

Tracking of Working Status and Experiences of Bio-Medical Equipment Technician Graduates in Nepal

ENHANCING RURAL HEALTHCARE

A Follow Up Survey 2018



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National Health Training Center and Nick Simons Institute (NSI)**

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Background

Healthcare technology offers many benefits and have greatly enhanced the ability of health professionals to prevent, diagnose and treat diseases. Timely access to emergency care and the use of diagnostic and therapeutic tools reduces patient mortality. Yet, WHO estimates that around 50% of medical equipment in developing countries is not functioning, not used correctly and optimally and perpetually not maintained ^[1]. Various factors; lack of training on operating medical devices, less sense of accountability, power interruption, work overload, lack of maintenance expertise and inappropriate referral system influence the availability and utilization of medical devices ^[2]. A sample survey carried out in 8 hospitals of Nepal showed that almost 61% medical equipment need the maintenance due to lack of appropriate maintenance system ^[3].

In response to this issue, the National Health Training Center (NHTC) of Nepal with the collaboration of external development partners, introduced a new training program, 'Biomedical Equipment Technician (BMET) in 2004 ^[4]. The training duration was twelve months and included courses in electronics, digital electronics, mathematics, computer, physiology, medical instrument design and medical equipment maintenance and repair. The course includes a field practicum with hospital experience. In 2014, the BMET course got upgraded to Diploma level known as "Diploma in Biomedical Equipment Engineering (DBEE)" for eighteen months, under Council for Technical Education and Vocational Training (CTEVT). Nick Simons Institute (NSI) has been instrumental in developing and promoting BMET/DBEE courses as part of its mission to enhance rural healthcare in Nepal.

As of 2017, a total of 177 [138 BMETs and 39 DBEEs] graduated. The Government of Nepal and the external development partners have deployed some of the BMETs in the district level hospitals of rural Nepal. NSI conducted the follow up survey of BMET/DBEE graduates in order to understand the working status of those graduates in Government hospitals.

Objective

The objectives of this follow up was to track the working status of BMET graduates and explore the experiences of BMETs working in government hospitals that serves the majority of the people in Nepal.

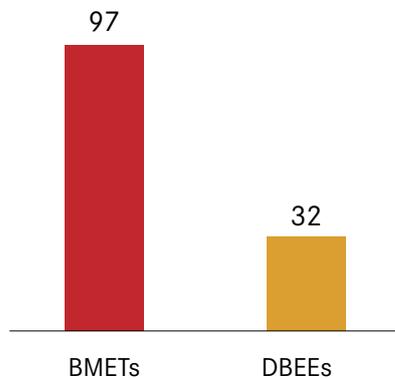
Method

Telephone and email surveys were conducted with BMET graduates end 2018. Out of total graduates only 73% (n=129) were involved in the survey. The quantitative data collected were BMET graduates' age, gender, working status, types of organization, job satisfaction and the perception regarding current job etc.

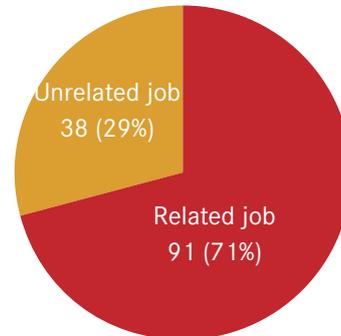


Results

Coverage of respondents by training category



BMET Graduates by involvement in course related job



- Altogether 129 graduates were involved in the survey [97 BMETs and 32 DBEEs].
- Among those involved in the survey, 71% (n=91) were doing course related jobs.

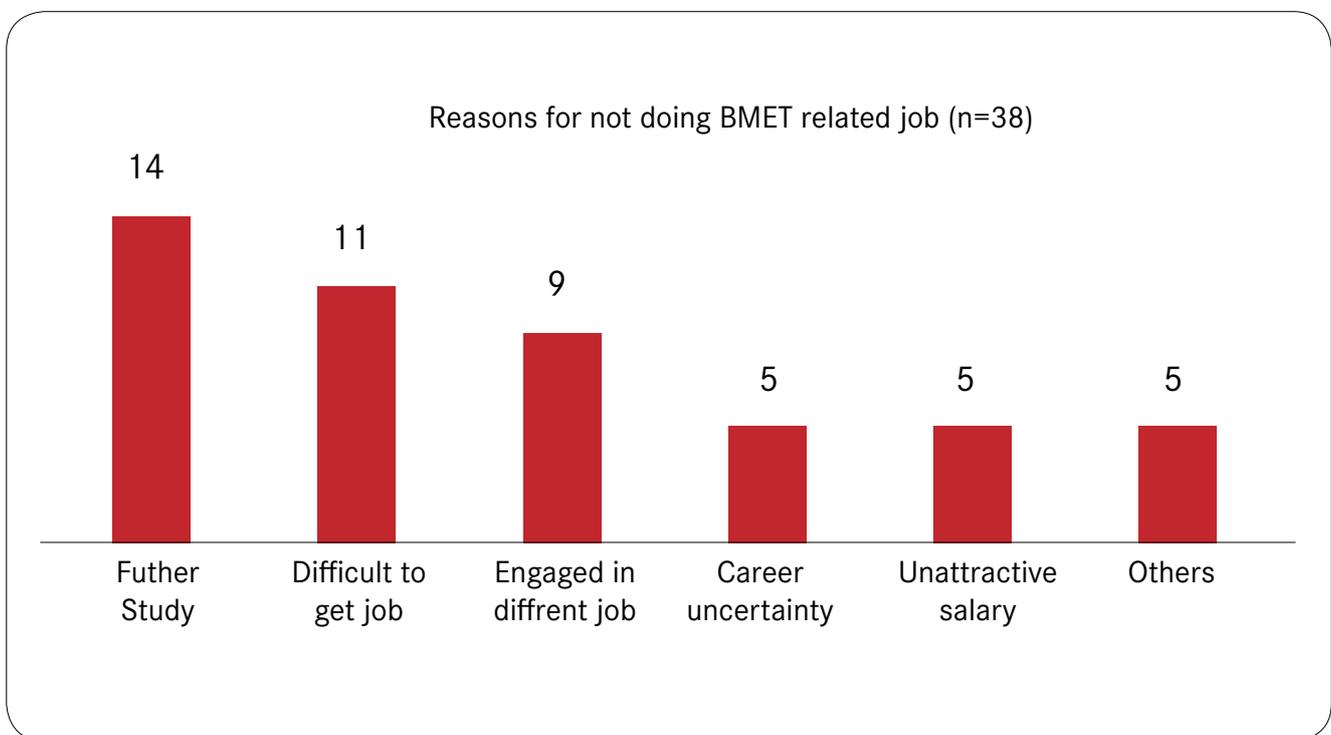
Demographic Characteristics of the BMET Graduates

- The average age of the BMET graduates participated in the survey was 31 years and 90% of them were male
- Half of the graduates belong to age below 30 years.
- Out of respondents who were doing course related work, 96% male were engaged in course related work whereas out of 13 female graduates only 4 (31%) were doing BMET related work.



Variables		Overall (n=129)	Related work (n=91)	Unrelated work (n=38)
Age	Mean Age [SD]	31 [8]	31 [7]	32[10]
Age Categories	<=29	68(52%)	48 (53%)	20(53%)
	30-39	36(28%)	29 (32%)	7(18%)
	40-49	19(15%)	11(12%)	8(21%)
	>=50	6(5%)	3(3%)	3(8%)
Gender	Male	116(90%)	87(96%)	29(76%)
	Female	13(10%)	4(4%)	9(24%)

Participants who were not doing BMET related work were asked the reasons for not involving in course related works.



- The most common reasons for not being involved in BMET related work included further study [37%, n=14] followed by due to difficulty in getting jobs [29%, n=11].
- Difficult to get BMET related job was also another leading reason for preventing respondents to engage in this sector.
- Some of the respondents specified that unattractive salary and career uncertainty were also the reasons which prevented them to peruse a career in BMET.
- Even though respondents were not doing BMET related job, 63% (n=24) participants still wanted to do jobs related to course if they would get the opportunity.

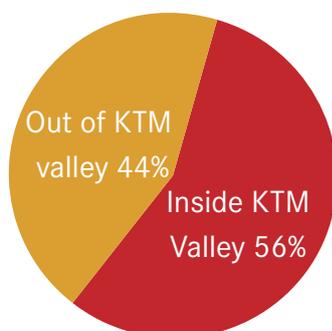
Following section of the report presents the findings of those participants who were engaged in BMET related jobs.

Data informed about the professional engagement of BMET graduates by different types of organizations.

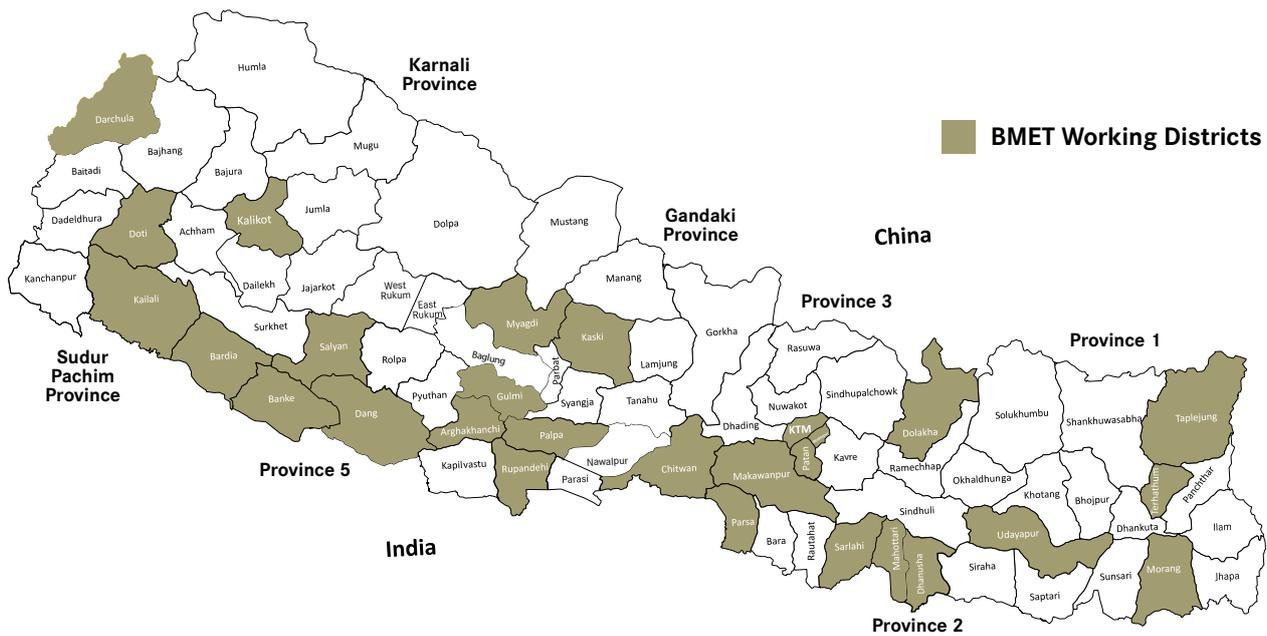
- Majority of respondents (48%) were working for government hospitals.
- Vendors and private hospitals recruited 26% and 14% respondents respectively.
- More than half (56%) of participants were working in Kathmandu valley.
- BMETs were working in 28 districts across Nepal from East to West however 74% were working in the hilly region.
- 40% BMETs working in hilly region were recruited by private hospitals and suppliers.

Organization	BMET	DBEE	Total
Govt. Hospital	33 (49%)	10 (43%)	43 (48%)
Vendors	16 (24%)	8 (35%)	24 (26%)
Pvt. Hospital	11(16%)	2 (9%)	13 (14%)
Govt. Office	6 (9%)	2 (9%)	8 (9%)
Mission Hospital	2 (2%)	1(4%)	3 (3%)
Total	68	23	91

Location of Workplace



Distribution of BMETs Workstation

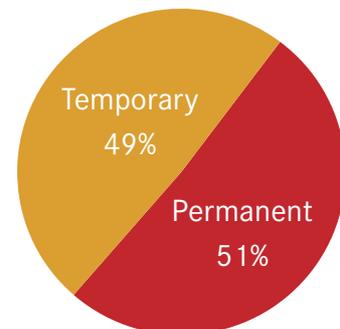


BMETs Working in Government Hospitals

- A total of 43 participants were working in government hospitals.
- Half of the respondents were working for government as permanent staff.
- 65% respondents stated that their post was mentioned in the hospital’s organogram whereas half of the them were provided their written job responsibilities.
- Only 23% BMETs did not have their own workshop to repair and maintain broken biomedical equipment.
- Even though 72% respondents did not have supportive colleagues, 84% of them were satisfied with their current jobs.

	Yes	No
BMET Post mentioned in Organogram	28(65%)	15(35%)
Job Description provided	22(51%)	21(49%)
Availability of Workshop	33(77%)	10(23%)
Supportive Colleague	12(28%)	31(72%)
Job Satisfaction	36(84%)	7(16%)

BMET by Type of Contract (n=43)



Limitation

It was a rapid follow up survey and telephone interviews and emails were the main tool for collecting data, so the response rate was not high.

Summary

- Majority of graduates were found to be engaged in course related jobs.
- From a gender prospective, mostly male got enrolled in the BMET courses and engaged in related jobs.
- Less than one third respondents were not involved in course related jobs, the reason being that many of them were continuing their studies and other did not get related jobs. Few respondents were not engaged in the job as they thought that there was no career advancement and the salary was not attractive.
- More than half of the respondents working were engaged in course related jobs in government hospitals and offices.
- Limited hospitals in mountain areas have recruited BMETs.
- More than two third respondents working in government hospitals were satisfied with their current jobs.

Implications / Recommendations

- There was low intake in government hospitals due to limited opportunities and unattractive compensation after graduating from BMET related courses, thus Government of Nepal should create more BMET related jobs [sanctioned posts] in hospitals to utilize their skills for improving healthcare service delivery.
- Female participation in BMET related course enrollment and work was extremely low, some special promotion is needed to increase their participation in this field of work.
- Further study should be conducted to explore the impact on the functional status of medical devices while having BMET in government hospitals.

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