

## The role of maternal and child health personnel in oral health promotion in Tanzania

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### Abstract

The National Plan for Oral Health (1988 – 2000) recommends that whenever general health education is conducted, a message promoting oral health should be included. The strategy for involving non-dental health workers in oral health promotion has focused primarily on the Maternal and Child Health Nurse or MCH Aides and school teachers. The goal is for MCH-Aides to teach oral health to mothers attending MCH-clinics.

The theoretical model of the programme proposes that the MCH-Aide can be trained to give effective oral health education lessons to mothers who are attending MCH-clinics. The mothers in turn will adopt better oral health habits regarding tooth brushing and diet control and will teach their children.

The content of the lessons given to mothers include demonstration of toothbrushing for children and adults using modern and traditional toothbrushes (chew-sticks), promotion of breast feeding and advice on a balanced diet including sugar restriction. Also included are messages intended to discourage certain harmful cultural practices that exist in certain parts of the country.

The long term expected outcome is that oral hygiene practices and periodontal status of the children will improve and that their caries incidences stays at the same low level.

### INTRODUCTION

The United Republic of Tanzania is located in Eastern Africa and has a population of approximately 24 million, with the majority living in rural areas (1). Like in other countries in Sub-Saharan Africa, dental caries level is low, yet poor oral hygiene and resulting periodontal disease are highly prevalent (2). Resources for the oral health sector are very limited, representing 2.9% of general health expenditure or thirty US dollars per 1000 persons per year (3). The Ministry of Health in Tanzania has launched its second National Plan for Oral Health spanning the year 1988 to 2000. The priorities of this plan are to establish national oral health promotion programmes for children aged 0 to 15 years and to provide as much of the population as possible with basic preventive and emergency oral health care. The number of dental manpower in Tanzania (212 workers from various dental cadres) is too few to implement this strategy. Instead, the national plan recommends that wherever general health education is conducted, a message promoting oral health should be included (4). To achieve this goal, nurses, clinical officers and clinical assistants, village health workers and primary school teachers are currently trained in oral health promotion.

Since 1982, the strategy of involving non-dental workers in oral health has focused primarily on one cadre; the Maternal and Child Health nurse or MCH Aides. MCH Aides are posted at 2600 clinics throughout the country and provide health services for mother and for children aged 0 to 5 years. They perform examinations and normal deliveries, give immunizations, make referrals and give daily health education talks to groups of mothers attending clinics. Sixty five percent of the eligible client population (mothers aged 15 to 45) attend MCH clinics regularly in Tanzania. The goal of the National Oral Health Plan is for MCH Aides to teach oral health to mothers along with other regularly taught health subjects. The objectives is that by 2002, oral health be taught in each of the 2600 clinics for one month out of every year. If this is achieved then 65 per cent of the mothers that utilize these clinics or 42 per cent of all mothers would be reached with oral health education by the year 2002 (3).

The theoretical model of the programme proposes that the MCH Aide can be trained to give effective oral health lessons to mothers who are attending MCH clinics. The mothers in turn will adopt better oral health habits regarding mouth cleaning and diet and will teach these to their children. The long-term outcome is that oral hygiene practice and periodontal health status of children will improve and that their caries incidence stays at the same low levels. The content of the lessons given to mothers includes the demonstration of mouth cleaning for children and adults with traditional toothbrushes (chew-sticks), promotion of breast

feeding and advice on balance diet including sugar restriction. Also included are messages intended to discourage certain harmful or dangerous cultural practices that exist in certain parts of the country. These include the extraction of sound lower incisors, the sharpening and filing down of teeth and the extraction of developing primary canines in babies as a "folk cure" for fever and diarrhoea (5,6).

There are reports from other developing countries where non-dental personnel such as primary health care workers and school teachers are involved in oral health education and simple treatment and referrals (7). There is currently a consensus that this strategy is sound and should be implemented and evaluated (8,9). What is needed in the literature is a fuller account of the process of planning, programme design, field implementation and evaluation of such models. This paper aims to provide an analysis and documentation of a programme which has been underway in Tanzania for more than ten years. It describes the successes and obstacles met while the programme was being designed and implemented and describes some preliminary findings from programme evaluation. This analysis could be used as a guide for implementing similar programmes which are attempting to integrate oral health into general health sector activities at a national level.

### PROGRAMME DESIGN

The strategy for the programme was developed in 1982 in cooperation with the Maternal and Child Health Services Unit, the Ministry of Health (6). A needs assessment was made by collecting information in four areas; epidemiological surveys on oral diseases; knowledge, attitude and practice (KAP) surveys of mothers and MCH personnel; training needs of MCH personnel in oral health; and work patterns of MCH personnel in their clinics. Epidemiological surveys in 1982-83 (2) showed that Tanzanian have large degrees of soft and hard deposits on the teeth with accompanying periodontal inflammatory changes.

Missing teeth are primarily lost as a result of dental caries, yet 35-40% of the population has no clinical caries. KAP interviews with ninety urban and rural mothers showed that all respondents clean their own mouths daily with fifty per cent using sticks "Mswaki" and fifty percent using modern toothbrushes. Three-quarter of the mothers claimed they were cleaning their children's teeth daily but this behavior need to be verified by further observation in the community. Toothbrushing behavior was taught within the family by parents (75%) and to some extent by health workers (25%). Half of mothers reported that they did not know what caused tooth decay and three-quarter felt that "gum disease" could not be prevented. Dietary sugar consumption was very low and the main source of sugar in children's diet was sweetened tea (10). This information coupled with the oral

disease status showed clearly that the desired behavior of mouth cleaning exists but needs to be reinforced so it is more effective in removing plaque. A decision was also made to include a message on sugar restriction as part of the oral health promotion programme. Although sugar consumption was low, more processed sugary foods were appearing in the Tanzanian diets, especially in urban areas.

Another study undertaken with a questionnaire showed that MCH personnel had a limited knowledge of the etiology and prevention of oral disease and that the coverage of this subject in their training institutions was inadequate. This information was used in the design of an oral health syllabus which was latter added to the curriculum for MCH personnel. A situation analysis was also made to determine whether the MCH Aide, who bears a large responsibility for rural health care delivery, had the time and willingness to take on an additional duty in oral health promotion. This was done through observation of work patterns at MCH clinics and through interviews with personnel at all levels in the MCH sector (11). As a result of this need assessment, MCH personnel agreed that it would be relevant and possible for them to include oral health education along with their general health education talks as long as they were provided with training, teaching materials and supervision. Thereafter, a basic plan of activities was prepared which included the following: implementation of a national programme for training MCH Aide personnel to be educators, distribution of teaching materials to all MCH clinics in the country and monitoring activities through a simple reporting system integrated within the record forms already in use in the MCH services.

#### PROGRAMME IMPLEMENTATION

##### Training

The first phase of the training programme was developed for students and trainers at pre-service institutions because they are easier to reach than people already posted in the field. A revised dental health syllabus was officially adopted at the Ministry of Health and put into effect at the 16 institutions where MCH Aides are trained in a three year course. The new syllabus was also adopted at the four institutions which prepare future MCH Aide trainers and field supervisors (6).

In 1983 and 1984 all teachers at these institutions were trained in short workshops covering the goals of national oral health programme and teaching methodology for the revised syllabus. The dental personnel who were posted at facilities near these institution were given the primary responsibility of teaching 14 class hours on dental subjects every year with the assistance of the MCH trainers. Once established at these institutions in 1984; the pre-service programme became continuous with 600 MCH Aides graduating each year with training in oral health education.

The second phase of training implementation, and a greater challenge, was to reach the 3000 in-service MCH personnel posted at clinics throughout the country. In Tanzania there are 20 administrative regions, each divided into an average of 5 districts. The regional coordinator of MCH services is posted at the level of the regional hospital and is a supervisor of the district MCH coordinators. Each district MCH coordinator is responsible for approximately 20 to 40 MCH Aides working in as many clinics. The MCH clinics are distributed in urban areas with a defined catchment population of 7,000 mothers.

The Central Oral health Unit in the Ministry of Health did not have the logistical capability to carry out a training exercise for all MCH Aides in such a large country. In order to meet this objective, it began collaborating with other "larger" health programmes in Tanzania, notably, the Expanded Programme for Immunization, the Family Planning Programme and the Essential Drugs Programme.

The most successful collaboration began in 1985 with the National Immunization Programme which shared a common goal with the Oral Health Programme to re-train all MCH personnel in the country with a campaign of workshops. In 1985 to 1986 and

again in 1988 to 1989, week long Immunization workshops which included one day of oral health were staged for over 3,000 rural health workers (12). The Immunization programme, with its strong regional and district transport and communication capability, was able to distribute teaching materials and invitations and provide transportation to trainers and participants for the dental day during 90 workshops. With the above efforts, the planned training strategy was implemented in MCH training institutions and for personnel in the field, and has been continuous since 1985.

##### Teaching Materials.

The second goal for project implementation was to support the MCH personnel with educational materials. A short handbook on dental health was produced in Kiswahili and English versions for MCH personnel. It was distributed to all training institutions and to all MCH clinics and rural health facilities in the country when the nationwide training exercise was underway in 1985 and 1986. It contains information about the etiology and prevention of oral disease and first aid and referral, yet the emphasis is on teaching methodology in oral health education (13). The book describes six participatory activities that can be arranged in MCH clinics for mothers during the daily fifteen minutes health talks. The Immunization programme has printed a quarterly newsletter about its activities which included a oral health section. The newsletter is widely read at rural health facilities where there is usually little access to reading materials. This newsletter has served to reinforce oral health activities in between the infrequent training campaigns. The oral health topics covered included the role of general health workers in oral health promotion, giving effective oral health talks and correct reporting of oral health activities.

Throughout the process of implementation, MCH personnel were given a chance to provide feedback on programme progress through small group discussions and surveys. In surveys done in 1985 to 1986, MCH coordinators cited the lack of teaching materials, especially posters, to be the major barrier to the implementation of oral health education in MCH clinics (14). In response, oral health flip-charts were designed to motivate the MCH aide to teach the subject and to improve the effectiveness of the teaching session. The flip-charts contain messages on mouth cleaning techniques, good nutrition and sugar restriction. One unforeseen obstacle that arose during the design of these flip-charts was that the department which makes the nutritional policy for the country was reluctant to approve the message about sugar restriction. In Tanzania where protein energy malnutrition affects 50% of children aged 0 to 5 years, consumption of sugar as a source of calories is often promoted by health workers (15). The nutrition department agreed in the end that processed, sugary foods like jam, candies and sodas were a problem in urban areas and could be discouraged in the oral health flipcharts.

The flipcharts were evaluated in a pilot project in two regions of the country and served as a motivational tool in promoting oral health education activities. Results showed that the percentage of MCH clinics teaching oral health in one pilot region rose from 26% to 71% while the number of oral health sessions taught increased from 533 to 2361 over an eighteen month period. The teaching performance of the MCH Aides was assessed to be more effective with the flip-charts than without them. This assessment was made by observing the MCH Aide teach a oral health session before and after they received the flipcharts and was trained to use them. A qualitative evaluation of such teaching sessions given by a sample of 13 MCH Aides showed an improvement in the accuracy of health information given, in lesson organization and in audience participation (16).

#### MONITORING AND EVALUATION

Monitoring of the programme has been carried out using several methods. These included questionnaires and interviews of MCH personnel and mothers, clinic records and oral health status measures.

##### Interviews and Surveys of MCH Personnel

Interviews and surveys soliciting feedback about programme implementation were given to MCH personnel at frequent

intervals. Collaboration with the immunization programme enabled frequent contact with MCH coordinators during the semi-annual immunization refresher courses which included oral health. During these meetings the MCH personnel reported on progress in their regions and district in oral health education, they gave ideas for better implementation and they obtained teaching materials they needed. Information from three questionnaires was used to assess national coverage of the programme over the years. In 1983, a baseline survey completed by 75% of MCH coordinators revealed that oral health activities at MCH Aides clinics were very rare, there were few teaching materials available and no evaluation on recording was done of the sporadic activities (6). In 1985 and 1986, another survey was completed by 92% of the 130 MCH coordinators. At that time, oral health education sessions were being conducted at all 20 regional centres and 70% of the 110 district centres(14). Implementation increased slowly and by 1989, oral health education sessions were being taught daily for one month in 50 per cent of the country's 2600 MCH clinics. Information regarding coverage that was gathered through these infrequent surveys of MCH coordinators was validated by monthly clinic activity records prepared by MCH Aides themselves. In 1988, a sample of MCH Aides completed a questionnaire concerning their understanding of the etiology and prevention of oral diseases, nutritional counselling and oral hygiene techniques. The aim of this questionnaire was to identify any gaps in their knowledge and to develop the learning objectives for the second national training campaign in oral health for MCH Aides, conducted with the immunization programme in 1988/89.

#### Use of Clinic Activity Records

Another method monitoring the project was through the use of format monthly reports of clinic activities recorded by the MCH Aides. Tanzania's National Plan for Oral Health (1988-2002) has set a goal that all 2600 MCH clinics in the country will conduct oral health education classes for one month of every year, in order to monitor progress towards this goal a simple reporting system was designed using record forms already in use in the MCH services

When an oral health session is conducted on a given day, the MCH Aide records this on the monthly report of all MCH clinic activities. The number of mothers in attendance at the session was also recorded. These reports from every MCH clinic are forwarded to district and regional MCH Coordinators who compile this information twice yearly, sending copies to dental personnel at their levels and to the Ministry of Health. Through this simple system which has been adopted in 14 out of 20 regions, it is possible to monitor at district level if the goal of all MCH clinics being "dentally active" is being reached. The reporting system is being promoted in all regions.

#### Oral Health Status of Children

In 1983 an effort was made to train MCH Aides to perform oral examinations and record the oral health status of children when they are brought to the clinic for immunizations, health assessment, and growth monitoring. A simple oral health record form was designed to be attached to the standard "Road to Health" or growth monitoring card which every child has who attends MCH clinics.

The plan was that the MCH Aide could examine the child's mouth and give individual oral health advice to the mother if the child was detected with a dental problem. This idea was discontinued when it was found that many MCH Aides had difficulties in interpreting the growth monitoring portion of the chart itself and failed to properly communicate with mothers about the significance of a charted weight loss or gain (17). In this case, it was deemed inappropriate to burden the MCH Aide with monitoring of children's oral health status. Instead, it was decided that dental personnel should monitor this age group, examining a sample of young children from MCH clinics at yearly intervals.

#### Interviews of Mothers

Further information for monitoring the programme has been gained from knowledge and behavior interviews of mothers attending MCH clinics in various parts of the country. The results of these interviews were used originally to develop the dental flipcharts. Other surveys done mid-way through programme implementation were used to focus the oral health message to the educational needs of a particular population of mothers. Educational needs appears to be different in urban and rural areas. In Mwanza, a large urban area, investigators who interviewed mother recommended that emphasis should be shifted from toothbrushing to diet and sugar counselling (18). Whereas in Bagamoyo, a more rural areas, it was suggested that oral hygiene techniques be stressed because 32% of mothers did not know at what age to begin cleaning their children's teeth (19).

In summary, monitoring of the programme has been based in the collection of information from different sources, primarily activity reports of MCH personnel and to a lesser extent from interviews and surveys of MCH personnel and of mothers. Improvement in oral health status has not yet been evaluated. The major effort thus far has been placed on measuring national activity levels, specifically whether or not oral health education is being taught for one month at a particular clinic. The effectiveness of training the MCH Aide in oral health and the appropriateness of the oral health message to mothers has also been assessed.

#### DISCUSSION

This study has described the process of integrating oral health education into the MCH sector in Tanzania. Certain achievements are evident; the most notable is the country-wide mobilization of MCH Aides to perform this task. Though they have many other duties, MCH personnel have accepted this role. Secondly, the oral health programme is now identified and recognized as a national health care programme and receives strong support from within the Ministry of Health. There has been very effective integration and cooperation with larger health programme, especially the Immunization programme, without which the oral health programme would have seen implementation at a much reduced level. Joint workshops and meetings have cut down on organizational problems and running costs. The frequent contact with MCH personnel at these joint meetings is seen as essential to involving them in reaching increased coverage. A further achievement is that a monitoring and supervisory system for oral health activities has been integrated with the MCH record system. Effective and attractive teaching materials have been developed and distributed to the grass roots level where few teaching aides on any health topic exist. Illustration in the oral health flipcharts are helping to promote the nutritional and breastfeeding education campaigns with the MCH services. The activities of the programme have led to a cooperation between oral health personnel and MCH personnel at all levels in the health services where little existed before.

An analysis of these achievements show that certain vital strategies were necessary. Primarily, integrating oral health into the activities of larger health programmes (MCH services, Immunization) required a full time oral health lobbyist whose role was pro-active. This means taking every opportunity to bring attention to the oral health programme by attending primary health care meetings and sharing in committee work for non-dental programs. In 1984, there were several traditionally isolated vertical programmes within the Tanzanian Ministry of Health which were trying to find a way of working together under the larger umbrella of primary health care (PHC).

During this time of restructuring the oral health programme was able to "fit in" because any health programme having clear goals and objectives could be refused in the spirit of PHC. The oral health programme's goals were clearly laid out in the National Plan for Oral Health which was distributed widely throughout the health sector. The logical way for the many vertical programmes was through integrating training and supervision of tasks. This cooperation has been praised by the Ministry because if each of

the 15 PHC programmes conducted separate training courses, health personnel in Tanzania would spend the majority of their time in workshops instead of at their posts in the field.

The progress made thus far has taken 10 years, substantiating the fact that such programmes take a considerable length of time to develop and sustain themselves. The strategy of national mobilization as opposed to implementing a pilot project in one or two regions can be queried. The oral health programme's involvement with the immunization programme in training and supervision created a situation where, without too much more effort, 20 regions could be mobilized instead of just one or two. In most other situations, piloting is probably the best strategy. Lastly, a growing percentage of mothers are receiving oral health talks. Mothers are intermediary agents in the process of teaching the target group of children aged 0 to 15 years positive oral health behavior.

It is unlikely that the activities of the programme described in this paper will result in either maintenance or improvement of children's oral health status in the short term. This desired effect will take a longer period of time to achieve. However, along the way to achieving this goal, several steps or actions need to be implemented in the field. These actions include the training, deployment, supervision, motivation and management of the primary health care personnel who are involved with oral health at the grass roots level. What can be said of Tanzania's experience is that it is possible to implement these activities and to achieve a wide coverage where this health message is accessible to the majority of mothers.

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