

Health workforce development: a needs assessment study in French speaking African countries

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Abstract In 2006, WHO alerted the world to a global health workforce crisis, demonstrated through critical shortages of health workers, primarily in Sub-Saharan Africa (WHO in World Health Report, 2006). The objective of our study was to assess, in a participative way, the educational needs for public health and health workforce development among potential trainees and training institutions in nine French-speaking African countries. A needs assessment was conducted in the target countries according to four

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approaches: (1) Review at national level of health challenges. (2) Semi-directed interviews with heads of relevant training institutions. (3) Focus group discussions with key-informants. (4) A questionnaire-based study targeting health professionals identified as potential trainees. A needs assessment showed important public health challenges in the field of health workforce development among the target countries (e.g. unequal HRH distribution in the country, ageing of HRH, lack of adequate training). It also showed a demand for education and training institutions that are able to offer a training programme in health workforce development, and identified training objectives and core competencies useful to potential employers and future trainees (e.g. leadership, planning/evaluation, management, research skill). In combining various approaches our study was able to show a general demand for health managers who are able to plan, develop and manage a nation's health workforce. It also identified specific competencies that should be developed through an education and training program in public health with a focus on health workforce development.

Keywords Health workforce development · Training needs assessment · Public health

Introduction

The importance of competent health professionals has widely been recognized as one of the strategies for addressing effectively and efficiently major public health problems of a community. Yet the educators and trainers of the health workforce rarely take into account local health needs, the public health relevance, nor the effectiveness of their program. In addition, few education and training program aim to build competent managers who are capable of effectively planning, developing and managing a nation's health workforce.

The health workforce crisis, which is observed through critical shortages, imbalanced geographical distribution and inadequate skill mix, is a major problem worldwide, which has recently been stressed by the World Health Organization (2007). Lack of adequate education and training is one of the well-identified causes (WHO 2006; HRSA 2005), further aggravated in many countries (especially in developing ones) by an important brain drain (Martineau et al. 2004).

International bodies have issued recommendations concerning core competencies of public health personal likely to help governments to solve health problems of the communities (Pruitt and Epping-Jordan 2005). Yet the relevance of such core competencies in specific settings has been challenged by work done at grass-root level, especially in countries lacking resources in the public health sector (Mutungi et al. 2008).

Furthermore the danger of increased brain drain through out of country training has been identified and emphasized, pointing towards new training methods especially via Internet technologies (IOM 2011).

In this context WHO has launched a world-wide call for proposals of a public health training program targeting Africa with emphasis on health workforce development.

Among roughly 50 proposals, two were accepted and funded in 2010, one targeting English speaking Africa was attributed to Cape Town University and one targeting French speaking Africa was attributed to the University of Geneva in partnership with universities and Ministries of Health of several French-speaking African countries (WHO 2010).

The aim of the Geneva-based program will be to train health professionals from nine French-speaking African countries (Centre Afrique, Cameroon, Chad, Burkina Faso, Senegal, Ivory Coast, Congo, DRC, Mali) in public health with focus on health workforce development over an electronic platform—the Geneva e-module in Public Health—and

specific local workshops in close partnership with African Universities, local Public Health authorities, and WHO country offices (Gemph 2011).

Our article presents the results of a needs assessment survey on education and training in public health and health workforce development among stakeholders representing education and training institutions, potential trainees and health authorities in the targeted countries in an early phase of the project.

The objectives of our study were to assess, in a participative way, the educational needs for public health and health workforce development among potential trainees and training institutions in nine French-speaking African countries in order to develop an internet-based, interactive training program.

Methods

The project was accepted by the Institutional Review Board of the Institute of Social and Preventive Medicine of the University of Geneva and by the World Health Organization.

The Needs assessment was conducted according to several approaches, as recommended by some authors (Murray and Graham 1995; Potter et al. 2000) commonly used in the health sector (Bowling 2002).

1. *Review of the major challenges affecting human resources for health in the targeted countries*

Government based reports were checked on health indicators and on human resources in the health sector. Major issues were brought together in a synthetic, yet not exhaustive way, in order to establish a global framework of possible learning objectives for a Public Health course with focus on health workforce development.

2. *Semi-directed interviews with heads of partner institutions*

Country visits were done through two field missions 6 months apart (by one of the authors EKM). Visited countries included Chad, Burkina Faso, Mali, Ivory Coast, Centre Afrique, Senegal, Cameroon, Congo Brazzaville (for DR Congo a local consultant took over). Representatives of education and training institutions (e.g. deans of medical schools, heads of public health departments) and WHO country offices participated in semi-directed interviews, as suggested in the literature (Petersen and Alexander 2001). Representatives of the Ministries of Health and/or Education were also consulted.

3. *Focus group discussions with key-informants in each country*

Focus group discussions were held with key-informants (126 key-informants, organized as multiple small-group sessions) selected by deans and local WHO representatives. A total of nine focus groups were organized (2-h session each). Each group's work was organized according to standard procedures (Kitzinger 1995). Topics discussed included public health challenges in the targeted countries, including challenges related to health workforce development, core public health competencies relevant to the specific country context, as well as possible course contents and educational approaches favored. Discussions were not taped, but one of the researchers (EKM) took extensive notes. Analysis was done according to standard focus group content analysis procedures (Rabie 2004).

4. *A questionnaire-based study targeting health professionals identified as potential trainees.*

The questionnaire addressed core competencies of public health professionals. It had been developed and tested in the context of the planning and implementation of a master's program in public health at the University of Geneva

(Chastonay et al. 1998). The core competencies of public health, as established by the Council on Linkages between Academia and Public Health Practice (PHF 2011), served as a starting point. The WHO Educational Handbook of health personal was also consulted (Guilbert 1992). The questionnaire included tasks (on a four item Likert scale) connected to the seven core competencies of the WHO Educational Handbook. The final questionnaire was tested on a set of health professionals taking a masters course in public health at the University of Geneva (Chastonay and Bastard 2009).

The questionnaire was administered via Monkey Survey (Survey Monkey 2011) to public health professionals (n: 55) of each partner country identified as possible trainees by local public health authorities. The response rate was 94 %.

Data analysis of the questionnaire study was done with EpiInfo/EpiData (CDC 2011).

Results

Needs assessment

Several data sets were obtained through the various methodological approaches. Presented data has integrated these different approaches.

Table 1 summarizes the institutional members met in each country (n: 106). These representatives of ministries, health care institutions, universities, research institutions and professional associations either participated in a Focus Group session or an interview/discussion: they had been identified by local WHO representatives as key informants in the health/education sectors.

Table 2 summarizes the Institutional framework in the field of Human Resources for Health (HRH) in each country as mentioned in the interviews or as described in the consulted documents.

In each country there is a central structure, yet mostly with limited resources, in charge of managing globally the Health workforce, i.e. in charge of monitoring the HRH, promoting its continued education, etc., though there are rarely a well defined national HRH policy nor a precise action plan for the time being, but several countries are in the process of developing such an action plan.

Table 3 lists the major problems confronted by each county in the field of health workforce development. The data has been either extracted from government reports or mentioned in the interviews or Focus group discussions. The lack of a well-defined institutional framework in the HRH domain, insufficient training, low wages, low motivation, lack of appropriate skills were systematically mentioned by the representatives of all the countries. This is also true for unequal distribution of the HRH at country level, inadequate information systems. Insufficient budgets with recruiting freeze of HRH are also major issues that in the eyes of the interviewed key-informants and in the different governmental reports appear as critical. Fears of the ageing HWF with insufficiently qualified new generations are also mentioned frequently, as well as a lack of coordination among actors of the health sector, the educational sector and the politics.

The country visits also allowed in-depth conversations and consensus discussions through focus groups. They yielded specific training demands, which are summarized in Table 4. Identified as crucial in a health workforce development perspective were leadership functions, such as defining public health strategies and human resources for

Table 1 Institutional key informants met in each country

	Cameroon	Ivory Coast	Congo Brazza	RCA	Mali	Burkina Faso	Senegal	Chad	DRC Congo	Total
WHO country representative and	1	1	1	1	1	1	–	1	1	82
WHO program directors	2	2	1	2	2	1		1	1	12
Minister or deputy minister or director of ministry of health or education	1	1	1	1	1	2	–	2	2	11
Director of human resources for health at ministry or university levels	1	1	1	2	3	1	–	2	2	13
President of the university or dean of faculty member(s)	4	5	3	3	3	4	2	3	3	30
Director(s) of research institutes or paramedical institutions	3	1	2	1	2	1	2	2	–	14
Director of health care institutions	1	2	1	2	2	–	–	–	–	8
Representative of professional associations	3	–	3	2	2	–	–	–	–	10
Total	16	13	13	14	16	10	4	11	9	106

appropriate health policies. As important were coordination and communication functions, notably developing communication strategies with community decision makers and authorities. Finally planning and evaluation competencies were also put forward as well as competencies in health system management.

In Table 5 are presented perceived competencies when expressed as domains of competencies of 54 potential trainees from the nine partner countries. The group was mainly constituted of mid-level health professionals from ministries of health (65 %), local health institutions or universities: 45 % were medical doctors, 24 % managers/administrators, 31 % health care teachers or health workers (mean age: 38 years, male/female ratio: 7/3). The potential trainees (5–6 candidates per country) had been identified by Ministries of Health in close collaboration with local WHO offices and associated Faculties of medicine according to local needs. A high level of competency (advanced (expert) level, good

Table 2 Institutional framework in the field of Human Resources for Health (HRH) resources in each country

Institutional HRH framework	Cameroon	Ivory Coast	Congo Brazza	RCA	Mali	Burkina Faso	Senegal	Chad	DR Congo
National HRH policy	-	+	-	-	+	-	+	-	-
Central HRH management structure	+	+	+	+	+	+	+	+	+
National HRH plan	-	+	In process	In process	+	-	+	In process	In process
National HRH observatory	+	-	-	In process	-	-	-	+	-

+ exists, - does not exist

(professional) level) was rare in the studied group (45 % in informatics, 41 % in communication, 37 % in management of human resources and 33 % in project management. No competency or limited one (basic) were mostly reported in health economics (84 %), epidemiology (81 %), ethics and human rights (78 %), statistics (77 %), planning (74 %).

When asked about skills/lack of skills in specific tasks related to competencies a relatively high percentage of trainees considered themselves as *having basic or no competencies* in “evaluating the efficacy and efficiency of a public health program” (51 %), in “analyzing the financial impact of health promotion programs” (52 %), in “establishing a community health diagnosis” (58 %). On the opposite a relatively high percentage of potential trainees considered *having good-advanced skills* in collaborating with health professionals and coordinating common actions (81 %), in “communicating with health authorities and the population” (80 %), in “developing training programs for public health personal” (78 %), in “identifying and managing public health resources” (74 %; Table 6).

Furthermore the respondents to the questionnaire (all future trainees) put some emphasis on core public health competencies such as health needs assessment tools for public health challenges (>85 %), but also on insight understanding (better knowledge) of risk factors of major public health problems (>80 %), as well as on appropriate attitudes in ethics (>80 %). Statistical analysis showed no significant differences when responses were analyzed according to age, gender or professional experience.

In summary, the needs assessment showed important public health challenges in the field of health workforce development among the target countries (e.g. unequal HRH distribution in the country, ageing of HRH, lack of adequate training). It also showed a demand for education and training institutions that are able to offer a training program in health workforce development, and identified training objectives and core competencies useful to potential employers and future trainees (e.g. leadership, planning/evaluation, communication, management, of health systems).

Discussion

Educational needs assessment should be a priority when considering the development of a public health training program: it is a thorough needs assessment that ultimately insures public health relevance of the training program (Guilbert 1992).

Table 3 Major problems confronted by countries in health workforce development

Major problems	Cameroon ^a	Ivory Coast ^b	Rep. of Congo ^c	Centre Afrique ^d	Mali ^e	Burkina Faso ^f	Senegal ^g	Chad ^h	DRC Congo ⁱ
Lack of institutional framework	+	+	+	+	+	+	+	+	+
Lack of coordination among actors	+	+	+	+	+	-	-	+	+
Lack of management skills	+	+	+	+	+	+	-	+	+
Unequal HWF distribution in the country	+	+	+	+	+	+	+	+	+
Insufficient information system	+	+	+	+	+	+	+	+	+
Ageing of the HWF	+	+	+	+	-	-	+	+	+
Recruitment shortages and freeze of HWF	+	+	+	+	+	+	+	+	+
Low wages	+	+	+	+	+	+	+	+	+
Lack of motivation	+	+	+	+	+	+	+	+	+
Security	-	+	+	+	-	-	-	+	+
Lack of adequate training	+	+	+	+	+	+	+	+	+
Low skills level low quality of work	+	+	+	+	+	+	+	+	+
Insufficient research in the field of human resources	-	+	-	-	-	+	+	+	+

^a Ministry of Public Health, Human Resources for Health Observatory, Cameroon: Profil des ressources humaines pour la santé (Profile of human resources for health), Yaoundé 2009, 97p

^b Ministry of Health and Public Hygiene, Plan stratégique de développement des ressources humaines du secteur de la santé en Cote d'Ivoire 2008–2012 (Strategic plan for the development of human resources for health in Cote d'Ivoire 2008–2012, Abidjan 2008, 47p

^c Ministry of Health, Department of Management and Human Resources: Rapport d'analyse de la situation des ressources humaines pour la santé (Analytical report on the situation of human resources for health). Draft, Brazzaville, 2010

^d Ministry of Public Health, Population and AIDS Control, Profil des ressources humaines pour la santé (Profile of human resources for health). Draft report, Bangui, January 2010

^e Ministry of Health, Planning and statistics Unit, Développement des ressources humaines pour la santé (Development of human resources for health), Report. Bamako, December 2009

^f Interviews with officials from the Department of Human Resources for Health, Ouagadougou. April 2010

^g Interviews with teachers, Dakar, April 2010

^h Ministry of Public Health: Profil pays en Ressources humaines pour la santé du Tchad..Draft report, Ndjaména, 2009, p. 58 and interviews with health authorities, Ndjaména, Septembre 2010

ⁱ Ministry of Public Health: Plan national de Développement Sanitaire 2011–2015, Kinshasa, March 2010, p. 107 et interviews representatives of the Ministry of Public Health, April 2010

Table 4 Main functions and related tasks a graduate of the program should be able to master (as identified in Focus group discussions and key-informant interviews)

Public health function	Public health tasks
Planning/evaluation	Set public health objectives and priorities Develop public health projects
Leadership	Define public health strategies Define human resources for health policies Mobilize and coordinate resources
Coordination	Put results into practice
Research	Identify public health problems Collect public health data Draft public health research reports
Communication/ information	Inform community and deciders on results Design and use appropriate information systems
Social marketing	Analyze the social and political environment
Negotiation	Be familiar with conflict management
Training	Ensure the provision of public health training
Management	Organize health services Manage public health archives Draft administrative reports

Table 5 Perceived competencies of 54 potential trainees of partner institutions

Domains of competencies	None %	Basic %	Good %	Advanced %
Planning	13	61	26	0
Epidemiology	21	60	19	0
Statistics	8	69	17	6
Health economics	43	41	16	0
Communication	10	49	37	4
Management of human resources	13	50	30	7
Ethics and Human rights	18	60	22	0
Project management	22	45	33	0
Health policies	11	60	27	2
Informatics	8	47	41	4

Bold: highest percentage; italic: second highest percentage

The purpose of our study was to identify such needs, i.e. to identify the training requirements of future public health graduates as perceived by key informants (WHO experts, executives in the ministries of health and education, officials in health-sector NGOs, representatives of professional bodies, directors of health training and research institutions, senior academics in faculties of health sciences, directors of human resources and directors of health-care facilities...) in order to develop the programme's curriculum by determining its subjects and teaching activities in order to help trainees acquire the necessary skills.

Table 6 Perceived public health competencies of potential trainees from 9 French-speaking African countries (n: 54)

	% No competency	% Basic competencies	Good competencies	Advanced competencies
Implement health prevention and health promotion activities				
Develop health prevention and promotion strategies and action plans	9.6	23.1	61.5	5.8
Implement health prevention and promotion programs	16.7	18.5	40.7	24.1
Support at the technical level health authorities	5.6	33.3	46.3	11.1
Collaborate and communicate				
Communicate with the population, with health authorities, with NGOs	1.3	20.4	37.0	40.7
Collaborate with health professionals and coordinate common actions	0	9.3	40.7	50.0
Council health authorities on the health of the population	11.1	22.2	46.3	20.4
Manage public health activities and structures				
Identify health priorities according to urgency and economic constraints	11.1	27.8	42.6	18.5
Prepare public health projects including budget and legal aspects	22.2	18.5	48.1	11.1
Analyze and formulate public health objectives (at local and national levels)	13.0	29.6	46.3	11.1
Plan and manage health workforce development including life-long training	13.0	22.2	44.4	20.4
Develop and implement research activities				
Establish the health profile of the population at local and national levels	17.0	41.5	24.5	17.0
Organize an information system to collect health data	7.4	27.8	44.4	20.4
Analyze the financial impact of health promotion programs	18.5	33.3	37.0	11.1
Evaluate the efficacy and efficiency of public health programs	17.0	34.0	39.6	9.4
Design a public health research project	11.1	22.2	48.1	18.5
Train health personal				
Develop, implement and evaluate training programs for health professionals	9.3	13.0	48.1	29.6
Self-evaluation				
Evaluate one's activities in order to better perform	7.5	15.1	47.2	30.2

Bold: highest percentage; italic: second highest percentage

Institutional partners from each country reported the existence of a central structure in charge of managing globally the health workforce, i.e. in charge of monitoring the HRH, promoting continued education, etc., though there are rarely a well defined national HRH policy nor a precise action plan, but some countries are in the process of developing such an action plan. In fact, two countries have a national action plan for health workforce

development and several countries are in the process of developing it, a necessary step as suggested in the literature (CDC 2001). Yet these key-informers underlined the scarcity of resources, which might compromise the basic missions of the health workforce development structures, which indeed has been identified as a risk at international level (DHHS 1997; see Tables 1, 2), all elements that call for more competencies in the public health sector and the urgent need for more qualified health professionals as has been reported as well by international organizations like WHO or by some researchers (Alexander et al. 2009).

The list of reported HRH related problems, such as lack of management skills, low skills level and lack of motivation, reflects potentially the impact adequate training could have, since training has been recognized as one of the solutions (IOM 1988). Yet other reported problems, such as ageing of the HRH, inadequate budgets in the health sector, recruitment shortage might reflect an even bigger challenge to meet, since any possible solution implies structural changes, which are often difficult to implement (Roper et al. 1992).

Overall an important need of common public health competencies (Potter et al. 2000) was identified by partner institutions and professionals, thus triggering a demand for core competencies in public health and basic knowledge and know-how in the field of public health among potential trainees: e.g. basic tools in epidemiology, in health economics, in health policy, in ethics and human rights and in management.

This strong demand for basic public health planning and management tools might be related to the well-recognized importance of project management in public health (needs assessment, identification of relevant objectives, definition of specific activities, mobilization of adequate resources, development of appropriate evaluation procedures, elaboration of performing communication strategies; Harrisson et al. 2005).

Of course training needs in various domains vary depending on the target populations, yet the opinion of these target populations, as we tried to monitor in our study, is important in defining training objectives and contents (Curran and Keegan 2007; Gould et al. 2001).

The needs assessment further allowed developing a close collaboration with the partner institutions which is a permanent networking challenge when training programs are supported by a consortium of several institutions (Jarvenpaa and Ives 1994).

Summing up: what are the main findings?

First, needs assessment gives valuable information on the expectations of partner institutions and on the local situation. While it takes some effort to implement, it facilitates the integration any training program into a local context, thus increasing the public health relevance of the training program (Chastonay et al. 1996).

Second, most visited public health institutional partners stressed the need for a true partnership, i.e. taking into account, when developing a training program, their expectations, priorities, limits and constraints. It is reported that such an approach insures support to the training program on a long-term basis by the partner institutions, thus contributing to its efficacy (Chastonay et al. 1992).

Third, a consensus can be obtained when considering the demands of potential employers in regard to expected competencies of future trainees of such a program (OPHA 2004). Obtaining some commitment of employers to a training program contributes to a higher impact of the program as measured by community outcomes (Chastonay et al. 1997).

Fourth, specific educational objectives, through questioning potential trainees and employers, can be obtained, which might reflect community health needs, thus ultimately insuring public health relevance of the training program (EU 2005).

Any training program, even though it is based on well identified training needs, will have to face some educational challenges: in the present context it might be related to the heterogeneity of the student body, which is a well-known challenge in continuous adult education (Knowles 1990). It can partly be resolved through personal assignments of various difficulty levels according to the students' background, thus designing a more student-centered program (Guilbert 1992). There might also be logistic problems such as access to Internet, which could necessitate new alliances such as one with the Campus Virtuel of the Francophonie, structures with access internet financed and supported by the network (Auf 2011).

Based on the needs assessment a specific public health course with focus needs identified has been developed and is at present running (first year out of three). The course is based on interactive learning over an Internet Moodle platform as developed by the University of Geneva with residential workshops at mid-term planned. The approach is through case studies each one with specific objectives in epidemiology, planning, evaluation, communication, ethics-human rights, social sciences, economics, health resource development and health system management. The case studies are related to priority health problems such as maternal and child health, HIV/AIDS, mental health, nutrition, infectious disease, chronic disease, accidents as well as resources for the health sector, access to essential medication, quality/security of health care. Furthermore some fieldwork must be done and a master thesis must be written on a health workforce development topic. (a distance-learning approach, as well as the focus on health workforce development, were part of the call for proposals of WHO).

Conclusion

Assessing the training needs of institutions and professionals is an important step toward providing relevant and appropriate education and training programs in public health and health workforce development. In combining various approaches our study was able to show that training needs concentrate around basic public health tools, such as epidemiology, management and communication.

Involving potential trainees and their employing institutions in a needs assessment might well help the designers and leaders of a training program to focus on priorities relevant to local contexts.

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Conflict of interest The authors declare that they have no competing interests.

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