



ADEE Site Visit Report



School of Dentistry

**Muhimbili University of Health and
Allied Sciences**

Dar es Salaam, Tanzania

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Executive summary

The School of Dentistry (SoD) of Muhimbili University of Health and Allied Sciences has the potential overall to be a very good dental educational facility according to the standards set out by the European Union and the DentEd thematic network. The factors that make this the case are the well educated staff, the plans and ideas on adapting the present curriculum and the potential that a spacious building provides. However, to make this happen a lot of effort is needed to achieve the improvement of the infrastructure, financial security and educational adaptations.

This report is a result of a four day visitation based on interviews and discussion with the staff and students of the school. The report contains a number of both minor and major suggestions to further strengthen the success of the school and also suggestions on how challenges facing the SoD may be addressed.

The visitation was requested by the SoD and has been organised through ADEE (*Association for Dental Education in Europe*) www.adee.org following the principles set out by the DentEd thematic EU project (www.dented.org). The visit was supported as a Finnish Dental Association project that is run by Kuopio International Oral Health (KIOH) and financed through a generous grant from the Finnish Foreign Minister.

Overview and methodology

The report focuses primarily on areas which have been found to be worthy of commendation or where change could be appropriate. The report will not repeat information already contained in the self assessment report in the form of the School's Strategic Plan. Due to the nature of the visitation program the present report may appear critical in places but it is intended to be both honest and frank; by this means it should then be of maximum assistance to the school and the various dental stakeholders in Tanzania.

Acknowledgement

The visitors were most impressed by the quality and clarity of the Strategic Rolling Plan for 2006-2010 and the Curriculum Plan (2002) which contained a great deal of valuable information. The program for the visit was very flexible and where changes to the visit schedule were requested, these were made in a positive, constructive and helpful way. The School must be congratulated for the open manner in which it identified its strengths and weaknesses. The visitation team would like to thank everyone involved in the planning and organization of the visitation and, in particular, the Dean, Dr. Emil Kikwilu. We would also like to acknowledge the contributions of Deputy Vice Chancellor Prof. Lembartiti, Chief Dental Officer Dr. Senkoro and the Ambassador of Finland in Tanzania: HE Juhani Toivonen.

1. Introduction and general description (mission)

The length of the dental programme is listed as 5 years or 10 semesters, of which the first 5 semesters are given in combination with medical students within the Medical School. However, the initial years, except for some minor subjects, like 'forensic dentistry' and 'an introduction to dental treatment and conditions', appears to lack a clear dental flavour.

The Vision of the Dental School is 'to become a centre for revolutionizing oral health in Tanzania and in the African region'.

The Mission Statement is:

'to direct and guide students and the general public in attaining quality of life through quality oral and other related health research, training, education and public service'.

With the following aims and objectives:

- to produce graduates in oral health sciences for oral health care systems.
- to train specialists and scientists in oral health and related disciplines.
- to train allied oral health personnel
- to carry out research in oral health and related sciences
- to provide continuing professional education in oral health.
- to provide specialized oral health services to patients and the community.
- to provide consultancy and advisory services to the government, general public and international agencies in the field of oral health
- to review programmes and introduce new programmes as required.

According to the Policy Guidelines for Oral Health Care in Tanzania (2002) the most common conditions are periodontal disease and dental caries. Others include endemic fluorosis, oral neoplasms, NOMA (infection in the face with necrotising tissues as a consequence), oral manifestations of HIV-AIDS and maxillo-facial injuries. The strategy for oral health care has been to deliver appropriate health promotional, curative and rehabilitative services at both health facility and community level. However, provision of oral health care services is constrained by the inadequate and unfavourable distribution of dental health staff together with a general lack of the necessary equipment and materials. There seem to be significant obstacles to fully implement the well-written 'Policy Guidelines' to achieve the objectives set. This has an inevitable resultant impact on delivering the above mentioned vision.

2. Physical facilities

The school is located on the campus of the Muhimbili University in Dar es Salaam and the concrete building provides ample space for the school as well as for the Dental Hospital. The building was commenced in 1979 but the war with Uganda caused a significant delay and for this reason it was not finished until 1984. Currently, the buildings' construction is in need of serious renovation in all its aspects according to the 'MUHAS Technical Survey and Requirement Study' which prepared by P. Rantanen in May-June 2008.

In the present condition of the building it is not possible to maintain necessary infection control procedures in an appropriate manner. Moreover, when new equipment is purchased the present condition of the building does not provide a good environment for the adequate maintenance and long-term life of this equipment.

Clinical Facilities

The clinics are located on all floors of the building. It is noted that there are no space constraints to the potential provision of much needed clinical facilities consistent with a normal clinical intake of 25 students. Altogether, there is space for over 60 dental units in the building. The current condition of the vast majority of the clinical equipment that the visitors saw, was poor. There are now only a few units for which all of the functions are operating. In addition the sanitary service equipment is partly broken down and both plumbing and electricity supplies are in a less than optimum condition. Through the personal intervention of the President of Tanzania a generous arrangement with the United States has recently been achieved resulting in the possible replacement of 29 dental units by new and modern units. This is dependent on adequate local connection facilities being ready for their installation.

The system for the sterilisation of instruments is as follows: they are gathered at the end of the day to be transported by trolleys to a hospital service unit elsewhere on the campus. In between this scheduled central process local autoclaves in the clinics are used when needed. This cannot be considered acceptable for an educational institution.

The school is in serious need of well trained and motivated technicians for the maintaining of the new equipment, when installed, and for repairing the most recent of the series of currently operating dental units. It is crucial that when any units are installed in the future that spare parts are included for ongoing maintenance in the capital budget. The radiology equipment is not in line with currently accepted radiation safety procedures or guidelines. There are no radiology machines present in the different clinics and presently only bite-wings, periapical and occlusal radiographs can be taken. For panoramic radiographs patients have to be referred to the main hospital which is a significant inconvenience.

Teaching Facilities

A spacious lecture hall is available on the ground floor, although it would benefit from some renovation and redecoration. A permanent computer with digital projection system is absent from this facility. There are ample numbers of smaller colloquium and seminar rooms that are serving their purpose reasonably well, but audiovisual facilities are lacking in these rooms.

The library is small with no self-study areas available; there are no computers available to the students in this area and no digital library services, such as "Pubmed" or others. The books are mostly old, which sometimes makes them worthless to students when newer editions are prescribed in the programme. The numbers of issues of prescribed titles available in the library are inadequate to serve the students and there are few current subscriptions to dental journals, this is largely due to budgetary constraints. However, the library could increase its services to students by changing or extending its opening hours to more closely adapt to the schedule and convenience of the students.

There seems to be a local limited access to IT services, hindering the facilitation of gaining information through internet, word processing and data analyses.

The preclinical lab seems to be poorly ventilated, in bad shape and very outdated. There is no modern facility to simulate any clinical condition thus this makes the laboratory only useful in dental technician activities.

Currently, in the SoD's building there are no dedicated research facilities present.

3. Organisational, financial and administrative structures

The organisational structure of the SoD is simple and transparent. Under the dean, three department heads manage the corresponding departments. The process of running the key functions of the school: teaching, research and services to patients and the community at large, seems to be mainly driven by democratic process achieved through the existing and functional School Board. This is the highest organ that oversees the daily activities of the School. Three committees assist the School Board; these being the Year Conveners' Committee, the Research and Publications Committee, and the Curriculum Development Committee.

Administratively, the Dean, who is in overall charge of administration and academic programmes, works in close collaboration with the Head of the Dental Department of Muhimbili National Hospital, the latter being responsible for the 'day to day' clinical service activities in dentistry.

Presently the departments are:

- Oral Surgery & Oral Pathology with three units: oral surgery, oral medicine and oral pathology,
- Preventive & Community Dentistry with three units: preventive & community dentistry, paedodontics and orthodontics
- Restorative Dentistry with four distinct units: restorative/operative dentistry, prosthodontics, dental biomaterials and periodontology.

This school plan suggests that this structure of three departments is unsatisfactory and states that some of the units in the departments should become independent departments. The visitors have some doubts on this planned change given the limited number of staff members and consequent need to cooperate with each other to maximize valuable resources. In fact, in most European schools the opposite trend is happening with fewer management departments and, frequently, single department schools being established which may give greater flexibility in using limited resources.

It is well worth mentioning that the School is one of the only two (current/existing) African WHO Collaborative Centres for Primary Oral Health Care Planning and Research. This capacity should be valued by the staff, as well as other stakeholders, and should also deserve extra financing.

By July 2006 the School had a total of 25 workers with the following composition: 15 academic staff (currently 17), 10 administrative staff. By end of October 2006 the school nominal roll stood at 150 students of the following composition: 40 in class I, 24 in class II, 30 in class III, 36 in class IV and 20 students in class V.

How the school is financed looks clear and simple. All the current money for teaching comes directly from the university. However, the budget responsibility is unclear or, perhaps, may be absent.

As is stated in the SoD's Strategic Plan, according to the Memorandum of Understanding between the University and the MNH, the owner of the building shall be responsible for the maintenance of the equipment in the building. In the case of the dental building, the University is the owner and is therefore expected to also maintain the equipment in the dental building. The visitors were told that under the health sector reforms it is directed that cost sharing fees for health services should be used to improve services in the collection centers. The patients' fees in the dental school are collected and managed by MNH. For the past six months, however, it seems that the SoD has not seen a noticeable contribution of the patients' fee to the maintenance of the building/equipment in the dental school. Therefore, there is a need to review the patients' fee collection and expenditure systems to enable the SoD to have a say on the expenditure of this income. This would then be to the potential benefit of the patients' care and the teaching of students.

All schools within the University have received the order to identify areas outside teaching and research where extra money can be earned. The visitors are convinced this is only possible when the building and equipment are fully renovated and improved. However, when that work was completed, then there would be significant opportunities.

The Dental Building Clinical Services Committee, which includes in its membership MNH heads of firm and SoD heads of department, is important in ensuring the smooth running of both service and training. On some occasions, MNH dental services management seems to make unilateral decisions on issues affecting both the MUHAS staff and teaching. There is a need to have a proper dialogue and a meaningful joint decision-making forum for all issues affecting the two institutions.

4. Staff

The visitors were impressed by the staff they met. They were dedicated, enthusiastic and appeared to work hard, in sometimes difficult circumstances. We were also very impressed by the faculty staff with whom we had detailed and helpful discussions. They appeared to be both highly motivated and knowledgeable; they were very supportive of their school, and certainly they would be a credit to any dental school. It seemed extraordinary, the innovative ways that the staff had approached the problem of attaining further training and higher academic degrees. Of those the visitors met, the majority had a PhD, some of whom also a MSc. Mostly, these higher degrees had been achieved through personal initiatives - working with schools outside of Tanzania, frequently in Northern Europe. All of those we spoke with felt that it would be helpful if the school (and/or the university) could develop a more co-ordinated approach to helping younger staff in their development, to obtain further degrees and benefit from external links.

Certainly, the commencement of taught MSc programmes in some specialist areas gives a clear 'direction of travel' for the future. However, all faculty staff would also like to be able to attain recognised specialist clinical training with an appropriate end point qualification. Training dental specialists in this way will not only be important for the future of the school and delivery of services in Tanzania in the coming years but also it provides an important staff motivator.

In many dental schools that have been visited previously by the ADEE, programmes of basic standardised training in research methods are given. These are frequently provided in association with other health related schools. It would seem to the visitors that such a programme could easily be developed within the Muhimbili University of Health & Allied Sciences, to the benefit of all of the young health faculty staff.

In many dental schools worldwide, the personal (internal) promotion of dental academics within a wider rigid University process is a problem. This problem was recognised in the recent Dental Education Global Congress held in Dublin in 2007. Dental staff in Universities is expected to perform three major roles: Research – Teaching – Clinical Service. They require clinical service to deliver care to the local population but also to maintain their 'craft' skills. In addition, they are different from medical academics in needing to provide close support teaching where irreversible techniques are performed on patients by students (this is staff/student ratio intensive in order to be safe – see European Quality Assurance Guidelines & Benchmarking Document on ADEE Website). Also, as usual, they need to produce research of international quality, most usually as part of a high quality collaborative team. The current University promotion system, as described to the visitors, doesn't seem to be 'fit for purpose'. The acquisition of single/multi - author 'points' on a sliding scale would appear to discourage the modern collaborative approach to high quality health related research. Further, increasingly, many Universities are now looking to develop a promotion process which takes account of all the expected duties of staff. This makes promotion a more

realistic possibility in a progressive way for the majority of the hard working members of the faculty. The visitors would suggest that such an approach should be considered in Muhimbili University since the current arrangement seems to demotivate the clinical staff.

Continuing Professional Development (CPD), both for internal staff and as a provision to the local dental profession, was considered important by the staff we spoke with, but is currently lacking. No doubt this will also be considered as important at a national level in the near future, as it has been by the professional registration bodies (revalidation) in other countries around the world. Perhaps, it might be considered that the dental school could give a national lead in dental CPD provision in Tanzania?

The visiting team note and commend the availability of trained dental technicians. However, they didn't appear to be being used to their full potential due to shortages of materials and some equipment deficiencies.

In summary, the key issue under this staff heading, would be the need for a more co-ordinated approach to the support, training and development of young staff to the future benefit of the school, the university and thus ultimately Tanzania.

5. Biological Sciences

Given the fact that dental students share 2.5 years of basic and medical teaching with medical students, they receive as dentists in undergraduate education, ample training in these subjects. The visitors are in full agreement with the hours spent on behavioural sciences and biostatics and the subjects taught. This discipline is often underrepresented in dental curricula. However, one could wonder what the use is in a 21st century dental undergraduate education of subjects like 'anatomy of lower limbs and pelvis', 'histology of genital system', 'demonstrations of biochemical assays', 'protein separation techniques', etc., given the limited curriculum time that is available. Fortunately, we were told that this part of the curriculum is currently undergoing change in response to respond to the complaints of students and to thus better meet published ADEE recommendations. Certainly, the integration of the different disciplines into one programme could enhance understanding, motivate students and prevent the overlap of subjects in the curriculum.

6. Clinical Dental Sciences

Preventive and Community Dentistry

This course has been modified to maintain the strengths of the old curriculum and to address the issues identified through the 'tracer' study of 2002. The learning objectives are clearly defined and deemed justified for the local circumstances by the visiting team. Particularly, the field work with its different components in the School, Dispensary/Health Centre and Regional Oral Health Program are innovative and acknowledged as such by the visitors. This activity has a lot of potential for student centered learning, as well as giving the opportunity to apply the theoretical knowledge that has been acquired earlier during the course. However, the present semesterised curriculum does not allow any flexibility in scheduling changes in this area of the teaching which might also be appreciated by local counterparts. Furthermore, organizing field visits in smaller student groups and having local health care personnel to actively participate in teaching might create better sustainability in this significant and important part of dental education of the school.

Oral Surgery

There is little doubt that this area of teaching is a strength in the school. This is probably largely due to the amount and diversity of the 'patient material' coming routinely through the doors of the dental hospital and to which the undergraduates are regularly exposed. In the school oral surgery procedures are perhaps performed more frequently as a treatment solution than elsewhere, due to the lack of necessary dental instruments and adequate restorative materials.

From talking to staff and students all appear satisfied with the levels of oral surgery knowledge and skills that are taught. These would appear to meet the requirements put on the skills of students after they qualify and when they start clinical practice (see 'external influences').

If the semester block teaching system is to change to a more modular approach (and perhaps even if it isn't) the clinical training of students should not start with Oral Surgery in the curriculum plan, because it does send wrong professional messages to the students early in their clinical dental training. For example, a more appropriate start to the clinical training might be the prevention of dental/oral disease and health education.

Restorative Dentistry

The visiting team acknowledges the quality of the staff teaching restorative dentistry who is working in very demanding circumstances. Lack of adequate facilities is having a major impact on the delivery of clinical teaching by the faculty members. The students are missing important areas of training, for example, exposure to the contemporary radiological examination opportunities necessary in routine diagnosis and management of patients. This is considered a particularly detrimental aspect for the achievement of sufficient clinical experience during their training. However, the ADEE team became

aware during the visit that the present situation and many of the responsibilities for this lie outside the control of the dental school.

There seems to be sufficient theoretical knowledge among the students regarding disciplines taught. Within Restorative Dentistry the sub disciplines of periodontology, cariology, prosthodontics and dental biomaterials are taught but the team remained unaware of the degree of integration in this respect. This approach seems to be very severely constrained by the semesterised curriculum applied to the degree program, not only in dentistry, but in the Muhimbili University in general. However, given the aim of the clinical education is to educate a dental student to become a general dentist, the concept of comprehensive patient care is of paramount importance. We strongly recommend the introduction of a comprehensive patient care approach earlier in the clinical training activities.

The total amount of independent clinical working exposure remained unclear to the team. During the visit we noticed in clinical situations that frequently students acted as an assistant or observed a teacher or resident performing an operative procedure. Perhaps this occurred more often than they actually treated patients themselves? The school is encouraged to pay particular attention to the recruitment of appropriate patients for undergraduate education in sufficient numbers for appropriate clinical training. There seems to be little time given in the curriculum, or indeed on the clinics, to the management of dental anxiety; perhaps this is an area which would benefit from further attention?

As part of the outreach clinical activities in Preventive and Community Dentistry, the team acknowledges the staffs' commitment to teaching undergraduate students 'ART' (Atraumatic Restorative Treatment) and other similar methods (WHO Basic Package Oral Care) in order to be able to treat patients in less adequate circumstances.

The team observed the same kind of material deficiencies encountered in clinical studies to apply also in the pre-clinical simulation training of the students. Regardless of a sound preclinical training phase in theory, it remained unclear how simulation training relates to the clinical training later in the curriculum. The technical laboratory with its skilful staff cannot be used to their full capacity due to constraints related to the material resources available. This was a significant concern to the visiting team.

7. Curriculum

The current curriculum of the Muhimbili Dental School dates from 2 June 2002. It has been internally published in a document called 'A ten semester curriculum for the doctor of dental surgery programme'. In this document, in general, a modern approach to dental education is described. It starts with a mission statement, goals and objectives, entry requirements, examination regulations, degree description and new curricular features. Among the latter are mentioned: medical ethics, computer knowledge, management and entrepreneurship. Next, for every semester, the subjects with aims and learning objectives, course content with hours, methods of teaching and evaluation and recommended further reading, are described. This is an example of a local 'good practice' that in many other dental schools in the world is still unknown.

Curriculum structure

The biggest problem of the current curriculum, as was described by the students as well as by staff, is its 'semesterisation', which is done in such a way that medical and dental disciplines are divided over the ten semesters. The visiting team agrees that this structure lacks the opportunity for students to internalize knowledge and achieve understanding of a certain field because disciplines are each restricted into an individual semester and are not rehearsed later in the curriculum. Also the system prevents integration of basic, medical and dental sciences. The visitors would advise that the curriculum structure should be adapted to a 'spiral pattern' in which subjects are taught at different stages in the programme.

In the first five semesters of the curriculum, dental students are taught basic/medical disciplines together with medical students. The visiting team acknowledges the financial benefit of this choice but, nevertheless, this situation is not ideal. It leads to at least 25% more curriculum time devoted to basic and medical subjects than in the stomatological programmes of Western Europe. Next to this overload of medical knowledge that is perhaps not directly of any use to dentistry, the substantive dental teaching is postponed to the sixth semester and, sometimes, even later. This is not very motivating to students and because of the lack of integration of basic sciences with dental sciences; the opportunity to embed dentistry in health sciences which might also benefit the medical profession is being missed. Fortunately, during the last few years some changes with respect to this situation are being executed: certain subjects of basic and medical disciplines are no longer mandatory for students. This opens the opportunity to expose students to dental subjects at an early stage. However, students complain that currently this was not being done in a consequent manner. One example being that certain subjects of medicine are taught and examined for which knowledge of anatomy is needed that has been already appropriately removed from the dental programme. The visitor's advice is to review the total curriculum on the need for basic and medical subjects and to achieve a better conjunction between subjects and

assessment. Developing better integration between basic, medical and dental subjects within the semesters will help to make this clear.

Curriculum content

Given the needs of the country for dentists that are skilled in the diagnosis and treatment of pathology, diseases and injuries of the soft and hard tissues of the oral cavity in equal distribution over the districts, the visitors understand the abundant number of hours that are committed to oral pathology and oral surgery. However, the Curriculum plan indicates that the learning objectives achieved are almost at the same level of competency one might normally expect of graduate oral surgeons. Perhaps, this is not reasonable in the local situation? On the other hand, the visiting team has some doubts on the effectiveness of this allocated time with respect to the skills of the graduate in oral pathology and oral surgery. Do they need to know more than extractions, abscess incision and the treatment of minor injuries which would appear to be consistent with the main activities of dentists in remote areas? With 590 contact hours available, as is stated in the Curriculum Document of 2002, the goals could be reconsidered.

In the execution of the teaching the visitors note some good educational practices. Worth mentioning are the 'field rotations' in Preventive and Community Dentistry, especially those where the teacher accompanies the students. Furthermore, the continuous assessment in clinical dentistry and in related areas, are acknowledged by the visitors as being excellent, as is the 'student centered' teaching of a course in Restorative Dentistry.

Competences

Upon graduation from the dental school, students must be able to perform adequately in all aspects of general dental practice. This is usually described by a list of competences for dental graduates, which also reflects the local school's educational methodology and the organization of its curriculum. Moreover, it reflects the desired capabilities that the new dentist should possess in order to be able to successfully address the specific oral health problems of their community and the local society. It is within current educational concepts that such a list should be established in every dental school and that the curriculum should be modified according to these desired competences (ADEE: Profile and Competences of the European Dentist – see ADEE website).

The Muhimbili SoD has not yet created a list of competences for the dental graduates. This fact reflects the absence of a solid, well-defined educational policy for the institution and is considered a significant weakness in the system. It is strongly advised by the visiting team that a competence approach to training should be established. Students should receive a set of competences – the professional qualities necessary for the beginning of independent clinical practice. A list of major, and supporting, competences of the dental graduates might then be designed according to the school's educational principles whilst describing the necessary capabilities of the graduate in order to address the specific oral needs of the Tanzanian society. Emphasis should be put on prevention, health promotion and infection control, issues that are of outstanding importance in the local community.

Comprehensive Dentistry

The curriculum of the Muhimbili SoD has recently been semesterised, so that one or two subjects are taught during each semester of the 2 ¹/₂ clinical years, “in block”. A certain subject, e.g. Restorative dentistry, is taught – theoretically and practically - throughout one semester, independently, and is not repeated in the future, nor connected, or related, to any other subject. This curriculum planning seems to create severe constraints on the establishment of a comprehensive approach to dentistry - this has been referred to earlier in this report.

Since the purpose of clinical education is to soundly educate dental students to work as general dentists, the concept of comprehensive patient care is extremely important. Dental students must be capable of treating a patient in a holistic manner, diagnosing and treating all oral diseases within the frame of general dentistry. This patient approach demands different skills from the independent/isolated intervention, in terms of patient communication, treatment planning, critical thinking and problem solving. The existing curriculum structure does not easily permit the implementation of comprehensive dental care; the change into a “modularised” curriculum is strongly recommended and is, in fact, being already considered by the School’s authorities and staff members. The ADEE visitors would strongly support this initiative.

The introduction of comprehensive dentistry is recommended to start as early as possible, both in theoretical courses and in clinical activities. Introducing comprehensive care seminars where the students present cases with discussions on treatment planning and evaluation of the treatment outcomes, has shown to be beneficial in acquiring clinical competences in European dental schools. These courses should be followed/complemented by the comprehensive clinical practice.

8. Examination, Assessment Methods

In the clinics the number of dental procedures for each student is determined. Every individual procedure is evaluated at every stage by the teacher with the help of an evaluation form. Only the procedures that were accomplished with limited assistance from the teacher/supervisor and with an appropriate outcome are counted as part of the set number for assessment. At the end of the rotation students are not only judged according to these numbers but also on their overall clinical performance. In case a student has not fulfilled the requirements he/she has to then do a supplementary number of procedures during the following vacation period.

Theoretical subjects are assessed at the end of the semester; this is done in the vast majority of cases, by written examinations, mostly of the multiple choice questionnaires type. The performance of the students in the outreach clinics is assessed through reports taking into account all activities. The visiting team is in agreement with, and supports the way, that students are assessed, both quantitatively as well as qualitatively. However, the theoretical assessment could benefit from a more diverse set of methods. Next to multiple choice questionnaires, student's performance could benefit from the use of more essays, short-answer and other forms of written examination. During semesters currently with only one discipline being taught, it is advised to construct intermediate testing. This would split the total amount of theory being tested into smaller portions and would motivate the students to study during the semester and not postpone revision until the end.

Students complained strongly about the lack of feedback on the answers they give to questions. The visiting team advises to provide the students with the correct answers after every exam to facilitate learning.

9. Other influences

The history of the development of the school is described earlier and much of the development of the profession in Tanzania seems to have occurred, more or less, in tandem. Perhaps, this serves as an indicator that the SoD in Dar es Salaam has the real opportunity to provide even more of a professional lead in Tanzania?

Dental graduates are highly valued as professionals within the wider field of the health professions. This seems to be due to their good knowledge and skills in public health where there is a shortage of specific employment in the field of oral health care. Still, the present situation should be seen as a strength, improving the over all status of oral health professionals in the community. It does give them the opportunity to promote oral & dental health in the wider context of their health responsibilities.

This can be done whilst also leading the work to help the population to become more aware of oral and dental health matters. Certainly, the outreach teaching of dental health education etc. in primary schools, within the Community Dentistry part of the curriculum, as described previously, is an exemplar in this regard. Co-operation and coordinated activities with other stakeholders like voluntary organizations could facilitate oral health literacy amongst lay people.

In addition, as described to the visitors by various groups, the status and standing of dentists amongst the population in Tanzania is not as high as that found in most of the countries that the ADEE have previously visited. Part of the problem is that it appears that patients tend to present for dental treatment quite late in the progress of the disease thus often necessitating an extraction. This means trained alumni of the school working in the districts may not get too much opportunity to practice all of the skills they learnt as undergraduates. This is also very de-motivating to well trained dental professionals.

The limitation of desirable salaried jobs and opportunities to establish a private practice is also a problem. We were told, quite forcibly, by the undergraduates that many of them were therefore considering seeking employment outside Tanzania. The increased development of loans to students, rather than the grants system as awarded to medical students, is also a potential barrier to the graduates practicing in Tanzania on their qualification since they will qualify with debts which will need repaying. In other countries of the world this type of sudden change is well documented to impact on the views of recently qualified dentists and on their subsequent commitment to the delivery of the local primary care health care system.

It would strike the visitors that these are important external influences that need some resolution since it is likely, as elsewhere in Africa that as the wealth of the population continues to increase so will dental disease levels rise. In addition, it is inevitable that dental need and demand will increase in parallel. When that occurs the country will need all of its trained dentists to

deliver a high quality broad based service, as well as national oral health promotion activities.

Perhaps, the school needs to act more proactively in national opinion forming and take on more of a role as an advocate and professional lead for dentistry in Tanzania. There are again many examples elsewhere of this approach being taken successfully in other parts of the world.

10. Student affairs

During discussions with the students the visitors noted that students were kept very busy, but unfortunately not always by the teaching programme. The amount of time students have to spend on organizing themselves and on travelling is significant. Because dental students do not receive grants for their study, like medical students, but instead receive loans, they understandably want to keep these loans as low as possible. The consequence is that they do not live in the neighbourhood of the SoD, as medical students do, and as a result two hours travel time away from the school appears to not be unusual. The visiting team understands this problem of financing and housing but still has the opinion that this situation should be considered and improved by the national authorities (see also External Influences).

In addition, the scheduled and unscheduled study activities of students do not always link up with each other. As an example of this: the access to the Library and to computer facilities is limited in time and coincides very often with other mandatory curricular and clinical obligations of the students.

This undesired organizational overload of students causes little time in their daily life for reflection on their learning and development. There is also limited time for recreation and sports and relaxation: elements that in the physical and mental development of young people are so important.

The 'tracer' study

After twenty years of dental education the school conducted a comprehensive survey to obtain data on various aspects of the undergraduate education and quality of the school graduates covering the period of 1979-2002. According to the results of the study the respondents appreciated, as 'very good', the contacts with fellow students and the school's supervision of practical teaching. The five least appreciated provisions were: recreational facilities; chances to have influences on university politics; counselling services; and the dental library facility. Field rotations and field projects were highly appreciated. Three quarters of the respondents rated the education received as fully relevant to their first employment. Rating the assessments methods, end of year clinical examinations, clinical assessment forms and end of year oral examinations were the lowest in the scale of preferences. About 60 % of the respondents perceived a need for continuing education after graduation.

Policy making

The Committee found out that students are only represented in decision making through the university student body at the university level and are not directly involved in the decision making of the SoD. The visitors think that the school is missing a good opportunity to link up educational policies to the expectations of students and to get feedback on performances whilst also drawing on the valuable resource of student experience.

11. Research and Publications

Facilities for research are very limited in the SoD. In terms of physical facilities, there are, for example, no 'wet labs'. In fact, this is probably of limited consequence since, if the school should decide to support teams doing basic research, they would be better working in collaborative teams with the Medical School sharing existing facilities, as often happens elsewhere.

The research effort focuses mainly on 'observational type studies' largely centred on the strength in Public Health/Community Dentistry in the School. This would seem to be appropriate in the current circumstances, although the visiting team understands the aspiration to move to more proactive, interventionist research studies in the future. Furthermore, all students should be exposed to a small research project to increase critical and scientific thinking of the future professionals

Most of the faculty staff is trained in research methods via completing PhDs - often in Universities outside of Tanzania. Having said that, there would be some advantage in providing basic training in research methods as part of pre-PhD staff development possibly in partnership with other schools in the University (this is also mentioned under 'Staffing').

The difficulty comes when faculty staff returns to the school in Dar es Salaam. There seems to be very limited opportunity in terms of resource to support commencement of meaningful research work by joining existing, ongoing and dynamic teams. An additional difficulty, we were told, is the time commitment of staff to teaching and clinical care - although this is in common with other schools in other countries and can usually be managed since the staff/student ratio in SoD is not dissimilar to elsewhere in other countries.

Under staffing, the problems of the 'author points' counting system to achieve internal promotion is a hindrance to good quality collaborative research and is a disincentive – this has already been mentioned under the heading of 'Staff' in this report.

A possible way forward would be to review the research strategy of the school, probably in collaboration, and with reference to, the other schools in this health based University in Dar es Salaam. There are opportunities to decide a limited number of common collaborative themes across schools which are priorities and of direct importance to both the Ministry of Health and the health of the population of Tanzania. In such circumstances there are then greater opportunities for national and international funding support. As part of such an approach the strong potential researchers in the school would need to be identified, given some dedicated time in their schedules and then be appropriately backed by the school to achieve realistic targets. This may mean other staff would need to focus more on their teaching role (consequently their work in this area would also need recognition as a route to promotion).

This approach, as has been suggested here, is not unique and has been used successfully by many other similar sized dental schools around the world where resources are limited. Certainly, the visitors feel that the trained talent is available in the school - it just needs more backing and investment as part of the overall strategic vision.

12. Quality control

Methods for controlling the quality of the delivered education are not clear in the Muhimbili Dental School, although the visitors were told that the development and implementation of such methods are currently under consideration.

It is essential for every institution that provides education to be able to evaluate its quality and outcomes. Adequate procedures, such as “student satisfaction” questionnaires must be applied, so that pre-clinic and clinic students can evaluate the department and academic staff, in practical and theory-based courses. Feedback from students on assessment of strengths and weaknesses in training and analysis of the results can thus be achieved, on a yearly or semester basis. Also, “staff satisfaction” questionnaires and/or interviews may prove very useful and reveal severe drawbacks of the educational system. The quality control system should be developed by the School based on its own needs and aspirations and should be applied continuously, on a regular basis. It might be useful to refer to the consensus documents developed in the ADEE and recent Global Congress in Dublin in this regard.

External evaluation of the School, one example of which is this visiting team and its report, is also useful in establishing a framework for the development of quality control and international benchmark mechanisms. The school is to be commended for having the vision to invite a visit from an international ADEE team of dental educational experts.

13. Strengths, weaknesses and recommendations

Strengths

- De SoD has formulated a clear vision that is led top-down with up-to-date aims and objectives.
- The building of the SoD has great potential and offers ample space to a school with an enrollment of 40 students each year.
- The lecture rooms and number of colloquium rooms give ample space to a modern curriculum.
- The organizational structure of the school is simple and transparent.
- There is sufficient potential for co-financing by teaching through postgraduate courses and by increasing clinical services, under the condition of renovation of the building and equipment.
- The SoD is in the fortunate circumstance of having a dedicated, motivated and well trained faculty staff.
- The curriculum is extensively described in a format with requirements, regulations, degree description, course content, hours, etc.
- Some good educational practices like continuous assessment in clinical dentistry, field rotations in Preventive and Community Dentistry and student-centred group teaching in Restorative Dentistry.
- The SoD is so fortunate as to have very motivated and ambitious students.

Weaknesses

- the building of the SoD, the infra-structure and the dental equipment are in a lamentable condition.
- in the different clinics there is no radiology equipment available.
- No permanent digital projection (computer and data projector) in the major lecture hall.
- The library and IT facilities are poor and insufficiently accessible by students.
- The building does not provide any research facilities and no proper preclinical simulation facilities.
- The education is very disciplinary and not integrated, with many hours spent on basic science and medical subjects.
- The initial years in the curriculum lack the 'dental flavour', which is not very motivating for students.
- The semesterisation of the curriculum prevents students to internalize knowledge because of the absence of rehearsal; the Oral Surgery 'one-off' reaching semester is too early in the curriculum.
- The curriculum content is not supported by a list of competency statements and the curriculum is not characterized by a comprehensive dentistry teaching approach.
- A well functioning quality control system is missing, as are a coordinated staff development plan and a structure of continuing professional education.
- Problematic financing of the school that results in severe infrastructure deficiencies and inability to proper maintenance of the equipment.

Innovations

- The vision of the SoD to become a centre for revolutionizing oral health in Tanzania and in the African region is an innovation as well as good practice.
- The rotaries/field work in Community Dentistry in which the teachers accompany the students in their activities.

Recommendations

- Building renovation & equipment replacement including radiology panoramic facilities, with an ongoing programme of maintenance (with available spare parts) are essential in all plans for future improvement.
- Employ and train technicians and continuously motivate them to maintain the building and equipment.
- The curriculum would benefit from more integration (medical-dental/medical-medical/dental-dental) and modularisation with 'spiral learning' ('brick by brick') and student centred learning.
- Base the curriculum on competences; include comprehensive dentistry, team concept in delivery of care and more dental focus in early years of teaching. Find curriculum time for that to limit basic/medical subjects whilst not reducing public health issues.
- Introduce more diversion in the assessment of theoretical subjects and introduce intermediate testing of theory during the semester to prevent postponing of study.
- Improve the library and IT facilities and improve their access times for students.
- Develop a HRM plan as a coordinated approach for training and development and improve research facilities in time and skills.
- Change the negative scoring on co-authorship to enhance collaboration in research and encourage a realistic internal promotion regime.
- Develop a limited number of common collaborative research themes across schools which are priorities and of direct importance to the Government and the public, also to improve the opportunity for national and international funding.
- The role of the school in leading the profession in Tanzania needs to have a raised profile (e.g. CPD, advocacy) and the need to expand international links and contacts.
- There needs to be budgetary transparency and responsibility at the local level (linking defined responsibilities of school to adequate resource streams) and financial transparency in the cooperation with the dental hospital.
- Develop a quality control system for all activities of the SoD and base this system on regularly evaluations by surveys under students, staff and graduates.

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