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Changes in the Nursing Curriculum in Botswana: Implications for Prenatal Care and Midwifery Training

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Introduction

Shortly after independence in 1966, the Government of Botswana made several efforts in an attempt to shift the focus of its health delivery service from the predominantly curative system it had inherited at independence to one that emphasized community-based preventive and promotive aspects for its largely rural population. These efforts included:

- 1) the rapid expansion of health infrastructure under the 1973-75 Accelerated Rural Development Programme (ARDP);
- 2) the establishment of a Maternal and Child Health/Family Planning (MCH/FP) Unit in 1973;
- 3) the training of 60 Family Welfare Educators (FWEs) per year since 1973;
- 4) the introduction of MCH/FP training through the Meharry Project (1973-78);
- 5) the implementation of Primary Health Care (PHC) since adoption in 1978;

- 6) the decision to bring the MCH/FP Unit, Nutrition Unit and Health Education Unit under the Family Health Division in 1979;
- 7) the gradual replacement of the practice of offering separate services on different days with integrated MCH/FP services at all health facilities since 1984;
- 8) and the growth of health personnel (particularly nursing) since independence.

Since the introduction of these changes, maternal health has greatly improved. By 1991, 92 percent of all mothers used ante-natal facilities and 78 percent of deliveries were supervised by trained personnel who were predominantly nurse-midwives. The Total Fertility Rate (TFR) declined from 7.1 in 1981 to 5.3 in 1991. Use of modern contraception methods increased from 16 percent to 29 percent between 1984 and 1988 (Ministry of Finance and Development Planning, 1991:226).

The Botswana Country Health Profile (1991) shows that the Crude Birth Rate(CBR) declined from 47.8 in 1981 to 39.4 in 1991. The Crude Death Rate(CDR) also declined from 13.7 in 1981 to 11.4 in 1991. Life expectancy at birth increased from 56.3 in 1981 to 62.6 in 1991. The infant mortality rate (IMR) declined from 119 in 1960 to 92 in 1971, 71 in 1981 and 45.1 per 1000 in 1991. Mortality rates for children between the ages of one and five declined from 174 per 1000 in 1960 to 109 in 1981 and 56 per 1000 in 1991. By 1990, Universal Child Immunisation (UCI) reached 86 per cent coverage of all children against neonatal tetanus, whooping cough, poliomyelitis, measles, tuberculosis, diphtheria. Moderate malnutrition rates reduced from 30 percent in 1980 to 15 per cent in 1988 and severe malnutrition rates have been kept under one percent. The growing number of women achieving higher levels of education has also contributed to improved health statistics. Literacy levels for females aged 12 years and over were improved from 36.9 percent in 1971 to 51.2 percent in 1981 and 57.2 percent in 1991.

These health statistics are a reflection of successful health education, the spread of

Maternal and Child Health (MCH) programmes, increased number of supervised deliveries, sustained social mobilization, successful immunization campaigns, extended duration of breast-feeding, widespread use of oral rehydration therapy for the control of diarrhoea, access to clean drinking water, adequate food and improved nutrition, basic sanitation, essential health care, as well as appropriate treatment of disease. The quality of life as reflected by favourable health statistics could also be attributed to improved nutrition and income generating programmes established to counter the effects of the drought during most of the 1980s. These statistics are also a reflection of the governments ability to invest in social services on a scale significantly above that which existed before independence as a result of economic success reflected by low levels of debt, large budget surpluses, moderate inflation, a favourable balance of payments, Gross Domestic Product (GDP) growth rates of up to 13 percent per annum, and per capita income of up to US\$2,700 (Ministry of Finance and Development Planning, 1993:11).

Changes in the Nursing Curriculum

In order to ensure that preventive and promotive aspects of health, which have resulted in the positive health statistics outlined above were sustained, a large pool of qualified nurses with training in various aspects of Primary Health Care (PHC), especially Maternal and Child Health/Family Planning (MCH/FP) was required throughout the country. Practicing nurses who had trained under the 1959-1969 High Commission Territories Nursing Council curriculum required additional training tailored to their new and extended role as deliverers of both bed-side nursing, which they knew fairly well, and community oriented health care services, which they knew little about (Linn, *et al.*, 1990).

The need for community oriented preventive and promotive MCH/FP services gained a historic boost in 1969 with a pilot project to introduce family planning in the large

village of Serowe by the International Planned Parenthood Federation (IPPF), after several women in Francistown had asked the Government Surgeon (in 1967) for contraceptives (Manyeneng, *et al*, 1985:8). The policy to provide comprehensive MCH/FP services in all health care facilities led to the need for expansion and diversification of training programmes as well as continuing education for health personnel.

In 1970, a new curriculum with a new philosophy that departed from the 1959-1969 High Commission Territories Nursing Council curriculum, was initiated (Kupe, 1987:272). The new curriculum had an integrated nursing content aimed at producing a generalist nurse who would provide comprehensive care to clients not only in the hospital setting but in homes, schools, work-places as well as in health facilities, other than hospitals (i.e., clinics, health posts, etc.). This included exposing nursing students to nursing in remote rural areas far away from doctors and hospitals.

Kupe (1987) notes that the new curriculum was born in an educational environment in which there was lack of nurse educators for its implementation. The only two qualified nurse-tutors {Sister Elizabeth Cox (Irish) and Mrs. H. Bome (Botswana)} had studied in South Africa in an educational system completely different in philosophy from that of the new Botswana curriculum. In the circumstances, external assistance became necessary in order to successfully implement the new curriculum; and the United States Agency for International Development (USAID) assisted with preparation of nurse educators at the baccalaureate and, later, graduate degree levels.

The Botswana-Meharry Project

In addition to training at the baccalaureate and higher levels, the Botswana Maternal and Child Health-Family Planning Training Project was initiated (May 1973 to September 1978) to train new nurses in Maternal Child Health and Family Planning

(MCH/FP) and re-orient those already practicing through an intensive in-service programme. The project was carried out by the Meharry Medical College of Nashville, Tennessee, under a USAID contract. The project involved some 412 nurses in an eight week refresher course on MCH/FP.

The primary objective of the 1973-78 Botswana-Meharry Project was to spearhead the adoption and implementation of MCH/FP nursing practices into the nursing curriculum as part of a wider government effort to shift the focus of health delivery service from one that was predominantly curative to one that emphasized prevention and promotion of health. These efforts were especially boosted by the official adoption in Botswana of the concept of Primary Health Care (PHC) which was formally launched by the World Health Organization in 1978.

With the adoption of PHC as the strategy most likely to improve the health status of the people of Botswana in the shortest possible time, curative and preventive aspects of health services were integrated and aimed particularly at the community or village level (Ministry of Finance and Development Planning, 1977:237). Through MCH/FP services, the family, especially women and children who form the majority of the population, became the most important and easily identified socio-economic unit which has been the focus of many basic health innovations and services.

The Research Problem

Throughout the 1980s, prenatal care nursing practices which were emphasized by the Botswana-Meharry project, have been incorporated in the National Health Institute (NHI) curriculum. All nurses trained in Botswana graduate with a basic or advanced knowledge and skills to implement MCH/FP. The nurses who were up-graded through the Meharry Project have been reinforced by several cohorts of NHI graduates who have a working knowledge of MCH/FP.

However, despite more than ten years since the Meharry Project and other efforts to train nurses in MCH/FP, there has been no systematic evaluation of the extent to which the innovative MCH/FP nursing practices which have been integrated into the NHI nursing curriculum are implemented by individual practicing nurses in Botswana. There is, furthermore, no documentation of the extent to which midwifery training is important for effective prenatal care among nurses in Botswana. By 1991, approximately three-out-of-ten among registered and enrolled nurses had qualifications in midwifery (404 nurse-midwives and 893 nurses without midwifery) (Ministry of Finance and Development Planning, 1991: 370). The temptation for nurses without midwifery training to respond to poor and desperate mothers (often highest in risk) with critical prenatal services that presume or require midwifery training has hitherto not been documented.

The single highest indicator of maternal and child health status has been the number of pregnant women attending ante-natal clinics (Ministry of Finance and Development Planning, 1991:366). It is, also, the only health indicator which is closest to reaching target levels set by government during the planning period for both National Development PPlan 6 and 7. This suggests that, prenatal services influence the majority of MCH/FP related statistics as well as statistics that reflect the post-natal period. It could be argued that prenatal services are pre-critical i.e., they are the first, most important, services in the life of a would-be mother, while postnatal services are post-critical in that their success depends to a large extent on the success of services provided during the prenatal phase.

This study, therefore, investigates and documents the extent to which midwifery training is critical for the effective implementation of pre-natal nursing practices which were initially introduced in Botswana through the USAID-sponsored Botswana-Meharry intensive in-service programme between 1973 and 1978. In particular, it documents:

- (1) the extent to which important prenatal services such as vaginal, pelvic and foetal examinations, which require midwifery training, are performed by nurses with and without midwifery training in Botswana;
- (2) the factors and conditions which tend to inhibit the implementation of prenatal nursing practices in Botswana.

The study also determines whether contextual variables are more important predictors of MCH/FP implementation than demographic characteristics, personality variables, and communication behaviours of the individual nurse implementers.

Methodology

The population of this study consisted of all nurses in Botswana who were involved in the delivery of maternal and child health and family planning services. In 1989 there were some 2452 nurses nationwide in the categories of Family Nurse Practitioner, Community Health Nurse, Registered Nurse-Midwife, Registered Nurse, Enrolled Nurse-Midwife and Enrolled Nurse providing MCH/FP services. These nurses were located in hospitals, health centres, clinics, and health posts throughout the fifteen health regions of Botswana (Botswana Country Health Profile, 1991:6).

Interviews were attempted with six hundred nurses resulting in 425 completed interviews over a 12-month period beginning in March of 1989. Thus, approximately one out of every five nurses in 1989 was interviewed throughout the country. Botswana-Meharry trained nurses were identified through a self report item which asked about participation in the 1973-1979 Botswana-Meharry project. Approximately twenty-two percent of the respondents indicated that they had participated in the Botswana-Meharry in-service MCH/FP training programme.

Within each health region, an attempt was made to interview nurses representing the full range of nursing ranks, professional preparation, as well as type of health facility. The sampling procedure enabled us to make comparisons between responses of nurses with different professional qualifications working in different institutional settings and under different local/community circumstances. Most importantly, we were able to compare midwives and non-midwives on their reported implementation of critical prenatal services.

Our interview schedule was developed in consultation with nurse educators, officials of the Ministry of Health, past participants in the Meharry programme, and representatives of international health organizations in Botswana. Using documents and information provided by the original Meharry participants, Meharry taught nursing practices were incorporated into the questionnaire. These items were augmented by information from documents about the current nursing curriculum and NHI course outlines.

Respondents were asked about the extent to which they implement several specific MCH/FP practices. They were also asked to state factors that facilitated or inhibited the implementation of the MCH/FP practices. These items were essential in addressing our working hypothesis that: contextual variables are more important predictors of MCH/FP implementation than demographic characteristics, personality variables, and communication behaviours of the individual nurse implementers. Although our sample is generally representative of nurses throughout the country, our data is limited by the fact that the nursing practices reported are based on self reporting rather than actual observed behaviour.

Findings

Table 1 shows the percent of nurses who routinely provide prenatal care broken down by midwifery training. For each of the prenatal nursing practices we have indicated the percentage of nurses who provide services to their clients "most of the time" or "sometimes" as opposed to "rarely" or "never". Nurses trained as midwives included registered nurse-midwives and enrolled nurse-midwives; while nurses without midwifery training included enrolled nurses, registered nurses, community health nurses, and family nurse practitioners. Several observations can be made with regard to the data presented in Table I. First, it appears that the nurses charged with the primary responsibility of providing prenatal care, i.e. those trained as midwives offer clients who attend clinics a full range of pre-natal services except educating fathers on the birth process. Secondly, it appears that most of the nurses without training in midwifery, are also very involved in the delivery of essential pre-natal nursing services. Thirdly, almost all of the pre-natal care nursing practices taught during the Meharry/USAID in-service training programme (1973-78) are now routinely being provided in Botswana.

TABLE 1:

**PERCENT OF NURSES WHO ROUTINELY PROVIDE PRENATAL CARE
BY MIDWIFERY TRAINING, BOTSWANA, 1989.**

Prenatal Care Indicator	Nurses Trained as Midwives	Nurses Without Midwifery Training
Percent treating nutritional deficiencies common to prenatal women	57.9	44.5
Percent educating father on the birth process	14.9	26.6
Percent providing information on blood pressure	89.7	88.5
Percent giving prenatal women education on nutrition	94.4	90.3
Percent giving prenatal women education on personal hygiene	95.3	89.3
Percent giving prenatal women education on the birth process	83.2	67.4
Percent giving women a demonstration on prenatal exercises	65.4	46.8
Percent giving prenatal women time to ask questions	99	87.6
Percent giving a physical exam to prenatal clients	88.1	52.3
Percent ordering Tetanus Toxoid for prenatal women	99.0	70.6

Table 2 shows the percentage of nurses performing pre-natal examinations by midwifery training. For each of the examinations we have listed the percentage of nurses who reported that they "usually" performed the exam on their clients. Data presented in Table 2 is consistent with the data shown in Table 1. It appears that

nurses with midwifery training are providing their clients with a complete set of pre-natal assessments. Those without midwifery are predominantly involved in the checking of vital signs (blood pressure, heartbeat and lungs) and somewhat involved in physical examinations (weight, nutrition, hygiene, varicosity, etc) and minimally involved in performing blood and urine tests. Due to their lack of formal midwifery training, however, the results show that they are hardly ever involved in providing important pre-natal services such as vaginal, pelvic and foetal examinations. Finally, it appears that all the prenatal examinations taught under the Meharry/USAID in-service training programme (1973-78) are now routinely provided in Botswana.

TABLE 2:

PERCENT OF NURSES WHO USUALLY PERFORM PRENATAL EXAMINATIONS BY MIDWIFERY TRAINING, BOTSWANA, 1989

Type of Prenatal Examination	Nurses Trained as Midwives	Nurses Without Midwifery Training
1. Physical Exam (Weight, nutrition, hygiene, varicosity, etc.)	97.5	51.6
2. Vital Signs (Blood pressure, heart, lungs)	54.3	80.2
3. Blood Tests	73.4	30.2
4. Urine Tests	76.2	29.1
5. Vaginal Exam	74.2	8.3
6. Pelvic Exam	68.1	6.2
7. Foetal Exam (Heart beat, movement)	60.4	3.1

Barriers to Prenatal Care Service Delivery

Table 3 shows barriers to prenatal care service delivery ranked by frequency and broken down by midwifery training. The rankings of the barriers are similar for midwives and for nurses without midwifery training. Many enrolled nurses, and others not yet trained as midwives, said that they were called upon by their clients and supervisors to provide prenatal care but that the range of services they could offer was limited by their lack of training in this area.

Most of the nurses, regardless of training in midwifery, identified the related problems of insufficient numbers of nursing staff and too many clients as significant obstacles to the delivery of prenatal services. Inadequate facilities and the shortage of equipment were the next most frequently identified barriers. Some of the nurses reported that their health facilities lacked examination rooms to provide clients with necessary privacy. Some nurses reported that they were handicapped by limited supplies of essential equipment such as the speculum.

Several, apparently related, demographic variables, personality variables and communication behaviours are somewhat less salient obstacles to pre-natal care service delivery. Poor, or inconsistent, clinic attendance and late registration for prenatal examinations are probably related to illiteracy or low levels of education and nurse-client language problems resulting from different regional backgrounds. These problems were not ranked among the four most important barriers to prenatal care service delivery.

TABLE 3:

***BARRIERS TO PRENATAL CARE SERVICE DELIVERY BY
MIDWIFERY TRAINING, BOTSWANA, 1989.**

Nurses Trained as Midwives	Nurses Without Midwifery Training
(1) Staff shortage	(1) Lack of Midwifery Training
(2) Too many clients	(2) Too many clients
(3) Inadequate Facilities (no examination room)	(3) Staff Shortage
(4) Equipment shortage	(4) Inadequate Facilities (no examination room)
(5) Poor Clinic Attendance	(5) Equipment Shortage
(6) Late Clinic Registration	(6) Poor Clinic Attendance
(7) Illiteracy/Lack of	(7) Illiteracy/lack of Education
(8) Language Problems	(8) Late Clinic Registration
	(9) Language Problems

*Barriers ranked by frequency of listing.

Our working hypothesis, that contextual variables are more important predictors of MCH/FP implementation than demographic characteristics, personality variables, and communication behaviours of individual implementers, seems to be supported by our data.

Obstetrical Nursing Practices

Table 4 shows that most nurse/midwives are routinely involved in supervising both health facility and home deliveries. This group of trained professionals is relied upon to provide the major portion of obstetrical care in Botswana.

TABLE 4:

**PERCENT OF NURSES WHO ROUTINELY PROVIDE
OBSTETRICAL CARE BY MIDWIFERY TRAINING,
BOTSWANA, 1989.**

Obstetrical Care* Indicator	Nurses Trained as Midwives	Nurses Without Midwifery Training
Percent assisting in hospital, health center, or clinic deliveries	63.5	39
Percent assisting in home deliveries	50.5	28.4

Table 4 also shows that many nurses without formal midwifery training routinely assist with institutional (39 percent) and home deliveries (28.4 percent). This should not be surprising given the reported staff shortages and generally high demand for obstetrical services in Botswana.

Traditional Birth Attendants

While problems with traditional birth attendants may not be a substantial barrier to the delivery of prenatal and obstetrical services in Botswana, over 72 percent of the nurse/midwives surveyed had experienced difficulty with this group of health care providers (see Table 5).

midwifery training. To the extent that nurses who do not have midwifery training continue to be involved in the delivery of essential pre-natal services, including vaginal, pelvic and foetal examinations, there is need to ensure that they have minimum qualifications to provide all pre-natal services. Strengthening and sustaining the quality of MCH/FP services in the years to come will depend on the quality of the staff who deliver such services. Pre-natal care will be enhanced by the up-grading of nurses to ensure that they are able to provide MCH/FP services which require midwifery training.

It has been noted (Mwalali and Qwuor-Omondi, 1988:8) that 72 percent of maternal deaths are due to avoidable factors such as clinical management (including delays in diagnosis, treatment of infection or haemorrhage and complicated surgery performed in a remote hospital). It has also been noted that for every woman who dies as a result of a pregnancy, as many as 100 women suffer from a short or long term pregnancy related illness or complication (Koblinsky, 1992: 1-1) These figures imply that there are approximately 8000 cases of pregnancy related illnesses each year, of these 3000 are serious enough to require care in a hospital (Family Care International 1992:8). At Princess Marina Hospital, up to 60 percent of hospital admissions are in the Department of Obstetrics and Gynaecology, (Department of Obstetrics and Gynaecology, 1991:10). The ability to avoid and reduce maternal deaths will depend to a large extent on the ability to offer prenatal services that require midwifery training.

As indices of teenage pregnancy continue to rise (Cownie, 1988:106), with only a third of the nurses trained in midwifery, more "at risk" mothers (especially teenagers) will continue to be attended to by inadequately trained nurses. This will decrease the credibility of nursing services on which the majority of the population depends. Equipping nurses with midwifery training would ensure that the increasing numbers of "high risk" teenage mothers could be provided prenatal services by more competent health providers. This would improve the credibility of the nursing cadre and

contribute positively to health care utilization and to the goal of HEALTH FOR ALL BY YEAR 2000. Every effort to reduce the number of women of reproductive age who suffer or die from preventable pregnancy related illnesses and other conditions in the prenatal period will be a positive contribution to development.

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