## **Appendix**

Section I: Types of workforce directly and indirectly engaged in improving human health identified in the NSSO survey

Classification of workforce	NCO code 2004	NIC code 2008	Types of workers identified			
Health workers in	222, 223, 322,	86100 to	Physician, AYUSH, Dentist,			
health sector	323, 324	86909	Nurse and midwives, health			
			associates, physiotherapist,			
			traditional medical			
			practitioners			
Health workers in	222, 223, 322,	All other NIC	Health professionals (including			
non-health sector	323, 324	codes	physician, AYUSH and Dentist) ,			
			Nurse and midwives, health			
			associates,			
Non-health	All other NCO	86100 to	Other support staff such as			
workers in health	codes	86909	Managers, Engineers, Clerks,			
sector			cashiers, personal care, garbage			
			collectors, drivers etc.			

## Section II. Methods of projection for health workers

To project the size of HRH at January1, 2016, first we projected total population using the following equation (1)

$$popl_{ijk} 2016 = popl_{ijk} 2011*(1+r_{ijk} \div 100)^{4.75}$$
 (1)

Where;  $popl_{ijk}$  2016 is projected population as of January 1, 2016;  $popl_{ijk}$  2011 is population on March, 1 2011; Number of years between March 1, 2011 and January 1, 2016 is represented by 4,75; and subscript ijk represents group of population of gender i (male or female) living in area j (rural or urban) in state k.

 $r_{ijk}$  is cumulative annual growth rates (%) of population ijk between 2001 and 2011 estimated using the formulae:  $r_{ijk} = \sqrt[10]{((popl_{ijk} 2011 \div popl_{ijk} 2001)} - 1)*100$  ......(2)

From NSSO, we estimated worker population ratio (WPR) for different categories of health workers as given by:  $WPR_{ha} = N \div popl2011-12 \dots (3)$ 

Where;  $WPR_{ha}$  is WPR of any particular category of health workers such as doctors, dental, AYUSH, nurse and midwife etc., N is number of workers in each category and popl2011-12 is total population, all of these parameters have been estimated from NSSO 2011-12 survey.

Finally, we estimate total number of health workers and disaggregated by categories by multiplying category wise WPR with the projected population i.e. by multiplying equation (3) with equation (1) as follows:

$$HW_{ha} = popl_{iik} 2016*WPR_{ha}$$
 .....(4)

Where 'HW' represents health workers from categories 'a' (representing doctors, dental, AYUSH, nurses etc.)

## Section III. Appendix Table

Appendix Table A I: Gender, age, education and employment status of health workers

Attributes	Allopathic doctor	AYUSH	Dental	Diagnostics	Health associates	Nurse & midwife	All
Gender							
Male	78.09	86.46	70.15	93.58	70.7	21.2	58.01
Female	21.91	13.54	29.85	6.42	29.3	78.8	41.99
Age (in years)							
below 25	3.52	8.45	1.51	1.34	16.73	27.09	15.16
26-35	34.12	26	50.07	55.74	33.82	31.13	33.1
36-49	37.53	37.68	42.23	32.1	30.72	27.71	32.4
50-60	16.94	16.04	6.19	10.82	14.75	13.51	14.99
60-70	5.36	10.54	0	0	3.67	0.51	3.42
70 & above	2.54	1.29	0	0	0.31	0.05	0.94
Education							
Below higher secondary	14.33	15.38	3.08	5.36	46.31	34.64	29.89
Higher Secondary	14.74	9.7	13.05	39.97	22.73	41.24	25.74
Graduate & above	70.93	74.92	83.86	54.67	30.97	24.12	44.37
<b>Employment status</b>							
Self-employed	62.94	88.06	77.73	76.08	36.19	6.9	38.83
Regular wage earner	36.17	11.94	22.27	23.92	56.18	88.52	57.22
Casual Wage earner	0.89	0	0	0	7.63	4.58	3.95
Total	100	100	100	100	100	100	100