Appendix I: Approval of research proposal from IEC – Indian Institute of Public Health – Delhi

Institutional Ethics Committee (IEC)

<table>
<thead>
<tr>
<th>Organization No</th>
<th>IRB No</th>
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<th>Expiration Date</th>
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Protection of Human Subjects

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<th>Type of Mechanism</th>
<th>Name of Funding Agency and, if known, Application or Proposal Identification No.</th>
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<td>CONTINUATION</td>
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<td>FELLOWSHIP</td>
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<td></td>
<td>OTHER: PhD Project</td>
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<tr>
<th>Title of Application or Activity</th>
<th>Principal Investigator</th>
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<tbody>
<tr>
<td>Estimating supply, need, demand and mapping career opportunities for public health professionals in India</td>
<td>Ms Ritika Tiwari</td>
</tr>
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</table>

7. Certification of IRB Review

- This activity has been reviewed and approved by the IEC in accordance with the Indian Council for Medical Research (ICMR) Guidelines and other TCP recommendations.
- Expedited Review on 07-08-2015 (DD/MONTH/YYYY)

8. Comments

- None

9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed until study closure and certification will be provided.

10. Name and Address of Institution:

   Institution Ethics Committee
   Indian Institute of Public Health, Delhi
   Plot no 47, sector 44, Gurgaon, Haryana, India

11. Phone No. : +91-0124-4722900
12. Fax No. : +91-0124-4722901
13. Email : rmpandey@yahoo.com
            rmpandey@aiims.ac.in

14. Name of Official: Dr R.M. Pandey

15. Title: Chair Person, Institutional Ethics Committee,
          IIPH-Delhi and Professor & Head – Department of Biostatistics, AIIMS, Delhi, India

16. Signature

17. Date : 26-8-2015
Appendix II: Approval of research proposal from IEC – Symbiosis International (Deemed University)

SYMBIOSIS INTERNATIONAL UNIVERSITY

INDEPENDENT ETHICS COMMITTEE

[Established under section 3 of the UGC Act, 1956 vide notification No. F.9-12/2001-U3 Govt. of India]
Re-accredited by NAAC with 'A' grade
(Registered with DCGI with registration number ECR/147/Indt/MH/2014 dated 17th January 2014)

Dr. Vasant Padbidri
Chairperson

Date: 17th December 2016

Dr. Ravindra Ghooi
Member

To
Ms. Ritika Tiwari
Ph.D. Research Scholar
Symbiosis International University

Dr. R. S. Paranjape
Member

Subject: Approval of research proposal titled ‘Estimating supply, need, demand and mapping career opportunities for public health professionals in India’

Dr. Rajiv Yeravdekar
Member

Reference: Presentation of research proposal in IEC meeting dated 1st December 2016

Dr. A. S. Phadke
Member

Dear Madam,

Prof. Gauri Bhagwat
Member

Your research proposal titled as above was presented in IEC meeting dated 1st December 2016 through audio video conferencing. Following members were present for the meeting.

Dr. Shobha Rao
Member

1) Dr. Vasant Padbidri (Chairperson)
2) Dr. Rajiv Yeravdekar (Member)
3) Dr. Ravindra Ghooi (Member)
4) Dr. R. S. Paranjape (Member)
5) Dr. A. S. Phadke (Member)
6) Prof. Gauri Bhagwat (Member)
7) Dr. Shobha Rao (Member)
8) Adv. Dr. Milind Salunkhe (Member)
9) Mrs. Leena Chaudhary (Member)
10) Dr. Abhay Saraf (Member Secretary)

Your research proposal is approved. The approval is granted subject to suggestions / comments mentioned below.

Adv. Dr. Milind Salunkhe
Member

Mrs. Leena Chaudhari
Member

Dr. Abhay Saraf
Member Secretary

Page 1 of 2
Suggestions / comments:

1. This research study has previously received expedited approval from IEC of SIU.

2. Whole country (India) is being considered as a universe for this study.

3. Mapping of the Focus Group Discussions will be possible as you will be travelling for this project.

After completion of study, submit the closure / completion report to IEC.

Thanking you,
Best Regards,

Dr. Abhay Saraf
Member Secretary
Independent Ethics Committee of Symbiosis International University
Appendix III: Profile of IDI & FGD respondents

In-depth Interviews (IDIs)

Except for students’ category, respondents of the other four categories included public health experts predominantly with more than six years of experience. These public health experts are currently engaged in either leading or implementing public health programs within the country; occupying a senior academic/leadership position within their organizations. Profiles of IDI respondents and their state wise distribution is presented in table 25 and figure 17 respectively.
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<thead>
<tr>
<th>Sr. No.</th>
<th>Designation</th>
<th>Gender</th>
<th>Experience (in years)</th>
<th>State where working/ worked</th>
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<td>1</td>
<td>Regional Director, Government of Odisha</td>
<td>Male</td>
<td>7</td>
<td>Odisha</td>
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<tr>
<td>2</td>
<td>Senior Public Health Professional, Government of India</td>
<td>Male</td>
<td>17</td>
<td>Delhi-NCR</td>
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<tr>
<td>3</td>
<td>Former Joint Director (Health &amp; Policy) - Member Secretary on the Public Health</td>
<td>Male</td>
<td>33</td>
<td>Karnataka</td>
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<tr>
<td>4</td>
<td>Professor, Community Medicine and Public Health</td>
<td>Male</td>
<td>14</td>
<td>Maharashtra</td>
</tr>
<tr>
<td>5</td>
<td>Professor, Community Medicine and Public Health</td>
<td>Male</td>
<td>14</td>
<td>Karnataka</td>
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<tr>
<td>6</td>
<td>Head of Department, Community Medicine</td>
<td>Female</td>
<td>6</td>
<td>Bihar</td>
</tr>
<tr>
<td>7</td>
<td>Associate Professor, Department of Community Medicine</td>
<td>Male</td>
<td>7</td>
<td>Maharashtra</td>
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<tr>
<td>8</td>
<td>Professor</td>
<td>Male</td>
<td>17</td>
<td>Karnataka</td>
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<td>9</td>
<td>Associate Professor, Public Health</td>
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<td>Associate Professor, Community Medicine</td>
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<td>Maharashtra</td>
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<td>11</td>
<td>Associate Professor, Community Medicine</td>
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<td>20</td>
<td>Karnataka</td>
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<td>12</td>
<td>District Surveillance Officer, IDSP</td>
<td>Male</td>
<td>20</td>
<td>Telangana</td>
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<tr>
<td>13</td>
<td>Senior Consultant, Public and Private Healthcare Consulting (in an MNC)</td>
<td>Male</td>
<td>7</td>
<td>Madhya Pradesh</td>
</tr>
<tr>
<td>14</td>
<td>State Program Manager (working in an NGO in maternal health)</td>
<td>Male</td>
<td>13</td>
<td>Telangana</td>
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<tr>
<td>15</td>
<td>Scientist, Environmental Health</td>
<td>Male</td>
<td>12</td>
<td>Madhya Pradesh</td>
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<tr>
<td>16</td>
<td>Member - Health Task Force, Government of Karnataka</td>
<td>Male</td>
<td>6</td>
<td>Karnataka</td>
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<tr>
<td>17</td>
<td>Director (in a National Institute)</td>
<td>Male</td>
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<td>Madhya Pradesh</td>
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<tr>
<td>Sr. No.</td>
<td>Designation</td>
<td>Gender</td>
<td>Experience (in years)</td>
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<tr>
<td>18</td>
<td>Senior Consultant, Strategy and Operations-Healthcare Consulting (in an MNC)</td>
<td>Male</td>
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<td>Consulting, evaluation, business development</td>
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<tr>
<td>19</td>
<td>Senior Technical Consultant (TB Program)</td>
<td>Male</td>
<td>7</td>
<td>Academics, research</td>
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<tr>
<td>20</td>
<td>Chief Medical Officer</td>
<td>Male</td>
<td>11</td>
<td>Supervision, training</td>
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<tr>
<td>21</td>
<td>Public Health Professional (TB Program)</td>
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<td>18</td>
<td>Supervision, monitoring, training</td>
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<td>22</td>
<td>Country Coordinator (in a research organization)</td>
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<td>Leading &amp; supervising projects</td>
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<tr>
<td>23</td>
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<td>Managing &amp; coordinating projects</td>
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<td>24</td>
<td>Director (in a MNC providing information, services and technology for the healthcare industry)</td>
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<td>Leading &amp; managing the organizations</td>
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<td>25</td>
<td>Senior Technical Advisor (in a public health research and consulting firm)</td>
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<td>Project management, leadership, advocacy, implementation &amp; operational research</td>
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<td>Health Officer (in an International Non-Governmental Organization)</td>
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<td>10</td>
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<td>39</td>
<td>Student of public health program</td>
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Focus group discussions (FGDs)

FGDs were conducted with public health professionals and students (Post Graduate Diploma in Public Health Management (PGDPHM)) who were about to graduate. The median age of FGD participants for public health professionals group was 48 years and for students group was 39 years. FGD candidates of public health professionals group were of >10 years in experience and students’ group were of 5-10 years of experience.
Appendix IV: Tool 1: Details of public health education institutions and public health courses in India

Information related to specific domains* of public health

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*Domains (illustrative): health management, hospital management, epidemiology, biostatistics, environmental health, occupational health, public health nutrition, health promotion, health economics, health care financing & health policy, public health engineering, public health laws, veterinary public health, demography, entomology, disease specific expertise, public health laboratory, ethics, monitoring and evaluation; and maternal & child health.
Appendix V: Tool 2: In-Depth Interview (IDI) Questionnaire - Policy makers

Title: Estimating supply\(^1\), need\(^2\), demand\(^3\) and mapping career opportunities for public health professionals in India

Participant Information Sheet

Principal investigator: Ritika Tiwari

You are invited to take part in this research study that is trying to understand the overall perspectives about public health education and human resource in health (supply, need and demand for public health professionals in India). The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

The definition of public health professionals is very broad and it has been challenging to estimate the current supply, need and demand of public health professionals in the country. Also, the increased requirement and scope of public health jobs has changed the dynamics of labour market in the country. Thus there arises a need for studying the current supply, need, demand and mapping career opportunities of public health professionals in the country.

If you choose to participate, you will be required to answer a few questions expected to take about 10 - 15 minutes of your time. All the personal information collected by us will remain confidential and we will not share any information that will identify you as having participated in this study. You will be informed about the results once the reports will be out.

You may not get any direct benefit by participating in this study but your participation will help us identify areas for policy formulation. Your participation in this study is voluntary and you have right to refuse or withdraw from the study even after filling up your form. Thank you for giving time to read this. For further information/ queries, you can contact us at following address:

Principal Investigator:
Ritika Tiwari

Public Health Foundation of India, Plot No 47, Sector 44 Institutional Area, Gurgaon, Haryana

---

\(^1\) Supply of trained public health professionals from Indian educational institutions into health system

\(^2\) Need is the capacity of health system in India to benefit from trained public health professionals

\(^3\) Demand for trained public health professionals from the point of view of experts, public health professionals, academicians etc. in Indian public health system
Study Title: Estimating supply, need, demand and mapping career opportunities for public health professionals in India

Subject’ Initials:____________________ Subject’s Name:____________________

Date of birth/Age:____________________

If you are willing to participate, please read carefully and fill the form.

(i) I confirm that I have read and understood the information sheet dated __________ for the above study and have had the opportunity to ask questions. [ ]

(ii) I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.[ ]

(iii) I understand that my identity will not be revealed in any information released to third parties or published. [ ]

(iv) I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s) [ ]

(v) I agree to take part in the above study. [ ]

Signature of the data collector____________________ Date: _____/_____/______

Study Investigator’s Name: ________________________________________

For additional information please contact:

Ms. Ritika Tiwari Ph.: +91-124-4722900 Extn 4234
Prof. Sanjay Zodpey Ph.: +91-124-4722900
1. Respondent’s details
   1.1 Since when are you working in the area of public health?
   1.2 Can you tell us your current responsibilities?
   1.3 Do you have any formal public health training?

2. Current Supply of Public Health Professionals
   2.1 Please provide us the details of Institutions and courses teaching public health in India. (alongwith their intake capacity)

3. Current Need of Public Health Professionals
   3.1 In your opinion, currently is there a need for public health professionals in the country? (Please elaborate)
   3.2 If yes, then please specify which public health professionals are required? Where are they needed most?

4. Current Demand of Public Health Professionals
   4.1 How much is the demand for these public health professionals? (Please elaborate)
   4.2 Please suggest what should be the strategy to increase the current demand for public health professionals in the country?
   4.3 Are you aware about the studies that have been carried out to estimate requirement of public health professionals in India?
   4.4 Which method/approach would you like to suggest for estimating the current requirement of public health professionals in the country?

5. Career Opportunities
5.1 Please specify the career opportunities and jobs that are available for public health professionals in the country?

5.2 Where (sector) are these career opportunities/jobs available?

5.3 What is the range of salary generally a fresh public health graduate would get?

5.4 What are the challenges that public health graduates face in procuring jobs?

5.5 What is your opinion, regarding formation of Public Health Cadre at State and National level?

5.6 What do you think should be the approach about creating Public Health Cadre at State and National level?

5.7 What should be done to create more job opportunities for non-medical background public health graduates in public sector?

6. Miscellaneous

6.1 Do wish to provide any additional information related to the study?

Thank you for your participation. If there is anything else we want to ask, is it alright if we contact you over the phone on a day and at a time convenient to you?

Any specific observations/information related to the interview:
Appendix VI: Tool 3: In-Depth Interview (IDI) Questionnaire - Faculty of public health institutions

Title: Estimating supply\(^1\), need\(^2\), demand\(^3\) and mapping career opportunities for public health professionals in India

Participant Information Sheet

Principal investigator: Ritika Tiwari

You are invited to take part in this research study that is trying to understand the overall perspectives about public health education and human resource in health (supply, need and demand for public health professionals in India). The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

The definition of public health professionals is very broad and it has been challenging to estimate the current supply, need and demand of public health professionals in the country. Also, the increased requirement and scope of public health jobs has changed the dynamics of labour market in the country. Thus there arises a need for studying the current supply, need, demand and mapping career opportunities of public health professionals in the country.

If you choose to participate, you will be required to answer a few questions expected to take about 10 - 15 minutes of your time. All the personal information collected by us will remain confidential and we will not share any information that will identify you as having participated in this study. You will be informed about the results once the reports will be out.

You may not get any direct benefit by participating in this study but your participation will help us identify areas for policy formulation. Your participation in this study is voluntary and you have right to refuse or withdraw from the study even after filling up your form. Thank you for giving time to read this. For further information/ queries, you can contact us at following address:

Principal Investigator:
Ritika Tiwari

Public Health Foundation of India, Plot No 47, Sector 44 Institutional Area, Gurgaon, Haryana

\(^1\) Supply of trained public health professionals from Indian educational institutions into health system
\(^2\) Need is the capacity of health system in India to benefit from trained public health professionals
\(^3\) Demand for trained public health professionals from the point of view of experts, public health professionals, academicians etc. in Indian public health system
Informed Consent

Study Title: Estimating supply, need, demand and mapping career opportunities for public health professionals in India

Subject’s Initials:____________________ Subject’s Name:____________________

Date of birth/Age:____________________

If you are willing to participate, please read carefully and fill the form.

(vi) I confirm that I have read and understood the information sheet dated __________ for the above study and have had the opportunity to ask questions. [ ]

(vii) I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. [ ]

(viii) I understand that my identity will not be revealed in any information released to third parties or published. [ ]

(ix) I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s) [ ]

(x) I agree to take part in the above study. [ ]

Signature of the data collector____________________ Date: _____/_____/______

Study Investigator’s Name: ______________________________________

For additional information please contact:

Ms. Ritika Tiwari    Ph.: +91-124-4722900 Extn 4234
Prof. Sanjay Zodpey  Ph.: +91-124-4722900
Questionnaire

1. Respondent’s details
   1.1 Since when are you working in the area of public health?
   1.2 Can you tell us your current responsibilities?
   1.3 Which public health course(s) have you undertaken?

2. Current Supply of Public Health Professionals
   2.1 Please provide us the details of Institutions and courses teaching public health in India. (alongwith their intake capacity)

3. Current Need of Public Health Professionals
   3.1 In your opinion, currently is there a need for public health professionals in the country? (Please elaborate)
   3.2 If yes, then please specify which public health professionals are required?

4. Current Demand of Public Health Professionals
   4.1 How much is the demand for these public health professionals? (Please elaborate)
   4.2 Please suggest what should be the strategy to increase the current demand for public health professionals in the country?
   4.3 Are you aware about the studies that have been carried out to estimate requirement of public health professionals in India?
   4.4 Which method/approach would you like to suggest for estimating the current requirement of public health professionals in the country?

5. Career Opportunities
   5.1 Please specify the career opportunities and jobs that are available for public health professionals in the country?
5.2 Where (sector) are these career opportunities/jobs available?

5.3 In your opinion, which competencies are critical for public health professionals?

5.4 What is the range of salary generally a fresh public health graduate would get?

5.5 What are the challenges that public health graduates face in procuring jobs?

5.6 Do current public health courses equip students with desired competencies that are required for public health jobs?

5.7 What should be done to create more job opportunities for non-medical background public health graduates in public sector?

5.8 How many graduates from your course offered by your institute would be needed in your current organization?

6. Student Placements

6.1 How many students have been placed through campus placements (in percentage) from your institution? (please provide statistics for last 5 academic years)

6.2 What was the range of salary (CTC) offered to your students?

6.3 What are the challenges faced by faculty of your institution during placements of students?

7. What is the education fees / tuition fees for your public health program(s)?

8. Miscellaneous

7.1 Do wish to provide any additional information related to the study?

Thank you for your participation. If there is anything else we want to ask, is it alright if we contact you over the phone on a day and at a time convenient to you?

Any specific observations/information related to the interview:
Appendix VII: Tool 4: In-Depth Interview (IDI) Questionnaire - Public health professionals

Title: Estimating supply\(^1\), need\(^2\), demand\(^3\) and mapping career opportunities for public health professionals in India

Participant Information Sheet

Principal investigator: Ritika Tiwari

You are invited to take part in this research study that is trying to understand the overall perspectives about public health education and human resource in health (supply, need and demand for public health professionals in India). The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

The definition of public health professionals is very broad and it has been challenging to estimate the current supply, need and demand of public health professionals in the country. Also, the increased requirement and scope of public health jobs has changed the dynamics of labour market in the country. Thus there arises a need for studying the current supply, need, demand and mapping career opportunities of public health professionals in the country.

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Principal Investigator:
Ritika Tiwari

Public Health Foundation of India, Plot No 47, Sector 44 Institutional Area, Gurgaon, Haryana

\(^1\) Supply of trained public health professionals from Indian educational institutions into health system
\(^2\) Need is the capacity of health system in India to benefit from trained public health professionals
\(^3\) Demand for trained public health professionals from the point of view of experts, public health professionals, academicians etc. in Indian public health system
Informed Consent

Study Title: Estimating supply, need, demand and mapping career opportunities for public health professionals in India

Subject’s Initials:____________________ Subject’s Name:____________________

Date of birth/Age:____________________

If you are willing to participate, please read carefully and fill the form.

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Signature of the data collector____________________ Date: _____/_____/______

Study Investigator’s Name: ________________________________

For additional information please contact:

Ms. Ritika Tiwari       Ph.: +91-124-4722900 Extn 4234
Prof. Sanjay Zodpey    Ph.: +91-124-4722900
**Questionnaire**

1. Respondent’s details
   1.1 Since when are you working in the area of public health?
   1.2 Can you tell us your current responsibilities?
   1.3 Which public health course(s) have you undertaken?

2. Current Supply of Public Health Professionals
   2.1 Please provide us the details of Institutions and courses teaching public health in India. (alongwith their intake capacity)

3. Current Need of Public Health Professionals
   3.1 In your opinion, currently is there a need for public health professionals in the country? (Please elaborate)
   3.2 If yes, then please specify which public health professionals are required?

4. Current Demand of Public Health Professionals
   4.1 How much is the demand for these public health professionals? (Please elaborate)
   4.2 Please suggest what should be the strategy to increase the current demand for public health professionals in the country?
   4.3 Are you aware about the studies that have been carried out to estimate requirement of public health professionals in India?
   4.4 Which method/approach would you like to suggest for estimating the current requirement of public health professionals in the country?

5. Career Opportunities
   5.1 Please specify the career opportunities and jobs that are available for public health professionals in the country?
5.2 Where (sector) are these career opportunities/jobs available?

5.3 In your opinion, which competencies are critical for public health professionals?

5.4 What is the range of salary generally a fresh public health graduate would get?

5.5 What are the challenges that public health graduates face in procuring jobs?

5.6 Do current public health courses equip students with desired competencies that are required for public health jobs?

5.7 What should be done to create more job opportunities for non-medical background public health graduates in public sector?

6. Miscellaneous

6.1 Do wish to provide any additional information related to the study?

Thank you for your participation. If there is anything else we want to ask, is it alright if we contact you over the phone on a day and at a time convenient to you?

Any specific observations/information related to the interview:
Title: Estimating supply\(^1\), need\(^2\), demand\(^3\) and mapping career opportunities for public health professionals in India

Participant Information Sheet

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Subject’ Initials:____________________ Subject’s Name:____________________

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Signature of the data collector____________________ Date: _____/_____/______

Study Investigator’s Name: ________________________________

For additional information please contact:

Ms. Ritika Tiwari Ph.: +91-124-4722900 Extn 4234
Prof. Sanjay Zodpey Ph.: +91-124-4722900
Questionnaire

1. Respondent’s details
   1.1 Since when are you working in the area of public health?
   1.2 Can you tell us your current responsibilities?
   1.3 Do you have any formal public health training?

2. Current Supply of Public Health Professionals
   2.1 Please provide us the details of Institutions and courses teaching public health in India. (alongwith their intake capacity)

3. Current Need of Public Health Professionals
   3.1 In your opinion, currently is there a need for public health professionals in the country? (Please elaborate)
   3.2 If yes, then please specify which public health professionals are required?

4. Current Demand of Public Health Professionals
   4.1 How much is the demand for these public health professionals? (Please elaborate)

5. Career Opportunities
   5.1 Please specify the career opportunities and jobs that are available for these public health professionals in the country?
   5.2 Where (sector) are these career opportunities/jobs available?
   5.3 In your opinion, which competencies are critical for public health professionals?
   5.4 What are the challenges that public health graduates face in procuring jobs?
   5.5 Do current public health courses equip students with desired competencies that are required for public health jobs?
5.6 What should be done to create more job opportunities for non-medical background public health graduates in public sector?

6. Hiring of public health graduates

6.1 Which public health profiles do you hire the most in your organization?

6.2 What are the competencies that you look for in public health graduate(s)/professional(s) while hiring?

6.3 Do you think there is a mismatch between the competencies provided (by public health educational institutions) and those desired (by employers) for work?

6.4 What is the most common method used by you/your organization for hiring a public health graduate(s)/professional(s) in your team/organization?

6.5 Currently, which competency is in demand but is rare to find in the job market (in public health)?

6.6 Which skills and competencies should a public health management program emphasize and focus on to develop well rounded public health professionals?

6.7 Please specify the remuneration (salary range) offered to public health professionals in your organization?

6.8 What is the attrition rate (approximately) of public health professionals in your organization?

7. Miscellaneous

7.1 Do wish to provide any additional information related to the study?

Thank you for your participation. If there is anything else we want to ask, is it alright if we contact you over the phone on a day and at a time convenient to you?

Any specific observations/information related to the interview:
Appendix IX: Tool 6: In-Depth Interview (IDI) Questionnaire – Students of public health courses

Title: Estimating supply\(^1\), need\(^2\), demand\(^3\) and mapping career opportunities for public health professionals in India

Participant Information Sheet

Principal investigator: Ritika Tiwari

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Thank you for giving time to read this. For further information/queries, you can contact us at following address:

Principal Investigator:
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Public Health Foundation of India, Plot No 47, Sector 44 Institutional Area, Gurgaon, Haryana

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Informed Consent

Study Title: Estimating supply, need, demand and mapping career opportunities for public health professionals in India

Subject’ Initials:____________________ Subject’s Name:____________________

Date of birth/Age:____________________

If you are willing to participate, please read carefully and fill the form.

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Signature of the data collector____________________ Date: _____/_____/______

Study Investigator’s Name: ______________________________________

For additional information please contact:

Ms. Ritika Tiwari Ph.: +91-124-4722900 Extn 4234
Prof. Sanjay Zodpey Ph.: +91-124-4722900
1. Respondent’s details

1.1 Why have you chosen the field of public health?

1.2 Which public health course(s) have you undertaken/enrolled for?

2. Student’s perceptions

2.1 Where do you want to work after completion of this program? (Please specify sector/job role/organization/location etc.)

2.2 Where do you want to work after five years from now? (Please specify sector/job role/organization/location etc.)

2.3 Are all your batch mates/ friends placed in relevant jobs/profiles?

2.4 Where are your batchmates/ friends currently placed? (Please specify)

2.5 Your how many batch mates/ friends did not get placed? Why?

2.6 Which sector would you like to work (public/private)? Why?

3. Current Supply of Public Health Professionals

3.1 Please provide us the details of Institutions and courses teaching public health in India. (along with their intake capacity)

4. Current Need of Public Health Professionals

3.1 In your opinion, currently is there a need for public health professionals in the country? (Please elaborate)

3.2 If yes, then please specify which public health professionals are required?
5. Current Demand of Public Health Professionals
   5.1 How much is the demand for these public health professionals? (Please elaborate)
   5.2 Please suggest what should be the strategy to increase the current demand for public health professionals in the country?

6. How much did you pay for your education fees / tuition fees for your program?

7. How did this program benefit you?

8. Miscellaneous
   7.1 Do wish to provide any additional information related to the study?

Thank you for your participation. If there is anything else we want to ask, is it alright if we contact you over the phone on a day and at a time convenient to you?

Any specific observations/information related to the interview:
Appendix X: Tool 7: Details of jobs available/offered to public health graduates in India

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Job Position/Designation</th>
<th>Organization offering the job</th>
<th>Sector (Public/Private/NGO/Others)</th>
<th>Educational qualification required</th>
<th>Job Experience required (in years)</th>
<th>Location of Posting</th>
<th>Remuneration (CTC in LPA)</th>
<th>Roles and responsibilities</th>
<th>Desired competencies</th>
</tr>
</thead>
</table>
Title: **Estimating supply¹, need², demand³ and mapping career opportunities for public health professionals in India**

**Participant Information Sheet**

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**Public Health Foundation of India, Plot No 47, Sector 44 Institutional Area, Gurgaon, Haryana**

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² Need is the capacity of health system in India to benefit from trained public health professionals
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Informed Consent

Study Title: Estimating supply, need, demand and mapping career opportunities for public health professionals in India

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Signature of the data collector____________________ Date: _____/_____/______

Study Investigator’s Name: ______________________________

For additional information please contact:

Ms. Ritika Tiwari Ph.: +91-124-4722900 Extn 4234
Prof. Sanjay Zodpey Ph.: +91-124-4722900
Focus Group: Demographic Details Questionnaire

Please answer the following questions in the spaces provided, circle or tick the most appropriate options.

1. Age:

2. Are you: (please tick as necessary) □ Male □ Female

3. What is your professional background? (please describe)

5. How many years of experience have you had in this current job?
   □ <1 Year □ 1-2 Years
   □ 2-5 Years □ 5-10 Years
   □ >10 Years

6. Experience in Public Health (optional):
   □ <1 Year □ 1-2 Years
   □ 2-5 Years □ 5-10 Years
   □ >10 Years

Thank you for taking the time to complete this questionnaire
**Focus Group: Discussion Guide**

**Welcome** and thank you for volunteering to take part in this focus group. You have been asked to participate as your point of view is important. I realize you are busy and I appreciate your time.

**Introduction:** This focus group discussion is designed to assess your current thoughts and feelings about estimating supply, need, demand and mapping of career opportunities for public health professionals in India. The focus group discussion will take no more than two hours.

**Warm up and Introductions**

**Illustrative Themes**

- Why have you joined public health?
- Public health course(s) undertaken
- Institutions and courses teaching public health in India
- Current need for public health professionals in the country
- Current demand for public health professionals in the country
- Strategy to increase the current demand for public health professionals in the country
- Career opportunities and jobs available for public health professionals in the country
- Challenges faced by public health graduates in procuring jobs
- Challenges faced by public health professionals in their jobs
- Range of salary that a fresh public health graduate would get
- What core competencies would you suggest should be acquired by a public health graduate to work more effectively
- Any suggestions to estimate the current demand of public health professionals in the country

**Conclusion**

- Thank you for participating. This has been a very successful discussion
- We hope you have found the discussion interesting
- I would like to remind you that any comments featuring in this report will be anonymous
- Before you leave, please hand in your completed personal details questionnaire
Appendix XII: Tool 9: Focus-group discussion (FGD) Questionnaire – Students of public health courses

**Title:** Estimating supply\(^1\), need\(^2\), demand\(^3\) and mapping career opportunities for public health professionals in India

**Participant Information Sheet**

**Principal investigator:** Ritika Tiwari

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Informed Consent

Study Title: Estimating supply, need, demand and mapping career opportunities for public health professionals in India

Subject’s Initials:____________________ Subject’s Name:____________________

Date of birth/Age:____________________

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Signature of the data collector____________________ Date: _____/_____/______

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Focus Group: Demographic Details Questionnaire

Please answer the following questions in the spaces provided, circle or tick the most appropriate options.

1. Age:

2. Are you: (please tick as necessary) □ Male □ Female

3. What is your professional background? (please describe)

5. How many years of experience have you had in this current job?
   □ <1 Year          □ 1-2 Years
   □ 2-5 Years        □ 5-10 Years
   □ >10 Years

6. Experience in Public Health (optional):
   □ <1 Year          □ 1-2 Years
   □ 2-5 Years        □ 5-10 Years
   □ >10 Years

Thank you for taking the time to complete this questionnaire
**Focus Group: Discussion Guide**

**Welcome** and thank you for volunteering to take part in this focus group. You have been asked to participate as your point of view is important. I realize you are busy and I appreciate your time.

**Introduction:** This focus group discussion is designed to assess your current thoughts and feelings about estimating supply, need, demand and mapping of career opportunities for public health professionals in India. The focus group discussion will take no more than two hours.

**Warm up and Introductions**

**Illustrative Themes**

- Why have you chosen the field of public health?
- Aptness of this course for career advancement
- Institutions and courses teaching public health in India
- Current need for public health professionals in the country
- Current demand for public health professionals in the country
- Career opportunities and jobs available for public health professionals in the country
- Challenges faced by students of public health courses in getting jobs
- Application of the skills and knowledge learnt through this course(s) at work
- Of all the things we’ve discussed today, what would you say are the most important issues you would like to express about career opportunities in the field of public health in India?
- Which sector would you like to work (public/private)? Why?

**Conclusion**

- Thank you for participating. This has been a very successful discussion
- We hope you have found the discussion interesting
- I would like to remind you that any comments featuring in this report will be anonymous

Before you leave, please hand in your completed personal details questionnaire.
Appendix XIII: Research papers published and submitted out of thesis

Research papers published out of thesis work

Research papers submitted out of thesis work
3. Tiwari R, Negandhi H, Zodpey S. Forecasting the future need and gaps in requirement for public health professionals in India. WHO South-East Asia journal of public health. 2018 (submitted for publication)

Additionally, a book chapter was contributed from the thesis work.
Abstract

Introduction
India’s urban population will be doubled from 377 million in 2011 to 915 million in 2050. Such rapid urban growth may lead to several problems by affecting the economy, environment and the society at large. These problems further affect the health vulnerability in urban areas. Thus, there exists a need for health workforce equipped with the knowledge and skills to meet the urban health challenges.

Objectives
To undertake the landscaping of teaching and training of urban health as a part of health professional courses and to undertake mapping of specific training programmes related to urban health in India.

Methodology
A curriculum scan of various health professional courses in India ranging from medicine, dentistry, allied health, Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), nursing to public health was undertaken related to teaching and training of urban health. An exclusive search was also carried out for identifying urban health-specific training programmes being offered in India.

Results
As per the curriculum scan, current health professional courses being offered in India have a very little focus on urban health. It was observed that various cross-cutting issues related to urban health are not adequately addressed in the current curricula. Also the curricula of these health professional courses have not clearly spelt out the desired urban health competencies. Few institutions in India offer short-term training programmes specific to urban health issues.
Conclusion
Considering the growing urban health population, it is critical that the curricula of health professional courses comprehensively incorporate adequate content regarding urban health and related issues. Curricula should be designed on the basis of clearly spelt out urban health competencies. There is a need to design specific short-term training programmes covering various aspects of urban health. Some of the institutions offering public health programmes, especially Masters in Public Health (MPH) programme, should dwell on developing urban health track as a specialization of MPH programmes.

Keywords
Urban health, health professional education/courses, teaching and training, curriculum

Introduction
As per Census 2011, India’s total population has crossed 1.21 billion, with its 31.16 per cent of total population (377 million) residing in the urban areas. This fast urbanization has led to rapid increase in the number of urban poor population, many of whom live in slums and other squatter settlements (Ministry of Health & Family Welfare [MoHFW], 2013a). This rapid growth has put greater strain on the urban infrastructure, which is already overstretched. As per the United Nations projections, if urbanization continues at the present rate, then 46 per cent of the total population will be in urban regions of India by 2030 (MoHFW, 2013a).

Urbanization is a double-edged sword, as on the one hand it provides people with varied opportunities and scope for economic development but on the other, it exposes the community to new threats. An unplanned urban growth may lead to several economic, social and environmental problems. The common challenges which are being faced by urban populations in India include poverty, overcrowding, illiteracy, inadequate food supplies, prostitution, slums, air pollution, child labour, child abuse, crime, road traffic injuries, inadequate infrastructure, transport facilities, etc. (Kantharia, 2010). These economic, social and environmental problems affect the health vulnerability in urban areas. Poor economic conditions may lead to irregular employment and poor access to fair credit. Similarly, poor social conditions may lead to diseases and delinquency, substance abuse, alcoholism, unhealthy diet, physical inactivity, gender inequity, etc. Poor environmental conditions may lead to poor access to safe water supply and sanitation facilities and poor solid waste management systems (Kantharia, 2010; Urban Health Division and Urban Health Resource Centre [UHD and UHRC], 2007).

Today, most cities are facing various health challenges related to communicable diseases, non-communicable diseases, maternal and child health problems and threat of emerging and re-emerging diseases (Kantharia, 2010). As per Urban Health Resource Centre (UHRC)—India statistics, the health of the urban poor is considerably worse off than the urban middle- and high-income groups and is as worse as the rural population. Over half (56 per cent) of the child births take place at home in slums putting the life of both the mother and the newborn at serious risk. One in every ten children in slums does not live to see his/her fifth birthday. Malnutrition among urban poor children is worse off than in rural areas. Around 54 per cent of the children under 5 years were stunted, and 47 per cent were overweight (Agarwal, 2009). Only 42 per cent of slum children receive all the recommended vaccinations. Two-thirds of urban poor households do not have access to toilets and nearly 40 per cent do not have piped water supply at home (UHRC, 2010).
There is restricted access of health facilities to the urban poor in India. Ineffective outreach and weak referral system also restrict the access of urban poor to health care services. Lack of standards and unclear norms for urban health delivery system make the urban poor more vulnerable and worse off than their rural counterparts. The Jawahar Lal Nehru Urban Renewal Mission (JnNURM) was launched on 3 December 2005 to tackle the urban infrastructure issues and urban health issues that need immediate attention, especially in the context of the urban poor (Wikipedia, 2015). One of the primary objectives of JnNURM is to provide basic services to the urban poor including improved housing, water supply and sanitation, and ensuring delivery of other existing universal services of the government for education, health and social security (Ministry of Urban Employment and Poverty Alleviation [MoUEPA], 2011). Similarly, the National Urban Health Mission (NUHM), as a submission of National Health Mission (NHM), was approved by the Cabinet on 1 May 2013 (MoHFW, 2013b). The NUHM envisages to meet health care needs of the urban population with the focus on urban poor by making available to them essential primary health care services and reducing their out-of-pocket expenses for treatment.

Thus, there are efforts towards improving urban health infrastructure. However, these efforts will not yield positive results if we do not have in place a competent and motivated health workforce to serve the urban population. Health professionals ranging from doctors, nurses, Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) professionals, public health professionals, allied health professionals to front-line workers would require to address several challenges related to urban health. These health professionals are expected to play a critical role in achieving the goals of NUHM under NHM. Public health professionals with a formal training in urban health are also needed for designing, implementing, monitoring and evaluating various national health programmes in urban areas across the country.

Limited information is available regarding the scope and content of urban health teaching as a part of health professional education in India. Also little information has been provided about urban health-focused training programmes in India. Against this background, the present study was carried out to landscape teaching and training of urban health as a part of health professional courses and to map specific training programmes related to urban health in India.

Methodology

A curriculum review was undertaken for the present study which included the following health professional courses: Doctor of Medicine (MD) in Community Medicine, Diploma in Public Health (DPH), Bachelor of Medicine and Surgery (MBBS), Bachelor of Dental Surgery (BDS), Bachelor of Physiotherapy (BPT), Bachelor of Homoeopathic Medicine and Surgery (BHMS), Bachelor of Ayurvedic Medicine and Surgery (BAMS), Master of Science (MSc) Nursing, Bachelor of Science (BSc) Nursing, General Nursing and Midwifery (GNM), Auxiliary Nurse Midwife (ANM), Post Graduate Diploma in Public Health Management (PGDPM), Masters in Public Health (MPH), Master of Business Administration in Health and Hospital Management (MBA-HHM), Master of Health Administration (MHA), PhD in Community Medicine and other PhD programmes. The latest curricula of these courses were obtained from their respective councils, universities and institutions. Wherever curriculum of a course was found to be variable in different institutions, curricula of only a few select institutions were reviewed. The curricula of these courses were comprehensively reviewed and the content and scope of urban health was studied in detail. Similarly, a review was undertaken for identifying the urban health core competencies
being taught in these courses. The scope and content of various other cross-cutting issues in urban health were also studied in the above-mentioned curricula.

A comprehensive search was undertaken to identify the institutions offering short-term training and academic programmes specifically related to urban health in India. This exercise included an Internet search using the Google search engine with relevant keywords, such as ‘Urban Health’, ‘Urban Healthcare’ and ‘Urbanization’. Based on this information, a provisional list of such institutions was prepared. Furthermore, institutions were identified and a detailed information about the programmes was collected from the respective institutions, designated websites of these institutions and their respective councils. The search was limited to programmes offered in India and to collaborations between Indian and foreign institutes, if any.

**Results**

There were two main findings of this study, that is, curriculum scan of the existing health professional courses in India and urban health-specific independent training programmes being offered in India. A detailed analysis of scope and content of urban health teaching and training in health professional courses in India has been presented in Table 1.

**Urban Health-specific Training Programmes/Agencies in India**

In India, some agencies are working since the past few decades on initiatives focused on improving the country’s urban health. One such organization is the Indian Institute for Human Settlements (IIHS), Bangalore. The IIHS offers an ‘Urban Practitioners’ Programme’ (UPP), which is a continuing education and capacity-building programme for urban practitioners. Urban Practitioner’ Programme is a capacity-building programme spanning across disciplines, such as climate change, urbanism, corporate environmental sustainability, urban taskforces, systems thinking and urban public health management (Indian Institute for Human Settlements [IIHS], 2015). The duration of these programmes is 1–3 days. Varied audiences attend these workshops—graduates/postgraduates with social science/humanities background, practitioners in the (urban) development sector, planners, researchers, etc. Given the diversity of their course audience and the breadth of their capacities, these courses are delivered through interactive formats that focus on peer learning and experience sharing (IIHS, 2015).

Apart from IIHS, several other institutions are providing short-term training courses in urban health and in related areas. Several conferences and seminars as well provide an opportunity to health professionals, researchers, academicians, etc. for generating ideas and help in developing partnerships with multi-sector players working in urban health. Such conferences and seminars aim to promote equity, development and resilience in the health systems to meet the urban health challenges. Similar conferences are organized by the Urban Health Society of India (UHSI) to deliberate over the topic of urban health in India. The UHSI is an association of researchers, scholars, professionals and community members, workers and activists from various disciplines, roles and areas whose work is directly related to the health and health determinants effects of urban environments and urbanization. It was founded in 2010 and it has since then grown to include a large and widespread network of individuals and the institutes dedicated to urban health. It now includes over 200 annual individual members across the countries (IIHMR University, 2015).
<table>
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<tr>
<th>Programme</th>
<th>Scope and Content and of Urban Health in Curriculum Content</th>
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<tbody>
<tr>
<td>Doctor of Medicine (MD) Community Medicine</td>
<td>Urban health is a cross-cutting domain and is taught as a part of various sections of MD Community Medicine curriculum.</td>
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<tr>
<td>- Offered by 229 institutions (MCI, 2015)</td>
<td>‘Urban Health’ is taught by covering common health problems (medical, social, environmental, economic and psychological)</td>
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<td></td>
<td>of urban slum dwellers. Organization of health services for slum dwellers in urban areas is also a main constituent of urban</td>
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<td>health. Additionally, policy on urban health and health issues of migrant populations are also covered.</td>
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<td></td>
<td>‘Environment and Health’ and ‘Skills related to Health Care Delivery to Community’ also cover different components of urban</td>
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<td>health. ‘Environment and Health’ covers sanitation in the context of both urban and rural conditions within the community,</td>
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<td></td>
<td>whereas ‘Skills related to Health Care Delivery to Community’ familiarizes students with Urban Health Care delivery system</td>
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<td></td>
<td>models. It also includes impact of urbanization on health and disease. Also, it provides an opportunity to students to organize</td>
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<td></td>
<td>and conduct surveys in urban and industrial communities, migratory populations and in specified groups of population. Practical</td>
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<td></td>
<td>training during MD Community Medicine programme includes posting at outreach clinics in urban areas/urban health centres.</td>
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<td></td>
<td>This posting includes work in general outpatient department (OPD), antenatal clinics, special clinics, family planning clinic,</td>
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<td></td>
<td>etc and also provides an opportunity to students to engage with urban communities. Few students undertake their thesis work in</td>
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<td></td>
<td>urban areas and enhance their knowledge and skills in the context of urban health.</td>
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<tr>
<td>Diploma in Public Health (DPH)</td>
<td>‘Health Administration’ deals with community development component in both urban and rural areas. Details of implementation</td>
</tr>
<tr>
<td>- Offered by 39 institutions (MCI, 2015)</td>
<td>and evaluation of national health programmes are also covered in DPH programme. The training methodology for DPH includes</td>
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<td>‘Community Health Survey’ which gives hands-on working experience to the students in rural as well as urban communities.</td>
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<td></td>
<td>Some aspects of urban health are covered as a part of environmental health, sociology, health care delivery system, etc.</td>
</tr>
<tr>
<td>Bachelor of Medicine, Bachelor of Surgery (MBBS)</td>
<td>In MBBS curriculum, ‘Community Medicine’ teaches about community organization in rural and urban areas along with community</td>
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<tr>
<td>- Offered by 400 institutions (MCI, 2015)</td>
<td>participation. Component regarding health problems associated with urbanization and industrialization is also covered in</td>
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<td></td>
<td>community medicine. In MBBS, urban health posting for a duration of 8 weeks is mandatory during the fourth and fifth semesters.</td>
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<td></td>
<td>This posting enables students in managing common ailments at primary level in the urban community. Students are required to</td>
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<td>study a health-related problem in the community and describe the existing health care services available to the urban</td>
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<td>community. The students attend mobile clinics in slum areas to learn about the patterns of morbidity, care of patients and</td>
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<td>referrals at primary level. Students participate in the immunization, health education activities and special exercises, and</td>
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<td>contribute in the delivery of health care to the urban community.</td>
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<tr>
<td></td>
<td>Some aspects of urban health are covered as a part of environmental health, sociology, epidemiology, health care delivery</td>
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<td></td>
<td>system, etc.</td>
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<tr>
<td>Bachelor of Dental Surgery (BDS)</td>
<td>As per the curriculum for BDS programme, practicalclinics/field programmes in community dentistry cover various aspects</td>
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<tr>
<td>- Offered by 287 institutions (DCI, 2015)</td>
<td>of urban health-related issues. Preparation of project report on exploring, planning and setting private dental clinics in</td>
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<td></td>
<td>various locations including urban, semi-urban and rural locations imparts the much-needed practical exposure.</td>
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(Table 1 Continued)
(Table 1 Continued)

**Bachelor of Physiotherapy (BPT)**
~ Offered by 190 institutions
(Indian Association of Physiotherapists [IAP], 2015)

As per the BPT programme’s curriculum, urban health is touched upon in the third and fourth year only. ‘Sociology’ teaches about the role of urban and rural communities in public health. However, during the fourth year ‘Community Health Sciences’ covers community-based rehabilitation (CBR) in both urban and rural set-up. Community-based rehabilitation strategies in an urban set-up are practiced in urban health centres, community centres, clubs, mahila mandals, social centres, schools, industries, sports centres, etc.

**Bachelor of Homoeopathic Medicine and Surgery (BHMS)**
~ Offered by 185 institutions
(Indian Medicine, 2008)

In BHMS programme, ‘Community Medicine’ provides exposure on urban health. It focuses on making BHMS graduates well conversant with the national health problems at both rural and urban areas such that they can play an effective role in the field of not only curative but also preventive and social medicine including family medicine.

**Bachelor of Ayurvedic Medicine and Surgery (BAMS)**
~ Offered by 243 institutions
(Indian Medicine, 2008)

In BAMS curriculum, under ‘Public Health’ (Sarvajanika-Samajika Swasthavrittam) urban health is being taught vaguely especially in areas dealing with sanitation and disposal of solid waste (Apadravya nirmulana, i.e., methods of disposal of solid waste).

**Master of Science (MSc) Nursing**
~ Offered by 411 institutions
(Indian Nursing Council [INC], 2015a)

As per MSc Nursing curriculum, in the first year ‘Community Health Nursing’ covers nursing care for special groups, that is, urban and rural population at large. These special groups include children, adolescents, adults, women, elderly and physically and mentally challenged populations in urban and rural areas. Practical training includes posting at urban centres for 6 weeks. During the second year, ‘Community Health Nursing’ covers advanced skills for nursing intervention in various aspects of community health care settings (i.e., both urban and rural). Practical training during second year includes posting in urban and rural community for 17 weeks.

**Bachelor of Science (BSc) Nursing**
~ Offered by 1312 institutions
(INC, 2015b)

The BSc Nursing programme trains its students to function effectively as part of the team in the delivery of comprehensive health care (curative, preventive and promotive) in a community/hospital in urban as well as rural locations. Several topics during the first and second year of this programme cover various aspects of urban health.

As per BSc Nursing programme’s curriculum, in the first year ‘Community Health Nursing’ focuses on principles of health care for communities and the services available for them in urban and rural communities. ‘Public Health Nursing and Health Administration’ covers organization and administration of urban health services in India. ‘Maternal and Child Health’ covers needs and methods of meeting nutritional needs among women and children in urban and rural areas, immunization schedules, etc. ‘Sociology and Social Medicine’ covers the sociological contrast, social and economic life, etc. in urban areas.

During the second year, ‘Sociology’ focuses on social problems of urbanization, such as prostitution, minority groups, rights of women and children, child labour, delinquency and crime and substance abuse. ‘Community Health Nursing’ covers the organization and administration of urban health services in India and the role of health personnel in the community.
<table>
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<tr>
<th>Programme</th>
<th>Offered by</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>General Nursing and Midwifery (GNM)</td>
<td>2119</td>
<td>Practical experience in community health nursing field area is compulsory in GNM programme. The students are sent for community health nursing experience in urban as well as in rural field areas. 'Sociology' deals with urban society and its social problems in detail. 'Community Health Nursing' focuses on urban health care services in India.</td>
</tr>
<tr>
<td>Auxiliary Nurse Midwife (ANM)</td>
<td>1289</td>
<td>In ANM programme, students need to complete 110 hours of experience of 'Community Health Nursing'. This posting is in both rural and urban communities. Similarly, 160 hours of 'Community Health and Health Centre Management' experience is needed in rural and urban communities.</td>
</tr>
<tr>
<td>Post Graduate Diploma in Public Health Management (PGDPHM)</td>
<td>11</td>
<td>The PGDPHM programme teaches 'Urban Health' in its curriculum. It deals with urban health as a cross-cutting domain and covers issues related to urban health in various modules.</td>
</tr>
<tr>
<td>Masters in Public Health (MPH)</td>
<td>38</td>
<td>Urban health is taught either as a module or as a part of a related paper in MPH programmes. Additionally, topics such as environmental and occupational health, industrial health, urban health and urbanization cover urban health areas. The MPH programmes also offer field visits to urban and rural areas. Hands-on working experience is also provided to the students working in rural as well as urban communities (Public Health Foundation of India [PHFI], 2011). However, the content of MPH programmes is quite variable from one institution to another institution in India and so the emphasis on urban health-related issues.</td>
</tr>
<tr>
<td>Master in Business Administration in Health &amp; Hospital Management (MBA-HHM)</td>
<td>52</td>
<td>The MBA-HHM programme covers urban health as a part of ‘Health Care Delivery System and Policy in India'.</td>
</tr>
<tr>
<td>Master of Health Administration (MHA)</td>
<td>51</td>
<td>The MHA programme covers urban health as a module of two credits. However, credits and contents are variable from one programme to another one.</td>
</tr>
<tr>
<td>PhD in Community Medicine and other PhD programmes</td>
<td></td>
<td>Doctoral-level programmes being offered in Community Medicine and other public health-related disciplines offer ‘Urban Health’ as the area of research. Doctoral programmes in the health sector have a multidisciplinary focus and are open to postgraduates from medicine, dentistry, nursing, AYUSH, public health, health economics and allied sciences.</td>
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</table>

Discussion

The world is urbanizing rapidly with substantial changes in living standards, lifestyles, environment, social behaviour and health. While urban living continues to offer many opportunities, including potential access to better health care, today’s urban settings concentrate health risks and introduce new hazards for the communities (Population Foundation of India and USAID, 2015). On the eve of World Health Day in 2010, the Director General of World Health Organization (WHO) laid emphasis on improving the urban health (World Health Organization [WHO], 2010).

It is critical and important that the health professionals have clear understanding of the issues related to urban health and possess competencies to deal with these issues so that they contribute towards creating a healthy urban society. However, unfortunately as per the curriculum scan, current health professional courses being offered in India have a very little focus on urban health. It was observed that various cross-cutting issues related to urban health are not adequately addressed in the current curricula. Also the curricula of these health professional programmes have not clearly spelt out the desired urban health competencies. Few institutions in India offer short-term training programmes specific to urban health issues.

Traditionally, health professionals have a patient-centric approach on providing health care to individuals suffering with various illnesses. However, health professionals in urban areas have a crucial role in both through individual patient care and by engaging with urban health issues at community level. Adopting a population perspective to health care is an important part of modern general practice. There has always been a need for health professionals to have holistic understanding of urban health as several factors interplay to shape the health and well-being of urban populations (Glasgow Centre for Population Health, 2013). Health professionals need to promote healthy communities by focusing on the health of the population rather than individuals. This may include urban health issues from sanitation to infection control and immunization programmes to air pollution. Thus, to meet the current urban health challenges, there exists a demand for adequately imparting urban health competencies to the health professionals in India. Today, health professionals need to become champions in empowering communities to take an active control over their health and other factors (environmental, social, economic, etc.) that influence their health. Health professionals need to challenge and support their communities in finding new ways to meet urban health challenges. The underlying social conditions, which include a combination of economic stability, education, social and community context, accessibility of health care services and environmental factors, need to be worked out (Porter, Blashki & Grills, 2013).

The government agencies need these professionals to provide services to their citizens, to meet health care needs of the urban population with the focus on urban poor and to make available to them essential primary health care services and to reduce their out-of-pocket expenses for treatment (MoHFW, 2013c). Under the NUHM programme, the Government of India (GoI) offers various positions at central, state and district level. The NHM has been launched by GoI to carry out the necessary changes in the basic health care delivery system. The mission adopts a synergistic approach by relating health to determinants of good health, namely, segments of nutrition, sanitation, hygiene and safe drinking water in both rural and urban areas (MoHFW, 2013). Furthermore, GoI has announced Smart Cities Mission in June 2015 to meet the existing challenges and to prepare for the upcoming challenges of urbanization. The mission has been launched with an initial funding of ₹980 billion for the development of 100 smart cities (Exhibitors India Group, 2015). Additionally, a sum of ₹500 billion has been approved for funding Atal Mission for Rejuvenation and Urban Transformation (AMRUT) for 500 towns and cities in the next 5 years (Exhibitors India Group, 2015). The Smart City Mission intends to promote adoption of smart solutions for efficient use of available assets, resources and infrastructure. Furthermore, the mission aims
to provide assured water and electricity supply, sanitation and solid waste management, efficient urban mobility and public transport, robust IT connectivity, e-governance and citizen participation, safety and security of citizens (The Times of India, 2015). Thus, this mission was launched, recognizing urbanization as an opportunity for the nation’s growth and aiming to provide better quality of life to populations residing in urban areas.

To meet the growing urban health challenges and demand of health professionals trained in urban health, it becomes critical that the curriculum of health professional courses must comprehensively incorporate adequate content regarding urban health and its related areas. The curricula of these health professional courses should be designed on the basis of clearly spelt out urban health competencies. These health professionals trained with optimum urban health competencies shall have better understanding of urban health and will be better equipped to deal with urban health challenges. Also these health professionals would be able to provide health care and serve populations in a better way.

There is also a need to have more short-term training programmes focused on urban health in order to hone the skills and competencies of already working health professionals in this area. Urban health-centric short-term training programmes can be offered on topics focusing on various urban health challenges/problems, sustainable changes needed to meet the urban health challenges and best practices in urban health adopted by other countries. These short-term training programmes can contribute substantially in developing competencies needed for dealing with the urban health.

There is also a need to design long-term independent training programmes covering various aspects of urban health. Some of the institutions offering public health programmes, especially MPH programme, should develop and offer urban health track as a specialization in the MPH programme. Public health programmes have a substantial scope of generating urban health specialists, who are much needed for work in the health systems. Such MPH tracks will contribute significantly in developing urban health specialists.

In conclusion, it is important to strengthen the curriculum of health professionals courses in India with respect to scope, content and competencies related to urban health, so that the graduates of these courses are better equipped and competent to deal with the urban health challenges. Moreover, it is also important to design and offer short-term training programmes focusing on various issues related to urban health to enhance skills of existing health professionals. Development of specialized long-term academic programmes in urban health would help the country to produce much-needed urban health specialists. These efforts would help us to create competent health workforce to respond to the existing and emerging health needs of urban Indian population more efficiently and effectively.

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Universal health coverage in the World Health Organization South-East Asia Region: how can we make it “business unusual”?
Current status of Master of Public Health programmes in India: a scoping review

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Abstract

There is a recognized need to improve training in public health in India. Currently, several Indian institutions and universities offer the Master of Public Health (MPH) programme. However, in the absence of any formal body or council for regulating public health education in the country, there is limited information available on these programmes. This scoping review was therefore undertaken to review the current status of MPH programmes in India. Information on MPH programmes was obtained using a two-step process. First, a list of all institutions offering MPH programmes in India was compiled by use of an internet and literature search. Second, detailed information on each programme was collected via an internet and literature search and through direct contact with the institutions and recognized experts in public health education. Between 1997 and 2016–2017, the number of institutions offering MPH programmes increased from 2 to 44. The eligibility criteria for the MPH programmes are variable. All programmes include some field experience. The ratio of faculty number to students enrolled ranged from 1:0.1 to 1:42. In the 2016–2017 academic year, 1190 places were being offered on MPH programmes but only 704 students were enrolled. MPH programmes being offered in India have witnessed a rapid expansion in the past two decades. This growth in supply of public health graduates is not yet matched by an increased demand. Despite the recognized need to strengthen the public health workforce in India, there is no clearly defined career pathway for MPH graduates in the national public health infrastructure. Institutions and public health bodies must collaborate to design and deliver MPH programmes to overcome the shortage of public health professionals, such that the development goals for India might be met.

Keywords: India, Master of Public Health, MPH, public health, public health courses, public health education, public health professional

Background

The combined rise in chronic, noncommunicable diseases and continuing burden of infectious diseases has highlighted the need for strengthened health systems in low- and middle-income countries.⁴ A robust health system is necessary if the Sustainable Development Goals (SDGs) are to be achieved;⁷ it is also central to designing, implementing and monitoring health programmes; delivering quality health services; and ensuring universal health coverage.³ Strong health systems will need adequate and well-trained health professionals, and a shortage of health workforce can often be a crucial limiting factor in the delivery of quality health services in low- and middle-income countries.

Public health is a vital part of any health system and is ultimately responsible for reducing health risks and maintaining and improving health status. Consequently, as noted in a United States of America (USA) Institute of Medicine report, public health professionals play a pivotal role in the creation and maintenance of a healthy community.⁴ This report defined a public health professional as “a person educated in public health or a related discipline who is employed to improve health through a population focus”.⁴ Public health is a fusion of many cross-cutting disciplines, including but not limited to: medicine, behavioural and social sciences, statistics, management, communication, environment, nutrition, law, and public policy.⁵

India’s public health workforce

An emerging economy like that of India has to plan for adequate access to quality health care for its large population. There is a recognized need to initiate and appropriately strengthen public health education in the country.⁴ Considerable investment in public health training is needed to create effective public health professionals. In 2012, the High Level Expert Group for Universal Health Coverage for India recommended strengthening health-sector management by supporting postgraduate courses in public health and hospital management for health professionals, and reiterated that health curricula in the country have not kept pace
with the changing dynamics of public health, health policies and demographics. It recommended establishment of new public health management institutions in three phases: 2012–2015, 2015–2017 and 2017–2022. The High Level Expert Group also emphasized the immediate need to establish public health training institutions and strong partnerships with public health management training institutions. The National Health Policy 2017 built on this theme, by explicitly proposing creation of a public health management cadre in all states. The policy also advocates an appropriate career structure and recruitment policy to attract young and talented multidisciplinary professionals. Medical professionals would be expected to form a major part of this workforce, but professionals from diverse backgrounds, including sociology, economics, anthropology, nursing, hospital management, and communications, who have public health management training, should also be considered. The policy notes that states could decide to locate these public health managers, with medical and non-medical qualifications, in the same or different cadre streams within their directorates of health.

Traditionally in India, medical colleges were the centres for creating public health professionals. In the last two decades, there has been a significant change in the way public health professionals are trained in the country. There has been a conscious shift towards the creation of schools of public health outside medical colleges, allowing non-medical personnel to acquire academic competencies in public health disciplines. Currently the Master of Public Health (MPH) programme is being offered by various institutions and universities under the minimum standards for a masters degree laid down by University Grants Commission regulations, 2003. In the absence of a formal body or council for regulating public health education, to date, there has been limited information on evolution, development and issues related to MPH programmes in India.

To remedy this situation, a Task Force for Public Health Education of Sub-Group on Health Education and Training of UK–India Joint Working Group on Cooperation in the Field of Health has been constituted at the level of the Government of India, to work on developing a model MPH curriculum. The model programme of study will focus on skills related to analysis and assessment, policy planning and development, communication skills, financial planning, management and leadership. Two authors of the present paper (SZ and HN) are members of this taskforce.

This paper reviews the current status of MPH programmes in India.

Methodology

Data regarding the existing MPH programmes were obtained using a two-step process originally used by Zodpey et al., and subsequently replicated in several research studies related to public health education. In the first step, a list of institutions offering MPH programmes in India was constructed. An internet search was conducted, using the Google search engine and keywords including “public health programmes”, “public health courses”, “Master of Public Health”, “MPH” and “schools of public health”. The search was limited to programmes offered in India and to collaborations between Indian and foreign institutions, if any. Only master’s-level programmes of a minimum of 2 years’ duration were included. For example, the Post Graduate Diploma in Health Science (Public Health) offered by Annamalai University, which is equivalent to a MPH of 1 year’s duration, was not included, since the University Grants Commission regulations stipulate that a master’s degree programme should be a minimum of 2 years’ duration. The websites of the All India Council of Technical Education, University Grants Commission, and universities and institutions were also searched. In addition, education supplements of leading newspapers and education-based websites, including shiksha.com, targetstudy.com, getmyuni.com and career.webindia123.com, were searched. Experts in the field of public health education were also contacted and related literature was also identified through Google Scholar and PubMed.

In the second step, detailed information about the MPH programmes was collected from the institutions and their websites. The admissions office, relevant departments and faculty of these institutions were contacted by telephone and email, to request information on the fee structures, number of student places, eligibility criteria, duration of the programme and programme details. Any other salient features of relevance to the programmes, such as the ownership, affiliation and geographical location of the institution, specializations offered (if any), or number of faculty for the MPH programme, were also collected. The information was incorporated into a matrix and the findings were triangulated wherever possible.

The collated data were then analysed based on the year of launch of the MPH programme, the ownership, affiliation and geographical location of institutions, eligibility criteria, duration, specializations offered, number of faculty, intake capacity and enrolled numbers, and the accreditation/curriculum of courses.

Results

This scoping review identified 46 institutions that have ever offered a MPH programme in India. However, out of these 46, two institutions discontinued their MPH programmes from 2013 onwards. In the academic year 2016–2017, 44 institutions offered 46 MPH programmes (two institutions offered two different types of MPH programmes). Thus, for India in 2016–2017, there was one MPH programme in existence per 28.7 million population. Of these 44 institutions, 42 had at least one student enrolment in 2016–2017, whereas, two institutions had no enrolments. Findings on these 44 institutions and the 46 MPH programmes offered in 2016–2017 are summarized next.

Evolution and growth

The first MPH programme in India was launched at Mahatma Gandhi University, Kottayam, Kerala, in 1995. This was followed by the Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Kerala in 1997. During the decade from 1996 to 2002, four institutions commenced MPH programmes – Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad in 2000; the National Centre for Disease Control, New Delhi in 2005; and both Jawaharlal Nehru University, New Delhi and the Interdisciplinary School of Health Sciences, University of Pune, Pune in 2007. In the decade from 2007 to 2016, MPH programmes were launched by 40 institutions, including an upsurge in the number of private institutions offering MPH programmes (see Fig. 1). MPH programmes offered at Birla
Institute of Technology and Sciences, Pilani, Rajasthan and Chitkara University, Punjab were discontinued in 2013.

Ownership and geographical coverage
Of the 44 institutions currently offering MPH programmes (see Box 1), 26 are privately owned and 18 are in the public sector. Tata Institute of Social Sciences offers two MPH programmes, one in social epidemiology and the other in health policy, economics and finance. Sri Ramaswamy Memorial University also offers two programmes: a MPH and a Master of Business Administration (MBA)/MPH dual degree.

In terms of geographical location, eight institutions are situated in Karnataka; six in Delhi-National Capital Region; five in Maharashtra; four each in Uttar Pradesh and Tamil Nadu; three in Kerala; two each in Chandigarh, Gujarat, Rajasthan, Telangana and West Bengal; and one each in Himachal Pradesh, Nagaland, Odisha and Puducherry. The concentration of institutions offering the MPH is therefore mostly outside the Empowered Action Group states that are targeted for special government health and development assistance.

Eligibility
MPH programmes in India are postgraduate-level courses aimed at building the human resources capacity in public health. Most of the MPH programmes provide opportunity to graduates from multidisciplinary medical backgrounds such as medicine, dentistry, physiotherapy, occupational therapy, AYUSH (ayurveda, yoga and naturopathy, unani, siddha and homoeopathy), nursing, veterinary sciences or pharmacy; and non-medical backgrounds such as engineering, statistics/biostatistics, demography, population studies, nutrition, sociology, economics, psychology, anthropology, social work, management, life sciences, social sciences, management, law, arts, etc., to enrol for the programme. In addition to these eligibility criteria, some institutions give preference to candidates with a prior health background, i.e. of working in health services. The eligibility criteria for MPH programmes are variable; for example, some institutions enrol AYUSH graduates in their MPH programmes, while some do not allow them to enrol, even though they are trained in health sciences.

Duration
Of the 46 MPH programmes offered, 44 are of 2 years’ duration. In addition, there are two 3-year programmes: Rajiv Gandhi University of Health Sciences, Karnataka’s MPH (Honours) and Sri Ramaswamy Memorial University’s MBA/MPH programme.

Specializations offered
Thirty institutions do not offer any specialization as part of their MPH programme, whereas 14 offer specialization in domains such as epidemiology, nutrition, health promotion and health management, maternal and child health, field epidemiology, community nutrition, health economics, financing and policy, health systems, and occupational and environmental health.

Pedagogy
All MPH programmes are taught on-campus, apart from the programme offered by the Global Open University, Nagaland, which is a distance-learning course. Course work covers standard fields of public health, including epidemiology, biostatistics, environmental health and health policy. Most on-campus programmes include teaching with practical/field experience.

Faculty
The faculty in most of the institutions have a multidisciplinary background. However, MPH programmes offered through medical colleges are predominantly taught by faculty with a
Box 1. List of institutions offering Master of Public Health programmes in 2016–2017 (in alphabetical order; n = 44)

- Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala
- Akal School of Public Health, Eternal University, Sirmour, Himachal Pradesh
- All India Institute of Hygiene and Public Health, Kolkata, West Bengal
- Amity University, Noida, Uttar Pradesh
- Amrita Institute of Medical Sciences and Research Centre, Kochi, Kerala
- Asian Institute of Public Health, Bhubaneswar, Odisha
- Athar Institute of Health and Management Studies, Gautam Nagar, New Delhi
- Centre for Emerging Areas in Science and Technology, Panjab University, Chandigarh
- Christian Medical College, Vellore, Tamil Nadu
- Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra
- Delhi Pharmaceutical Sciences and Research University, Pusp Vihar, New Delhi
- Global Institute of Healthcare Management, Najafgarh, Delhi-National Capital Region
- Indian Institute of Public Health – Delhi, Gurgaon, Delhi-National Capital Region
- Indian Institute of Public Health – Hyderabad, Hyderabad, Telangana
- Indian Institute of Public Health – Gandhinagar, Gandhinagar, Gujarat
- Institute of Health Management Research, Jaipur, Rajasthan
- Institute of Public Health, Kalyani, West Bengal
- Interdisciplinary School of Health Sciences, University of Pune, Pune, Maharashtra
- Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, Puducherry
- Jawaharlal Nehru University, Munirka, New Delhi
- Jodhpur School of Public Health, Jodhpur, Rajasthan
- Jagadguru Sri Shivarathreeswara University, Mysuru, Karnataka
- Karnataka Lingayat Education University, Belgaum, Karnataka
- Maharashtra University of Health Sciences, Nashik, Maharashtra
- Mahatma Gandhi University, Kottayam, Kerala
- National Centre for Disease Control, Sham Nath Marg, New Delhi
- National Institute of Epidemiology, Chennai, Tamil Nadu
- National Institute of Mental Health and Neuro Sciences, Bengaluru, Karnataka
- Nitte University, Mangaluru, Karnataka
- Noida International University, Gautam Budh Nagar, Uttar Pradesh
- Padmashree School of Public Health, Bengaluru, Karnataka
- Parul University, Ahmedabad, Gujarat
- Post Graduate Institute of Medical Education and Research, Chandigarh, Punjab
- Pravara Institute of Medical Sciences, Ahmednagar, Maharashtra
- Rajiv Gandhi Institute of Public Health and Centre for Disease Control, Bengaluru, Karnataka
- Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad, Uttar Pradesh
- Sri Ramaswamy Memorial Institute of Science and Technology, Chennai, Tamil Nadu
- Sri Ramachandra Medical College and Research Institute, Chennai, Tamil Nadu
- Tata Institute of Social Sciences, Mumbai, Maharashtra
- Manipal University, Manipal, Karnataka
- The Global Open University, Dimapur, Nagaland
- University of Hyderabad, Hyderabad, Telangana
- University of Lucknow, Lucknow, Uttar Pradesh
- Yenepoya University, Mangaluru, Karnataka

Medical background. Faculty numbers for MPH teaching were available for 41 institutions and ranged from 1 to 25, with a median of 6. The ratio of faculty number to student enrolments in 2016–2017 of these 41 institutions ranged between 1:0.1 and 1:42. Institutions with very minimal faculty, for example one, bring external faculty from other institutions to teach their programme.

Intake capacity versus enrolments

In the 2016–2017 academic year, out of 44 institutions, 1190 places were being offered on MPH programmes but only 704 students were enrolled. Two institutions had zero enrolments, 16 had fewer than 10 enrolments, 13 had 10–20 enrolments and 13 had more than 20 enrolments. At 59%, the place occupancy for MPH programmes in India compares poorly with that for the Bachelor of Medicine and Bachelor of Surgery (MBBS) qualification, which is anecdotally 95%. However, place occupancy for the Bachelor of Dental Surgery programme has recently reduced to around 50%.

The number of students graduating from an Indian institution with a MPH degree can only be estimated. During 2007–2016,
more than 4300 enrolments took place in MPH programmes in India. Assuming 95% of students successfully graduated from these MPH programmes, there have been around 4100 MPH graduates. Information on employment of MPH graduates was available for three institutions; 93% of MPH graduates were in some form of employment.

Accreditation and curriculum
Currently, no formal regulatory mechanism exists in the country for the accreditation of public health courses, including MPH programmes. In 2011, the National Commission for Human Resources for Health Bill was introduced, which included formation of a National Council for Human Resource in Health for the regulation and accreditation of health education. However, the bill has not yet been enacted. The curriculum of the MPH programmes is therefore variable, as these programmes are offered by different universities and institutions and no standard curriculum exists in the country.

Discussion
India is ranked in the bottom quarter worldwide in terms of overall SDG health index and needs a well-trained public health workforce. Traditionally, in India, medical colleges were the centres for training public health professionals. However, this training has been criticized as failing to provide exposure and develop expertise in health management, administration and national health programmes. Of late, in public health education, there has been a shift from medical schools to public health schools. This is also occurring in high-income countries, such as the United Kingdom of Great Britain and Northern Ireland, where the need to develop a multidisciplinary public health specialist workforce has been recognized.

Across the world, the number of schools offering public health programmes is growing, although some regions are less well supplied with higher education in public health disciplines than others. Brazil, an emerging economy with more than 40 schools of public health, probably now has one of the greatest concentrations of public health training programmes in the world, at one course per 5 million population. Although the situation in Brazil is not necessarily a “gold standard”, it is striking that in in India there was only one course per 28.7 million population in 2016–2017.

The Association of Schools of Public Health of the United State of America (US ASPH) requires MPH programmes to include five core areas, namely, epidemiology, biostatistics, health management, behavioural and social sciences, and environmental and occupational health, together with other modules that are integral for acquiring public health competencies. Faculty qualified to teach these core and supplementary areas are essential for MPH programmes in India. The first step for some institutions will be to recruit the appropriate number of appropriately qualified faculty. The University Grants Commission of India recommends that the faculty:student ratio should be between 1:15 and 1:10 for postgraduate-level programmes, to ensure teaching quality and rigour. The faculty:student ratio in MPH institutions in India for 2016–2017 ranged between 1:0.1 and 1:4.2. Thus, for MPH programmes there is a need to maintain a faculty:student ratio of at least 1:15. In turn, there is a need to generate a faculty pipeline by, for example, starting PhD and DrPH programmes in public health.

Similar to the finding of this study of the low occupancy of places on MPH programmes in 2016–2017, prior work undertaken by the Public Health Foundation of India found that in 2011, 23 institutions in India offered MPH programmes with 5–15 enrolments per academic year. In 2010, out of 573 places, only 430 candidates enrolled in a MPH programme, which indicates a place occupancy of around 75%. Currently the enrolment into MPH programmes is lower in percentage terms than the enrolments in 2011. The number of MPH places available has already doubled from approximately 573 (23 institutions in 2011) to 1190 (44 institutions in 2016–2017). It would therefore be more appropriate to focus on enhancing enrolments to existing MPH programmes rather than launching new MPH programmes.

Currently, the Medical Council of India (MCI) and Indian Nursing Council (INC) regulate only those courses that are offered through medical and nursing schools respectively. The current MPH programmes are regulated by the university that grants the master’s qualification. As with the MCI and INC, a council or professional body for public health courses is needed for accreditation of MPH programmes in India. This professional body would develop a system for determining and certifying minimum standards of education for the different occupations and professions in the health system. Accreditation of public health programmes will lay standards for regulation for high-quality academic standards, responsiveness and ethical practices for public health education in India.

In 2006, the US ASPH identified core competencies for the MPH programmes in the USA. Similarly, the public health community in India needs to develop and adopt a MPH competency framework tailored to the public health needs of India. In 2010, Sharma et al. proposed that MPH graduates in India must have competencies such as: monitoring of health problems and epidemics in the community, applying biostatistics in public health, conducting action research, understanding social and community influences on public health, developing indicators and instruments to monitor and evaluate community health programmes, developing proposals, and involving the community in planning, delivery, and monitoring of health programmes. Professionals with skills in monitoring and evaluation (M&E) are essential in public health systems, yet M&E capacity in many low- and middle-income countries is lacking. In 2013, Negandhi et al. used a group consultation involving institutions from Bangladesh, India, Nepal and Sri Lanka to identify a set of 15 core competencies for M&E training relevant to the south Asian context. Work on a public health competency framework has also been undertaken by Pandav et al., to standardize the core and cross-cutting public health training needs of medical undergraduates in India.

There are no imperatives or incentives for institutions that offer MPH programmes in India to collaborate or share resources. Each individual institution effectively functions alone. A culture of collaboration among these institutions would encourage a sharing of best practices in tuition and development of teaching materials, and widen the faculty resource pool. For example, in the past the Indian Public Health
Association, with support from the World Health Organization Country Office for India convened an expert group to draft a competency framework for public health professionals in India.41

Currently, MPH graduates in India are employed in the public, private and nongovernmental sectors, in teaching, research and implementation roles. However, there are no well-defined career pathways, which is a significant barrier for MPH graduates who wish to work in the public health sector.42

As noted earlier, the National Health Policy 2017 has proposed creation of a public health management cadre in all states, with a qualification in public health or related discipline as an entry criterion.8 The policy also advocates an appropriate career structure and recruitment policy to attract young and talented multidisciplinary professionals.8

The number of MPH programmes in India has expanded rapidly in the past two decades. This growth on the supply side is not yet matched by an increased demand for these graduates. Advertisements for managerial positions in the National Health Mission, such as state programme managers, district programme managers and block programme managers, should list a public health qualification like MPH as an essential or desirable qualification. Opportunities are slowly emerging for MPH graduates in the private sector, which has witnessed a growth in public health activities through corporate social responsibility programmes. Opportunities for MPH graduates in sectors such as pharmaceuticals and information technology are also increasing. MPH graduates with strong quantitative skills will be ideally suited to work in health-related “big data” initiatives. In addition, more graduates with public health qualifications and skills are needed within the development sector, which is increasingly involved in the public health arena.

Conclusion

Despite the overwhelming need to strengthen India’s public health workforce, MPH programmes are currently undersubscribed. Enrolled MPH students are not currently trained according to an explicitly stated, standardized competency framework that is tailored to the Indian context. Increased clarity on the role of MPH graduates in India’s public health infrastructure would help institutions to adjust their programmes and ensure graduates are equipped with the required skill-sets. These, and other activities discussed in this paper, are essential to overcoming the shortage of public health professionals and meeting the development goals for India.

Source of support: None.

Conflict of interest: None declared.

Authorship: All authors were involved in the overall study design. RT conducted the literature review and collected and analysed the data. RT also wrote the first draft of the manuscript; this was reviewed and commented upon by HN and SZ, who reviewed it critically for important intellectual content.


References


Appendix XIV: Plagiarism Report

Estimating Supply, Need, Demand and Mapping Career Opportunities for Public Health Professionals in India

by Ritika Tiwari

Submission date: 27-Jun-2018 04:50PM (UTC+0530)
Submission ID: 978906036
File name: PhD_Thesis_v3_27062018_with_appendices.pdf (5.89M)
Word count: 76015
Character count: 438637
Estimating Supply, Need, Demand and Mapping Career Opportunities for Public Health Professionals in India

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