OPTIONS FOR TYPES OF DENTAL HEALTH PERSONNEL TO TRAIN FOR GHANA

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SUMMARY

Objectives - To explore the degree of agreement on issues surrounding the proposals for dental health personnel requirements among key oral health personalities who are central to determining policy on oral health personnel requirements for Ghana and to make recommendations to assist in the future development of dental health personnel requirements.
Design - A review of the literature, published documents and in-depth semi-structured interviews.
Setting – Dental health service in Ghana
Participants - Key oral health personalities who are central to determining policy on oral health personnel requirements for Ghana
Results - There was a lack of consensus regarding key aspects of planning personnel requirements including the numbers and the kinds of professionals complementary to dentistry (PCDs) to develop, who should be responsible for their training, and which people to admit as trainees of PCDs.
Conclusion - Greater discussion between the various agencies involved should take place to help ensure consensus on the overall policy objectives.

Keywords: Dental, personnel, training, Ghana.

INTRODUCTION

Health care planning should ensure the provision of the appropriate personnel needed for the effective, efficient, appropriate, acceptable, and safe delivery of health services that a nation can afford[1]. This involves far more than simply identifying the number and types of health professionals, but also recognises that personnel utilisation pays due regard to the needs of the population to be served, at a cost compatible with the resources of the nation in question[2]. The questions surrounding the productivity and efficiency of the health service becomes even more important for Developing countries as many are experiencing stagnant or diminishing health budgets at the same time as primary health and health promotional programmes are being developed. In addition to their poor economic situation many countries are experiencing rapid population growth and epidemiological transitions.

The problem of ignoring the economic implications of training inappropriate numbers and types of health personnel is common in dentistry: dentists are trained at great cost but emigrate due to inadequate funds to pay them. When limited resources are allocated to training staff that a country cannot afford, finances are wasted. This inappropriate use of funds also limits resources to train and employ personnel complimentary to dentistry, who are essential for the proper functioning of higher-level staff[3]. With the cost of training dentists being far greater than the cost of training a therapist, there is a need for great attention to be paid to the opportunity costs of training different categories of personnel.

Efforts at estimating health care personnel requirement have employed many different methods. Several approaches have in the past been used which were based on models developed to provide targets to achieve the necessary personnel to deliver care. Generally, there is no specific widely adopted terminology or conceptual framework. Hall[4,5] described some methods such as; Health Needs Method, Service Targets Method, Health Demand Method, and the Personnel: Population Ratio Method.

The Personnel/Population Ratio Method is commonly but rather inappropriately used to calculate dental manpower needs. A further method used in dentistry is that adopted by the World Health Organisation. This approach uses a spreadsheet computer programme to calculate the dental manpower needs (WHO/FDI JWG6) along with an accompanying handbook published by a Joint Working Group of the WHO and the FDI (WHO)[6]. The model was designed to predict the dental workforce requirements using a need-based, demand

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weighted method. Bronkhorst *et al*[7] in criticizing the approach said that among other things, the model neglected cohort and period effects in its estimation of oral care needs, neglected aspects of demand, and provided a rather simplistic approach to workforce forecasting suggesting that its use must be mainly for providing conditional, imprecise forecasts. Morgan *et al*[8]. were however of the view that despite its deficiencies, it is a useful tool for workforce planning and monitoring. Other methods of calculating dental manpower needs include the Task analysis and Functional analysis methods, Delphi Technique, and the Econometric Technique[4,9].

It must be recognized that methodologies for personnel requirements based on counting the number of dentists and their current activities along with estimates of the future number and working practices of professionals complementary to dentistry (PCDs), however detailed, will not provide a valid mechanism on which to base future workforce requirements[10].

Considering that both dental caries and periodontal diseases (the predominant dental problems) are preventable, and in Ghana they are at low levels, dental services should be developed primarily on the basis of the preventive approach both for the community and the individual[11]. Unfortunately in most countries, this has not been the case. Along with the above-mentioned shortcomings of dental manpower planning methods, an urgent reorientation in approaches to oral health personnel planning is required.

The problems of oral health personnel planning are particularly relevant to Ghana because there is a gross shortage of dental personnel. Presently, there are only about 120 dentists in the Ghana serving a population of about 19 million. So each dentist would have to care for over 150,000 people. Add to that deficiency, there is a severe maldistribution of dentists; nearly 70% of dentists were practicing in the two largest cities, Accra and Kumasi. The implications for such an urban/rural maldistribution is that the vast majority of the Ghanaian population (over 65%) have very poor access to oral health services except the sporadic dental outreach programmes organized by the Ministry of Health (MoH) and other non-governmental organisations (NGOs) to such under-served rural areas.

For many years the dental policy in Ghana has been to train mainly dentists. The effectiveness of that approach is doubtful as evidenced by the level of untreated dental disease. The only dental school in Ghana at the University of Ghana has qualified about 7 dentists per year on average for the past 7 years. Moreover, the attrition rate for dentists after graduation is about 50% - nearly all migrating to industrialized nations. The high attrition rate has cast doubts among decision makers on the option of only training more dentists. Not only is it considered irrational from a planning point of view but it is also not financially prudent. A seemingly more appropriate way to equitably distribute oral health services follows the concepts of the Primary Health Care (PHC) approach. Among the PHC recommendations is to use appropriate technology and personnel. Most planners, at national and international levels such as the WHO consider that it is appropriate to deploy more Professionals Complementary to Dentistry (PCDs) mainly at the district and sub-district levels to provide health promotion, preventive and some curative oral health services.

Generally, in Ghana, dental disease levels are low for most age groups. The pattern of caries at such low DMF levels is mainly occlusal pit and fissure caries except for pre-school children who also have smooth-surface caries. The lesions can readily be treated by PCDs. In the case of periodontal disease, though the prevalence has been reported to be high[12,13], it is mainly gingival inflammation. There is relatively little advanced periodontal disease[14]. This dental health situation presenting in a developing country like Ghana, demands the adoption of a plan that mounts the most appropriate response to the nation's oral health needs under the prevailing circumstances.

As part of the solution to the dental care problems of Ghana, the Ministry of Health (MoH), following concepts put forward in dental planning guidelines for Africa has planned to train Community Oral Health Officers (COHOs). These are going to be State Registered Nurses (SRNs) with additional training to work mainly in the under-served areas as PCDs. The question that is being deliberated is whether the proposed strategy is the best option for Ghana. Because the question about the appropriate numbers and types of dental personnel is being discussed this study will analyse the current oral health personnel problem in Ghana and weigh up the options being deliberated by the dental profession, Ministry of Health and the Ghana Health Service and any other stakeholders.

The objectives of this study are to:

1. To explore the degree of agreement on issues surrounding proposals for oral health personnel requirements among key oral health personalities who are central to determining policy on oral health personnel requirements for Ghana.

2. To make recommendations to assist in the future development of oral health personnel requirements for Ghana.

MATERIALS AND METHODS

The study has two parts. First, a review of relevant documents on oral and dental policies for Ghana was carried out. The second part consisted of in-depth interviews of key personalities relevant to planning oral health personnel requirements.

Key documents reviewed included the draft oral health policies and strategic plan for Ghana by the Ministry of Health in 2000 and the 2002 publication on dental education in Ghana - background to the training of oral health personnel and plans and challenges of the University of Ghana Dental School (the only dental training institution in Ghana) (Table 1). These documents set the agenda for discussion on the development of dentistry in the country, including personnel planning. The intentions of the MoH were underscored by contents of other documents such as the projected Ghana national needs for specialists and paramedical scientists for immediate and long-term service, which give a clear indication of where oral health personnel fit in the over-all planning for health personnel. Other documents studied included the occupational profile of dental surgery assistants and community oral health officers (COHOs) being proposed by the MoH. These documents, substantially detailing programme goals and entry requirement for these middle-level oral health personnel, were also critically studied. Ensuing from several debates held on the subject of personnel planning in dentistry, the Ghana Dental association (GDA) in 2001 published its position on auxiliary manpower utilization which was also reviewed.

In reviewing the documents, consideration was given to the relevance of the subject matter, the approving body or committee authenticating the document, purpose of publication - whether political or educational - the author(s) background, factual correctness of contents, and the presence of other corroborating information/data.

For the second part of this study, we used a semi-structured interview format to obtain background information about the training and development of oral health personnel in Ghana. The interviews were conducted to further clarify certain important aspects of relevant policy issues on dental personnel planning and to fill in the gaps in some of the reviewed documents. The key personalities interviewed included the Chief Dental Officer of the Republic of Ghana, Dean of the University of Ghana Dental School, President of the Ghana Dental Association (GDA), and the Vice-President of the Ghana Medical Association (GMA). The interview sessions were tape-recorded and the recordings were later transcribed.

Steps were taken prior to, during and after data collection to assure the validity and reliability of findings. The method used was piloted and every effort was made to ensure that a standard approach was adopted. In addition, through a process of verification, quality checks were undertaken especially regarding the summarization of interview data. This was achieved by soliciting an independent assessment of the tape recordings, and the results were compared.

RESULTS

The findings are presented in two sections. First, the review of the key documents identified is reported and subsequently, the main issues arising from the interviews of the key stakeholders.

Review of key documents

The lack of any official policy directing the development of oral health services and the lack of policy on oral health personnel requirements have been a great set-back to oral health personnel planning in Ghana.

In the face of dwindling resources leading to major cuts in cash flow to the health budget over the years, training priorities seem to have shifted almost entirely to the training of dentists as is underscored by the document on the Projected Ghana National needs for Specialists and Paramedical scientists for immediate and long-term service(see Table 1). Whereas this document marginally makes reference to training of dentists, it is totally silent on PCDs.

Fortunately a draft policy on dentistry in Ghana has been under discussion and care must be taken to pay due diligence to it. Although it rightly highlights most of the essential matters, the draft policy and strategic plan lacks sufficient detail on the key issues of production and management of personnel[15]. Although the draft strategic plan clearly

states plans to train not only dentists but also PCDs, there is an obvious lack of coordination among the key stakeholders.

Table 1 Documents reviewed on oral health planning

- Oral Health Policies and Strategic Plan (Draft) (2000): Ministry of Health, Republic of Ghana. Accra.
- Position Paper of the Ghana Dental Association on the National Health Insurance Scheme and Auxiliary manpower utilization (2001): GDA. Accra.
- Projected Ghana National needs for Specialists and Paramedical Scientists for immediate and long-term service to Ghana – Personal Communication (2002): Postgraduate Unit, University of Ghana Medical School.
- Occupational Profile of the Dental Surgery Assistant, Programme Goal and Entry Requirements – Oral Health Unit, MoH, Ghana.
- Occupational Profile of the Community Oral Health Officer, Programme Goal and Entry Requirements – Oral Health Unit, MoH, Ghana.
- Atuah, M.O. (2002): Dental Education in Ghana - University of Ghana Dental School (UGDS).
- Bruce, I. (2003): Integrating Oral Health in Primary Care in Ghana. Ghana Medical Journal. 37 (1): 39-44.

Materials on the occupational profile for PCDs confirm the MoH's resolve to train COHOs despite reservations expressed by sections of the Ghana Dental Association (GDA). Though favouring the idea of training some middle level dental staff, dentists are skeptical about their exact role in care delivery and matters relating to their supervision and regulation.

Generally, little reference is made to the relevant financial aspects, control mechanisms in management as well as the registration and regulation of dental personnel of all categories.

Interviews -Summary of major observations

Although all individuals interviewed were aware of the dental manpower problems and have some ideas about what could be done to address them, there was no consensus on the exact way forward for planning oral health personnel. To determine the desirable number of dentists for the country, all those interviewed broadly agreed on the importance of such factors as the prevalence of oral diseases and the economic state of the country. The Dean of the Dental School however, also considers the subject of training facilities equally important.

The Faculty of the dental school appears to have its own agenda for training dentists and PCDs. It differs from the plans the MoH has for the development of oral personnel. The agenda for now appears to be driven by a need to develop staff for the Dental School and is determined by the finances and other resources available to carry this out. There was, however, the desire to help fill vacant positions in government dental clinics in other regions of the country. The trend seems to be that most graduates stay in the dental school to work and pursue specialization and hence do not contribute to tackling the problem of inequity in the deployment of clinical dentists around the country.

The viewpoint of the MoH was that, primarily, its responsibility is to train PCDs and when necessary solicit help from the dental school. But this does not seem to be the understanding of the faculty of the Dental School regarding the training of PCDs. The main type of PCDs proposed by the MoH is a Community Oral Health Officer (COHO). Both the GDA and the Dental School had no objection to some kind of PCD operating in the oral health system. There was however a lack of total agreement regarding the operative aspects of the job description and supervision of COHOs.

Though the GDA was of the view that the training of COHOs would be of some help in health education and preventive care, it hoped that the programme will be temporary and the training of COHOs will be phased out in 10-15 years time. Whilst being silent on this matter, the Dental School maintains an agenda of training Senior Secondary School (SSS) graduates as DSAs and therapists directly; and not qualified nurses as proposed by the MoH. Regarding the possible urban drift of COHOs in the country, all respondents believed that the problem could be prevented by recruiting COHOs from their own districts and having them bonded by their respective District Assemblies as part of their conditions of sponsorship.

Table 2 Implications of options of oral health personnel requirements for Ghana.

Options	Advantages	Disadvantages	Other Issues
Training more dentists	1. Possibility of having more qualified dentists in dental services (routine and specialist services). 2. Increased numbers of qualified dental teaching staff in dental schools. 3. Qualified staff for administration and research in oral health.	1. Further increases in initial costs. 2. Increases in ongoing costs 3. Higher probability of emigration (brain drain). 4. Lack of teaching staff.	1. Need for greater numbers of teaching staff. 2. General unwillingness to work in rural areas.
Training COHOs	1. Lower initial costs. 2. Lower ongoing costs. 3. Able to carry out preventive and promotive work (ART, pain relief). 4. Higher probability of retention when sponsored and bonded by district assemblies. 5. Could be retrained for utilisation in other medical fields. 6. Possibility of obtaining external funding support.	1. Shortage of SRNs 2. High emigration rates of SRNs currently. 3. Uncertainty about willingness of SRNs to specialise in dentistry. 4. Uncertainty about clear career pathway. 5. Uncertainty about regulation. 6. Uncertainty about supervision. 7. Lack of teaching staff.	1. Uncertainty on plans for reintegration if it becomes necessary after 10-15 years of experimenting. 2. Un-experimented previously. 3. High professional antagonism.
Training Dental Therapists	1. Utilisation of dental therapists common in many parts of the world. 2. Curriculum for training already available for adoption. Possibility of sharing teaching staff from other countries like Botswana, and South Africa 4. Possibility of obtaining funding support from NGOs such as British Council and national governments e.g. Scandinavian or commonwealth countries. 5. Possibility of training an initial batch in other countries to become teachers in dental therapy school in the future. 6. Assurance of high quality right from the start. 7. Relatively lower ongoing costs compared to dentists. 8. Possible high retention rate in rural areas if sponsored and bonded by district assemblies.	1. High initial costs. 2. Uncertainty about regulation. 3. Uncertainty about supervision. 4. Uncertainty about teaching staff.	1. Capable of undertaking majority of routine care provided by dentists (especially on children). 2. Could effectively target the disabled and elderly especially in carrying out preventive procedures. 3. Could be given skills to be able to train other primary health care workers such as teachers (e.g. in Botswana). 4. Immediacy of getting numbers in training could be addressed by sending dental therapists abroad on pre-existing curriculum.

DISCUSSION

The planning of any aspect of health care delivery must have as its ultimate aim, the provision of quality care made available to all of its population as underscored by the Health for All Concept.[16] A major problem in Africa that must be overcome if health is to be improved to a satisfactory level is the under-supply of sufficiently trained health personnel[17]. Despite the issue of imbalance in the health workforce having been on the public health agenda for many years, it remains a major concern to this day, not only in developing countries like Ghana, but also in developed countries[18].

It has been generally assumed, despite the shortage in state registered nurses (SRNs), that they would want to be enrolled to become COHOs. Due consideration must, however, be given to factors such

as levels of investment expenditure and other socio-psychological factors that impact on individuals when making professional training choice. Investment expenditure may include, out-of-pocket expenses for education (books, equipment and other materials), the opportunity costs of loss of earnings during the education investment period, and the potential psychological issues arising from the various difficulties associated with education[18]. Though COHO trainees are to be sponsored by their respective Districts Assemblies, these above-mentioned factors may become important at one time or the other in the future. In socio-psychological terms, some individuals may choose a profession because it is highly valued by the society and this may well be an enticement factor but this remains to be observed in the case of COHOs.

From the review of study documents and interviews conducted, the lack of consensus regarding key aspects of planning personnel requirements such as the numbers and the kinds of PCDs to develop, who to carry out training, which people to admit as trainees of PCDs amongst others should be noted. The documents indicate that dental education has in the past generally not paid sufficient attention to the training of PCDs. Sackeyfio[19], reporting on a study on the utilisation of PCDs in Ghana stated among other things, an almost unanimous agreement for the need to delegate non-operative preventive tasks to PCDs, but less support for operative irreversible tasks. She also reported that despite fears about the use of operating PCDs, nearly all Ghanaian dentists supported their deployment if they were to directly supervise them. From the review of papers, and the in-depth interviews conducted, it is obvious that in Ghana as in many developing countries, the major issues of contention are the job description of PCDs, their supervision, and their regulation. In particular, professional antagonism to the MoH's COHO training agenda has arisen mainly because:

a. COHOs would be recruited from the trained Registered Nurses pool. The question has been why a Registered Nurse would want to specialise in dentistry under the current payment arrangements.

b. training of COHOs involves nearly an additional 2 years beyond the 3 years of nursing training

c. shortage of staff to train the COHOs

d. lack of direct support/involvement of the University of Ghana Dental School (currently the only Dental School in Ghana).

e. fear of possible urban drift of COHOs for practice after training.

f. uncertain job description of COHO.

g. uncertain pathway for professional development after qualification as COHOs

h. problems of supervision and regulation of COHO practice.

Experience has shown that in developing countries, attempts to reform the health care sector have frequently failed to respond to the aspirations of staff particularly those concerning remuneration and working conditions. Ferrinho *et al,*[20] reported that salaries are often inadequate and are sometimes paid late, with health personnel therefore trying to solve their financial problems in a variety of ways. These may well accentuate some of the worries regarding the job description and quality of care of any unsupervised/unmonitored middle level PCD, especially those that are under current discussion. Although played down by some, the matter of job satisfaction must be taken seriously to prevent the loss of personnel. Failure to deal with this issue might lead to a rapid turnover of staff with grave financial consequences to the government. Carlson *et al*[21] reported of the existence of support in the empirical literature of job dissatisfaction among nurses, and the link between job dissatisfaction and job exit.

Hall[22] pointed out that the time lag between education and practicing might be quite substantial. He emphasizes that to obtain a license to practice medicine (and dentistry) requires a lengthy education and training, and the long time lag therefore exists between a policy decision to change student intake and a change in supply. Supply adjustments for dentists will not be immediate, but will occur after a considerable time period; and this will also be the case of any other category of PCD whose training takes a considerable length of time.

Opportunities for further education may definitely be the reason why young dentists prefer to stay in a dental school after graduating and not move out into the regions to serve. Such opportunities and incentives must therefore be made available in outlying districts as a means to attract personnel to such areas.

Options for future strategies

In addition to training appropriate numbers of dental technologists/technologists and DSAs to improve the work efficiency of dentists, findings from this study suggest the following options for oral health personnel requirements for Ghana:

a. train more dentists only

b. train COHOs whilst maintaining the current number of dentists being trained.

c. train more dental therapists.

For many decades the treatment of dental caries and periodontal disease has been the prime concern of dentists and, to a lesser extent, Professionals Complementary to Dentistry. The changing disease trends in the last three decades necessitate the review of some of the broader issues in dental services delivery including decisions on the appropriate utilization of personnel with special reference to the type of skills mix required[23]. The low prevalence of dental diseases such as caries, with DMFT scores of 0.7 and 0.2 for urban and rural 12-year-olds respectively, among Ghanaian children[24-26] and current concepts on the progression of periodontal disease[27] and the oral health care situation demand a rethinking of the oral health personnel situation of the nation.

Indeed health improvement must be seen as an ongoing process involving individuals, local communities, and government. It is noted that improvement may come from public action in areas not recognizably medical or dental such as the widespread use of fluoridated toothpaste, improvement in living conditions and increased public awareness[28,29].

Nevertheless, the dynamic nature of all the important social, political, financial and organisational factors, together with the changing patterns in dental diseases requires that the role of each member of the dental workforce be continually reviewed. This would ensure that appropriate dental services are provided to all communities equitably. In line with this, Barmes and Tala[30], suggested that it was time to readdress the prevailing ratio of dentists to PCDs in many countries with an emphasis on increasing the numbers of Professionals Complementary to Dentistry.

While the points raised above suggest that the solution proposed by Barmes and Tala[30] is logically the appropriate way forward, without the agreement of all parties involved in the planning and training of personnel, the chances of success are remote. The discrepancies between the objectives of personnel planning in Ghana would suggest that prior to the implementation of the MoH's proposals, greater discussion of such a proposal should occur before embarking on any resource intensive programmes.

CONCLUSION

There is a lack of agreement between the various parties involved in planning oral health care personnel requirements current proposals for Ghana. In particular, there is a lack of detail in key issues regarding the registration and regulation of all categories of oral health personnel in Ghana.

Efforts should be made by all the key agencies involved in planning oral health personnel to achieve a consensus on all the major considerations important to the Ghanaian situation to enable the successful implementation of programmes.

The current plan to train Community Oral Health Officers (COHOs) has major shortcomings and needs serious re-consideration.

The number of dentists to be produced must be based on national considerations and the need to improve on the current mal-distribution.

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