Cost of Preservice Education for Health Workers: Balancing Quantity and Quality

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Introduction

The human resources for health (HRH) landscape in Ethiopia is similar to that of other resource-constrained countries in sub-Saharan Africa, with challenges related to the quantity and distribution of qualified health workers. To fill this gap, the federal government, through its Health Sector Development Program, set ambitious goals to scale up the number and quality of health workers. However, knowledge about the cost of educating and training additional skilled health workers is needed to support education program planning and management at the college and government agency levels, and to inform advocacy for increased investment in preservice education.

Methods

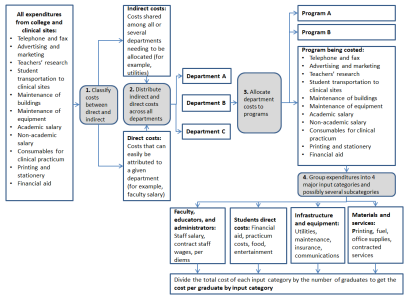
Ethiopia's federal ministries of health and education collaborated with the USAID-funded Capacity*Plus* project, led by IntraHealth International, and the Nursing Education Partnership Initiative (NEPI) to conduct a cost analysis of the four-year bachelor of nursing and midwifery programs at the University of Gondar College of Medicine and Health Sciences (UGCMHS).

The objectives were to:

1. Estimate the current unit cost to UGCMHS and its associated clinical practice facilities of producing a nursing and midwifery graduate
2. Identify current fixed-asset constraints to scaling up the quantity of graduates and/or improving their quality
3. Simulate the potential unit cost of a graduate if a limited set of interventions were introduced to increase the quality and/or quantity of graduates.

We used a retrospective (academic year 2011–2012) top-down costing approach (Figure 1). College and clinical practicum shared expenditures were allocated down to individual programs so as to obtain the cost per graduate per academic year and course. Costing data came from financial expenditure reports, course curricula, and key informant interviews. The analysis included the financial cost of all resources used in producing a graduate and reported by UGCMHS and its associated clinical practice facilities, regardless of funding source.

Figure 1: Top-down estimation process



We compared national and college-level educational standards to the observed availability and use of resources and infrastructure to assess constraints to improving the quality or increasing the number of graduates and determine needed interventions to overcome them (e.g., classrooms, demonstration rooms, educational materials, teaching faculty). We recalculated the cost per graduate after accounting for a scenario of budgeted interventions designed to overcome the identified constraints. The post-intervention cost more accurately reflects the estimated cost of producing quality nursing and midwifery graduates.

Results

The estimated costs per graduate for the two programs (nursing and midwifery) were very similar, with pre-intervention costs ranging from $1,714 for a nursing graduate to $1,733 for a midwife. The estimated cost per graduate increased by 30% to 37% after factoring the market cost of a scenario of interventions designed to overcome quality constraints into the overall program costs (Table 1). Figures 2 and 3 show program costs by academic year and input category. The higher cost of the fourth year seems to be driven by more field practice and community work compared to earlier years.

Table 1: Program cost and cost per graduate, pre- and post-interventions (USD)

Four-year bachelor program	Pre-interventions		Post-interventions	
	Program cost	Cost per graduate	Program cost	Cost per graduate
Nursing	$137,172	$1,714	$179,284	$2,241
Midwifery	$95,316	$1,733	$131,111	$2,384

Figure 2: Program cost per academic year

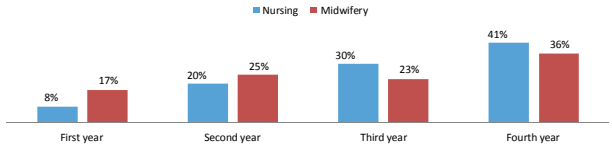
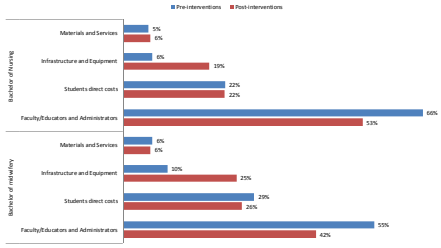


Figure 3: Program cost per input category, pre- and post-interventions



The faculty/educators and administrators input category was the largest cost category for both programs. The student direct costs category (second highest) involves all student-related variable costs covered by the institution, such as financial aid, clinical practicum costs, food, and educational supplies. Although the materials and services and infrastructure and equipment cost categories were lower overall, the infrastructure and equipment category saw the largest increase post-interventions, resulting from the goal of overcoming fixed asset quality constraints.

Conclusions

This study used primary source data to estimate the cost of producing nursing and midwifery graduates. It identified constraints in infrastructure and materials affecting the quality of education and showed the financial impact on the cost per graduate of overcoming some of those constraints. However, the study did not account for the full set of investments needed to address all quality constraints and should be interpreted with this in mind.

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