The Developing Role of Systems of Competences in Public Health Education and Practice

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ABSTRACT

In recent decades there have been attempts in many professions to define the competences of their practitioners. Over the last quarter century attempts have been made to apply this to public health; initiatives in several countries have been devised to meet the perceived needs of public health education and training (e.g., the United States), of public health practice (e.g., the United Kingdom), etc. The achievements and some of the failings of US and UK initiatives are reviewed.

Since 2006 The Association of Schools of Public Health in the European Region (ASPHER) has been working on a system of public health competences suited and adapted to the needs of both public health education and training, and practice. After much work and several stages of development, a third series of competence lists (for public health practitioners generally, for MPH-related education, and for employment purposes) will soon be published. ASPHER believes that for sustainability of a competences project, the competences proposed must be seen as relevant by all public health practitioners and stakeholders, including those engaged in education and training, service work, and public health research. Accordingly, all these stakeholders need to be involved in the preparation of lists of competences.

Sustainability will also require an ongoing system and structure for permanent review of existing public health competences, and of the need for definition of new ones. Possible directions towards the achievement of this are indicated. A generally accepted system of core competences could contribute most to the establishment of a clearly identifiable public health profession across Europe, equipped to address current and future health needs of its peoples.

All three experiences described share similar challenges, and on a continuing basis these will of necessity need to be addressed in the future: the assessment of whether competences have been achieved or not; the evaluation of whether lists of competences are genuinely appropriate both to population health challenges and to the development and management of systems of intervention as experienced in

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practice; identification of appropriate means to take account of geographical, regional and national disparities within one common competence system.

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INTRODUCTION

In recent decades there has been increasing interest in attempts to systematise lists of competences considered to be needed for high quality practice in several professions, and their early application in medical education and practice as described by Harden[1] in 2002. In a further paper in 2007,[2] Harden outlined the surprising amount of progress there had been over the intervening five years in the development of competences designed to be relevant to basic medical education. He parodied pre-competence-based medical education as being based on an attitude on the part of teachers such that what they appeared to say to students was: "I can`t say precisely what skills or knowledge I want you to acquire from this course. Just do your own thing (guessing what might come into my mind) and I'll give you a grade according to how I feel about it"! Later in this article, Harden discussed the relationship between learning outcomes and a competence framework; he suggested that questions to be asked when evaluating a framework describing both learning outcomes and competences should be:

- "Do the outcomes as represented describe the competences expected of a doctor and reflect the appropriate sense of values?
- "Does the framework provide a holistic and integrated view of medical practice?
- "Is the framework intuitive and easy to use?"

There have been concurrent attempts, at least since the early 1990s, in many parts of the world to develop such systems in public health; most of these were designed to inform public health education, at various levels, but especially at the level of Master of Public Health degree (MPH). Many of such early attempts to do this took place in different parts of the US, and both Calhoun et al.,[3] and Garman and Johnson[4] have described and listed many of these early attempts. According to both of these sources, the modern concept of competences can be traced back to the work in 1973 of a Harvard-based psychologist, McClelland[5]; Garman and Johnson go on to

discuss systems of competence modelling. Elsewhere, public health competence lists, or decisions to create these, have been described from locations around the world, such as in Australia,[6] Canada,[7] and Hong Kong.[8]

However, some lists of competences are more reflective of the descriptions and specifications of services, rather than the competences to be expected of the professionals expected to perform these services; indeed, the borderline between these two concepts is not always very clear. The World Health Organisation (WHO) has recently been constructing a remarkably comprehensive list of public health service specifications,[9] many of which do indeed contain inferences for the competences required for those performing the stated services.

SOME BASIC ASPECTS OF PROFILES AND LISTS OF PUBLIC HEALTH COMPETENCES

Reflecting public health challenges and, consequently, the associated public health functions, lists of public health competences serve a variety of key functions dependent on, for example, the organisational level of activity:

- *Community, national and regional level:* Taken as a whole, the public health competence profile of a community, a nation or a region must match public health functions and thus reflect responses to the public health challenges meeting the community, nation or region at a certain time. This holds true whether related to firstly the population's health, or secondly the structure, functioning and economy of the public health system and public health functions and intervention programmes, or thirdly the interaction between these two former dimensions. In other words, relevant competence profiles will vary across geographical locations, and, as population health as well as health systems develop over time, so must competence profiles.
- *Institutional level:* Specific profiles of competences to be demonstrated by public health agencies at the community, national and regional level should reflect the delegation of functions to specific institutions and intervention programmes. In other words, relevant competence profiles must support the structure and functions of public health systems and their initial and further development, dependent upon time and place.
- *Group level - external delineation of the profession:* Taken as a whole, competence profiles, and thus lists of competences, shall in a transparent manner reflect the system of challenges that the community expects the members of the profession to be able to meet, and thus also the

corresponding job functions they will have to fulfil in a developed public health system, dependent upon time and place.

- *Individual level:* In public health practice, individual competence profiles will be associated with individual job roles, whether in general as members of the profession or at specified institutions. Accordingly, in public health education and training, competence profiles may be general, level specific (e.g., defined by bachelor, master or doctorate level), or specialised by theme. Moreover, they may to some extent be time and place specific. Each educational programme should signal the competences to be achieved by students taking the programme and its individual parts, and a series of testing procedures should ensure that the graduate has achieved a relevant number and quality of the required competences.

Most lists of competences developed thus far mainly reflect the individual level, whereas there has been less attention given to attempts to combine challenges and associated functions and competences at other organisational levels. Philosophies have varied regarding how general competences might vary as applied across time and place, on the number of competences and thus how theme-specific and procedure-specific competences could both be listed, and on the nature of the process, whether regarded as an authoritative, 'top-down' issue or as an ownership sharing, 'bottom-up' process. In the following discussion we shall stress such important components of the process of developing lists of public health core competences by use of three cases, namely the development of lists of competences by the Association of Schools of Public Health (ASPH) in the US, the development of lists by the Faculty of Public Health in the UK, and the development of lists in Europe by the Association of Schools of Public Health in the European Region (ASPHER).

DEVELOPMENT OF PUBLIC HEALTH COMPETENCES LISTS IN THE US

Following the early initiatives in the US, referred to in the introduction, ASPH in the US initiated its Core Competency Model Development Project for the Master of Public Health degree in 2004; Calhoun et al.[10] have provided a vivid description of how this came about and of the methods used. In 2004 the ASPH Education Committee set up the first six working groups, five in core public health areas of practice (apparently as defined by themselves), and the sixth devoted to public health biology. Later the

number of working groups grew to ten, coordinated by a Core Competency Council, comprising the chairs of these working groups. A total of 135 individuals contributed to the work of these groups, which were assisted and advised by three modified Delphi surveys. Nine interdisciplinary domains were identified which, in the next phase of development starting in 2006, were increased to a total of 12 domains, within which 119 competences were defined. The domains were: epidemiology, biostatistics, environmental health sciences, health policy and management, social and behavioural sciences, communication and informatics, diversity and culture, leadership, public health biology, professionalism, programme planning, and systems thinking.

The ASPH lists focus on the individual level and profession-delineating functions. A maximum of ten competences within each domain was aimed at, and agreement on these competences across all the US schools of public health was sought based on the Delphi surveys. However, this procedure of course cannot guarantee agreement as such among individual schools, but results instead in an overall majority estimate of priorities. Moreover, as an initiative of the ASPH, involving the schools themselves, the working groups appear to have been dominated by members of staff of those schools; the ASPH list-developing process seems to have been bottom-up from the Association's intrinsic perspective, but top-down from a community perspective. There is little if any evidence of a philosophy—not to speak of concrete measures – applied to involvement in the process of defining these competences of public health professionals employed to work in routine public health service posts, and there seems to be no published evidence of the competences having been tested in service public health situations. Furthermore, because of the limited number aimed at, many of the competences are rather general and unspecific, which may pose an obstacle to application to concrete service public health or to public health research. Because of their general nature, not all of the competences lend themselves to easy measurement.

As already stated, there is a scarcity of evidence on the extent of use of this system of competences, although the Columbia University School of Nursing published in 2008 a "Competency-to-Curriculum Toolkit"[11] (a self-help "how to do it" instruction book). Similarly, in 2010, the American College of Healthcare Executives published a Competencies Assessment Tool,[12] which, though not using exactly the same competences as the ASPH initiative, appears to borrow from them quite strongly.

DEVELOPMENT OF LISTS OF PUBLIC HEALTH COMPETENCES IN THE UK

Over a similar time period, the UK development and use of competences began in a completely different manner and for different reasons. Since its foundation by the three UK Royal Colleges of Physicians (of London, Edinburgh, and Glasgow) in 1972, the Faculty of Public Health had been working to develop appropriate public health training schemes. Initially they were open to medical practitioners only, and were based on training systems developed in the UK, and in several other countries, for specialist training in all other medical specialties.[13] Trainees, who would be employed mainly in service and academic public health departments, were required to pass two professional examinations, the Parts 1 and 2 (now Parts A and B) of the examination for entry to Membership of the Faculty. Part 1 (or A) covers a similar curriculum to that provided by most MPH programmes, though at a somewhat higher level. So most trainees were (and still are) encouraged to attend MPH courses (with the fees being paid for by their employers), as part of preparation for Part 1 (or A). Thus, in the UK the MPH has come to be seen as an entry to public health training.

After achieving Membership of the Faculty, trainees embark on Higher Specialist Training, which is designed to equip them with the knowledge and skills they need for independent practice. But how was the Faculty to demonstrate that trainees had achieved such a status? It was to meet this need that the Faculty began in the 1990s to define competences as a means of "measuring" the extent to which each trainee had demonstrated a proper grasp of the appropriate knowledge and skills. Since then, the Faculty`s lists of competences have been updated at frequent intervals.[14]

Meanwhile, especially since 1997, the number of public health employees in the UK grew very rapidly, especially in "junior" grades (e.g., health promotion officers, whose educational level would usually equate to the MPH). The English Primary Care Trusts (PCTs), National Health Service (NHS) organisations with responsibility for provision of public health and certain community health services, and for commissioning other (e.g., secondary and tertiary) services, and analogous bodies in other parts of the UK, along with other employers, began to use much more detailed job descriptions, associated with recruitment processes. Following a suggestion that these job descriptions might be competence-based, the four UK government health departments financed the development of a new set of competences, the Knowledge and Skills Framework (KSF), which attempted to define competences required for public health practice in several domains, at nine different levels of public health employment, from

the most senior to the most junior.[15] Subsequent work by the Faculty of Public Health has sought to link its own competences, where appropriate, to competences listed within the KSF.[14] Many NHS employers are now trying to use the KSF within their employment policies, but there do not appear thus far to have been reports published of any evaluation of such practices.

Thus, the UK developmental process has been a centrally managed and coordinated top-down process, which however, was closely integrated with the development of specification of job functions in public health services. Moreover, the number of competences was not parsimonious but was designed to correspond to the concrete functions deemed to be appropriate. However, as demonstrated above, the lists originating in the UK were designed to serve the needs both of public health employment and of education and training settings.

DEVELOPMENT OF LISTS OF PUBLIC HEALTH COMPETENCES AT THE EUROPEAN LEVEL

In 2006, ASPHER took the decision to develop its own list of competences, which were to be designed primarily so as to inform public health education, but tailored so as best to meet the needs of public health as practised in Europe. Interested member schools were invited to involve members of their own staffs with appropriate expertise to become members of six working groups, and about 100 teachers and researchers participated. Five of the working groups' themes addressed the main domains of public health activity: methods in public health; social environment and health; physical, chemical and biological environment and health; health policy, organisation, management and economics; health promotion. The sixth contended with cross-cutting themes, including multi-disciplinary issues such as, strategy development and ethics. Teachers and researchers were invited to send suggestions for competences in a first collection phase. This work resulted in the publication of ASPHER`s first Provisional Lists of Public Health Competencies,[16] where due respect had been paid to the phrasing used by the contributors themselves. This was intended to ensure that no important point of view was left out, and that the lists represented what was actually considered to be the competence profiles that European public health professionals should be able to demonstrate. In this respect, the lists represent the first comprehensive picture of a European public health profession.

Along with the collection of suggestions of European competences, all European ministries of health were invited to participate in a conference in

Aarhus, Denmark, in April 2008, where the lists were discussed between two parties, namely representatives of decision makers from the ministries and representatives of schools of public health, in thematic groups. A total of 27 European countries were represented. Conference suggestions contributed to growth and also further refinement of the lists, and a Phase 2 publication of Provisional Lists[17] was presented to a conference in Paris at the very end of the same year. This latter conference also constituted part of the French Government's programme for its European Union (EU) Council Presidency that year.

By this time it had become widely established across most of Europe (but not yet in all the Central and Eastern European countries that had experienced Semashko-type health services until 1990 – and in some countries till the present time) that public health is a much broader subject area than something which can be viewed as a purely medical matter. Indeed public health has come to be seen as essentially multi-disciplinary, drawing on the distinct contributions of various other professions besides medicine, to form a profession in its own right – although this is not to suggest that the distinctly medical contribution to public health is not also vitally important.[18] It was apparent, therefore, that comprehensive competence systems had to be relevant to the educational needs of a European public health workforce with various professional backgrounds and also to the educational needs of young students taking bachelor degrees in public health. Moreover, unless competences could be shown to be relevant in the context of routine public health practice—beside their relevance to public health research—they were unlikely either to be much used, or to survive in the longer term.

Although the ASPHER work had thus far been 'bottom-up' from an Association viewpoint, and although the lists had been discussed with representatives of ministries of health and such dialogues were planned to be repeated in the future, it was appreciated that the process had to be more 'bottom-up' in the sense that schools should work with local workforce representatives, employers and other local stakeholders, to develop further and to refine the lists of competences. Accordingly, ASPHER arranged two pilot workshops involving academic staff and representatives of public health workforces in two very different parts of Europe: Slovenia and Scotland, UK.[19] At these workshops, various realistic public health scenarios (e.g., the need to prevent childhood obesity) were used as the backcloth for discussing critically relevant competences from the ASPHER lists in order to identify if the competences were realistic, appropriate and comprehensive. It was demonstrated that this workshop approach could lead to valuable

exchanges of views between public health academic teachers and service public health workers on many matters relevant to improved public health performance generally, but especially to refinement of lists of competences, and thus to ideas on public health capacity building.

ASPHER now has an extensive programme[20] for refinement of its lists of competences and to promote their use and the sustainability of the programme. ASPHER regards these competence lists as potentially useful sources of information relevant for:

- standard setting and curriculum development in public health education;
- standardisation of public health training and practice across Europe;
- use as indicators of completion of stages of training;
- role definition and standardisation of public health job descriptions;
- matching of candidates to public health job vacancies;
- facilitating mobility of public health professionals across the EU.

Moreover, to increase their successful applicability in these situations, it has been identified as a priority that, as far as reasonably possible, each competence should be measurable (i.e., that the question: "has this competence been achieved, or not?" should, at least in most cases, require a definite answer).

ASPHER acknowledges that there is still a lack of understanding of the potential roles of public health professionals across the member states of the EU and also outside the EU, and that a general acceptance of a common set of core competences could contribute significantly towards wider consensus on:

- the nature of high quality public health training;
- the appropriate standards of performance to be expected in public health practice and research;
- the core characteristics, and thus the delineation, of a European public health profession;
- estimation of the needs for public health professionals within institutions, communities, nations and regions;
- estimation of the size of the professional public health workforce; and
- evaluation of how well this workforce meets the perceived needs that it should be addressing.

Accordingly, ASPHER's current programme includes:

- refinement of competence lists: in 2011 lists for public health professionals generally,[21] and another set of lists designed to advise MPH education,[22] have been completed for discussion among member schools and will soon be published; work is planned on a further list to advise public health practice;

- taking into account geographical variations in population health and public health systems, a systematic plan for workshops organised by member schools in four sectors of Europe, where published competences are "tested" with public health workforce representatives, and with other public health stakeholders. These workshops are organised in collaboration with either EuroHealthNet (EHN) or the European Health Management Association (EHMA);
- a series of workshops across Europe (co-hosted with the European Public Health Alliance (EPHA)) where the importance of and need for public health capacity development is discussed with local civil society representatives, and where the contribution of competence lists to this process can be demonstrated;
- a planned series of meetings with representatives of the European Commission (EC), WHO, and member state governments, to achieve agreement and consensus on how to ensure the sustainability of the competence project, which needs to become bigger than something that can be "owned" solely by ASPHER, but which should become the property of the wider public health profession and of public health decision makers and stakeholders in Europe.

However, ASPHER has not been alone in seeking to develop public health competence systems in Europe. Most of the other lists have been concerned with particular domains of public health practice, and have not sought to be comprehensive. Particularly worthy of note in this area are the competence lists developed by the European Centre for Disease Control (ECDC)[23] and lists describing competences in the health promotion domain (the CompHP Project).[24] Such lists contribute significantly to competence development in the specialist areas concerned, and the comprehensive ASPHER list should of course include at least some aspects from these more specialised lists. It also is to be hoped that eventually one comprehensive European series of competence lists can be agreed upon, incorporating such specialist lists.

A VISION FOR THE FUTURE

It has already been demonstrated above that there is still a lack of consensus in Europe regarding the nature and limits of public health, both as a science and as a sphere of health professional activity. The hope that a European competence programme might contribute towards such a consensus, and towards training programmes and arrangements for careers in public health

practice and towards public health systems that would match such a consensus, has also been discussed.

The discussion thus far has concentrated almost exclusively on activities in North America and in Europe, where it is possible to envisage a consensus in the not too distant future concerning a proper general understanding of the necessity for systematic public health activity and of the potential that public health has to offer. This could lead towards a consensus on the staffing needs to meet prevalent public health challenges and, accordingly, also on the extent to which systems of lists of competences can contribute to the necessary public health capacity development and to the development of comprehensive public health systems. Such systems and schools of public health should interact to ensure that the competence needs of the staff of schools will be met and, similarly, that career opportunities for public health professionals are made available wherever they are needed. So, a priority for the next stage of development must also be to ensure that this discussion is pursued not only in the western part of the world but that it is also expanded to Africa, South America, Asia, and other parts of the world where public health remains at present severely under-developed.

In Europe and North America the next challenge must be firstly to ensure that systems of competences are developed and modified so as to be relevant to those wishing and willing to use them, at least for all uses and functions as indicated by ASPHER, and perhaps in many other ways, yet to be defined. This requires that these systems must be developed in an inclusive manner, involving all parts of public health professions.

Secondly, a means needs to be identified to guarantee the sustainability of competence development projects; such projects will never be completed, as new competences will need to be defined, and others refined and changed, as public health challenges change as their epidemiology alters, and as new technologies emerge, etc. Such sustainability will require continuing political support, both within countries and internationally.

For the organisation and the processes of future refinement and acceptance—authorisation—of lists of competences, a European panel will be needed to coordinate efforts and to decide about changes, taking into account population health needs, public health systems, and other health systems, across European countries and over time. Such a panel should include representatives of stakeholder associations—including, ASPHER and other European organisations concerned with public health development, including the European Public Health Association (EUPHA), EPHA, EHN, EHMA, and others—as well as representatives of WHO, the EC, and its member states.

Focussing on the competences' role as concerns ensuring educational quality, authorised lists of competences will offer the opportunity to develop systems of evaluation of the degree courses of particular institutions, independently of both themselves and any other schools of public health. This would stimulate schools of public health to compete for quality of educational programmes and for the likelihood of achieving public recognition for international degrees of public health. All this could support the development of a strong public health sector workforce with well-defined professionalisation, aiming to provide high quality public health research as well as high quality service work, including public health practical interventions targeting population health needs, as well as provision of appropriate advice to health systems management.

However, even accepting all of the above, the three approaches discussed here—the US, the UK and the ASPHER one—share some common ongoing challenges, including:

- the assessment of whether competences have been achieved or not;
- the evaluation of whether lists of competences are genuinely appropriate both to population health challenges and to the development and management of systems of intervention as experienced in practice;
- identification of appropriate means to take account of geographical, regional and national disparities within one common competence system.

Acronyms list:
ASPH = Association of Schools of Public Health
ASPHER = Association of Schools of Public Health in the European Region
EHN = EuroHealthNet
EHMA = European Health Management Association
EPHA = European Public Health Alliance
EUPHA = European Public Health Association
KSF = Knowledge and Skills Framework
NHS = National Health Service

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