessment types are not always clear-cut. For understanding their (conceptual, terminological etc.) diversity as well as their specific potentials and limitations, it is necessary to consider their histories, institutional embeddedness including political system and modes of governance, as well as their trends of development.

Due to terminological variations, it is no trivial task to identify scientific literature dealing comparatively with such health assessments (e.g. Refs. 10–20).

[Supplementary table S1](#) includes two dictionaries which usefully provide characteristics of individual assessments.^{9,21} None of the papers focused on the various roles which the different types of assessment play at the science-policy interface.

Within the European Public Health Association (EUPHA), there are sections for specific public health themes, bringing together researchers, policymakers and practitioners for knowledge sharing and capacity building.²² Several of these sections deal with specific assessments, and there is an ongoing discussion on their similarities, differences and potential interactions. In related efforts, since 2009, EUPHA together with the World Health Organization (WHO) and the International Association of Impact Assessment (IAIA) investigate the role of health in various types of impact assessment.²³

This paper aims at improving health governance and thus at promoting and protecting population health. More specifically, the motivation is such: (1) If professionals are fully aware of health assessments including ‘differential indication’ for each type, better use can be made of them, in compliance with professional standards. (2) If there are overlapping issues across health assessments, then synergies can be utilized in practice, teaching and theory development while minimizing duplication. (3) If various assessments are run without coordination, there is a risk for civil society and stakeholders to be exposed to overlapping surveys and participatory processes; this might trigger ‘assessment fatigue’ and reluctance to participate.

Beyond improving awareness, the following objectives are pursued in this paper: (1) Comparing various assessments and their infrastructures, also with respect to different administrative levels; (2) Providing guidance on ‘differential indication’, i.e. which type of assessment is appropriate for what purpose and (3) Identifying synergy potentials and developing suggestions for future (joint) development, including improved interlinkage of different assessments.

Therefore, the study questions are:

1. What do the various types of health assessment have in common, and how do they differ?
2. Which assessment(s) to apply for which purpose?
3. Which are the needs and options for future (joint) development?

Offering answers to these three questions can fuel a critical reflection on health assessments.

METHODS

The approach is descriptive and comparative, based on an initial inquiry within EUPHA, and followed by a comparative review of health assessment types. Similar to broad approaches of Human Ecology, combining a multitude of facets into a coherent picture,²⁴ we aim to understand the specific traditions, practices, and resources of each type of assessment and to develop an integrated view of each respective ‘culture’.

As an initial step, a choice was made among the (then) 19 EUPHA sections, based on their assumed affinity to the topic. The heads of 10 sections were addressed by the EUPHA office and exposed to three theses, concerning (i) the role of health assessments for building bridges between scientific research and governance, (ii) the diversity across health assessments being understudied and (iii) a more ‘unified’ perspective offering opportunities of cross-fertilization. The addressees were then asked about their willingness to further explore the issue.

Responses were received from nine—out of the 10 selected—EUPHA sections. A strong majority was positively interested in further exploration. Based on the responses and on discussions held at the 7th European Public Health Conference 2014, this study was designed as a review of concepts and methodologies.

While needing to include a diverse range of health assessments, this exploratory study allows liberty of choice concerning specific types. Taking feasibility into account, the following five types of health assessment were identified for inclusion: Assessments of population health: Monitoring/Surveillance/Reporting (covered by section ‘Public Health Monitoring & Reporting’); Health Impact Assessment—HIA (section ‘Health Impact Assessment’); Health Systems Performance Assessment—HSPA (section ‘Health Services Research’); Health Technology Assessment—HTA (section ‘Health Technology Assessment’) and Health-related Economic Assessment (section ‘Public Health Economics’).

Several cross-cutting issues were selected for inclusion: epidemiology (led by section ‘Public Health Epidemiology’), providing some ‘common ground’ of methodology; practice and policy (led by section ‘Public Health Practice and Policy’), for reflecting on governance issues; perspectives of future development within EUPHA and beyond (led by the EUPHA Section Council chair and the EUPHA Executive Director).

The comparative analyses included the following three steps: (1) Agreeing on, and applying of, a set of comparative criteria, (2) Merging the information into synoptic tables; circulating them and supplementing the information and (3) Interpreting and discussing the results.

The set of comparative criteria (step 1) includes 16 items (table 2). A blank fill-out table was provided to the head of each EUPHA section involved and had to be filled out for each type of assessment. The information was merged into a synopsis which was then circulated among the study participants, and supplemented (step 2).

Answers concerning criteria 1–11 are presented below; results for criteria 12 to 16 are planned to be published separately. Drawing on our combined professional experience, all study participants contributed to interpreting and discussing the results (step 3).

[TABLE 2]

RESULTS

There is a sizeable body of literature for each type of assessment (key references in [Supplementary box SB1](#)). Study results are shown in synoptic form in [Supplementary tables S2–S7](#); summaries and selected results are presented below. First, we ask: What do the various types of health assessment have in common, and how do they differ? This includes a subsection on which assessment(s) to apply for which purpose.

Definitions and goals are summarized in [Supplementary table S2](#). Although all selected types aim at supporting governance, their approach varies. Both Monitoring/Reporting of population health and HSPA deal with the question ‘Where do we stand?’, either focusing on health and health determinants (Monitoring/Reporting), or on the health system and its performance (HSPA). There are overlaps in both directions: Monitoring/Reporting can include aspects of health care; and population health is, of course, highly relevant for HSPA. The issue of status quo can be extended to include past and future trends.

In contrast, both HIA and HTA deal with variants of ‘what if’ questions. For HIA, the starting point is a policy, plan, program, or project under consideration; the basic question is: ‘What consequences for human health are to be expected if this policy (or plan, program etc.) will be implemented?’ For HTA, the starting point is a health technology. In this context, health technology is an umbrella term for a broad scope of health-related devices, medicines, vaccines, procedures and systems. Here, the basic question is: ‘What are the consequences if we introduce or dismiss this health technology to a specific constituency?’

Economic Assessment, the fifth type of assessment regarded here, refers to the introduction of monetary as well as other summary measures, e.g. Disability-adjusted life years. This can take place in combination with any of the other assessments. Concerning the history of health assessments, the approaches dealing with status and trends (Monitoring/Reporting and HSPA) can be traced back at least to the 19th century; this holds true also for early stages of Economic Assessment. Both HIA and HTA—in their explicit forms—emerged only in the second half of the 20th century. Concerning the legal basis of health assessments across Europe, the picture is highly incomplete. The development, to some extent, is driven by European Commission (EC) directives and regulations ([Supplementary table S3](#)).

For all types of assessment there are variants, especially concerning the extent, scope and ambition. For Monitoring/Reporting (which has evolved to be a routine task for Public Health authorities and other actors), variations in methodology are mentioned below (cf. [Supplementary table S3](#)). For HIA, several distinctions are widely used. This includes the extent (desk-top or ‘rapid’, standard, and comprehensive); entity examined (policy, programme, plan, project); stand-alone HIA or as a part of other Impact Assessments, e.g. Environmental Impact Assessment (EIA). Concerning HTA deliverables may be differentiated according to contents and extent of the analysis. Full HTA reports address all relevant domains of the assessment and may indeed be considered an advanced level of assessment. Rapid HTAs address a lower number of domains and rely only on literature review. ‘Horizon Scanning’ deals with the potential impact of new or emerging technologies on the basis of available evidence/knowledge. HSPA can be performed at different levels. How advanced the

assessment is depends on the availability of the data and whether it should address the system as a whole or part of the system. In advanced forms of Economic Assessments, indicators of monetary value are used with discounting rates and with updated purchasing power level.

For all types of health assessments covered here, there are (past or present) European Commission (EC) co-funded projects aiming to develop and evaluate the procedures and methods ([Supplementary table S4](#)). Also, the World Health Organization (WHO) is actively involved in all such assessments. Monitoring/Reporting as well as HIA are undertaken on any administrative level, while HTA, HSPA and Economic Assessments are typically (but not exclusively) conducted on national level. Detailed analyses on the applicability of assessments to different administrative levels, however, seem to be lacking. Assessments from the international arena, e.g. WHO, OECD, World Bank, EC etc. are often easily accessible (English language, technical access); for other sources, both language barriers and/or obstacles to easy access tend to exist.

To illustrate the relationship among assessments, we look at the example of regional HSPA in Tuscany.²⁵ There, 130 evaluation indicators are classified into six assessment dimensions, including population health (typical for Monitoring/Reporting) as well as efficiency and budgetary performance (i.e. an economic perspective). Generally, the information at hand is too scarce to identify variation of assessment practices across administrative levels, countries and/or settings.

The assessments involve both an overall ‘procedure’ and a variety of ‘methods’ ([Supplementary table S5](#)). The *procedures* take place in society, aiming to interlink evidence and societal decision-making. They start either because they are required by law, or because they are requested by certain players who act as initiators; they follow certain rules, and tend to be stepwise. For example, the range of topics to be included in, or excluded from, an assessment needs to be determined early on; this step can be called ‘scoping’. Some procedures, e.g. Monitoring/Reporting, are often conducted within a routine system, with stable relationships to various stakeholders, e.g. data providers. In other contexts, the extent and modes of involving stakeholders in the assessment need to be decided on. In the view of many HIA and HTA experts, comprehensive stakeholder involvement is crucial. As it seems, other types of health assessment are moving in a similar direction.

Concerning *methods*, all these assessments have roots in (descriptive and analytical) epidemiology. For Monitoring/Reporting, HSPA and Economic Assessment, the focus is on quantification, including the use of composite and monetary metrics especially for the latter approach. Systematic reviews and meta-analyses are widely used for HTA. For HIA, participatory methods are commonplace, while impact quantification is applied less often. Again, the various assessments apparently broaden their ranges of methods, becoming more similar to each other in this respect. There is a need for guidance and resources facilitating practical applications. Such assistance exists for all assessments and can be accessed via documents, websites or gateways ([Supplementary table S6](#)). An important line of resources are collections of completed (especially ‘good practice’) and/or ongoing assessments. For Monitoring/Reporting, there is a clear focus on indicator sets, involving a double function: (i) they select and operationalize key characteristics of entities studied and (ii) they provide access to data which ideally have gone through rigorous quality

control. There are tools for data processing, analysis and visualization, e.g. the European Commission's HEIDI tool, now evolved into the European Core Health Indicators (ECHI) data tool.²⁶ In HIA, checklists are available for the qualitative parts of work. For quantitative modelling, there are computational tools—largely awaiting joint discussion.

All the assessments feature their specific infrastructures, including main actors and referent institutions ([Supplementary table S7](#)). Both WHO and the European Union are concerned with all assessments covered here. There are WHO Collaborating Centres, specialized on Monitoring/Reporting; on HIA; and (outside Europe) on HTA. For Economic Assessment, a WHO network was recently initiated. For HSPA, the European Observatory on Health Systems and Policies is a main actor. To consider an example of existing cross-linkage: At EU level, an expert group listed an extensive variety of activities and initiatives for HSPA, including data tools (e.g. the former HEIDI system) and indicators (e.g. ECHI).

Concerning variation of infrastructure across countries and/or settings, only limited information was found. For Monitoring/Reporting, national differences are known to exist regarding the degree of routinely applied advanced approaches and the application of a guiding health information strategy. The template of the Health Systems in Transition (HiT) series of the European Observatory on Health Systems and Policies contains a heading on health information management, thus offering a rough overview.²⁷ For HIA, an established culture exists in the UK, Sweden, the Netherlands, Finland, Ireland, Australia and New Zealand. In many EU countries, HIA is often part of Environmental Impact Assessment, Sustainability Impact Assessments or other Impact Assessments. The existence of a formal HTA unit or agency represents a first source of important variation across countries. Furthermore, the involvement in decision-making processes differs among HTA agencies; also methods used in evaluation processes may differ.^{28,29} Specific methods for the application of HTA at a level other than the national one, e.g. the hospital level, have been developed and applied only in some countries. Since health systems differ from country to country (e.g. more centralized vs. more regionalized systems), the details of HSPA can also be expected to differ. As mentioned above, there are differences in purchasing power; for instance the minimum wage is equal to €215 in Bulgaria whereas in France the minimum wage is set at €1.467.³⁰ Such adjustments are made for Economic Assessments, but there is no consensus on the best way to do it. Hence there is a need to improve and harmonize approaches.

As indicated above, one of the reasons for looking at health assessments in a more integrated way is the need to develop a scheme of 'differential indication'. In the absence of such scheme, for the various types of assessment, a considerable risk of misuse can be assumed to exist. We summarize which type of assessment is appropriate for what purpose, using a simplified decision tree (figure 1). However, the borders between the various assessment types are not always clear-cut. For example, HSPA overlaps with Monitoring/Reporting; the same is true of HTA and HIA; and Economic Assessment can blend with the other types of assessment. The scheme is meant to provide basic orientation; obviously, it reflects the selection of health assessments in this exploratory study.

[FIGURE 1]

For all these assessments, there is ongoing debate on further development and improvement. Concerning Monitoring/Reporting, current topics include the following: (i) technical and legal issues of the linkage of different databases on subject level which is needed, e.g. for monitoring health inequalities influenced by social determinants (cf. Ref. 31), (ii) lack of inter-sectoral cooperation on data analysis, monitoring and reporting, and joint formulation of recommendations in order to support ‘Health in All Policies’, (iii) the emerging availability of vast amounts of data (‘big data’) which raise hopes as well as concerns (How to make sound use of these data? What algorithms help to make sense?) (cf. Ref. 32). Current topics in the HIA debate refer, e.g. to (i) legal foundation: mandated by law, or voluntary basis? (ii) integration into other impact assessments, e.g. EIA, or as a stand-alone procedure? (iii) balancing qualitative and quantitative methods, (iv) professional profile and legal status of HIA practice: is it a job for Public Health officers, external consultants, or other groups? (v) feasibility for everyday administrative procedures? (vi) how could the current ‘impact illiteracy’ of the health sector and of many health experts be overcome?

For HTA, the ADVANCE-HTA project (i) addresses approaches to current thresholds for decision-making, (ii) tackles factors that need to be considered beyond clinical and cost effectiveness, (iii) defines quality criteria for the assessment of rare diseases, (iv) debates the elicitation of more realistic preferences from patients/citizens and (v) discusses the suitability of current HTA tools across different kinds of medical devices.³³ Beyond methodology, current debate refers to inclusion and education of key stakeholders and end-users, systematic approach to prioritizing HTA topics, use of ‘real world’ information, and criteria for disinvestment.³⁴

Questions and issues in the current HSPA debate include the following: (i) How ‘narrowly’ or ‘broadly’ should the assessment be designed? (ii) How to deal with questionable causality? (iii) Should all data available be included into the assessment, or should data be selected, based on relevance criteria? (iv) Not everything that is valued can be measured, (v) Differences in information needs for government and the public at large.

For Economic Assessment, current issues include: (i) Ethical perspective: How can one give a monetary value to human life? Can asymmetric monetary value be given to different age groups or different communities? (ii) Issues related to ‘prevention’ of death: Obviously, deaths are not prevented but delayed in time, (iii) Corrections with discounting factors and differences in purchasing power; should discounting factors be asymmetric (i.e. different between costs and benefits) or rather equal for both?

DISCUSSION

Based on the results, this section addresses the study questions, discusses limitations and draws conclusions.

Study question 1 refers to commonalities and differences across the assessment types. Concerning *commonalities*, all assessments included into this study contain elements of ‘evaluation’, i.e. of status, impact, technology, systems performance, or cost and effect. Furthermore, for each of the assessments, there are specific traditions, practices, resources and infrastructural elements. Therefore, we deem it appropriate to speak of ‘cultures’ which are multifaceted and dynamic, with concepts and processes evolving continuously. Within the respective assessment procedures,

various qualitative, quantitative and participatory methods are being applied, e.g. literature synthesis, descriptive and analytical epidemiology, opinion-taking, rating, ranking, handling of uncertainty. Many methods deployed here (e.g. literature synthesis, composite metrics, modelling) primarily build on epidemiology; the quality of their results depends on the quality of the original data.

Whatever procedures and methods are chosen, health assessments also reflect subjective assumptions and decisions, e.g. on issue framing, in-/exclusion of (systemic) interlinkages, adjustment for secular trends, or weighting the elements of evidence. To maintain the scientific value of health assessments requires the disclosure of the assumptions taken and decisions made. Interdisciplinary composition of the group conducting the assessment, as well as comprehensive stakeholder involvement are essential for reaching well-balanced conclusions and improving the chances for wider acceptance.

A joint feature across health assessments is a limited visibility in the scientific literature. The practice of conducting a health assessment—as a rule—does not qualify to be ‘original research’. With the exception of Economic Assessments, the authors often abstain from publishing their assessments, or submissions are not accepted. Health assessments tend to be circulated as ‘grey literature’. Difficulties to locate specific assessments are increased by the fact that terminology differs. While the labels of ‘HTA’ and of ‘Economic Assessment’ are relatively easy to be identified across languages, approaches like HIA are notorious for terminological instability and variation across languages.

Another common feature is the assessments’ predisposition to encounter opposing views and possibly severe criticism. This is nearly omnipresent for some assessment types such as HIA where stakes are high and (vested) interests abound, often sparking attempts of lobbying. The information at hand does not provide us with a clear picture what specific ways to deal with these challenges are being applied, and how they differ across the assessments.

Obviously, the assessments *differ* with respect to their (main) topics, procedures, methods, and implementation. Concerning implementation, Monitoring/Reporting and HTA are routine tasks in numerous countries, and there is growing interest for Economic Assessment, while HIA and HSPA are altogether less firmly established. While all the assessment procedures are (or: might be) run on various administrative levels, there is a preference for HTA and HSPA to be located on national level while the other assessments seem to be applied on any level. Across the assessments, the methodological mixes differ. Participatory methods, e.g., have played a large role in HIA from the beginning (at least as aspiration) while in other assessments this is a more recent development. The systematic approach to reviewing the literature is a characteristic feature of HTA and can inspire other assessment types.

Concerning the differential indication of health assessments (study question 2), an answer was given in the ‘results’ section, including a visual representation of the decision path. As mentioned, with the borders between the assessment types not always being clear-cut, the scheme should be seen as providing orientation; depending on context, modifications may be needed. And once the scope of health assessments is extended, the scheme will need to be adjusted accordingly.

As for the needs and options for future (joint) development (study question 3), we first look at the assessments in a critical perspective. All of them have evolved into impressive ‘cultures’; but explicit cross-references to other types of assessments are

scarce; there clearly is a risk of ‘silo’ thinking and practice. Depending on the type, the assessments are based on extended sets of assumptions, selections and other decisions and involve (large) margins of uncertainty. So, the assessors are endowed with comprehensive responsibilities which are rarely discussed. Notwithstanding these limitations, current assessment practices seem to fall short of their potentials. The ideas are stronger developed than their implementations. For the sake of the Public Health mission at large, the assessments deserve careful study, as well as strong support from the policy arena.

Our analysis reveals a number of topics where current knowledge should be completed. Additional types of assessment should be included; additional criteria should be used for comparison. Issues deserving more in-depth treatment include, e.g., the adequate integration of qualitative and quantitative methods, the role of stakeholder involvement, modeling and scenarios for health assessments; quality criteria; and practice variation across countries/regions, administrative levels, and settings. It remains challenging to fully grasp the assessment’s role (both current and prospective) in the science-policy/practice interface, especially in the context of ‘Health in all Policies’, and to further develop the ‘differential indication’ issue. Secondly, there are additional topics to be considered for each assessment.

Candidates include: critical (as opposed to: promotive) literature; ethical issues and ‘assessment responsibility’ including competing interests, lobbyism, and fraud as an emerging problem; modes of evidence synthesis (weighing the evidence); role of visualization techniques; training programs and capacity building.

Several cross-cutting topics also deserve attention: Existing comparative literature; approaches to better harness synergetic potentials; and in-depth analysis of the pros, cons, and potential modes of harmonizing and integrating different assessments. For exploring how the approaches differ in practice, it would be useful to study topics which have gone through more than one type of assessment, e.g. vaccination or health promotion which were subject to both HTA and HIA, or studying HSPA in parallel with Monitoring/Reporting.

The interrelatedness of health assessments suggests that developing a ‘common view’ should be worthwhile. There is the opportunity to improve (collective) efficiency by systematically increasing mutual awareness across the assessments. A useful first step is to interpret the various types of assessment as being tools in a ‘toolkit’, while striving for a unified culture of assessments would imply comprehensive debate. To foster such steps might be a worthwhile challenge for teaching and training—which themselves would profit highly from a less fragmented view on assessments.

Returning to this paper’s overall goal, we notice that already the current versions of health assessments seem to blend appropriately into the missions and approaches pursued by initiatives dealing with the role of evidence for policy- and/or decision-making. The assessments might be seen as one (diverse and adjustable) approach to implement advisory activities, helping to bridge the gap between evidence and policy and to (partially) counterbalance vested interests. The initiatives, as outlined in table 1, might play an important role for inspiring improved versions of assessments as well as their harmonization and integration.

As for this paper’s limitations, the study is limited to a subset of health assessments. It does not include important types such as Health Needs Assessment, or evaluation of interventions. Nor does it include Risk Assessment which—depending on

perspective—can be seen as a methodology for, or as another type of, health assessment. The chosen set of assessments does not imply that these types are seen as the most important ones. Also, the set of comparative criteria reflects a compromise between desirability and feasibility.

The study relies strongly on the authors' own expertise. We are aware that for several comparative criteria, the way of interpreting and answering the questions differs across respondents. For this first exercise, as a step towards more comprehensive discussions, this seems acceptable to us.

In pursuit of the paper's goal to contribute to improving health governance, we draw a number of conclusions.

(1) Existing types of health assessment can be interpreted as a useful 'toolkit' for supporting governance. The existing health assessments enshrine a wealth of concepts and experiences for supporting evidence-informed governance. For the future, they should be further developed and their scientific soundness secured, so they can be further established as a tried and tested way to voice Public Health knowledge for decision-making in the health sector and, to some extent, also beyond.

(2) Current traces of 'silo' thinking concerning health assessments need to be overcome. More intensive cooperation would offer the chance of 'co-evolution' (joint evolution with mutual benefit). Modularizing and integrating existing approaches could increase the efficiency of assessments and avoid mutual impediments, e.g. from uncoordinated deployment with overlapping groups of stakeholders and addressees.

(3) To harness the full potential, guidance is needed. For certain issues, e.g. harmonized discounting rates in Economic Assessments, it is probably the European Commission or a national authority which should provide guidance on 'best practice' values. Basic knowledge about the toolkit could be regarded an essential element of Public Health education. The integrative notion of health assessments calls for novel, practice-based approaches for educational curricula, and can add significantly to the development of Public Health leadership.

(4) The analysis of, and debate on, health assessments should be continued.

Future (comparative) analyses should at least include Health Needs Assessment and generic evaluation of interventions, and clarify the relationship with Risk Assessment. 'Assessment ethics'—e.g. concerning ethical dilemmas or undue influence—should be discussed. Quality assessment and assurance are a necessity. 'Evidence initiatives' and professional associations might play a crucial role in developing and/or improving them.

With Public Health always searching to improve the bridges between scientific research and 'real world' governance, there is a potential for health assessments to be recognized as a prime, 'tried and tested' way to voice Public Health knowledge and to support rational governance and policy-making in transparent and accountable ways.

There are visions of the 'future of Public Health'³⁵⁻³⁷ which do not seem to recognize the strategic value of health assessments. Based on our results, such visions could be extended to include assessments as essential elements for policy and practice.

ACKNOWLEDGEMENTS

The authors acknowledge that their respective institutions provided opportunity to contribute to the manuscript. No external funding was received.

Conflicts of interest: None declared.

SUPPLEMENTARY DATA

Supplementary data are available at EURPUB online.

Key points

- Health assessments such as Surveillance & Reporting, Health Impact Assessment (HIA), Health Technology Assessment (HTA), Health Systems Performance Assessment (HSPA) and Economic Assessments are routinely applied in many European countries, but rarely studied together.
- The potential of this toolkit as a key approach for evidence-based policy-making both within and beyond the health sector is under-recognized.
- Cross-fertilization, coevolution and visibility of health assessments would benefit from moving towards a more unified culture of health assessments.
- Adequate guidance would foster the sound practice of health assessments, thus supporting improved (health) governance.
- The integrative notion of health assessments calls for novel, practice-based approaches for educational curricula, and can add significantly to the development of Public Health leadership.

References

- 1 Dodgson R, Lee K, Drager N. Global health governance. A conceptual review. London and Geneva: Centre on Global Change & Health, London School of Hygiene & Tropical Medicine; Dept. of Health & Development, World Health Organization; 2002 Discussion Paper No. 1. Available at: http://apps.who.int/iris/bitstream/10665/68934/1/a85727_eng.pdf (12 July 2016, date last accessed).
- 2 Hanney SR, Gonzalez-Block MA, Buxton MJ, Kogan M. The utilisation of health research in policy-making: concepts, examples and methods of assessment. *Health Res Policy Syst* 2003;1:2.
- 3 UNESCO, Division of Philosophy and Ethics. Transdisciplinarity—"Stimulating synergies, integrating knowledge". Paris: UNESCO documents, DRG-98/WS/05, 1998.
- 4 Fischer F, Miller GJ, Sidney MS, editors. *Handbook of Public Policy Analysis. Theory, Politics, and Methods*. Boca Raton, London, New York: CRC Press, Taylor & Francis Group, 2007.
- 5 Levi-Faur D, editor. *The Oxford Handbook of Governance*. Oxford, UK: Oxford University Press, 2012.
- 6 Trevors JT, Pollack GH, Saier MH Jr, Masson L. Transformative research: definitions, approaches and consequences. *Theory Biosci* 2012;131:117–23.
- 7 Galea S. An argument for a consequentialist epidemiology. *Am J Epidemiol* 178(8):1185–91.
- 8 Institute of Medicine. *The Future of Public Health*. Washington (D.C.): National Academy Press, 1988.
- 9 Last JM, editor. *A Dictionary of Public Health*. New York (NY): Oxford University Press, 2007.
- 10 Fehr R. Ökologische Gesundheitsförderung. Analysen—Strategien—Umsetzungswege (Ecologic health promotion. Analyses—strategies—implementations). Bern: Huber, 2001.
- 11 Quigley R, Cavanagh S, Harrison D, Taylor L. *Clarifying Health Impact Assessment, Integrated Impact Assessment and Health Needs Assessment*. Wetherby, Yorkshire (UK): Health Development Agency, NHS, 2004.
- 12 Quigley R, Cavanagh S, Harrison D, et al. *Clarifying Approaches To: Health Needs Assessment, Health Impact Assessment, Integrated Impact Assessment, Health Equity*

- Audit, And Race Equality Impact Assessment. Wetherby, Yorkshire (UK): Health Development Agency, NHS, 2005.
- 13 Fehr R, Neus H, Heudorf U, editors. *Gesundheit und Umwelt—Ökologische Prävention & Gesundheitsförderung (Health and environment—Ecologic prevention and health promotion)*. Bern: Huber, 2005.
- 14 Kemm J. What is HIA and why might it be useful? In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The Effectiveness of Health Impact Assessment. Scope and Limitations of Supporting Decision-Making in Europe*. Copenhagen: World Health Organization, European Observatory on Health Systems and Policies, 2007; 3–4.
- 15 Rosenkötter N, Vondeling H, Blancquaert I, Mekel OCL, Kristensen FB, Brand A. The contribution of health technology assessment, health needs assessment, and health impact assessment to the assessment and translation of technologies in the field of public health genomics. *Public Health Genom* 2011;14:43–52.
- 16 Landeszentrum Gesundheit Nordrhein-Westfalen (LZG.NRW). *Im Dienst der öffentlichen Gesundheit—Entwicklungslinien von den hygienisch- bakteriologischen Untersuchungsämtern bis zum Landeszentrum Gesundheit NRW. Fostering Public Health—Trends of development from State Laboratories for Hygiene to the NRW Centre for Health*. Bielefeld: LZG.NRW, 2012, Available at: [www.lzg.nrw.de/ media/pdf/service/Publikationen/2012_druckfrisch/entwicklungslinien_lzg-nrw_2012.pdf](http://www.lzg.nrw.de/media/pdf/service/Publikationen/2012_druckfrisch/entwicklungslinien_lzg-nrw_2012.pdf) (20 Sept 2016, date last accessed).
- 17 Bistrup ML, Broønnum-Hansen H. Health impact assessment in Denmark. In: Kemm J, editor. *Health Impact Assessment. Past Achievement, Current Understanding, and Future Progress*. Oxford (UK): Oxford University Press, 2013: 168–76.
- 18 Fehr R, Mekel O. Health impact assessment in Germany. In: Kemm J, editor. *Health Impact Assessment. Past Achievement, Current Understanding, And Future Progress*. Oxford (UK): Oxford University Press, 2013:156–67.
- 19 Kemm J, editor. *Health Impact Assessment. Past Achievement, Current Understanding, And Future Progress*. Oxford (UK): Oxford University Press, 2013.
- 20 Pohjola MV, Pohjola P, Tainio M, Tuomisto JT. Perspectives to performance of environment and health assessments and models—from outputs to outcomes? *Int J Environ Res Public Health* 2013;10:2621–42.
- 21 Porta M, editor. *A Dictionary of Epidemiology, A handbook sponsored by the IEA, 6th edn*. New York (NY): Oxford University Press, 2014.
- 22 European Public Health Association (EUPHA). Available at: <https://eupha.org/sections> (12 July 2016, date last accessed).
- 23 Fehr R, Viliiani F, Nowacki J, Martuzzi M, editors. *Health in Impact Assessments. Opportunities not to be missed*. Utrecht and Copenhagen: European Public Health Association, World Health Organisation Regional Office for Europe, International Association for Impact Assessment, 2014, Available at: [www.euro.who.int/_ data/assets/pdf_file/0011/261929/Health-in-Impact-Assessments-final-version.pdf?ua=1](http://www.euro.who.int/_data/assets/pdf_file/0011/261929/Health-in-Impact-Assessments-final-version.pdf?ua=1) (20 Sept 2016, date last accessed).
- 24 Campbell B. *Human Ecology. The Story of Our Place in Nature From Prehistory to the Present*. New York (NY): Aldine Publishing Company, 1983: 7.
- 25 Nuti S, Seghieri C, Vainieri M. Assessing the effectiveness of a performance evaluation system in the public health care sector: some novel evidence from the Tuscany region experience. *J Manag Gov* 2013;17:59–69.
- 26 European Commission, DG Health and Food Safety. Available at: http://ec.europa.eu/health/indicators/echi/index_en.htm (12 July 2016, date last accessed).
- 27 European Observatory on Health Systems and Policies. Available at: www.euro.who.int/en/about-us/partners/observatory/publications/health-system-reviews-hits/fulllist-of-country-hits (12 July 2016, date last accessed).
- 28 OECD. *Value for Money in Health Spending*. Paris: OECD Health Policy Studies, OECD Publishing, 2010.
- 29 OECD. *Cancer Care: Assuring Quality to Improve Survival*. Paris: OECD Health Policy Studies, OECD Publishing, 2013.
- 30 Eurostat 2016. *Minimum wage statistics*, Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum_wage_statistics;

- http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_mw_cur&lang=en (18 Sept 2016, date last accessed).
- 31 OECD. Strengthening Health Information Infrastructure for Health Care Quality Governance. Good Practices, New Opportunities and Data Privacy Protection Challenges. Paris: OECD Health Policy Studies, OECD Publishing, 2013.
- 32 Reimsbach-Kounatze C. The Proliferation of “Big Data” and Implications for Official Statistics and Statistical Agencies: A Preliminary Analysis. Paris: OECD Publishing, 2015, OECD Digital Economy Papers No. 245.
- 33 ADVANCE-HTA/Advancing and strengthening the methodological tools and policies relating to the application and implementation of Health Technology Assessment (HTA). Available at: www.advance-hta.eu/ Accessed, (12 July 2016, date last accessed).
- 34 International Society for Pharmacoeconomics and Outcomes Research. Available at: www.ispor.org/councils/HTACouncilIssues.asp#Issue6 (12 July 2016, date last accessed).
- 35 Ricciardi W. Ten statements on the future of public health in Europe. *Eur J Pub Health* 2006;16:458–9.
- 36 Association of Schools of Public Health in the European Region (ASPHER). The global dimension of education and training for public health in the 21st century in Europe and in the world. Charter of the Association of Schools of Public Health in the European Region (ASPHER) at the occasion of the 6th European Public Health Conference in Brussels, Belgium, November 13-16, 2013. Brussels: ASPHER. Available at: www.aspher.org/download/81/2013_aspher_charter_brussel_final.pdf (20 Sept 2016, date last accessed).
- 37 Frieden TR. The future of public health. *N Engl J Med* 2015;373:1748–54.

TABLES

Table 1: Selected initiatives dealing with the role of evidence for policy- and/or decision-making^a

Initiative	Outline, based on self-description
Cochrane Collaboration (Link 01)	Slogan: ‘Trusted evidence. Informed decisions. Better health’. In their own description, this is ‘a global independent network of researchers, professionals, patients, carers and people interested in health’; and their ‘work is recognized as representing an international gold standard for high quality, trusted information’.
Campbell Collaboration (Link 02)	According to the website, this is ‘an international research network that produces systematic reviews of the effects of social interventions in Crime & Justice, Education, International Development and Social Welfare’; they ‘believe that a systematic and rigorous approach to research synthesis improves the knowledge base for decisions on policy and practice’.
European Health Information (EHI) Initiative (WHO) (Link 03)	The website states: ‘European policy-makers need answers’ to the following questions: ‘Are our policies effective? Are our policies good value for money? Are we reaching our targets? What is the best option for us? What are other countries doing? How much will it cost? What should we do first?’ The vision is an integrated, harmonized health information system for the entire European Region with evidence for policy-

Initiative	Outline, based on self-description
	makers.
European Science Advisory Network for Health (EUSANH Network) (Link 04)	Started in 2006, EUSANH is a network of National Science Advisory Bodies in Europe which are active in the field of health, 'to promote independent scientific advice on health issues to national and European health authorities and to support evidence-based health policy', promoting 'European exchange of information (national reports)' and 'joint work on the preparation of European science advisory reports on health'.
Evidence-informed Policy network (EVIPNet) (Link 05)	EVIPNet, in their own words, 'promotes the systematic use of health research evidence in policy-making. Focusing on low and middle-income countries, ... [it] promotes partnerships ... between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available'.
Health effects and risks of transport systems (HEARTS project) (Link 06)	From the booklet abstract: 'This report highlights the framework in which integrated assessment of the effects of urban transport on health can be carried out. ... The ... project provides a method for estimating the health effects of air pollution, noise and road accidents and an instrument for integrating health impact assessment in the decision-making on and assessment of transport and land-use policies in urban areas'.
Health Evidence Network (HEN) (Link 07)	In 2003, WHO-Europe started the Health Evidence Network (HEN) as a platform providing evidence in multiple formats to help decision-making. Products include evidence reports; joint policy briefs and policy summaries, produced with the European Observatory on Health Systems and Policies and summaries of reports, including synopses of main findings and policy options.
Tools for evidence-informed policymaking (SUPPORT project) (Oxman, Hanney 2009)	The project 'SUPporting POLicy relevant Reviews and Trials (SUPPORT)', co-financed by the European Commission, produced a glossary and set of tools for evidence-informed policymaking, described in a series of articles 'written for people responsible for making decisions about health policies and programmes and for those who support these decision makers'.
University of York, Centre for Reviews and Dissemination (CRD) (Link 08)	CRD is a research department that specializes in evidence synthesis, assembling and analysing data from multiple research studies to generate policy relevant research. They undertake high quality systematic reviews and associated economic evaluations in the field of health and social care.

Initiative	Outline, based on self-description
Cochrane Collaboration (Link 01)	Slogan: 'Trusted evidence. Informed decisions. Better health'. In their own description, this is 'a global independent network of researchers, professionals, patients, carers and people interested in health'; and their 'work is recognized as representing an international gold standard for high quality, trusted information'.
Campbell Collaboration (Link 02)	According to the website, this is 'an international research network that produces systematic reviews of the effects of social interventions in Crime & Justice, Education, International Development and Social Welfare'; they 'believe that a systematic and rigorous approach to research synthesis improves the knowledge base for decisions on policy and practice'.
European Health Information (EHI) Initiative (WHO) (Link 03)	The website states: 'European policy-makers need answers' to the following questions: 'Are our policies effective? Are our policies good value for money? Are we reaching our targets? What is the best option for us? What are other countries doing? How much will it cost? What should we do first?' The vision is an integrated, harmonized health information system for the entire European Region with evidence for policy-makers.
European Science Advisory Network for Health (EUSANH Network) (Link 04)	Started in 2006, EUSANH is a network of National Science Advisory Bodies in Europe which are active in the field of health, 'to promote independent scientific advice on health issues to national and European health authorities and to support evidence-based health policy', promoting 'European exchange of information (national reports)' and 'joint work on the preparation of European science advisory reports on health'.
Evidence-informed Policy network (EVIPNet) (Link 05)	EVIPNet, in their own words, 'promotes the systematic use of health research evidence in policy-making. Focusing on low and middle-income countries, ... [it] promotes partnerships ... between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available'.
Health effects and risks of transport systems (HEARTS project) (Link 06)	From the booklet abstract: 'This report highlights the framework in which integrated assessment of the effects of urban transport on health can be carried out. ... The ... project provides a method for estimating the health effects of air pollution, noise and road accidents and an instrument for integrating health impact assessment in the decision-making on and assessment of transport and land-use policies in urban areas'.

Initiative	Outline, based on self-description
Health Evidence Network (HEN) (Link 07)	In 2003, WHO-Europe started the Health Evidence Network (HEN) as a platform providing evidence in multiple formats to help decision-making. Products include evidence reports; joint policy briefs and policy summaries, produced with the European Observatory on Health Systems and Policies and summaries of reports, including synopses of main findings and policy options.
Tools for evidence-informed policymaking (SUPPORT project) (Oxman, Hanney 2009)	The project 'SUPporting POLicy relevant Reviews and Trials (SUPPORT)', co-financed by the European Commission, produced a glossary and set of tools for evidence-informed policymaking, described in a series of articles 'written for people responsible for making decisions about health policies and programmes and for those who support these decision makers'.
University of York, Centre for Reviews and Dissemination (CRD) (Link 08)	CRD is a research department that specializes in evidence synthesis, assembling and analysing data from multiple research studies to generate policy relevant research. They undertake high quality systematic reviews and associated economic evaluations in the field of health and social care.

^A For references and links, see Supplementary box SB2.

Table 2: Sixteen Comparative criteria used in this study

Definition, history, typology
1. Definitions and goals of this type of assessment
2. History and legal basis
3. Internal typology, e.g. basic vs. advanced level
Projects & practice
4. Practice examples of any level (global... local)
5. Recent projects, e.g. on methodology
Procedures, infrastructure

6. Procedures and methods applied
7. Tools and resources, incl. guidelines, gateways
8. Infrastructure, actors, referent institutions
Miscellaneous items
9. Variation across countries and/or settings
10. Issues of current (critical) debate
11. Key references (books, articles)
Strengths, Weaknesses, Opportunities, Threats (SWOT) items
12. Do you see strengths of this assessment type?
13. Do you see weaknesses of it?
14. Do you see external opportunities for it?
15. Do you see external threats for it?
Extra item
16. Additional information of interest
Definition, history, typology
1. Definitions and goals of this type of assessment
2. History and legal basis
3. Internal typology, e.g. basic vs. advanced level
Projects & practice
4. Practice examples of any level (global... local)

5. Recent projects, e.g. on methodology
Procedures, infrastructure
6. Procedures and methods applied
7. Tools and resources, incl. guidelines, gateways
8. Infrastructure, actors, referent institutions
Miscellaneous items
9. Variation across countries and/or settings
10. Issues of current (critical) debate
11. Key references (books, articles)
Strengths, Weaknesses, Opportunities, Threats (SWOT) items
12. Do you see strengths of this assessment type?
13. Do you see weaknesses of it?
14. Do you see external opportunities for it?
15. Do you see external threats for it?
Extra item
16. Additional information of interest

Figure 1: Simplified decision tree, differentiating between four types of health assessment. HSPA, Health Systems Performance Assessment; HIA, Health Impact Assessment; HTA, Health Technology Assessment

