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Current population-based public health workforces in Bangladesh

World Health Day 2006 demonstrated spotlight on health workforce crisis. The report mentioned that an acute shortage of health workers is having a devastating impact on many countries' ability to fight disease and improve health. The report outlines the need for more investment in the health workforce and sets out a 10-year plan to address the crisis¹. The World health report 2006 defines health workers as all people engaged in actions whose primary intent is to enhance health^{2,3}. Health workers include people who provide health services such as doctors, nurses, pharmacists, laboratory technicians and management and support workers such as financial officers, cooks, drivers and cleaners^{4,5}. The core functions of public health agencies have been defined as assessment (community diagnosis); policy development and leadership; and assurance of access to environmental, educational, and personal health services². Rich countries have pledged to support them, through aid, debt relief, and fairer trade. Strategies for Millennium Development Goals (MDGs) are partnership, good practice, goal by goal, knowledge network, and millennium projects⁶⁻⁸. The number of health workers in a country is the main indicator of its capacity to deliver services and varies substantially among countries. Fifty-seven countries, most of them in Africa and Asia, face a severe health workforce crisis. WHO estimates that at least 2,360,000 health service providers and 1,890,000 management support workers, or a total of 4,250,000 health workers, are needed to fill the gap. Health workforce of health and family welfare and community volunteers were intended to work here.

A cross sectional study conducted in 41 districts out of 64 of Bangladesh from July 2007 to June 2008. The objective was to identify the current status of public health workforce under the district health care system to reach the MDGs. The study populations were office of the civil surgeon's and

their relevant records were used as source of data. Simple random sampling technique was used for collection of data in this study. Both questionnaire and checklist was developed based on the objective of the study and was used accordingly for data collection. At the study sites data was collected reviewing the records documents using the research instruments with the help of the concern workforces. Data were accumulated, checked and verified for completeness and correctness. After editing, necessary coding data was entered in to computer for analysis using SPSS 12.0 package. Descriptive statistics was employed for analysis of data for finding results and interpretations.

At the base of recruitment of health assistant, 87.7% districts were found that each of them were recruited for every 5,000 or less number of populations and on an average population for each health assistant were 4,311 and maximum were for 6,000 populations. But at present, a health assistant is working for more than 5,000 populations, mean 8,508 and maximum 17,500 populations found in 90.2% districts. Highest 36.6% districts have found available post for health assistant 201 to 300, mean available posts 354 and maximum 829 posts. But at present, highest 53.7% districts have found ≤ 200 health assistant is working, mean working health assistant 235 and maximum 563 health assistant are working.

Table I: Distribution of field level public health workforces and working population in different district (n=41)

Number of populations and posts for workforces	Population serving by health workforce		
	Mean \pm SD	Number of Districts	%
<i>Health assistant</i>			
Base recruitment for $\leq 5,000$ population	4311 \pm 792	36	87.7
Working at present for $\leq 5,000$ population	8,508 \pm 3,332	4	9.8
Present post 201-400	354.05 \pm 189	22	53.7
Working at present ≤ 300	235 \pm 124	31	75.9
<i>Assistant health inspector</i>			
Base recruitment ≥ 5	5 \pm 1	32	78.0
Working at present ≤ 4	4 \pm 1	25	61.0
Available post at present ≤ 100	71 \pm 38	33	80.5
Working at present ≤ 100	63 \pm 33	34	83.0
<i>Health inspector</i>			
Base recruitment for assistant health inspector ≤ 4	4 \pm 3	38	92.7
At present working for assistant health inspector ≤ 4	5 \pm 3	30	73.2
At present available post of health inspector ≤ 25	24 \pm 13	29	70.7
At present health inspector working ≤ 25	17 \pm 10	33	80.5

Table II: Distribution of nurse and doctors workforces in different districts (n=41)

Status of workforce	Status of doctors and nurse workforces		
	Mean \pm SD	Number of districts	%
<i>Nurses</i>			
Present post >100	127 \pm 50	27	65.9
Working at present >75	103 \pm 46	31	75.6
Vacant post \leq 50	23 \pm 21	30	73.2
<i>Physicians</i>			
Present post \geq 76	116 \pm 66	29	70.8
Working at present \leq 75	87 \pm 68	22	53.6
Vacant post >25	60 \pm 38	32	78.0

The target population for a health assistant on an average increased from 4,311 to 8,505. Therefore, the ratio of increase of target population for a health assistant is 1:1.97 and the rate of increase is 97.29% of target population. There are 39.0% study districts (highest) have found \geq 76 vacant posts for physicians. On an average 51.72% posts of physicians are vacant in study districts. As the target population for a health assistant is increased near to double and just two-thirds of existing posts for health assistant are filled up and still more than one third of existing posts are remained vacant. Therefore, a strong policy decision is urgently needed for the recruitment of the necessary workforces. This proportionately decreases the working health assistant against the available posts which identifies the inadequacy of required health assistant workforce. As there are increasing population size for each health assistant more than double to above four times of the base number of population and simultaneously the working health assistant disproportionately decreased, therefore public health workforce and population grossly become negatively imbalanced that could much influence negatively upon work performance of the workforces.

We acknowledge Bangladesh Medical Research Council for providing us the fund to conduct this research. The support of all civil surgeons during the data collection process is also highly acknowledged.

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DOI: 10.3329/bmrcb.v35i2.4082

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Safety and efficacy of atrial septal defect closure on normothermic on-pump beating heart

The advancement of percutaneous intervention technique has been a driving factor for the development of new surgical techniques that are less invasive, less traumatic, and safer and covers a broader spectrum of cases, which were previously thought as inoperable. Though the use of cardiopulmonary bypass, hypothermia and hyperkalemic cardioplegic arrest gained wide acceptance yet the deleterious effect of extracorporeal circulation and unavoidable ischemic-reperfusion injury of aortic cross clamping and cardioplegic arrest resulting in myocardial edema and cardiac dysfunction could not be avoided. Several new strategies were worked out for better myocardial protection which included the method of sandwiched cold cardioplegia with warm induction and terminal hot shot, continuous retrograde warm blood cardioplegia, intermittent antegrade infusions of warm blood cardioplegia and eventually simultaneous antegrade/ retrograde continuous arm blood cardioplegia¹⁻³.

In order to avoid myocardial edema, which is intrinsic to an arrested heart and to avoid ischemic-reperfusion injury the concepts of warm beating heart surgery has been introduced^{4,5}. In this technique, the aorta is clamped, warm blood is given simultaneously antegrade and retrograde,