
Recruitment, employability and career development for international students undertaking the UWE MSc Public Health: Final Report



August 2017



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international students undertaking the UWE MSc Public Health:
Final Report**

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August 2017

ISBN: 9781860435362

Executive Summary

Background

Over the last decade, the MSc Public Health at UWE has successfully recruited many international students. An issue for the university in promoting the benefits of the programme internationally is that there is a good career structure in UK public health for those from backgrounds other than medicine, but this is not necessarily the case for international students.

Aims and objectives

The aims were (1) to inform the career guidance we give our international MSc PH students to better enable them to pursue their individual careers and (2) to contribute to developing the Public Health and Wellbeing Research Group's research on international public health workforce capacity development. To achieve these aims we had two more specific objectives: (1) to map the public health career development of UWE international MSc PH alumni and (2) to map the public health career structures, professional bodies and registration requirements of countries from which students are recruited.

Methods

This was a mixed methods research project based on an online survey, telephone and face-to-face semi-structured interviews and web-searching. Element 1 focused on the public health career experiences of our MSc international students over the last ten years. A purposive sample of 97 international alumni was emailed with a request to participate in the online survey. The survey included an option to consent for a further follow up interview. Element 2 involved mapping public health career structures, professional bodies and registration in countries from which international students attended over the last ten years. For each country, an internal search was conducted for national public health bodies, associations and registers, and key informants were contacted.

Results

Forty-seven alumni responded and answered at least one question in the online survey. The majority of participants were employed by international organisations, academic institutions, and state agencies or were at different stages of PhD studies. Participants reported increased public health career experiences in public health research roles, public health leadership, and policy analysis and in planning, implementing and evaluating public health programmes. Participants had confidence in applying public health skills, especially research, critical thinking, academic writing as well as demonstrating public health leadership skills and the application of multidisciplinary approaches to address public health issues. Recommendations included provision of longer public health placements, optional courses on project management and advanced statistics, and continued internationalisation of the curriculum. Overall, alumni satisfaction was high in relation to the relevance and impact of the skills and knowledge they acquired during their MSc Public Health at UWE.

Discussion and conclusions

The results of this study were consistent with other studies of alumni of MSc Public Health programmes. The study has provided useful feedback on the UWE MSc Public Health programme and a number of helpful recommendations were made by alumni which will be addressed by the programme team. Implications for further research include studies of international employers' perspectives on the value and limitations of the MSc Public Health and on public health registration.

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INTRODUCTION

Background

The UWE MSc Public Health (MSc PH) programme is a modular programme consisting of advanced modules and a research project (dissertation). The programme empowers students with innovative and contemporary education in public health theory, practice and research (MSc Public Health course information; available at <http://courses.uwe.ac.uk/BL9412/public-health>). The programme prepares students for the public health job market through a mix of lectures, study workshops, group presentations, research, study skills, library support, personal tutorship, Peer Assisted Learning (PAL) sessions, and placements. These activities are designed to impart students with knowledge and skills such as critical appraisal, research skills, academic writing, leadership skills, and the application of various public health theories and principles.

Over the last decade, the MSc PH programme at UWE has successfully recruited many international students, particularly from Africa, as well as the UK students the institution has traditionally served. Most, but not all, of these students are from backgrounds other than medicine. A key attraction of the MSc PH is the expectation that successfully completing the programme will enhance the students' employability and career development. This has certainly been the case with UK students where a number of alumni have gone on to consultant posts in public health, director of public health and other senior roles. An issue for the university in promoting the benefits of the programme internationally is that there is a good career structure in UK public health for those from backgrounds other than medicine, but this is not necessarily the case for international students, particularly for those from low and middle income countries (LMICs). In many of these countries senior posts in government public health services are still limited to those medically registered, unlike the UK where multidisciplinary public health specialists can be registered with the UK Public Health Register (UKPHR 2017). There are, however, increasing opportunities for those from all

backgrounds in non-governmental organisations (NGOs) which are also increasingly playing a direct public health role in LMICs.

In order to better meet the needs of our international students, a student intern research project was initiated in January 2017 to better understand the types of posts our MSc alumni were going on to and to understand to what extent these were in LMIC public health services, NGOs or indeed in high income countries. We were interested in knowing if our anecdotal perceptions were correct that the public health systems in many LMICs remain restricted to the medically qualified, or if these systems are becoming more multidisciplinary as occurred in the UK in the 1990s.

Public health workforce development has been extensively researched in the US and Europe but relatively less explored in terms of LMICs (Zwanikken *et al.* 2013). Several recent articles have examined the experiences of MPH alumni in LMICs (Dlungwane & Knight 2016; Zwanikken *et al.* 2016; Heller *et al.* 2015) and the methods and results of these studies were reviewed to inform the methods used here. This research also builds on team member Emma Bird's recent qualitative study of current student and staff perceptions of international student experiences on the UWE MSc PH (Bird, 2017).

Aims and objectives

We undertook a twelve-week internship project to achieve two aims: (1) to inform the career guidance we give our international MSc PH students to better enable them to pursue their individual careers and (2) to contribute to developing the Public Health and Wellbeing Research Group's research on international public health workforce capacity development.

To achieve these aims, we had two more specific objectives: (1) to map the public health career development of UWE international MSc PH alumni and (2) to map the public health career structures, professional bodies and registration requirements across both high income and LMICs from which students are recruited.

METHODS

Overall design

This was a mixed methods research project based on an online survey, telephone and face-to-face semi-structured interviews and web-searching. The research was conducted by two student interns (CB and AM) recruited through open competition to undertake the research. The student interns were supported by a principal investigator (DE) and a project team (HA, EB, IB, JI, MJ, JO and PP). There were two main elements:

Element 1: Public health career experiences of our MSc PH international students

Sampling and recruitment

A list of international students who had completed the programme over the past ten years was obtained from the UWE Alumni Office, including up-to-date email contact details if these were held. This list and contact details were then augmented by personal contact details held on some former students by MSc PH programme staff who remained in contact with them. This purposive sample (97 international alumni) was then emailed with a request to participate in the study along with the participant information sheet and online survey link. The online survey included a consent screen (see Ethics below). The survey included an option to give consent for a further follow up interview. Twenty survey participants consented to interview and were contacted for further in-depth exploration of the open questions from the online survey. Where consent was given, arrangements were made for interviews. In a period of two weeks, eight telephone interviews and in two cases, where the alumni were based in Bristol, face-to-face interviews were conducted.

Data collection and analysis

The online survey consisted of 32 closed and open-ended questions as well as Likert-scale questions. Structured data from closed-ended questions in the online survey were collected and analysed to produce simple descriptive statistics (e.g. frequencies, percentages). Internal consistency for Likert-

scale data, as well as the Cronbach alpha (α) for internal consistency ($\alpha > 0.7$ considered satisfactory) (Bland & Altman, 1997) and 95% confidence intervals were computed in Excel 2016 (Microsoft, USA). Unstructured data from the open questions were tabulated in Excel and thematically analysed (Braun & Clark, 2006).

For the interviews, data were collected by audio recording the telephone and face-to-face interviews. Audio recordings were then transcribed and detailed notes taken. Transcriptions and notes were entered into NVivo 10 and analysed by thematic analysis. Thematic analysis is a common qualitative data analysis method used for “identifying, analysing and reporting patterns within data” (Braun & Clark, 2006, p.6).

Element 2: Mapping of public health career structures, professional bodies and registration

Sampling and recruitment

Countries from which international students have attended the programme in the last ten years were identified from data held by the Alumni Office and the programme leader. For each country, an internet search for national public health bodies, associations and registers was conducted. In addition, websites were searched for international public health bodies (e.g. World Health Organisation, World Federation of Public Health Associations), regional public health bodies (e.g. African Federation of Public Health Associations) and national public health associations. Finally, relevant literature identified in a rapid scan of peer reviewed publications on international public health careers was reviewed to identify potential key informants. Key informants were also identified through public health websites and personal contacts of team members.

Data collection and analysis

Where web information was available on public health career structures, professional bodies and registration requirements, these were entered into a structured data extraction form (see Appendix 3). Where data were not available on websites except for email/telephone contact information, then

email and telephone contacts with key informants were pursued to seek to capture missing data. Structured data were tabulated in Word tables and narratively analysed.

Ethics, research governance and health and safety

The highest standards of ethical research practice were observed, including review by the Faculty Research Ethics Committee (FREC) and risk assessment as these involved human participants. Due to the nature of the questions being asked (about public health careers) and the research methods (telephone interviews, online survey and web searching), it was anticipated that few significant ethical issues would arise. An application for ethical review was submitted to FREC in January 2017 and approval was given in the same month (UWE REC reference number HAS.17.01.082). Similarly, it was anticipated that this would be low risk in terms of health and safety and a risk assessment was conducted and logged with the Faculty risk register. All data collection abided by Faculty data protection policy and procedures. All participants were given full information on the research (including their right to decline to participate or to withdraw at any time), and asked to give informed consent.

RESULTS

Fifty-five (57% response rate) responded to the online survey but only 47 participants (48.5%) who answered at least one question were included in the survey data analysis. As such, different denominators based on the responses to each question item were used in the data analysis as not all the 47 participants responded to all questions. Follow-up telephone interview data for 10 participants who participated in the online survey were thematically analysed. Data from key informants and online sources were also used to map the public health career structures in 11 countries.

Demographic characteristics of participants

Overall, 39 participants (40%) completed the entire online survey. This comprised 24 females (62%), 59% aged 30-39 years, and 64% were of African descent. Out of 47 participants who answered at least one online survey question, 20 (43%) had their first professional degree in health sciences (such as nursing, pharmacy, pharmacology, public health, environmental health, nutrition, physiotherapy); 13 (28%) in biomedical sciences (such as biology, biochemistry, cell biology, microbiology); 5 (11%) in medicine and 9 (19%) in other areas including dentistry, agricultural, veterinary medicine, social sciences, philosophy, business administration and marine science. After their first professional degree, 45% of participants took two to four years to enrol on the UWE MSc PH programme while 32% and 23% of the alumni spent less than a year and more than five years, respectively. Table 1 summarises the demographic characteristics of the participants.

Table 1: Demographic characteristics of participants of the online survey

Category	Parameters	Frequency(N)	Percentage(%)
Gender	Male	15	38
	Female	24	62
	Total	39	100
Age	20-29	9	23
	30-39	23	59
	40-49	7	18
	Total	39	100
Region	Africa	25	64
	Americas	2	5
	Asia	8	21
	Europe	3	8
	Australia	1	3
	Total	39	100
Educational background	Medicine	5	11
	Health sciences	20	43

	Biomedical sciences	13	28
	Agriculture/Veterinary medicine	2	4
	Social sciences/ Philosophy	3	6
	Others	4	9
	Total	47	100
Period between undergraduate study and MSc	0 - 1 year	15	32
	2 - 4 years	21	45
	5 years and more	11	23
	Total	47	100

Current employment status of participants

Participants were asked of their employment status after the programme. Out of 46 participants, 29 (63%) were employed (with 27 (93%) being in full-time employment), 7 (15%) were PhD students, five (11%) were volunteers and four (9%) were self-employed. One participant (2%) was unemployed (Fig 1). The Survey revealed that out of 35 participants who were employed, volunteering or undertaking a PhD after the programme, 22 (63%) acquired their job or started their PhD within a year following graduation, nine (26%) after one year and four (11%) were on study leave, i.e. they went back to jobs they held before commencing the MSc. Twenty-two (51%) participants were currently employed in their home countries. Of the participants who were working abroad, the majority (89%) were working in the UK while others (11%) were working in South Africa and Australia.

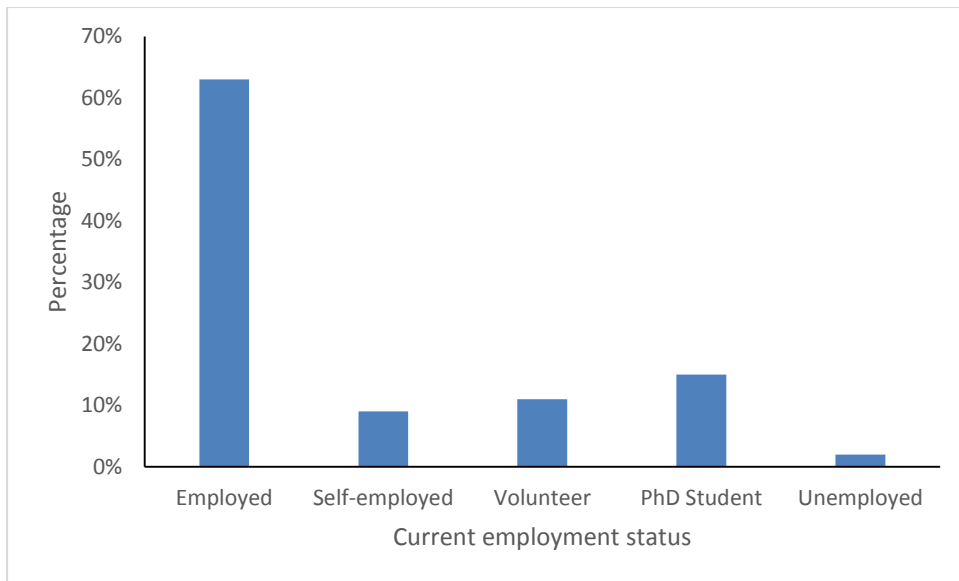


Figure 1: Current employment status of participants (N=46)

Employment status of participants before and after the MSc PH programme (N=46)

Out of 46 participants, 29 (61%) were in full-time or part-time employment before they joined the programme. A comparison of the reported employment status showed that 27 (59%) of participants were in full time employment after the programme compared to 25 (54%) who were in full-time employment before the programme. Additionally, one (2%) participant was unemployed after the programme, while three (7%) were unemployed before the programme. Table 2 summarises the distribution of employment data of the participants before and after the programme.

Table 2: Frequency distribution of the employment status of participants before and after the MSc PH programme (N= 46)

Category	Before MSc Public Health		After MSc Public Health	
	N	%	N	%
Employment status				
Employed (full-time)	25	54%	27	59%
Employed (part-time)	3	7%	2	4%
Self employed	2	4%	4	9%
Unemployed	3	7%	1	2%
Intern	5	11%	0	0%
Volunteer	0	0%	5	11%
Student	6	13%	7	15%
Other	2	4%	0	0%
Total	46	100%	46	100%

Employing agencies of participants

The employing agencies of participants in this project included international organisations, national and local government agencies, academic institutions, non-governmental organisations (NGO) and private businesses. As shown in Figure 2, following graduation, 11%, 13% and 11% of participants were employed by international organisations, national ministries of health or public health departments, and academic institutions respectively. This is compared to 3%, 8%, and 8% employed by these agencies before the programme, respectively. No statistical test was undertaken to determine if these differences in employment of the participants by these agencies were statistically significant. It was not possible to make a direct comparison of the level of seniority of employment before and after the MSc, but participants consistently reported that their job grades and salary scales were higher after the MSc compared with before (see Appendix 2).

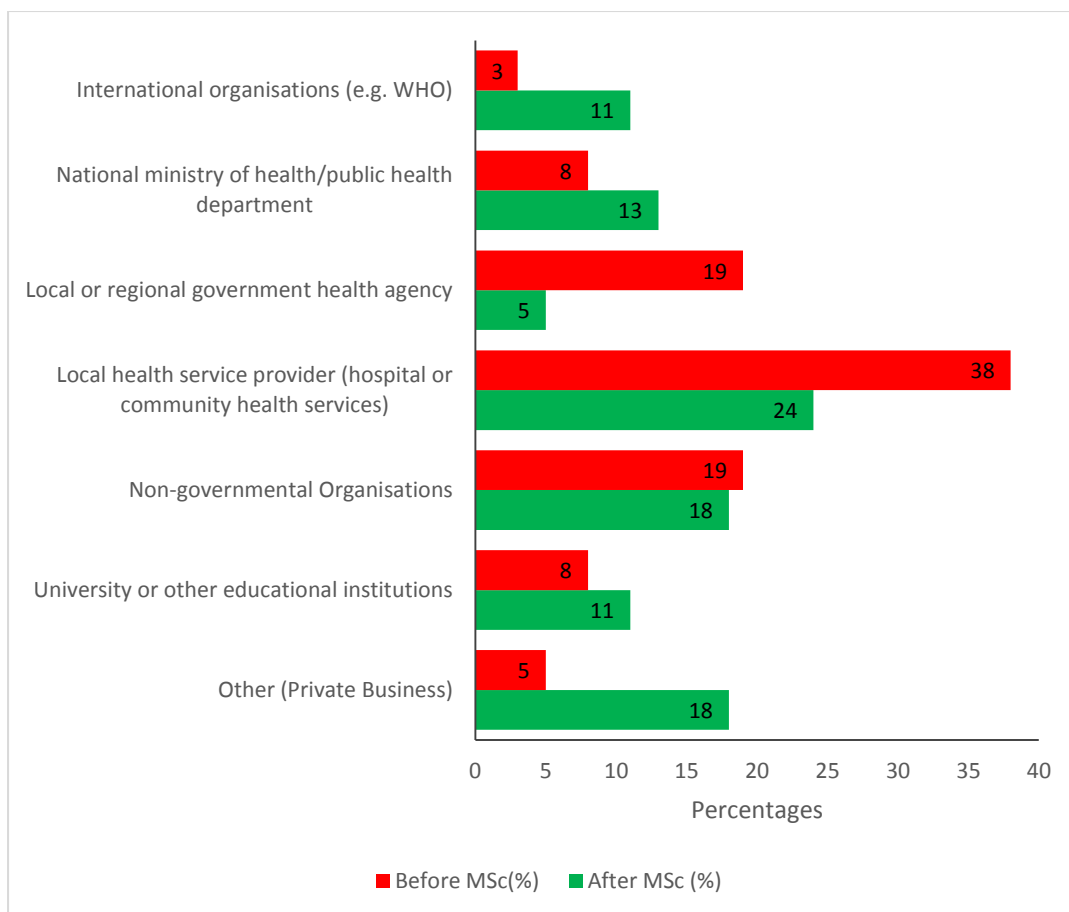


Figure 2: Employing agencies of participants (N[before]=37, N[after]=38)

Fields of work of participants before and after the MSc PH programme

The results of the survey showed that 37 participants (79%) worked in a variety of fields before and after the programme. More participants were working in public health related fields including health promotion (N=14[38%]), public health research (N=12[32%]), project management (N=10[27%]), project evaluation and monitoring (N=9[24%]) following graduation, compared with 19%, 19%, 14% and 14% respectively who had reported working in these fields before the programme. Eight (22%) reported working in the clinical field after the programme, compared with 15 (41%) who had worked in clinical care before the programme. Table 3 summarizes the relative distribution of the fields of work of participants before and after the programme.

Table 3: Relative frequency distribution of the job fields of participants before and after the MSc Public Health programme (N=37)

Category	Before MSc Public Health		After MSc Public Health	
Job field	N	%	N	%
Clinical care	15	41%	8	22%
Project management/implementation	5	14%	10	27%
Education/teaching	5	14%	7	19%
Disease prevention/health promotion	7	19%	14	38%
Research	7	19%	12	32%
Programme/project monitoring and evaluation	5	14%	9	24%
Emergency and disaster relief	3	8%	3	8%
All these categories	1	3%	1	3%
Other (Health commissioning, medical lab & diagnostics, student, regulatory)	4	11%	5	14%
TOTAL	37*	100%*	37*	100%*

*Multiple responses were allowed. Cumulative frequencies and percentages more than 37 and 100% respectively.

Data on the current responsibilities of 43 participants showed that some were involved in more than one activity in their current roles. The common responsibilities were in project management (42%) and public health research (35%). Other responsibilities included clinical care (30%), education/training (30%), health promotion (26%), emergency and disaster relief (21%), project monitoring and evaluation (7%) and many others such as health and social care assessment, policy strategy and management (12%).

Public health career experience of participants

Participants in this project reported different experiences in the utility of various public health skills they had gained during their MSc at UWE in comparison to their experiences before the programme. The commonly reported public health experiences that had increased post-graduation were in research roles (mean rated score [SE]=2.5[0.13], 95% CI: 2.24-2.76); public health leadership

(2.5[0.14], 95% CI: 2.21-2.79) and planning, implementation and evaluation of public health interventions (2.4[0.17], 95% CI:2.06-2.74). Participants’ perceived career experiences in areas such as public health policy analysis, management roles, teaching, remuneration and job-grade were reported not to have changed or increased following graduation. There were no statistically significant differences between the public health experiences that were perceived to have increased or remained the same post-graduation. The lowest reported public health experience of participants was in clinical work (1.1[0.19], 95% CI: 0.70-1.5). Table 4 summarizes the mean ratings of the public health career experiences of the participants. The overall Cronbach’s alpha coefficient of internal consistency was satisfactory ($\alpha=0.72$).

Table 4: Summary of the public health career experiences of participants (N=43)

Career Experience	Mean*	SE	95% Confidence Interval		Percentage responding ‘increased’ (%)
Planning/implementing/evaluating public health interventions	2.4	0.17	2.06	2.74	74
Administration/management roles	2.1	0.17	1.75	2.45	52
Leadership role	2.5	0.14	2.21	2.79	72
Research	2.5	0.13	2.24	2.76	70
Teaching/training	2.0	0.20	1.59	2.41	57
Job grade	1.9	0.20	1.49	2.31	50
Salary scale/remuneration	1.9	0.20	1.49	2.31	51
Policy analysis	2.3	0.18	1.92	2.68	74
Clinical work	1.1	0.19	0.70	1.50	24

SE: standard error; *mean on a four-point Likert-scale with 0: “not applicable”; 1: “decreased”; 2: “remained the same”; 3: “increased”, career experience after completion of the MSc PH programme.

Relevance of public health skills to the career experiences of participants

To examine the relevance of several public health skills that MSc PH students at UWE attain during their training, participants were asked to rate, on a five-point Likert-scale, the relevance of the skills to their public health experiences. The most relevant public health skills were the application of the principles of public health leadership and systems thinking (mean ratings [SE]: 3.3[0.15], 95% CI: 2.99-3.61) and the application of multidisciplinary approaches to address public health issues (3.3[0.17], 95% CI: 2.94-3.66). These were followed by critical appraisal and evidence-based decision

making skills (3.2[0.19], 95% CI: 2.82-3.58), research skills (3.1[0.19], 95% CI: 2.72-3.48) and academic writing skills (3.1[0.18], 95% CI: 2.73-3.47). The skills that were rated less relevant to the current career experiences of participants were public health economic analysis (2.3[0.2], 95% CI: 1.89-2.71) and the development of online health promotion communication tools (2.3[0.21], 95% CI: 1.87-2.73). For example, using Weebly or WordPress to develop a website or blog. The differences in the perceived relevance of the various public skills were not statistically significant. Table 5 summarises the ratings of the relevance of various public health skills to the participants' public health experiences. The overall Cronbach's alpha coefficient of internal consistency of the Likert-scale ratings was very satisfactory ($\alpha=0.91$).

Table 5: Summary of perceived relevance of public health skills to the career experiences of the participants (N=43)

MSc PH Skills	Mean	SE	95% Confidence Interval		Percentage responding 'relevant' and 'very relevant' (%)
Epidemiology/social statistics	2.9	0.21	2.49	3.31	66
Critical appraisal	3.2	0.19	2.82	3.58	87
Multidisciplinary thinking	3.3	0.17	2.94	3.66	86
Research skills	3.1	0.19	2.72	3.48	77
Academic writing	3.1	0.18	2.73	3.47	72
Public health economics analysis	2.3	0.2	1.89	2.71	47
Policy analysis	2.8	0.2	2.39	3.21	69
Leadership and systems thinking	3.3	0.15	2.99	3.61	84
Development of online communication platforms	2.3	0.21	1.87	2.73	49

*SE: standard error; *Mean on a five-point Likert-scale with 0: not applicable; 1: "irrelevant"; 2: "somewhat relevant"; 3: "relevant"; 4: "very relevant" MSc PH skills to the MSc PH experience of the participants after completion of the UWE MSc programme. Percentages for "relevant" and "very relevant" ratings combined.*

Confidence of participants in applying acquired public health skills

With regards to participants' perceived level of confidence in applying public health skills that were acquired during the MSc PH training, the skills that most participants (90%) were confident in applying in their public health roles were the research skills (mean rating[SE]=3.3[0.12], 95% CI: 3.05-3.55). There was statistically significant level of confidence of participants in the application of research skills compared to other skills such as epidemiology or social statistics (2.7[0.17], 95% CI: 2.36-3.04), public health economics analysis (2.2[0.15], 95% CI: 1.90-2.50), public health policy analysis (2.6[0.16], 95% CI: 2.27-2.93) and the development of online health promotion communication tools (2.2[0.2], 95% CI: 1.79-2.61). Table 6 summarises the rated means of the level of confidence of participants in using various public health skills. The overall Cronbach's alpha coefficient of internal consistency of the five-point Likert-scale scores was very satisfactory ($\alpha=0.91$).

Table 6: Summary of the means of the level of confidence of participants in applying public health skills (N=43)

MSc PH Skills	Mean *	SE	95% Confidence Interval		Percentage responding 'confident' and 'very confident' (%)
Epidemiology/social statistics	2.7	0.17	2.36	3.04	65
Critical appraisal	3.1	0.12	2.84	3.36	86
Multidisciplinary thinking	3.1	0.14	2.82	3.38	81
Research skills	3.3	0.12	3.05	3.55	90
Academic writing	3.0	0.16	2.68	3.32	84
Public health economics analysis	2.2	0.15	1.90	2.50	36
Policy analysis/development	2.6	0.16	2.27	2.93	59
Leadership and systems thinking	2.9	0.15	2.59	3.21	74
Development of online communication platforms	2.2	0.2	1.79	2.61	47

*SE: standard error; *Mean on a five-point Likert-scale with 0: not applicable; 1: "not confident"; 2: "somewhat confident"; 3: "confident"; 4: "very confident", in applying the outlined MSc PH skills to their current responsibilities after completion of the UWE MSc programme. Percentages for "confident" and "very confident" ratings combined.*

Participants' evaluation of the modules of the MSc PH programme

To assess the relevance of the various modules that have been delivered over the years to equip students with the necessary skills to practice their careers after the programme, participants were asked to rate the various modules of the programme in terms of their relevance to their job roles. The programme has been reviewed over the years to meet the changing international public health terrain and, as such, not all participants shared in the experiences of modules that were reviewed. The common modules relevant to the public health experiences of the participants were health promotion (mean rating [SE]=3.3[0.16], 95% CI: 2.97-3.63) and the dissertation (3.3[0.16], 95% CI: 2.98-3.62). Table 7 summarises the mean ratings of the relevance of the various modules. Overall, the UWE MSc PH programme was rated highest (3.4[0.12], 95% CI: 3.15-3.65) in terms of its relevance to the public health experiences of the participants. The overall Cronbach's alpha coefficient of internal consistency of the Likert-scale scores was very satisfactory ($\alpha=0.93$).

Table 7: Relevance of the MSc PH modules to the public health experiences of participants (N=43)

MSc PH Module	Mean*	SE	95% Confidence Interval		Percentage responding 'relevant' and 'very relevant' (%)
Introduction to Public Health	3.1	0.19	2.72	3.48	82
Health Protection	3.0	0.18	2.63	3.37	67
Epidemiology of Non-Communicable Diseases	2.9	0.21	2.47	3.33	75
Public Health Economics	2.4	0.20	2.00	2.80	53
Health Promotion	3.3	0.16	2.97	3.63	83
Leadership for Public Health	2.9	0.21	2.48	3.32	74
Public Health Policy and Politics	3.0	0.17	2.66	3.34	75
Qualitative Health Research	3.1	0.2	2.71	3.49	76
Quantitative Health Research	3.1	0.18	2.73	3.47	74
Dissertation	3.3	0.16	2.98	3.62	83
Overall MSc programme	3.4	0.12	3.15	3.65	89

*SE: standard error; *Mean on a likert scale with 0: "not applicable"; 1: "Irrelevant"; 2: "somewhat relevant"; 3: "relevant"; 4: "very relevant" MSc modules to the public health experiences of the participants after completion of the UWE MSc programme. Percentages for "relevant" and "very relevant" ratings combined.*

Continuing Professional Development of participants

With regards to the Continuing Professional Development (CPD) activities that participants were involved in after the MSc, data on the type of CPD and research work undertaken by participants were analysed. Out of 47 participants, 32 (68%) were involved in several Continuing Professional Development (CPD) activities following graduation. The commonest forms of CPD were self-directed and e-learning based. Other forms of CPD included seminars, conferences, work-based in-service training and voluntary work. The least common form of CPD engaged in by participants was in the area of institutional formal training, such as short certificate courses. Figure 3 summarizes the forms of CPD activity participants involved in after graduation.

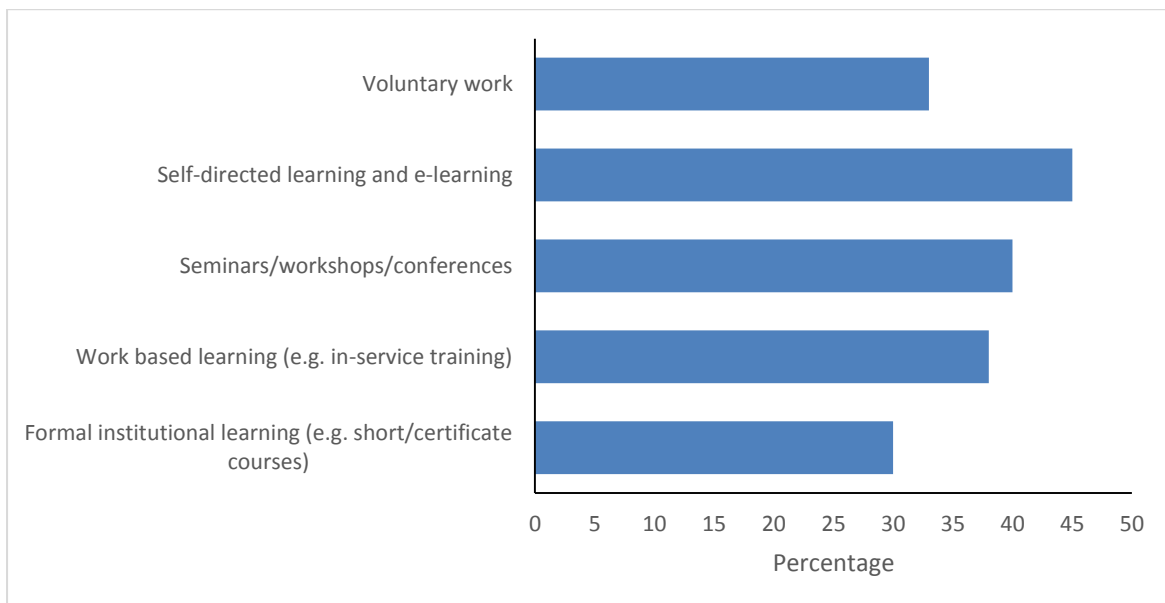


Figure 3: Chart of CPD involvement of alumni after the programme (N=32). Multiple responses were allowed.

In terms of research publications, out of 40 participants, 19 (48%) had undertaken one form of research work after graduation. Nine (23%) reported having successfully published their research or had made a significant contribution to a publication in the public domain following graduation. Eight (20%) reported that they were still writing up work and 5% had submitted for publication. Twenty-one participants (52%) had not published any work.

Among the study participants who published from a research project, or who were at various stages of research publication, research articles (39%) were the most common form of research work published, written up or submitted for publication. Other common outputs included programme technical report(s) (21%), research articles or conference papers drawn from the dissertation (18%), other conference paper(s) (15%) and policy briefs (7%). Figure 4 summarises the various forms of research undertaken by the participants after graduation.

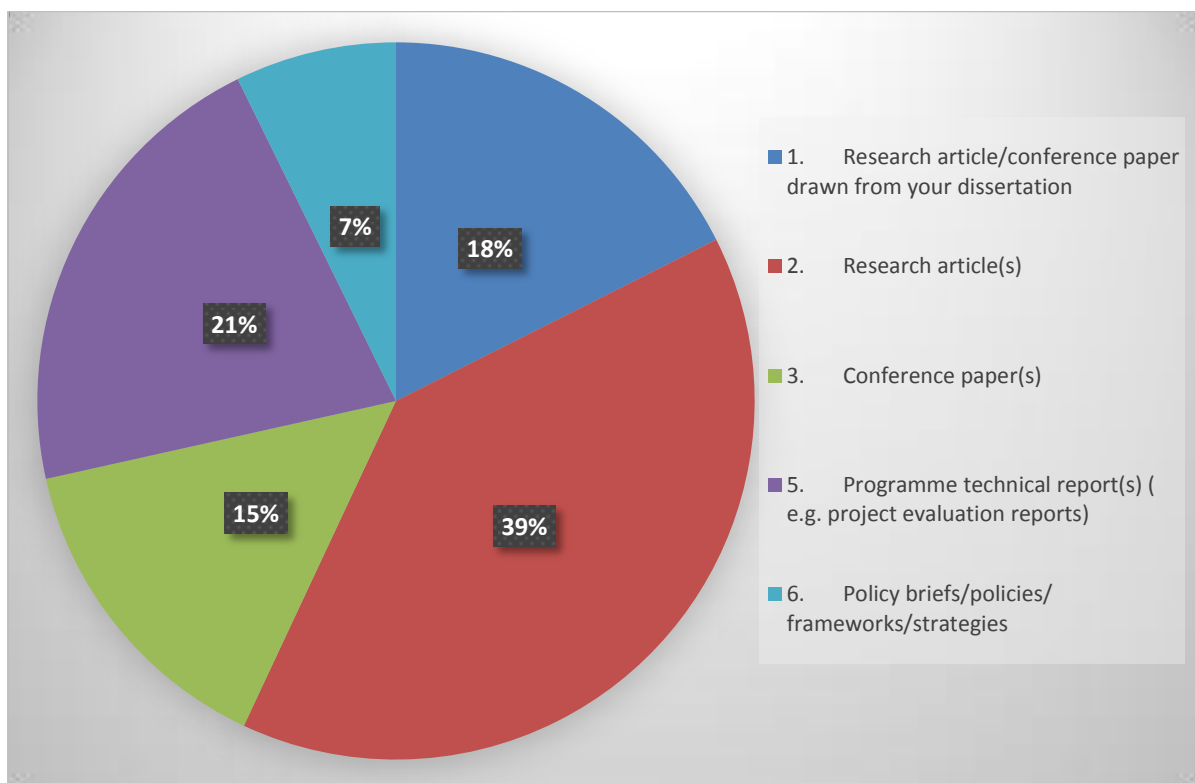


Figure 4: Summary of the forms of research undertaken by participants after graduation.

Thematic analysis of the qualitative results

This section presents a thematic analysis of the open-ended online survey (OS) questions and 10 follow-up interviews (FI). The results were clustered under three themes: achievements, challenges, and gaps and recommendations.

Achievements

Twenty-one (45%) responses on achievements after the MSc programme were received from the online survey. These achievements are presented in three categories. First, a main achievement to most participants was successfully securing public health related jobs and/or achieving promotions leading them to have more responsibilities. For example, one participant who was subsequently working in an international organisation recounted:

“I have had job opportunities with WHO, UNICEF In country; [I] have managed many projects from Global Fund to GAVI” (OS 37).

Other participants had management roles in national or international projects, while some reported increased teaching roles in academic institutions.

Second, some alumni felt that the MSc had equipped them with relevant knowledge and skills that increased their interest in public health and/or made them more confident within their work.

“I am more confident in my work; I have a keen interest in public health and my current role involves health promotion” (OS 10).

Third, a number had been awarded PhD studentships in their home countries or abroad and were at different stages of study.

“A major accomplishment since obtaining my MSc Public Health degree is a studentship to undertake my PhD research degree, which I have recently completed” (OS 2).

Contribution of the MSc Public Health to the achievements of participants

Through the follow-up interviews, we sought to understand the aspects of the MSc that contributed to these achievements. One aspect that was considered important in making successful applications and useful in terms of participants' current employment was the knowledge and skills acquired from the various modules. Specific transferable skills mentioned were critical analysis, academic writing, presentation and developing a website.

I think maybe the health promotion ... understanding public health and policy [modules] ...

Because when I attended the interviews, most of the things they wanted [one to] know were an understanding around those things [...] the MSc experience gave me that kind of leverage.

I had that confidence that, OK, I can do this (FI, Female, 2014 graduate).

Every module came with a special sort of assessment that would enhance your knowledge, enhance your skill about something, so they all did contribute [to successful applications] (FI, Female, 2015 graduate).

Another aspect that some participants felt contributed to their current achievements was work experience gained during the MSc programme. This was mainly through placements or internships.

I did my dissertation there [Public Health England] while analysing secondary data ... That gave me the experience in analysing data and working with a public health institution, and I think that was an important addition to my MSc studies. So, I knew that was the most important aspects of the MSc for me, interning at the Public Health England (FI, Male, 2014 graduate).

Participants, who had taken up leadership roles, especially in Peer Assisted Learning (PAL) or university related roles such as being a student ambassador, felt this had contributed towards successful applications and in gaining new transferable skills.

Participating in PAL and being a PAL leader helped in management, leading discussions, even focus groups ... moderating discussions. I gained skills that I am even applying now ... just

moderating a group discussion. So, I thought PAL is an important part of the programme (FI, Male, 2014 graduate).

Some participants who participated in the follow-up interviews found certain aspects of the programme to be especially beneficial; these included PAL sessions, study skills support sessions and the opportunity to undertake a mock exam under simulated conditions.

One thing that UWE did, which I like, is they introduced the study skills by Jane Saville, and it was very helpful, it was really helpful. Then one other thing they did at the beginning of the programme ... they did what we call ... well I call it mock exam or a mock test [...] to check your ability to answer questions, to check your ability to analyse, to criticise, to introduce you to what is expected of you. And the PALS too, you know, Peer Assisted Learning – that is also one good thing that UWE public health does for public health students to kind of help them (FI, Female, 2016 graduate).

Challenges

Thirteen (28%) participants reported various challenges regarding subsequent career development. Unemployment was a key challenge, especially in terms of finding a public health related paid job. Some had resorted to volunteering to gain experience in the public health field, while others had taken up jobs that were not public health related:

Although I got a job after my masters, I found it hard changing jobs or progressing. When I left my employment two years later, I could not find a public health related job for up to a whole year. This pushed me to seek another training or degree which I completed in nursing (OS 11).

One major challenge is securing a job after graduation. It is exactly one year since I graduated, but haven't secured a paid job yet. I've been working as a volunteer since my graduation and all effort to secure a paid job in a public health establishment has proved abortive (OS 13).

It was reported that lack of accreditation of the MSc PH in some settings such as the United States of America (USA) contributed to limited opportunities for employment.

“Due to the lack of accreditation from the Council on Education for Public Health (CEPH), job opportunities in the US are limited for alumni from UWE MSc Public Health” (OS 6).

Some participants mentioned specific challenges relating to their post-graduation roles. One graduate had found it a struggle to manage a range of roles and responsibilities, and to deal effectively with different stakeholders in their current work:

“Managing workload and time to accommodate research, teaching, and a CPD course - all essential for career development and progression” (OS 1).

Other challenges raised by individual participants included the inability to maintain contact with UWE and with academics in the department after graduation, and the inability to be registered as a public health practitioner overseas when not having a medical background. While such challenges were not directly related to the MSc programme, this suggests that developments could be introduced to prepare students better for future employment, especially in terms of securing relevant and useful work experience whilst studying, which is discussed in the next section.

Gaps and recommendations

Twenty-four (51%) participants expressed opinions on areas that they felt would benefit from improvement in the programme, especially in terms of career development for alumni. Follow-up interviews were particularly useful in exploring perceived gaps in the MSc experience. Firstly, it was suggested that limited opportunity to gain employment experience during the programme was a key gap, leading to reduced chances of securing a future job in public health. Participants were unanimous in their recommendation for more public health employment opportunities for international students to gain experience during the programme via one or a combination of placements, shadowing and mentorship. For instance, one respondent commented:

I think those three things – doing placements, shadowing other public health people who have gone ahead or [who are] working in public health, and then also doing a mentorship programme ... so, while you [are] doing your course, you can have those three experiences. [...] that, I think, was one of the gaps that was missing in searching for a new job, because I lacked the experience and I lacked the technical know-how and that gap made it difficult for me, or other people had advantage over me because they had worked in public health for longer (F1, Male, 2007 graduate).

Secondly, some participants felt that limited practical experience in the research methodology modules – quantitative and qualitative – was a gap in the programme. As such, students were not adequately exposed to data analysis tools such as Statistical Package for Social Sciences (SPSS) and NVivo during the programme. Participants thought that integration of use of these tools into the programme would better prepare MSc graduates for the job market:

The use of NVivo, the use of SPSS, I feel that if they introduce it to students the way they introduce WordPress to students [for health promotion] – students who [... have not ...] worked in any public health establishment before doing their masters programme – they will have the feel of it, they will know what it means to use SPSS, they will know what it means to use NVivo, because you have integrated it [in the programme]. Even if it means simulation, simulate ways of students to gather data to use SPSS and NVivo, so that they can analyse those data, then also present their data to their peers, present their data to lecturers. That way, students have the feel of it.... When you apply for jobs, and they ask for these skills and this knowledge, you can confidently state that you have it, you know? (F1, Female, 2016 graduate).

Also in relation to research methodology, some participants felt that the current quantitative health research module was not sufficiently data intensive for some roles in public health, suggesting that optional modules could be made available for students who felt they needed more statistical

training:

... Create an opportunity where people can further their knowledge in that aspect [advanced statistics], rather than taking modules that they know they might not [need] (FI, Female, 2015 graduate).

Thirdly, some participants appreciated that efforts were made to provide an international focus within modules, but felt that still more could be done to internationalise the curriculum:

Unless things have changed for now, they tried to kind of, will I say, internationalise the programme, but not to a very large extent because you see things being taught, experiences being [discussed] about Public Health England – what happens in the UK ... And somebody like me, who comes from Africa, how am I supposed to implement what happens in England in my country? (FI, Female, 2016 graduate)

Illustrations, case studies and group work should not be too UK-centric or built around experiences of Western public health systems. There should be more treatises of experiences of other public health systems, particularly in developing countries. (OS 33)

Apart from having an international focus within modules, some participants felt that the University should increase its international partnerships and collaborations. Research collaborations with research institutions in students' home countries, for example, would make it easier for international students to undertake their dissertations there.

Fourthly, some participants felt that the programme could expand the range of modules offered:

More training in healthcare management, programme management, health informatics and advanced quantitative methods used in public health. These classes could be offered as optional/elective classes for interested students. This could be done in partnership with UWE Computer Science and Management or Business School (OS 6).

The MSc programme is basically more science oriented and more around research. A lot of us come out and we don't necessarily do research work per se. Even though we do have a bit of

research, but it is not necessarily a research role. So, maybe borrowing a management module around managing projects (FI, Female, 2015 graduate).

Other recommendations included more presentation opportunities, for instance oral dissertation defence, providing more appropriate access to careers fairs and supporting students to enrol for a PhD.

Mapping of public health career structures in high and low income countries

This section presents results from the online survey (OS), follow-up interviews (FI) on public health specialist registration and public health professional association membership; and a mapping of public health career structures in 11 countries using various data sources.

Online survey and interview results

We sought data on the numbers of graduates with professional registrations, or who were public health specialists or members of public health professional organisations. In terms of professional registration, other than in public health, of the 37 participants, 18(49%) were registered professionals, 2(5%) were in the process of acquiring registration, while 17(46%) had no professional registration. Most registrations were dependent on educational background pre-MSc, the most common being Nursing and Midwifery Council registration, Pharmacy Board registration or Medical and Dental Council registration. In terms of membership of a public health professional association, 5(14%) out of the 37 participants had joined a public health professional association. Only one participant reported registering as a public health specialist. Requirement to have a medical background to be registered as public health specialists in various countries was one of the challenges mentioned. For example, one graduate commented:

“In Australia and New Zealand, [I am] unable to be a registered public health practitioner without a medical degree” (OS 28).

We further investigated public health professional organisation membership and public health specialist registration in the follow-up interviews. Some graduates had joined public health professional associations in their home countries and/or in another country. Those who had not joined gave various reasons for this, including limited knowledge of public health associations they could join and unclear eligibility criteria. Some participants had limited interest in seeking this as it did not seem a priority or the association did not meet their expectations:

I did not feel the need to become a member there [a public health professional association in one country] because they were saying, “you send this money” ... but it was opaque; I did not find it transparent. I sought information about public health membership but what I found did not convince me that I needed to become a member, so I have not joined (FI, Male, 2014 graduate).

Regarding public health specialist registration, some participants were in the process of registering; some were considering this in the future and others had not met the eligibility criteria for registration:

It was difficult [to register] as I had not fulfilled some of the criteria needed in my previous role ... I was not able to fulfil them because I did not get another job ... Such criteria include having done several audits and one or two other things like that (FI, Male, 2009 graduate).

Mapping of public health career structures in 11 countries

A 12-item template was used to map public health career structures in over 30 countries using web searching, key informants (KI) and any other relevant sources of information. We experienced several limitations, including lack of relevant websites for some countries, websites being in foreign languages, non-responses from key informants we contacted, and limited time of the project. We therefore managed to acquire complete data for 11 countries. Table 8 summarizes the various data sources for specific countries.

Table 8: Mapped countries and data sources used

Country	Data sources	Further details
Bulgaria	1 Key informant	Key informant is an academic and holds a senior position in the country's public health professional organisation
Cameroon	1 Key informant and website	Key informant is a public health professional and holds a senior position in the country's Public Health Association
Canada	3 Key informants and websites	2 Key informants working as resident physicians in Canada filled the template, which was verified by their supervisor – the third Key informant working in a senior position in a health department. Key informant answered questions in all elements and provided links to websites.
England	1 Key informant	The Key informant is an academic who had a long working experience in public health and served as a Director of Public Health
Ghana	1 Key informant and websites	Key informant is a Deputy Director in the Public Health Service and the plays a key role in the country's Public Health Association
India	1 Key informant and websites	Key informant is a director of public health services and research and has great experience of the public health system in India and other Asian countries
Kenya	Websites, 2 Key informants and the revised scheme of service for public health assistants and public health officers (2014).	One Key informant worked for the government while the other had many years of experience in the NGO sector.
Nigeria	2 Key informants and websites	Key informants are top public health policy makers who have great experiences of the public health systems in Nigeria and the West African region.
South Africa	1 Key informant and website	Key informant has great experience of the public health structures in South Africa and is one of the leaders of the Public Health Association of South Africa
Tanzania	1 Key informant	Key informant is a researcher and an experienced public health expert in Tanzania and other East African countries

USA	1 Key informant, journal article, book chapter and websites	The Key informant worked in Canada with some familiarity with the USA and was also an author of the article used as a reference. He provided verification to information obtained from websites for some elements.
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Table 9: Results of the mapping (appendix 3 contains details of the mapping for each country)

CATEGORY	Yes	No	Total
1. National government department in charge of public health	10	1	11
2. National public health professional organisation	11	0	11
3. Membership based on medical background	3*	8	11
4. Register for all public health specialists	1	10	11
5. Availability of public health specialist training programme beyond the MSc/MPH	11	0	11
6. Public specialist training programme accessible to all professionals	6*	5	11
7. Local level senior public health posts opened to all professionals	10	1	11
8. Regional level senior public health posts opened to all professionals	10	1	11
9. National level senior public health posts opened to all professionals	9	2	11
10. Position for most senior national public health opened to all professionals	4	6	10
11. Position for senior public health posts in NGOs opened to all professionals	11	0	11

** These countries have different Public health associations and training programmes for medical doctors and other public health professionals. India is the only country without a specific most senior health job title*

Most countries had an agency or a national department tasked with developing the public health workforce. While some countries had specific agencies such as the Public Health Agency of Canada, others had the ministry of health for the task. All countries had national public health professional organisation(s). While each country had an association that did not need a medical background to join, some countries with more than one association had associations that were restricted to those with medical registration. Only England had a centralised register for multidisciplinary public health professionals in parallel with the medical register. Other countries only had health discipline specific registers for professionals practising public health. Most key informants felt that their countries had training programmes for public health specialists beyond the MSc/MPH. Such training varied in various ways. For example, while in some countries it took up to five years, in some it took only two years. Further, while some such training consisted of PhDs, health management masters and field

based masters, in others it was specifically a public health/preventive medicine speciality training programme. In most countries, such training was open to professionals from non-medical backgrounds but in some it was a preserve of those with a medical background.

While some countries had senior public health posts open to professionals with a non-medical background, in other countries such posts were only held by professionals with a medical background. However, for non-governmental organisations (NGOs) in all countries, senior posts were open to professionals with any public health background except for posts that had medical responsibilities. This finding on senior posts in NGOs compares with the views of a Key informant who we interviewed and who had long working experience in international organisations including the World Health Organisation (WHO). The Key informant felt that although professionals with a medical background held senior posts in the WHO, it was not entirely a requirement for most of the posts. Instead, having a PhD and working experience would contribute to holding senior posts in most international organizations rather than merely having a medical background.

DISCUSSION

Key findings of the project

The findings of the project reveal that majority of participants were gainfully employed by international organisations, academic institutions or state agencies or were at different stages of PhD studies after the completing the MSc PH programme. The common responsibilities of participants in their careers included public health research and public health project management and most of them moved on to senior managerial roles in their jobs after obtaining their MSc PH degrees. The participants also reported increased public health career experiences in research roles; public health leadership; public health policy analysis; and in planning, implementation, and evaluation of public health interventions. All the public health skills acquired by the participants during the UWE MSc PH programme had some level of relevance to their career experiences. However, the most popular skills that were relevant to the careers of participants were critical

analysis; application of the principles of public health leadership and multidisciplinary approaches to address public health issues; research and academic writing. Study participants had confidence in applying most of these skills especially research, critical thinking, and academic writing skills as well as demonstrating public health leadership skills and the application of multidisciplinary approaches to address public health issues.

Provision of longer public health placement or field trip opportunities, optional course content on project management and advanced statistics, practical sessions on data analysis tools such as SPSS, STATA, NVivo, etc. were recommended by participants as measures that could enable international students gain the technical public health experiences that could boost their employability in the job market. Continued “internationalisation” of the programme beyond the UK/European public health system was also a key recommendation. Overall, the project revealed high satisfaction among participants in relation to the relevance and impact of the skills and knowledge they acquired during their MSc Public Health training at UWE.

Discussion of findings

The findings of this project have revealed the impact of the MSc PH programme at UWE from the perspective of the international participants. The findings that participants in this study were largely positive and confident in applying skills acquired during the programme in their current careers support the earlier qualitative study which found that international students undertaking the programme reported perceived improvements in critical thinking skills and managing complex public health issues (Bird, 2017). These findings may, in part, serve as positive evaluation of the primary goal of the programme which seeks to train “advanced critical thinkers and analysts” who are “ready and able to challenge and push boundaries in a wide range of context” (MSc Public Health course information; available at <http://courses.uwe.ac.uk/BL9412/public-health>).

The findings also support previous studies which found that research and critical appraisal skills were popular skills in the careers of alumni of Masters in Public health programmes (Dlungwane and Knight, 2016; Heller, *et al.* 2015; Gerstel, *et al.* 2013). The popularity of these skills is impressive but not surprising because these skills are necessary for successful completion of a rigorous independent dissertation necessary for the award of the masters' degree. Probably, the confidence of participants in critical thinking and research influence the research interests of the alumni in this project. Nearly half of participants in this project published or were in the process of publishing a research work done and some were currently studying for or completed a PhD; findings supported by other public health alumni studies (Gerstel, *et al.* 2013).

Nevertheless, some participants felt they were less conversant with using data analysis tools and advanced statistics as they feel the quantitative health research module was less data intensive. These comments by the participants in this project are not surprising and support the findings of other studies. An alumni survey of an MPH programme in Hanoi identified insufficient data analysis skills as an important challenge identified by alumni at their places of work (Le, *et al.*, 2007). In India, data analysis and interpretation, and experience in use of data analysis tools were identified by employers as essential skills for a public health profile (Dalal, *et al.*, 2015). It could be the case that a 15-months-masters' programme does not allow detailed coverage of advanced statistics and may take individual efforts to learn these extras after the programme. In this project, most participants reported participating in continuous professional development through self-directed and e-learning sessions to learn how to use some quantitative or qualitative data analysis tools. In this era of educational budget cuts and diminishing staff within the higher education sector (Higher Education Funding Council for England [HEFCE], 2010), it might be feasible to encourage and provide access to innovative e-learning resources for students to gain these skills. Some participants also felt skills in public health economics analysis were less relevant to their careers, as has been reported in other literature (Jeannot, *et al.*, 2012). As some participants admitted, this could be partly due to the

nature of their current professional tasks and not that health economic analysis skills are less relevant.

The majority of participants in this study were of African descent. Many countries in Africa and other LMICs still face shortage of skilled health professionals (Inke & Ingo, 2006). The perceived research skills and competencies of participants from these countries could be relevant to the human resource needs of these countries and may help scale up interventions to address some of the public health challenges. Most the world's health research is conducted in high income countries with a focus on health problems that may not be applicable to LMICs' populations (Viergever, 2013). As such, empowering alumni from LMICs with research and critical appraisal skills is a great contribution towards addressing the health inequities that remain between developed and developing countries (Haafkens, *et al.*, 2014).

The participants have been very satisfied with the relevance of the UWE MSc PH programme to their career prospects. A key attraction of the programme is the expectation that alumni enhance their employability and career development. Most participants in this project changed jobs after graduation, primarily from health care to public health, from lower positions to senior managerial roles and from national or state level to international or national levels, findings that are supported by previous studies (Dlungwane & Knight, 2016; Gerstel, *et al.* 2013).

In terms of recommendations for improvement of the MSc Public health programme, participants and key informants recognised and recommended the provision of longer duration placement opportunities for international students to gain work experience during their programme to increase their chances in the job market after graduation. Even though some participants lauded the placement they undertook with a variety of public health agencies in South-West England during their studies, they felt that the duration of the placements was too short for them to gain relevant work experience that meets public health job specifications, a finding also shared by Bird (2017).

However, while some prospective employers may employ alumni with meritorious academic achievement or technical knowledge with less or no work experience, the minimum work experience for public health alumni varies depending on the position (Dahal, *et al.*, 2015). A study conducted in India on public health job opportunities from employers' perspective found that working experience or a good technical knowledge was a requirement for some of the public health roles. The minimum work experience, on average, was 2 years for public health roles and at least 10 years for senior positions (Dahal, *et al.*, 2015). This was concurred in an interview with an experienced key informant who has worked with WHO and other international organizations. These findings suggest placement opportunities alone may not meet the work experience sought by employers. Dahal and colleagues in their study found that a lot of organizations consider short-term and certificate courses in relevant subject areas. Further, most employers were of the view that short term projects such as internships and volunteering added value to candidates' profiles (Dahal, *et al.*, 2015). Considering the limited opportunities available for placements, it might be worth considering signposting both home and international public health students to relevant short-term courses or projects that add to their profile in the job market.

The multidisciplinary nature of public health career structures varies across countries. First, in all the countries included in the mapping exercise, only England had a multidisciplinary public health register. Most alumni in this survey were only registered as professionals based on their undergraduate degree rather than the MSc., even though in most countries a Master of Public Health (MPH)/MSc in Public Health or its equivalent is the most common professional entry qualification for public health (White, 2013). Being a registered public health practitioner has been shown to professionalize the field in some settings. In England, a study by Rahman and Wills (2014) reported that managers and system leaders considered a public health register which identified and defined those fit to be public health practitioners as a necessary assurance of quality to the public. Second, in many of the countries senior public health posts in various government levels were open

to public health professionals from backgrounds other than medicine. This was more so in NGOs in all the countries mapped, where such posts were multidisciplinary. Such multidisciplinary recruitment to senior public health posts supports the multidisciplinary nature of the public health field. An MSc Public Health or its equivalent becomes an added advantage for such posts. For instance, from the online survey, many alumni mentioned holding senior public health posts in the government and NGOs. This also indicates the importance of developing internationally recognised benchmarks for the MSc PH/MPH qualification to enable greater cross-national career mobility. Agencies such as APHEA can have an important role in developing and promoting such standards. Third, public health specialty training programs differ across countries. For instance, while an MPH or its equivalent may constitute a basic part of public health specialization in some countries, in others it may be considered a full specialization. This finding compares with a review that compared public health specialty training in six countries. The speciality admissions, curricula, training strategies and employment pathways differed across the six countries (Peik, *et al.*, 2016).

Limitations of the project

This project was based on self-reported data, which is prone to social desirability bias. Hence, a follow-up study to ascertain the employers' perspectives of the competencies of the alumni and the relevance of the various public health skills might be necessary. A relatively small number of international alumni participated in this project and it may not be representative of all international students who undertook the MSc PH programme, thus these findings should be interpreted with caution. A bigger project involving MSc PH/MPH international alumni from other UK universities might put our data in a wider and more nuanced context. The 12-week project span was inadequate for detailed mapping of the public health career structures in many countries. The 11 countries mapped were based on information from key informants and websites which could not be independently verified within timeframe for the project.

Implications for further research

As the limitations identified above indicate, this study suggests several fruitful avenues for further research. A study of international employers' perspectives on the value and limitations of MSc public health programmes in preparing candidates for senior public health posts could make an important contribution to the literature and to developing employability of graduates of our own programme. It would be useful to know more about the extent to which employers rate the MSc as an entry or higher level qualification for senior public health posts and whether they see professional registration as an essential criterion. It would, particularly, be very useful to know what other countries than the UK have a multidisciplinary public health register and the value that employers do or might place upon this. The mapping exercise might be extended to a much wider range of countries which could provide a very valuable tool for UWE graduates in their career development and be an important contribution to the literature.

Recommendations of the project

- Review of the programme to address recommendations made by alumni especially on practical work in qualitative and quantitative research modules, exposure to data analysis tools and more statistics.
- Consideration of more opportunities to gain work experience during the programme through internships, longer placements, shadowing and mentorships to those willing and appropriately prepared to successfully take up such opportunities.
- Continued internationalisation of the programme through taught module content, and the university's increase in global partnerships and collaborations.

Conclusion

This study has provided useful feedback on the UWE MSc Public Health programme from the perspective of the international alumni. It provides useful information that allows reassessment of the programme structure and content in cognizance of the career needs of the international

students who undertake the programme. Overall, international alumni were satisfied with the relevance of the MSc PH training to their careers and the majority have progressed their careers as a result of achieving the MSc PH

Acknowledgements

We would like to thank all the international alumni who completed our survey and especially those who participated in the interviews. We are also very grateful to Alison Heyes, Grant Jones and Natalie Welch from the UWE Alumni Office for the very useful information and advice they provided. We appreciate the advice and background information provided by various public health experts on the second element of the project (in no order of importance):

1. Dr. Atiya Mosam
2. Chief Dominique Kondji Kondji
3. Dr. Christopher Mikton
4. Dr. Deepika Lobo
5. Mr Erastus Karani
6. Dr. Gena Grancharova
7. Dr. George Amofah
8. Mr. Haron Njiru
9. Dr. Karalyn Dueck
10. Dr. Kranti Rayamane
11. Dr. Lawrence Loh
12. Mr. Moeketsi Modisenyane
13. Dr. Rumishael Shoo
14. Dr. Vincent Ahonsi

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APPENDICES

APPENDIX 1: IMPACT ASSESSMENT OF UWE MSC PUBLIC HEALTH (MSC PH) PROGRAMME

Table 10: Frequency distribution table of the impact of UWE MSc PH on the career experiences of the alumni

Career Experience	Increased (N[%])	Remained the same (N[%])	Decrease d (N[%])	Not applicable (N[%])	Total
1. Planning/implementing/evaluating public health interventions	32(74)	4(9)	0(0)	7(16)	43
2. Administration/management functions	22(52)	11(26)	2(5)	7(17)	42
3. Leadership role	31(72)	7(16)	1(2)	4(9)	43
4. Research	30(70)	9(21)	1(2)	3(7)	43
5. Teaching/training	24(57)	6(14)	0(0)	12(29)	42
6. Job grade	21(50)	7(17)	2(4)	12(29)	42
7. Salary scale/remuneration	21(51)	7(17)	2(5)	11(27)	41
8. Policy analysis/formulation/development	32(74)	2(5)	0(0)	9(21)	43
9. Clinical work	10(24)	6(14)	4(10)	22(52)	42

N= number of respondent to the likert-scale rating. Percentages rounded off to nearest digit

Table 11: Frequency distribution table of the relevance of UWE MSc PH skills

MSc Public Health Skills	Very relevant (N[%])	Relevant (N[%])	Somewhat relevant (N[%])	Irrelevant (N[%])	Not applicable (N[%])	Total
1. Epidemiology/social statistics	19(45)	9(21)	9(21)	0(0)	5(12)	42
2. Critical appraisal/evidence based decision making	23(54)	14(33)	1(2)	1(2)	4(9)	43
3. Identifying factors that influence public health/multidisciplinary thinking	24(57)	12(29)	2(5)	1(2)	3(7)	42
4. Research skills gained during dissertation	24(56)	9(21)	5(12)	2(5)	3(7)	43
5. Academic writing	22(51)	9(21)	8(19)	1(2)	3(7)	43
6. Public health economics analysis	9(21)	11(26)	13(30)	3(7)	7(16)	43
7. Policy analysis/development	15(36)	14(33)	5(12)	4(10)	4(10)	42
8. Leadership and systems thinking	22(51)	14(33)	5(12)	0(0)	2(5)	43
9. Development of online communication platforms	10(23)	11(26)	11(26)	3(7)	8(19)	43

N= number of respondent to the likert-scale rating. Percentages rounded off to nearest digit

Table 12: Frequency distribution table of the confidence levels of alumni in using UWE MSc PH skills

MSC Public Health Skills	Very confident (N[%])	Confident(N[%])	Somewhat confident(N[%])	Not confident(N[%])	Not applicable(N[%])	Total
1. Epidemiology/social statistics	10(24)	17(41)	11(26)	1(2)	3(7)	42
2. Critical appraisal/evidence based decision making	13(30)	24(56)	4(9)	1(2)	1(2)	43
3. Identifying factors that influence public health/multidisciplinary thinking	15(36)	19(45)	6(14)	1(2)	1(2)	42
4. Research skills gained during dissertation	17(40)	21(50)	3(7)	0(0)	1(2)	42
5. Academic writing	12(29)	23(55)	4(10)	0(0)	3(7)	42
6. Public health economics analysis	3(7)	12(29)	20(48)	4(10)	3(7)	42
7. Policy analysis/development	7(17)	18(42)	12(29)	2(5)	3(7)	42
8. Leadership and systems thinking	11(26)	20(48)	8(19)	1(2)	2(5)	42
9. Development of online communication platforms	6(14)	14(33)	10(24)	5(12)	7(17)	42

N= number of respondent to the likert-scale rating. Percentages rounded off to nearest digit

Table 13: Frequency distribution of the rated relevance of the MSc PH programme and the modules

MSc PH Module	Very relevant(N[%])	Relevant(N[%])	Somewhat relevant(N[%])	Irrelevant(N[%])	Not applicable(N[%])	Total
1. Introduction to Public Health	20(47)	15(35)	3(7)	1(2)	4(9)	43
2. Health Protection (Communicable Disease Control)	19(44)	10(23)	10(23)	1(2)	3(7)	43
3. Epidemiology of Non-Communicable Diseases (Applied Epidemiology)	21(49)	11(26)	4(9)	1(2)	6(14)	43
4. Public Health Economics	10(23)	13(30)	12(28)	2(5)	6(14)	43
5. Health Promotion	24(57)	11(26)	4(10)	1(2)	2(5)	42
6. Leadership for Public Health	19(45)	12(29)	5(12)	1(2)	5(12)	42
7. Public Health Policy and Politics (Public Policy)	17(40)	15(35)	7(16)	2(5)	2(5)	43
8. Qualitative Health Research	23(54)	9(21)	6(14)	1(2)	4(9)	43
9. Quantitative Health Research	22(51)	10(23)	7(16)	1(2)	3(7)	43
10. Dissertation	25(58)	12(28)	3(7)	1(2)	2(7)	43
11. Overall MSc Public Health Programme	23(54)	15(35)	3(7)	2(5)	0(0)	43

N= number of respondent to the likert-scale rating. Percentages rounded off to nearest digit

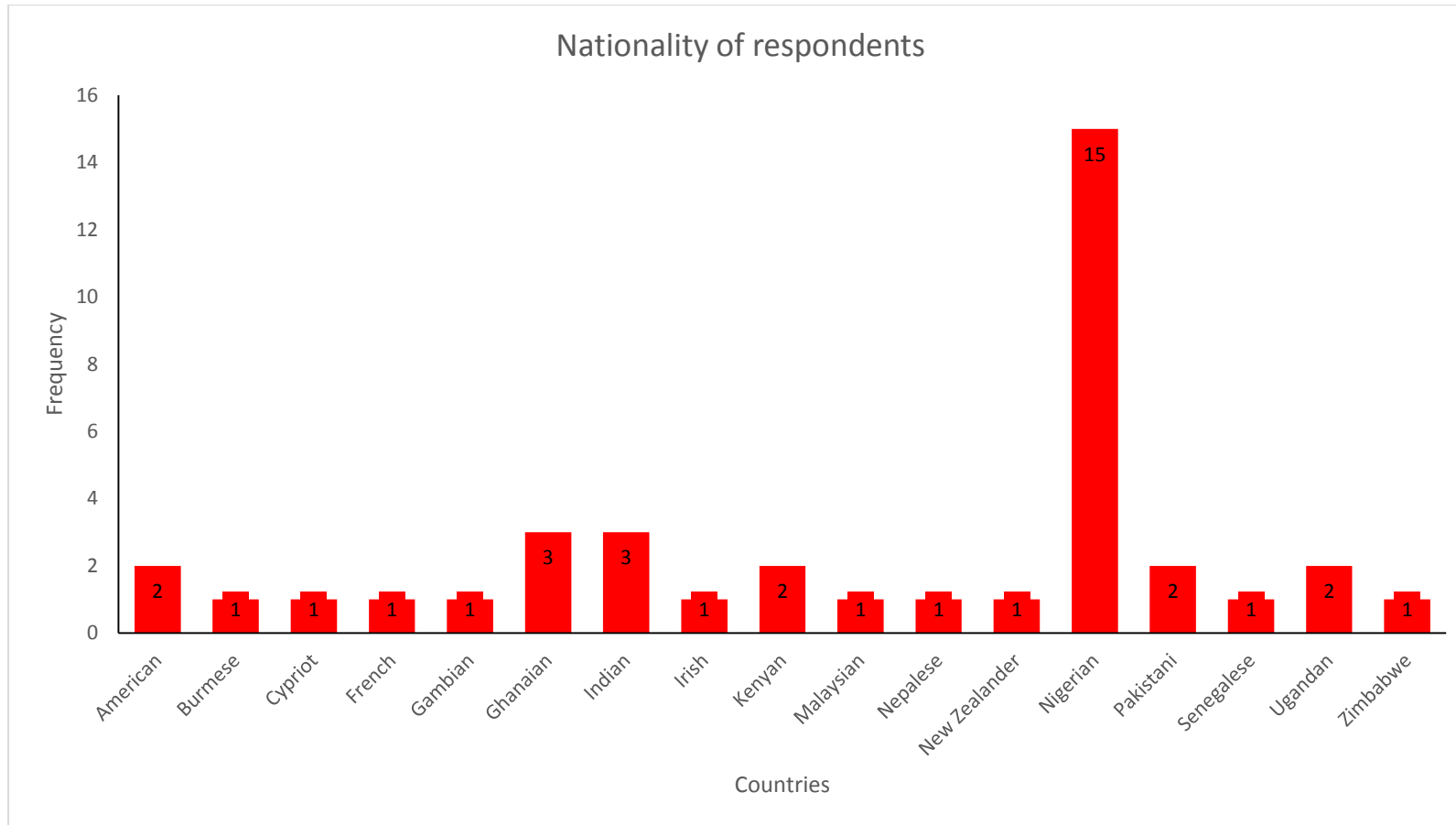


Figure 5: Bar chart of the nationality of respondents (N=39)

APPENDIX 2: COMPARISON OF THE CAREER AND JOB TITLES OF ALUMNI BEFORE AND AFTER THE MSC PH PROGRAMME

Table 14: Career and job title shift upon before and after the MSc PH programme

Job title before MSc	Job title after MSc	Job grade	Leadership	Salary scale	Research
Nursing Team Leader Band 6	Self-employed	N/A	Increased	N/A	Increased
Student	Deputy manager- Retail	-	-	-	-
Student	Public Health Intelligence Analyst	Increased	Increased	Increased	Increased
Local Government Inclusion Officer	PhD student	N/A	Increased	N/A	Increased
Medical Representative	Volunteer	-	Increased	-	Increased
Classroom teacher	Volunteer (at WHO)	Increased	Increased	Increased	Increased
Research & Development Officer	Inspection Officer	Remained same	Increased	Remained the same	Remained the same
Community Pharmacist	Pharmacist Manager	Increased	Increased	Increased	Increased
Student	Volunteer	N/A	N/A	N/A	Increased
Health Promotion Officer	Programme Manager- Immunization	Increased	Increased	Increased	Increased
Nursing	Employed (No title)	Increased	Increased	Remained the same	Increased
Medical Officer	Senior House Officer	Increased	Increased	Increased	Increased

Table 14 (cont'd)

Job title before MSc	Job title after MSc	Job grade	Leadership	Salary scale	Research
Student	Stop Smoking Pregnancy Specialist	Decreased	Remained the same	Decreased	Remained the same
Unemployed	Nutrition Programme Consultant	N/A	Increased	Increased	Remained the same
Unemployed	PhD student	N/A	Increased	N/A	Increased
Data Quality Assessment Consultant	Private (Artiste Manager)	N/A	Increased	N/A	Increased
Clinical Effectiveness Practitioner	Integrated Care Programme Manager	Increased	Increased	Increased	Remained the same
Medical Officer	Public Health Specialist	Remained same	Increased	Remained the same	Increased
Social Worker	Hospital Administrator	Increased	Increased	Increased	Remained the same
Dental Surgeon- Private Practice	Dental Surgeon- Private Practice	Remained same	Increased	N/A	N/A
Intern	Research Monitoring & Evaluation Officer	Increased	N/A	Increased	Increased
Intern	PhD student	Increased	Increased	Increased	Increased
Biomedical Scientist	Unemployed	Remained same	Increased	Increased	Increased
Health Tutor	Volunteer	Increased	Increased	Increased	Increased

Table 14 (cont'd)

Job title before MSc	Job title after MSc	Job grade	Leadership	Salary scale	Research
National Youth Corp Member	Quality Improvement/Public Health Advisor	Increased	Increased	Increased	Increased
Self-employed	Monitoring & Evaluation	Increased	Increased	Increased	Increased
Administrative Manager	Volunteer	N/A	Remained the same	N/A	Increased
Intern	PhD student	Increased	Increased	Increased	Increased
Nurse Assistant	Staff Nurse	N/A	Increased	Decreased	Increased
National Youth Corp Member	Programme Officer	Increased	Increased	Increased	Increased
Registered Mental Health Nurse	Community Health & Social Care Assessor	Remained same	Remained same	Remained the same	Remained the same
Nurse	PhD student	Remained same	Remained the same	Remained the same	Increased
Laboratory Officer	Programme Officer	Increased	Increased	Increased	Increased
Sustainable Health SW Project Manager	Public Health Consultant	Increased	Remained the same	Increased	Increased
Unemployed	Research Intern	N/A	Increased	N/A	Increased
Senior Assistant Director	Research Associate	Decreased	Decreased	-	Increased

APPENDIX 3: MAPPING TOOLS OF THE PUBLIC HEALTH STRUCTURES IN VARIOUS COUNTRIES

BULGARIA

Data source: One key informant who is an academic and holds a senior position in the country's public health professional organisation. All questions were answered by the key informant

Country	Bulgaria		
Element	Yes/No	Further details	
Is there a national government department or agency tasked with developing the public health workforce?	Yes	National Centre of Public Health and analysis Faculties of Public Health at the Medical Universities in Sofia, Varna, Plovdiv, Pleven	
Is there a national public health professional organisation?	Yes	Registered in Pleven, encompasses mainly representatives from the above mentioned institutions	
If yes, is membership dependent on medical registration?	No	In Bulgaria the specialists that haven't clinical practice are not obliged to be registered in Bulgarian Physicians' Association	
Is there a register for public health specialists from backgrounds other than medicine?	No		
Is there a training programme for public health specialists beyond the MSc PH/MPH?	Yes	There are Bachelor and Master programmes in Public Health and Health Management at the Faculties of Public Health There are also Bachelor and Master programmes in Management of Health care (mainly nursing care) at the same faculties	
If yes, is the training programme open to those with backgrounds other than medicine?	Yes	In the master Programme of Public Health and Health Management that is for second master degree we accept masters in economy, law and other related specialties	

Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	
What is the job title of the most senior public health post in the country?		Minister of Health Director of Regional Health Inspection Director of the National Centre of Public health and Analysis
Is this post open to public health specialists from any background?	No	There was only one case when the Minister of Health was an economist.
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	

CAMEROON

Country	Cameroon	
Element	Yes/No	Give further details if known
Is there a national government department or agency tasked with developing the public health workforce?	No	Veracity of this response from the email enquiry is in doubt. Cameroon is one of the countries with a “Ministry of Public Health” Checked their website (www.plmi.cm) but it wasn’t accessible (under maintenance). Different enquiry has been to the ministry via a contact email retrieved from WHO’s website (http://www.who.int/pmnch/about/members/database/cameroon/en/) No feedback from ministries. Source: key informant via email
Is there a national public health professional organisation?	Yes	Cameroon Public Health Association Source: key informant via email
If yes, is membership dependent on medical registration?	No	Source: key informant via email
Is there a register for public health specialists from backgrounds other than medicine?	No	Source: key informant via email
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	

If yes, is the training programme open to those with backgrounds other than medicine?	No	
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	No	Source: key informant via email
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	No	Source: key informant via email
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	Needs verification via phone call
What is the job title of the most senior public health post in the country?	-	Directorate at the Ministry of Health Source: key informant
Is this post open to public health specialists from any background?	No	Open to only public health physicians Source: key informant
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	Source: key informant

CANADA

Data sources: 3 Key informants and websites. 2 informants working as resident physicians in Canada filled the template, which was verified by their supervisor – the third informant working in a senior position in a health department. Informants answered questions in all elements and provided links to websites.

Country	Canada	
Element	Yes/No	Further details
Is there a national government department or agency tasked with developing the public health workforce?	Yes	<ul style="list-style-type: none"> • <i>Public Health Agency of Canada (PHAC)</i> • PHAC works to advance the recommendations of the 2005 report, Building the Public Health Workforce for the 21st Century: A Pan-Canadian Framework for Public Health Human Resources Planning (also known as the Public Health Human Resources Framework). http://www.phac-aspc.gc.ca/php-ppsp/pphw-eng.php • PHAC hires field epidemiologists and public health officers—specialists with advanced degrees in public health—and places them in organizations across the country. These programs mentor and train the next generation, strengthen the workforce, and help organizations address particular public health needs. • PHAC has developed Core Competencies for public health workforce in Canada http://www.phac-aspc.gc.ca/php-ppsp/ccph-cesp/about_cc-apropos_ce-eng.php
Is there a national public health professional organisation?	Yes	<i>Canadian Public Health Association (CPHA)</i>
If yes, is membership dependent on medical registration?	No	<ul style="list-style-type: none"> • CPHA membership is voluntary and members include public health professionals working in policy, practice and research as well as students/trainees and other individuals committed to supporting public health and health equity
Is there a register for public health specialists from backgrounds other than	No	<ul style="list-style-type: none"> • Each health discipline may have its own registry of professionals practicing public health. For example: registered nurses may have a registry of public health nurses, public health inspectors have their own registry. However, there is no centralized registry of all public health professionals in Canada combined

medicine?		<ul style="list-style-type: none"> There is no registry to capture public health professionals (for example public health policy analysts) that are not part of a regulated body in Canada
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	<ul style="list-style-type: none"> <i>Royal College of Physicians and Surgeons of Canada specialization in Public Health and Preventive Medicine</i> Public health physician specialists in Canada complete a five-year Public Health and Preventive Medicine residency program to meet required training and pass exams for FRCPC specialization granted by the Royal College of Physicians and Surgeons of Canada
If yes, is the training programme open to those with backgrounds other than medicine?	No	<ul style="list-style-type: none"> The Public Health and Preventive Medicine speciality training in Canada is open only to medical doctors, via the Canadian Resident Matching Service (CaRMS) system: http://www.carms.ca/en/residency/r-1/eligibility-criteria/
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	<ul style="list-style-type: none"> Most senior posts such as Commissioner of Health and the Director positions of various public health programs within local health units are open to people of any discipline background, though preference is given to people with experience in health / healthcare. However, some senior posts such as medical officer of health (MOH), Associate Medical officer of Health (AMOH), and Medical Health Officer (MHO) have medical responsibilities and so are restricted to medical doctors usually with a FRCPC specialization in public health and preventive medicine
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	<ul style="list-style-type: none"> Senior public health positions within provincial governments are typically open to public health specialists from any background; however, some senior public health posts may require medical background
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	<ul style="list-style-type: none"> Senior public health positions within federal government are typically open to public health specialists from any background; however, some senior public health posts may require medical background.

What is the job title of the most senior public health post in the country?		<ul style="list-style-type: none"> Canada's Chief Public Health Officer: http://www.phac-aspc.gc.ca/cpho-acsp/index-eng.php
Is this post open to public health specialists from any background?	Yes	<ul style="list-style-type: none"> "The Chief Public Health Officer shall be a health professional who has qualifications in the field of public health (statutory); this could include a licensed health professional qualified in medicine, nursing, or other profession in the field of public health" – see job posting: https://www.appointments-nominations.gc.ca/slctnPrcls.asp?menu=1&lang=eng&SelectionProcessId=BCB0401B-73C5-4850-BDFA-38D86EC1B651
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	<ul style="list-style-type: none"> Any public health background would be eligible for senior public health posts within non-governmental organizations, unless the job description required performance of medical acts within the specified scope of practice, which is province-specific, such as the Regulated Health Professions Act in Ontario: https://www.ontario.ca/laws/statute/91r18

ENGLAND

Country	England	
Element	Yes/No	Give further details if known
Is there a national government department or agency tasked with developing the public health workforce?	Yes	Public Health England – one of its responsibilities is to help develop the specialist public health workforce. Health Education England Also in UK: NHS Education Scotland/Scottish Government Public Health Agency, Northern Ireland Public Health Wales
Is there a national public health professional organisation?	Yes	Faculty of Public Health (covers all of the UK not just England) Also in UK: Chartered Institute of Environmental Health Royal Society for Public Health
If yes, is membership dependent on medical registration?	No	FPH membership is open to those from any background but must be a specialty registrar or have passed the Faculty exams
Is there a register for public health specialists from backgrounds other than medicine?	Yes	General Dental Council UK Public Health Register
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	Public Health Specialty Training Programme

If yes, is the training programme open to those with backgrounds other than medicine?	Yes	Yes, medical and non-medical candidates are considered equally
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Yes, including Director of Public Health, Consultant in Public Health and other PH roles in local authorities
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes and maybe no	There is no state or regional level of government in England, but there are regional and centre directors within Public Health England. Centre director roles are open to public health specialists from any background. At the moment all regional directors are from medical backgrounds but this is not necessarily policy.
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes and no	Many senior posts are open to people from a range of backgrounds, for example the chief executive of PHE is non-medical. Some senior posts have medical responsibilities and so are restricted to doctors.
What is the job title of the most senior public health post in the country?	-	The Chief Medical Officer is essentially the most senior PH post in the country.
Is this post open to public health specialists from any background?	No	No, the CMO post must be held by a doctor.
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	Yes, for example senior posts in the FPH are open to members from any discipline although to date all the presidents of FPH have been medical.

GHANA

Country	Ghana	
Element	Yes/No	Give further details if known
Is there a national government department or agency tasked with developing the public health workforce?	Yes	<p>Ministry of Health(MOH) headed by a politically appointed minister of health (no professional preference required). Designated autonomous national agencies under the ministry of health are tasked with the training and regulation of practice of public health workforce. Agencies include: Ghana and Ghana Health Service (provision of primary health care), Ghana Medical Association (accreditation and registration of medical/dental professionals), Ghana College of Surgeons and Physicians(specialist training programme for Drs) and Nurses and Midwives Council (accreditation and registration of community/public health nurses)</p> <p>Key informant and websites</p>
Is there a national public health professional organisation?	Yes	<p>Public Health Nurses Group (affiliate group to the Ghana Registered Nurses association). Ghana Public Health Association (open to all professionals -launched in May, 2011) but not much information is available on its activities. Headed by a deputy director of GHS.</p> <p>Source: Key informant and websites</p>
If yes, is membership dependent on medical registration?	No	It is a non-governmental, multi-disciplinary, civil society organisation open to all professionals (medical and non-medical professionals).
Is there a register for public health specialists from backgrounds other than medicine?	No	<p>Membership of Public Health of Ghana College of Physicians and Surgeons is limited to only medical practitioners.</p> <p>Source: Key informant and websites</p>
Is there a training programme for public	Yes	Public Health Fellowship/Residency programme (2yrs)

health specialists beyond the MScPH/MPH?		Source: Key informant and websites
If yes, is the training programme open to those with backgrounds other than medicine?	No	Only for registered medical practitioners Source: Key informant and websites
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Public health post at the district level are open to all professionals (e.g. District Director of Health Services or district public health nurse) Source: Key informant and websites
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	Senior public health posts at the regional directorates or level are open to only medical public health specialist (e.g. Director of Public Health must be medical doctor with public health specialisation). Source: Key informant and websites
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	Senior public health posts at the national level are open to only medical public health specialists Source: Key informant and websites
What is the job title of the most senior public health post in the country?	-	Director-General of GHS Source: Key informant and websites
Is this post open to public health specialists from any background?	Yes	The director of public health post is currently open to only doctors with public health specialisation. Source: Key informant
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	

INDIA

Source of data: One key informant provided clarification to information obtained from the internet

Country	India	
Element	Yes/No	Further details
Is there a national government department or agency tasked with developing the public health workforce?	Yes	Ministry of Health and Family Welfare Medical Council of India Public Health Foundation of India (PHFI)
Is there a national public health professional organisation?	Yes	Indian Public Health Association (IPHA)
If yes, is membership dependent on medical registration?	No	IPHA- Open to doctors
Is there a register for public health specialists from backgrounds other than medicine?	No	
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	Doctorate in preventive and social medicine (3 years)
If yes, is the training programme open to those with backgrounds other than medicine?	No	Only open to doctors
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Managerial positions open to all those with an MPH

Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	No	
What is the job title of the most senior public health post in the country?		No single post, Commissioners which are separate senior posts per program
Is this post open to public health specialists from any background?	No	
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	MPH is an added advantage

KENYA

Data sources: Websites, 2 key informants and the revised scheme of service for public health assistants and public health officers (2014). One key informant worked for the government while the other had many years of experience in the NGO sector.

Country	Kenya		
Element	Yes/No	Further details	
Is there a national government department or agency tasked with developing the public health workforce?	Yes	1) Ministry of Health; 2) Public Health and Technicians Council (PHOTC) whose aim is to implement measures geared towards quality training and retention of public health professionals in order to continually improve health work force performance. 3) There is a plan to develop a National Public Health Institute (NPHI) with the Directorate of Preventive and Promotive Health Services as the hub for its development. Source: Websites and key informants	
Is there a national public health professional organisation?	Yes	Association of Public Health Officers - Kenya (APHOK); Public Health Society of Kenya (PHSK) Source: Websites and key informants	
If yes, is membership dependent on medical registration?	No	For APHOK membership is open to any person who is supportive to the Associations' objectives. The Public Health Society (PHSK) brings together professionals with a passion for public health. Source: Websites	
Is there a register for public health specialists from backgrounds other than medicine?	Yes	Public health officer and technicians registration and licensure by PHOTC Source: Websites and key informants	
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	1) PhD 2) The Kenya Field Epidemiology and Laboratory Training Programs (K-FELTP), a two-year epidemiology and laboratory management training program, was established in 2004 as collaboration between CDC-Kenya, the Ministry of Public Health and Sanitation (MOPHS), and the Jomo Kenyatta University of Agriculture and Technology. The intense program provides residents with training and mentorship as they conduct in-service projects in outbreak response, disease surveillance, laboratory management, and public health research. Source: Websites and key informants	

If yes, is the training programme open to those with backgrounds other than medicine?	No	The K-FELTP program brings together physicians, veterinarians, laboratory scientists, Nurses and environmental health professionals who are trained together and given the skills to effectively address the ever-growing threats of zoonotic diseases, Non communicable Diseases (NCD's) and other emerging and re-emerging infections. Source: Website
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Most senior public health posts at sub county level are open to individuals with a background in Environmental health/public health or other health backgrounds Source: Key informants and revised scheme of service (2014)
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	At county level senior public health are mainly open to individuals with a Public health/environmental health background or other health background. The Deputy Director - Preventive and Promotive Services is open to individuals who have a health background, with an MPH or equivalent and registered by relevant regulatory body Source: Key informants and revised scheme of service (2014)
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	Senior public health posts are open to individuals with health backgrounds. Most are held by those with a background in public/environmental health Source: Key informants and revised scheme of service (2014)
What is the job title of the most senior public health post in the country?		Director - Public Health Source: Key informants and revised scheme of service (2014)
Is this post open to public health specialists from any background?	No	Open to individuals with a public/environmental health background and a Masters in public health/environmental health Source: Key informants and revised scheme of service (2014)
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	Unless the post has medical duties, other posts are open to individuals with the right skills mix. An MPH or equivalent maybe a requirement or an added advantage Source: Key informants

NIGERIA

Data for Nigeria were obtained from two key informants

Country	Nigeria		
Element	Yes/No	Further details	
Is there a national government department or agency tasked with developing the public health workforce?	No	<p>Unfortunately, the Public Health Division in the Federal Ministry of Health that would have been responsible for this only has a mandate of formulating Public health policies and guide-lines; supporting their implementation & evaluation through health promotion, surveillance and prevention of disease programme in the country</p> <p>However, Public Health Practitioners with background in Medicine can undergo continuing professional development (CPD) as organised by the Association of Public Health Physicians of Nigeria (APHPN) - accredited by the Medical & Dental Council of Nigeria (MDCN).</p> <p>Public health specialists without medical background do CPD through the Society of Public Health Professionals of Nigeria (SPHPN).</p> <p>Public health professionals without medical backgrounds but with epidemiological, research, monitoring or evaluation background, skills or job belong to the Epidemiological Society of Nigeria (ESN), also responsible for their CPD.</p> <p>Source: Key informant 1</p>	

Is there a national public health professional organisation?	Yes	There is the Association of Public Health Physicians of Nigeria (APHPN) for those with medical backgrounds, Society of Public Health Professionals of Nigeria (SPHPN) for those without medical background, and Epidemiological Society of Nigeria (ESN) for those with background in Epidemiology or research. Source: Key informant 1
If yes, is membership dependent on medical registration?	Yes & No	As outlined above
Is there a register for public health specialists from backgrounds other than medicine?	Yes	Both the SPHPN & ESN have registers of their members; however many (maybe over 50%), of public health specialists do not belong to these associations and they are not under obligation to do so by any law as of now. Source: Key informant 1
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	A significant number of Nigeria Universities offer PhD in public health. Source: Key informant 1
If yes, is the training programme open to those with backgrounds other than medicine?	Yes	A candidate needs to have an MPH or MSc Public Health to be eligible for the training programme. Source: Key informant 1
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Because most local government health interventions are in the public health domain, coupled with the shortage of medical doctors at this level of services, many of the senior officials are public health specialists without medical background. Source: Key informant 1
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	No	These are progressively open to public health specialists with medical background Source: Key informant 1
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	No	These are almost exclusively open to only public health specialists with medical background. Source: Key informant 1
What is the job title of the most senior public health post in the country?		Director of Public Health, Federal Ministry of Health Source: Key informant 1

Is this post open to public health specialists from any background?	No	Has always been a public health specialist with medical background as long as I can recall. Source: Key informant 1
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	This is becoming the norm progressively. Source: Key informant 1

NIGERIA -second key informant

Country	Nigeria	
Element	Yes/No	Further details
Is there a national government department or agency tasked with developing the public health workforce?	Yes	The Human Resources for Health (HRH) Division within the Department of Planning, Research, and Statistics at the Federal Ministry of Health – has the function for developing the health workforce in the country, including public health Source: Key informant 2
Is there a national public health professional organisation?	Yes	There is a Faculty of Public Health both at the National Postgraduate Medical College of Nigeria and at the West African College of Physicians. Each of them provides specialist training for Medical Doctors in public health. The programmes of these two institutions are not open to non-medically qualified persons. Similarly, membership of the Association of Public Health Physicians of Nigeria (APHPN) is limited to graduates of these professional public health organisations. Source: Key informant 2
If yes, is membership dependent on medical registration?	Yes	As explained above
Is there a register for public health specialists from backgrounds other than medicine?	No	Though the HRH Division within the Federal Ministry of Health is aware that public health specialists with backgrounds other than medicine are trained every year both from within and outside the country.

		Source: Key informant 2
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	There is specialist public health training for doctors under the auspices of the National Postgraduate Medical College of Nigeria and the West African College of Physicians Source: Key informant 2
If yes, is the training programme open to those with backgrounds other than medicine?	No	Those with backgrounds other than medicine are not admitted into the training programmes of these colleges. Source: Key informant 2
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Non-medical public health specialists occupy senior public health posts (including that of the Director of Health) in many Local Governments. However, positions with job titles such as Medical Officers of Health (MOH) or related nomenclature at this level are reserved for those with basic medical degrees. Source: Key informant 2
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	A similar situation as in the Local Government is usually seen at the State level, though it is very rare for persons with non-medical background to be appointed to the position of Director of Public Health in most States. Source: Key informant 2
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	Even at the Federal level, senior public health positions are open to public health specialists from any background. And they can rise to the level of Director in several departments or parastatal agencies – including the Department of Planning, Research and Statistics, but not as Director of Public Health at the Federal Ministry of Health Source: Key informant 2
What is the job title of the most senior public health post in the country?		Director of Public Health – Federal Ministry of Health Source: Key informant 2
Is this post open to public health specialists from any background?	No	There is no law stating that this should be so, but by convention this has been the practice over the years. Source: Key informant 2
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	Within NGOs - both national and international, public health specialists from any background can aspire to the highest positions. Source: Key informant 2

SOUTH AFRICA

Country	South Africa	
Element	Yes/No	Give further details if known
Is there a national government department or agency tasked with developing the public health workforce?	Yes	<p>National Department of Health – one of its responsibilities is for medium and long-term health workforce planning, development and management in the national health system.</p> <p>This entails facilitating implementation of the national human resources for health strategy, health workforce capacity development for sustainable service delivery, and development and coordination of transversal human resources management policies.</p> <p>Source: Key informant and website</p>
Is there a national public health professional organisation?	Yes	<p>Faculty of Public Health</p> <p>Also</p> <p>Public Health Association of South Africa (PHASA)</p> <p>The Allied <i>Health</i> Professions Council of <i>South Africa</i> (AHPCSA)</p> <p>Health Professional Association of South Africa (HPCSA)</p> <p>South Africa Pharmacy Council</p> <p>South African Nursing Council</p> <p>Source: Key informant and website</p>
If yes, is membership dependent on medical registration?	No	<p>For example PHASA membership is open to those from any background but other professional associations have their specific registration requirements.</p> <p>Source: Key Informant</p>

Is there a register for public health specialists from backgrounds other than medicine?	No	
Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	PhD in Public Health Programme Source: Key Informant
If yes, is the training programme open to those with backgrounds other than medicine?	Yes	Yes, medical and non-medical candidates are considered equally Source: Key Informant
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	Yes, including posts for Health Promotion and other PH roles in local authorities. Source: Key Informant
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	Yes, including posts for Director of Health Promotion and other PH roles in provincial health government. Provincial director roles are open to public health specialists from any background. At the moment most of the provincial directors are not from medical backgrounds but this is not necessarily policy. Source: Key Informant
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	Yes, including posts for Director of Health Promotion and other PH roles in national health government. Many senior posts are open to people from a range of backgrounds, for example the current chief director for health promotion and nutrition is non-medical. Some senior posts have medical responsibilities and so are restricted to doctors. Source: Key Informant
What is the job title of the most senior public health post in the country?	-	The Director-General: Health is essentially the most senior PH post in the country. Source: Key Informant

Is this post open to public health specialists from any background?	Yes	The current Director-General (DG) is non-medical (a pharmacist). Yes, the DG post is not from medical backgrounds but this is not necessarily policy. Source: Key Informant and website
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	Yes, for example senior posts in Right to Care, Section21 and TAC are open to members from any discipline. Source: Key Informant

TANZANIA

Country	Tanzania	
Element	Yes/No	Further details
Is there a national government department or agency tasked with developing the public health workforce?	YES	<p>Public Health workforce is a diffuse entity in Tanzania. At professional level this constitutes – Public Health Nursing, Professional Health Officer Cadre and Post graduate Public Health – Diploma and degree level.</p> <p>The Ministry of Health has primary responsibility to support and coordinate training. Training is undertaken by Schools of Public Health/Community /Nursing Medicine at Certificate, Diploma and degrees levels.</p> <p>Source: Key informant</p>
Is there a national public health professional organisation?	YES	<p>The Tanzania Public Health Association brings together public health practitioners.</p> <p>There are also legally registered Medical and Dental Registration Boards, Nursing Registration Council and Pharmacy and Poisons Registration Board.</p> <p>Source: Key informant</p>
If yes, is membership dependent on medical registration?	NO	<p>Registration of a Public Health professional course by a training institution is dependent on fulfilling requirements of Higher Education Registration Board requirements. There are now numerous programs offering Public Health Career options</p> <p>Source: Key informant</p>
Is there a register for public health specialists from backgrounds other than medicine?	NO	<p>The Tanzania Public Health Association has a register of over 4000 members. The Registrars maintain a register of additional qualifications for health professionals. There is no special register for public health professionals.</p> <p>Source: Key informant</p>

Is there a training programme for public health specialists beyond the MScPH/MPH?	Yes	These programs are mostly collaborative training programs with Universities/ Aid agencies sponsoring specific programs requested by the government of development projects. Examples include GiZ, Swedish SIDA, and Norway etc. They are mostly offered to those in teaching positions or research programmes. Source: Key informant
If yes, is the training programme open to those with backgrounds other than medicine?	YES	
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	NO	These are District / Municipal and City Public Health specialists. These are almost all with Medical backgrounds. Source: Key informant
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Rarely	
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	YES Occasionally	National Institute of Medical Research Posts, Finance and Planning positions, Nutrition, Programme management positions. Source: Key informant
What is the job title of the most senior public health post in the country?	Chief Medical Officer	
Is this post open to public health specialists from any background?	NO	Must be medically qualified by law. Source: Key informant
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	YES	These posts are not government regulated. This is the area with the largest number of non medical public health specialists. Source: Key informant

UNITED STATES OF AMERICA

Data sources: Key informant, journal article, book chapter and websites. The key informant worked in Canada with some familiarity with the USA and was also a first author of the article used as a reference. He provided verification to information obtained from websites for some elements.

Country	USA		
Element	Yes/No	Further details	
Is there a national government department or agency tasked with developing the public health workforce?	Yes	1) U.S Department of Health and Human Services - HHS (one of its programs is education and training in collaboration with National Institute of Health for some opportunities). 2) State/territorial health departments or the equivalent are involved in training/capacity building of public health professionals. 3) Association for Prevention Teaching and Research (APTR). 4) Association of Schools and Programs of Public Health (ASPPH). 5) Council on Education for Public Health (independent agency recognized by the U.S. Department of Education to accredit schools of public health and public health programs outside schools of public health). Source: Websites	
Is there a national public health professional organisation?	Yes	American Public Health Association (APHA); American College of Preventive Medicine (ACPM); Association of State and Territorial Health Officials (ASTHO); National Association of County and City Health Officials (NACCHO) Source: Websites	
If yes, is membership dependent on medical registration?	Yes and No	For APHA, members are from every discipline of public health, in every U.S. state and in countries across the globe. For ACPM, members are either active physicians or retired physicians. Non-physicians can only be subscribers. For ASTHO, members are current or past chief health officials in the states/territories. For NACCHO, every local health department is eligible for organizational membership Source: Websites	
Is there a register for public health specialists from backgrounds other than medicine?	Yes	For example, Registered Environmental Health Specialist in California Source: Websites	

Is there a training programme for public health specialists beyond the MSc PH/MPH?	Yes	Public Health and Preventive Medicine Residency Training Source: Loh et al. (2012)
If yes, is the training programme open to those with backgrounds other than medicine?	No	“Prospective PM residents must meet the same requirements as residents in all other specialties, including holding an appropriate medical degree (i.e., a degree from a U.S. or Canadian medical school, or—along with additional U.S. licensing requirements—a degree from an international medical school) and passing the United States Medical Licensing Examination.” Source: Loh et al. (2012)
Are senior public health posts at local government/city/district level open to public health specialists from any background (e.g. non-medical)?	Yes	State/ local Health Officer, “Historically, Health Officers were physicians, but some now have other graduate credentials such as a Master of Public Health (MPH) degree.” Source: Book chapter: Available from http://www.ashp.org/doclibrary/bookstore/p1725/p1725samplechapter.aspx
Are senior public health posts at state/regional government level open to public health specialists from any background (e.g. non-medical)?	Yes	Same as above
Are senior public health posts in national government open to public health specialists from any background (e.g. non-medical)?	Yes	Some directors of public health offices are from a non-medical background. For example, the current director of the Office of Adolescent Health. Source: Websites
What is the job title of the most senior public health post in the country?		Office of the Surgeon General of the United States Source: Website and key informant
Is this post open to public health specialists from any background?	No	The Surgeon General is nominated from physician candidates Source: Website and key informant
Are senior public health posts in non-governmental organisations open to public health specialists from any background?	Yes	Less restriction on having senior public health positions being occupied by public health doctors in the NGO sector. Source: Key informant

APPENDIX 4: MSC PUBLIC HEALTH PROJECT ONLINE SURVEY INSTRUMENT

I have read and understood the purpose of the UWE MSc Public Health project and give my consent to participate in the survey (Please CLICK the forward button at the bottom of each page to move to the next page)

- Yes (1)
- No (3)

Display This Question:

If I have read and understood the purpose of the project and give my consent to participate in this... Yes Is Not Selected

Are you willing for us to update the UWE Alumni database with your records?

- Yes (1)
- No (2)

Display This Question:

If Are you willing for us to update the UWE Alumni database with your records? Yes Is Selected

If Yes, please provide your convenient contact details.

- Name (1) _____
- Address/phone (2) _____
- email (3) _____

Which of the following was your undergraduate/professional educational qualification before your MSc Public Health admission?

- Medicine (1)
- Health sciences (e.g. Nursing, public/environmental health, nutrition, physiotherapy) (2)
- Biomedical sciences (3)
- Social sciences (4)
- Other (Please specify) (5) _____

How long did it take, after your undergraduate or last qualification, before you enrolled onto the MSc Public Health programme?

- 0 - 1 year (1)
- 2 - 4 years (2)
- 5 years and more (3)

What was your employment status BEFORE the MSc Public Health programme?

- Employed (full-time) (Please indicate your job title below) (1) _____
- Employed (part-time) (Please indicate your job title below) (2) _____
- Self employed (3)
- Unemployed (4)
- Intern (5)
- Volunteer (6)
- Student (7)
- Other (Please specify) (8) _____

Condition: Unemployed Is Selected. Skip To: What is your current (main) employmen....

Display This Question:

If What was your employment status BEFORE the MSc Public Health program? Unemployed Is Not Selected
And What was your employment status BEFORE the MSc Public Health program? Student Is Not Selected

Which of the following was your employer/organization/sponsor BEFORE the MSc Public Health programme?

- International body (e.g. WHO) (1)
- National ministry of health/public health department (2)
- Local or regional government/public health agency (3)
- Local health service provider (hospital or community health services) (4)
- NGO (5)
- University or other educational institution (6)
- Other (Please specify) (7) _____

Display This Question:

If What was your employment status BEFORE the MSc PH program? Unemployed Is Not Selected
And What was your employment status BEFORE the MSc PH program? Student Is Not Selected

Which of the following was/were your field(s) of work BEFORE the MSc Public Health programme? (Please select all that apply)

- Clinical care (1)
- Project management/implementation (2)
- Education/teaching (3)
- Disease prevention/health promotion (4)
- Research (5)
- Programme/project monitoring and evaluation (11)
- Emergency and disaster relief (6)
- All the above (8)
- Other (Please specify) (10) _____

What is your current (main) employment status AFTER the MSc Public Health programme?

- Employed (full-time) (Please indicate your job title) (1) _____
- Employed (part-time) (Please indicate your job title) (2) _____
- Self employed (3)
- Unemployed (9)
- Intern (4)
- Volunteer (5)
- Student (6)
- Other (Please specify) (8) _____

Condition: Unemployed Is Selected. Skip To: What are your current responsibilitie....

Display This Question:

If What is your current (main) employment status AFTER the MSc PH program? Student Is Selected

If currently a student, please select the category of studentship you belong.

- PhD studentship (1)
- Masters (Please specify) (2) _____
- Public health specialist training programme (Please specify) (3) _____
- Other (Please specify) (4) _____

Display This Question:

If What is your current (main) employment status AFTER the MSc PH program? Student Is Not Selected

And What is your current (main) employment status AFTER the MSc PH program? Unemployed Is Not Selected

Which sector does your current (main) employment/job come under?

- Public (1)
- Non-Governmental Organisation (NGO) (2)
- Academic (3)
- Private (4)
- Other (Please specify) (5) _____

Display This Question:

If What is your current (main) employment status AFTER the MSc PH program? Student Is Not Selected

And What is your current (main) employment status AFTER the MSc PH program? Unemployed Is Not Selected

Which of the following is your employer/organization/sponsor?

- International body (e.g. WHO) (1)
- National ministry of health/public health department (2)
- Local or regional government/public health agency (3)
- Local health service provider (hospital or community health services) (4)
- NGO (5)
- University or other educational institution (6)
- Other (Please specify) (7) _____

Display This Question:

If What is your current (main) employment status AFTER the MSc PH program? Unemployed Is Not Selected

And What is your current (main) employment status AFTER the MSc PH program? Student Is Not Selected

Which of the following is/are your field(s) of work AFTER the MSc Public Health programme? (Please select all that apply)

- Clinical care (1)
- Project management/implementation (2)
- Education/teaching (3)
- Disease prevention/health promotion (4)
- Research (5)
- Programme/project monitoring and evaluation (11)
- Emergency and disaster relief (6)
- All the above (8)
- Other (Please specify) (10) _____

Display This Question:

If What is your current (main) employment status AFTER the MSc Public Health programme? Unemployed Is Not Selected

What are your current responsibilities? (Please select all that apply)

- Project management/implementation (1)
- Research (2)
- Programme/project monitoring and evaluation (10)
- Teaching/training (3)
- Disease prevention/health promotion (4)
- Emergency and disaster relief (6)
- Clinical care (7)
- Other (Please specify) (8) _____
- All the above (9)

Display This Question:

If What is your current (main) employment status AFTER the MSc PH program? Unemployed Is Not Selected

And What is your current (main) employment status AFTER the MSc PH program? Student Is Not Selected

How long did it take you to get an MSc Public Health related job/position (part-time or full-time) after completion of the MSc programme?

- Less than 6 months (1)
- 6 months (2)
- 1 year (3)
- More than 1 year (4)
- I was on a study leave (5)

Display This Question:

If What is your current (main) employment status AFTER the MSc PH program? Unemployed Is Not Selected

Are you currently employed or studying in your home country or abroad?

- Home country (1)
- Abroad (Please specify) (2) _____
- Prefer not to say (3)

We would like to know the impact of the MSc Public Health programme on your career. Please tick the box that best describes changes in the following areas/functions in comparison to before the MSc programme, where applicable.

	Increased (3)	Remained the same (2)	Decreased (1)	Not applicable (0)
Planning/implementing/evaluating public health interventions (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administration/management functions (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership role (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching/training (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job grade (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salary scale/remuneration (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy analysis/formulation/development (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clinical work (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How relevant are the following skills to your current public health experience?

	Not applicable (0)	Irrelevant (1)	Somewhat relevant (2)	Relevant (3)	Very relevant (4)
Epidemiology/social statistics (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critical appraisal/evidence based decision making (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying factors that influence public health/multidisciplinary thinking (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills gained during dissertation (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic writing (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public health economics analysis (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy analysis/development (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership and systems thinking (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development of online communication platforms (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How confident are you in the following areas since completing the MSc Public Health programme?

	Not applicable (0)	Not confident (1)	Somewhat confident (2)	Confident (3)	Very confident (4)
Epidemiology/social statistics (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critical appraisal/evidence based decision making (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying factors that influence public health/multidisciplinary thinking (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills gained during dissertation (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic writing (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public health economics analysis (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy analysis/development (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership and systems thinking (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development of online communication platforms (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How relevant were the following modules to your current role or public health experience? (If you did an earlier version of the program, some modules may have changed. Please select 'Not applicable' if a module does not apply to you).

	Not applicable (0)	Irrelevant (1)	Somewhat relevant (2)	Relevant (3)	Very relevant (4)
Introduction to Public Health (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health Protection (Communicable Disease Control) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epidemiology of Non-Communicable Diseases (Applied Epidemiology) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Health Economics (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health Promotion (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership for Public Health (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Health Policy and Politics (Public Policy) (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Qualitative Health Research (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quantitative Health Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(9)					
Dissertation (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall MSc Public Health Programme (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Are you a registered or accredited professional in your home country and/or abroad?

- Yes (please state your profession in the box below) (1) _____
- In the process of registration (please state your profession in the box below) (2) _____
- No (3)

If you are registered or in the process of registration, please specify the name of the register/accrediting body.

Are you a member of a professional public health association in your home country and/or abroad?

- Yes (please state the name of the association below) (1) _____
- In the process of registration (please state the name of the association below) (2) _____
- No (3)

Are you a registered or accredited public health specialist/practitioner in your home country and/or abroad?

- Yes (please state the name of the register or accrediting body below) (1) _____
- In the process of registration (please state the name of the register or accrediting body below) (2) _____
- No (3)

Are you or have you been involved in Continuing Professional Development (CPD) after obtaining the MSc Public Health degree? (Please select all that apply).

- Formal institutional learning (e.g. short/certificate courses) (1)
- Work based learning (e.g. in-service training) (2)
- Seminars/workshops/conferences (3)
- Self-directed learning and e-learning (4)
- Voluntary work (5)
- Other (Please specify) (6) _____
- Not applicable (7)

Which of the following honorary appointments have you been awarded in addition to your main employment? (Please select all that apply).

- Visiting lecturer (1)
- Visiting research fellow (2)
- Visiting professor (3)
- Other(Please specify) (4) _____
- None (5)

Have you published or had significant input on a publication in the public domain upon completion of the MSc Public Health programme? (Please select all that apply).

- Yes (1)
- Writing up (2)
- Publication submitted (3)
- No (4)

Display This Question:

If Have you published or had significant input on a publication in the public domain upon completion... No Is Not Selected

If $\{q://QID35/ChoiceGroup/SelectedChoices\}$, please select all that apply.

- Research article/conference paper drawn from your dissertation (1)
- Research article(s) (2)
- Conference paper(s) (3)
- Book chapter(s) (4)
- Programme technical report(s) (e.g. project evaluation reports) (5)
- Policy briefs/policies/ frameworks/strategies (6)
- Other (Please specify) (7) _____

Briefly tell us of any notable achievements or challenges in your career since obtaining the MSc Public Health degree.

Do you have any recommendations regarding improvement of the MSc Public Health programme or professional development during the programme?

Are you willing to take part in a short follow up telephone/Skype interview to explore some of your experiences in more depth?

- Yes (1)
- No (2)

Display This Question:

If Are you willing to take part in a short follow up telephone/Skype interview to explore some of yo... Yes Is Selected

If Yes, please provide your convenient contact details as below.

- Name (1) _____
- Address/phone (2) _____
- email (3) _____

Are you willing for us to update the UWE Alumni database with your records?

- Yes (1)
- No (2)

Display This Question:

If Are you willing for us to update the UWE Alumni database with your records? Yes Is Selected

If Yes, please provide your convenient contact details.

- Name (1) _____
- Address/phone (2) _____
- email (3) _____

Please answer a few questions about yourself.

Age of respondent

- 20-29 (1)
- 30-39 (2)
- 40-49 (3)
- 50+ (4)

Gender of respondent

- Male (1)
- Female (2)
- Prefer not to say (3)

Nationality of respondent

- American (1)
- Australian (2)
- Bangladesh (3)
- Botswanan (5)
- Bulgarian (6)
- Burmese (7)
- Cameroonian (8)
- Canadian (43)
- Chinese (9)
- Cypriot (10)
- Dutch (11)
- Finnish (12)
- French (13)
- Gambian (14)
- German (15)
- Ghanaian (16)
- Icelander (17)
- Indian (18)
- Iranian (41)
- Iraqi (4)
- Irish (42)
- Italian (40)
- Kenyan (19)
- Luxembourger (20)
- Malawian (21)
- Malaysian (22)

- Mauritian (23)
- Nepalese (24)
- New Zealander (25)
- Nigerian (26)
- Norwegian (27)
- Pakistani (28)
- Polish (29)
- Portuguese (30)
- Senegalese (31)
- Sierra Leonean (32)
- Spanish (33)
- Somalian (34)
- Sudanese (35)
- Swazi (36)
- Swiss (37)
- Ugandan (38)
- Zimbabwe (39)

Please select your year of graduation with a MSc Public Health degree from UWE.

- 2004 (1)
- 2005 (11)
- 2006 (13)
- 2007 (12)
- 2008 (2)
- 2009 (3)
- 2010 (4)
- 2011 (5)
- 2012 (6)
- 2013 (7)
- 2014 (8)
- 2015 (9)
- 2016 (10)