

## A One Decade Trend of Transforming Medical Doctors to Surgeons in Tanzania: The Leaking Trough.

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**Background:** A major emphasis in the ongoing health sector reforms in Tanzania is to increase the number of graduates in medical field in all aspects. Tanzania development vision 2025 set quality livelihood for all as one of its principle objectives. For this to be realized not only Human resource for Health (HRH) in all Medical fields are required but a highly trained calibre HRH is of paramount. Whether it has worked or not is a subject of speculation. This paper sets out to examine to what extent number of produced medical doctors (MDs) has turned positively the number of surgeons for the past one decade in Tanzania.

**Methods:** Retrospective analysis of reports from five health Universities in Tanzania with a focus on graduated Medical Doctors and those trained to become surgeons for the period 2001 to 2010.

**Results:** Between 2001 and 2010 five institutions trained these graduate Human Resource for Health (HRH). Combined local training institutions produced a total of 2,022 Medical Doctors. These Institutions included a public institution Muhimbili University of Health and Allied Sciences (MUHAS), Private faith based (Kilimanjaro Christian Medical Centre (KCMC) and Bugando University College of Health Sciences (BUCHS) and private for profit (International Medical and Technology (IMTU) and Hurbert Kairuki Memorial University (HKMU). MUHAS alone trained 1,285 MDs or 64% of these graduates. Faith based produced 287 and the rest (450) were produced by the private for profit institutions. Out of 1285 MDs trained at MUHAS in the mentioned period, only 25(1.9%) became surgeons, and out of all 2022 Medical Doctors locally trained in that period only 51(2.5%) trained to become general surgeons. This is a major challenge for the profession.

**Conclusion:** If only 2.5% (51 out of 2,022) of all locally trained Medical Doctors trained to become Surgeons in a period of ten years realization of vision 2025 health sector goals is questionable. The major question which remain unanswered is why this trend? It is the authors' view that Marshall Plan need to be adapted to redress the situation.

### Introduction

Highly trained Human Resource for Health (HRH) in all cadres is inevitable for quality health services of any Nation. In Tanzania from 1963 to late 1990s only one graduate level health training institution existed. This Institution was responsible for producing both the first degree graduates and also for specialization cadres. This resulted into the country to have very low HRH in the highly trained cadres while the population growing rapidly.

The health sector reform which was introduced in 1991 like to other sectors called upon the public private partnership (PPP) in the health sector. This among other things aimed at expanding the provision of health services to the increased population and increasing number of trained HRH from both public and establishment of private training Institutions. This opened doors for establishment of private health training institutions and hence increasing production of graduate level HRH. By 2012 a total of eight (08) graduate level health training institutions existed.

In 2000 Tanzania launched its development vision 2025 which set direction towards desired condition by 2025. This vision among other targets it set in the quality livelihood for all Tanzanians by 2025. For this quality livelihood to be attained the HRH should be among other things adequately trained and well deployed at all levels. For the past one decade the total number of Medical Doctors graduating from the local Universities has increased from less than 100 in 2000 to more than 400 in

2010<sup>1</sup>. This increase was expected to turn up to increase the number of graduate Specialists in all Medical fields and in Public health. Our eye is on the number of surgeons that have been produced in the past one decade.

In spite of this increase in number of Medical Doctors, the number of graduating surgeons has not increased accordingly hence leaving a big gap of unmet needs in the country. Working in a specialized National hospital we observed that the country is having only one centre with 4 surgeons offering specialized neurosurgical services for a population of 45 million people. Urology is another area with a big gap with longer waiting lists of Patients waiting for surgery. With this great demand, there have been complaints on decline in surgical output in our hospitals, especially at Muhimbili.

In dealing with the shortage of Human Resource for Health (HRH) in the country the Ministry of Health and Social welfare (MoHSW) has set in HRH strategic plan 2008-2015 with main focus on scaling up the number of well trained HRH in the country. However the challenge faced realization of this plan is the low funding capacity of the country. Another deliberate effort undertaken by MoHSW is the strategic plan III 2009-2015 which again underscores the importance of HRH for realization of not only the vision 2025 but also the MDGs 2015<sup>2</sup>.

The overall disease burden associated with surgical conditions in sub-Saharan Africa is estimated at 38 DALYS (disability adjusted life years) lost per 1,000 population<sup>3</sup>. This estimate is higher than in other regions of the world, and is mainly due to injuries (15/1,000), obstetric complications (6/1,000), malignancies (3/1,000), perinatal conditions (3/1,000), congenital anomalies (3/1,000), and cataracts and glaucoma (2/1,000). The estimated cost per surgical DALY gained at a district hospital is in the range of US\$19–102/DALY. By comparison, the basic immunization program in Africa costs under US\$10/DALY averted, malaria prevention and treatment costs US\$2–24/DALY averted and oral rehydration therapy for diarrheal disease can cost around US\$1,062/DALY averted. Antiretroviral therapy for HIV infection in sub-Saharan Africa is estimated to be in the range of US\$350–1,494/DALY averted. Yet, the global health community has largely neglected surgical diseases when supporting health interventions in sub-Saharan Africa.

Sub-Saharan Africa faces the greatest challenges. It has been documented that 57 African countries have critical shortage of 2.4 million doctors and nurses and that, on average, Africa has 2.3 health care workers per 1000 populations, (the minimum required to achieve an 80% coverage rate for deliveries by skilled birth attendants or for measles immunization (WHO Report, 2006), compared to America that has 24.8 health care workers per 1000 population. Additionally, while Africa has 25% of global disease burden, it only has 1.3% of the world's experienced health care workers<sup>4-5</sup>.

It has also been documented that a recent situational analysis indicates that the College Of Surgeons in East, Central and Southern Africa (COSECSA) region has as few as 1,390 trained surgeons for 273 million inhabitants in 9 of the lowest income countries in the world. In this analysis some of the reasons for shortage of Surgeons were highlighted including low medical school output, training capacity limited to university hospitals, international "brain drain", and low remuneration<sup>3,6-7</sup>.

Sub-Saharan African medical schools in 22 countries have trained approximately 5334 physicians practicing in the USA. Nigeria, with more than twice the population of any other country in the region and with 16 medical schools, has lost 2158 physicians who were practicing in the USA by 2002; South Africa, with eight medical schools, has lost 1943 physicians; and Ghana, with three medical schools, has lost 478 physicians to the USA. By region, West Africa lost 2697 physicians and Southern Africa 1943. It is also suspected there are many more physicians from these countries working in the USA, although they are not licensed as physicians<sup>8-9</sup>.

With the increased surgical conditions and the depicted deficit of Surgeons it is clear that more Surgeons are needed now than any other time in sub-Saharan Africa in which Tanzania is based. A

deeper understanding of the contribution of the increased production of Medical Doctors and as to what extent this has turned the number of Surgeons is called upon by this study.

## Subjects and Methods

This was a descriptive, retrospective cross-sectional study; the main study population was the Medical doctors locally trained in Tanzania. This was a systematic review of documents from the five training institutions that produce graduate Medical Doctors and four training Institutions that produce Surgeons in Tanzania. The documents reviewed were the graduation books from 2001-2010. Data were analyzed manually, the output summarized and presented in tables. Permission to conduct this study was obtained from the ministry of health and social welfare and verbal informed consent was sought from respective institutions.

## Results

A total of 2022 Medical Doctors graduated in the internal training institutions from 2001-2010. MUHAS produced 1,285 (63.55%) the rest institutions producing the remaining. Private faith based (KCMC and BUCHS) combined produced a total of 287 MDs (14.19%) and private for profit (IMTU and HKMU) combined produced 450 MDs (22.26%) in that period (Table 1). During this period, MUHAS trained Medical doctors throughout the decade with almost tripling the output at the end of the decade. Though IMTU started producing Medical Doctors in 2001 it was not able to produce them throughout the decade as it was barred by MoHSW in 2003, 2004 and 2008 due to failure to conform to some requirements set by regulatory bodies for Universities in East Africa and Tanzania. The other institutions started to produce MDs as shown in table 1 above. From the table above it is clear also that BUCHS was at its infancy.

### *Number of Surgeons graduated in Tanzania from 2001-2010*

A total number of 51 (2.5%) General surgeons were trained in four institutions. Out of these 25 (49.0%) were trained at MUHAS however the number of surgeons who originated from MUHAS in that period is very less compared to total number of MDs graduated from MUHAS in that period.

**Table 1.** Medical Doctors graduated in Tanzania from 2001-2010

| Doctor of Medicine |           |           |            |            |            |            |            |            |            |            |              |
|--------------------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| Institution        | 2001      | 02        | 03         | 04         | 05         | 06         | 07         | 08         | 09         | 10         | Total        |
| MUHAS              | 56        | 61        | 105        | 103        | 122        | 134        | 175        | 201        | 173        | 155        | 1,285        |
| KCMC               | -         | 15        | 11         | 11         | 11         | 27         | 24         | 24         | 39         | 71         | 233          |
| IMTU               | 04        | 12        | -          | -          | 39         | 34         | 27         | -          | 26         | 76         | 218          |
| HKMU               | -         | -         | 04         | 12         | 20         | 08         | 26         | 42         | 50         | 70         | 232          |
| BUCHS              | -         | -         | -          | -          | -          | -          | -          | 09         | 24         | 21         | 54           |
| <b>Total</b>       | <b>60</b> | <b>88</b> | <b>120</b> | <b>126</b> | <b>192</b> | <b>203</b> | <b>252</b> | <b>276</b> | <b>312</b> | <b>393</b> | <b>2,022</b> |

**Table 2.** Number of Surgeons graduated in Tanzania from 2001-2010

| Surgeons Graduates |          |          |          |          |          |          |          |          |           |           |           |
|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| Institution        | 2001     | 2002     | 2003     | 2004     | 2005     | 2006     | 2007     | 2008     | 2009      | 2010      | Total     |
| MUHAS              | 1        | 2        | 1        | 4        | -        | -        | 3        | 3        | 5         | 6         | 25        |
| KCMC               | -        | -        | 2        | 1        | 1        | 3        | 2        | 1        | 2         | 3         | 15        |
| HKMU               | -        | -        | -        | -        | -        | -        | -        | 1        | 1         | 3         | 5         |
| BUCHS              | -        | -        | -        | -        | -        | -        | -        | -        | 3         | 3         | 6         |
| <b>Total</b>       | <b>1</b> | <b>2</b> | <b>3</b> | <b>5</b> | <b>1</b> | <b>3</b> | <b>5</b> | <b>5</b> | <b>11</b> | <b>15</b> | <b>50</b> |

From table 2 above, in 2005 and 2006 MUHAS did not produce surgeons; the reason for this was lack of qualified Students for enrolment or graduation as surgeons. It is also clear that with exceptional to KCMC which started to produce surgeons in 2003 the rest two institutions were still at infancy.

## Discussion

The trend of training medical doctors has been on ascending order for the past one decade, however this have not been reflected in real life contributing to quality livelihood as it is stated in development vision 2025 and not even in the number of graduating Surgeons. This finding conforms to what Munga and Mbilinyi in 2009 documented. In the so mentioned study they commented that, "Tanzania is unable to attract and retain an adequate and qualified health workforce to effectively implement health interventions, reverse the negative health status trends and ultimately achieve Millennium Development Goals (MDGs)" (p.3)<sup>10</sup>. When documenting unfavourable direction towards MDGs.

Production of 51 surgeons out of 2,022 MD graduates in 10 years for a population of 45 million people is not a favourable direction towards fulfilling the health care sector goals of the vision 2025 with one of the principle targets as quality livelihood for all. These findings are not also in favour of the National health policy objective 2.4.4 (2003) which states, 'Train and make available competent and adequate number of health staff to manage health services with gender perspective at all levels.'<sup>7</sup> Capacity building of human resource at all levels in management and health services provision will be addressed'<sup>11-12</sup>.

The situation is not unique to Tanzania according to an article released by PSI (Population services International) in 2012 most sub-Saharan countries are facing the same problem, for instance in Zambia PSI documented; 'Zambia has only 44 fully licensed surgeons to serve its population of 13 million..' PSI further added that more than 56 Million People in sub-Saharan Africa need surgery ranging from caesarean section to cataract surgery<sup>13-14</sup>.

This study shows that there is brain drain within the profession whereby out of 2022 trained medical doctors only 51(2.5%) specialized in General Surgery. Robinson in 2007 describes two categories of brain drain of health care workers, the "International brain drain (involving) the transfer of human resources across national borders, typically from a developing to a developed country which could imply a reduction (net loss) in aggregate welfare for the 'donor' country and an addition or improvement (net gain) in the social welfare of the 'recipient' country (and) the Internal brain drain (that) merely involves a re-allocation of existing human resources in the same country and implies no welfare loss in the aggregate, to that country, although at the micro-level, some groups may be made better off at the expense of others''<sup>6, 15-18</sup>.

Mills, Kanters and Hagopian (2011) noted that Sub-Saharan African countries that invest in training doctors have ended up losing \$2 billion as the expert clinicians leave home to find work in more prosperous developed nations<sup>15</sup>. The movement of Doctors away from their home country may partly explain why there is small number of Doctors joining post graduate studies to become Surgeons in Tanzania<sup>10, 14</sup>. The HSSP III (2009) documented that a large number of professional workers are needed. The same document acknowledge that there is higher attrition rates for health workers which has been contributed by among other things, health workers' migration, in addition to the competition between the private and public health facilities over scarce health workers in Tanzania. On top of competition between private and public sector for Health care workers, there is a competition between public health facilities with NGOs, Health Training/Research Institutions, and urge for further studies and other health related agencies<sup>12, 14</sup>.

With regard to rural-urban dynamics we observed that major towns compared with other regions were mainly having a good number of those trained Surgeons mainly Dar es salaam, Mwanza, Kilimanjaro and few in Mbeya. Although this may not give a clear picture of rural-urban dynamic of health

workers, it can depict the staffing levels of health care workers in major town compared to other regions. Concentration in major towns is attributed to presence of Medical Training or Research institutions in these towns. Again, this may reflect the absence of medical doctors' training institutions in the underserved regions with public facilities being major source of employment<sup>14</sup>.

Decentralization of medical doctors' training institutions may result in even distribution of health workers throughout the country. While there is marked improvement in number of graduate Medical Doctors in this decade the question that remain unanswered is as to why they have not turned positively to become Surgeons.

## Conclusions

The training of surgeons has not been synergized by the number of medical doctors trained for the past one decade. The big question that remain unanswered and which call for another big study is as to why this small number of Medical doctors showed up to become Surgeons. Tanzania progress towards realization of the vision 2025 with principal target of quality livelihood for all becomes a day dream if the HRH in its nut shell is not well addressed. It is the authors' opinion that a well articulated strategy taking into consideration the production of specialized HRH is devised to revert this trend.

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