Review

Integrating maternal and child health with primary health care in Saudi Arabia

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SUMMARY Integration is an important tool for successful implementation of components of a comprehensive health programme. We describe strategies adopted to integrate the Saudi maternal and child health (MCH) activities with other primary health care (PHC) components in order to achieve optimal quality care. Achieving such integration was one of the specific objectives of the MCH programme. Besides training MCH workers, other important tools of MCH/PHC integration included: organization, supervision, continuing education, data management and health systems research. The strengths and weaknesses of integration are discussed while the opportunities, limitations and implications are reviewed.

Introduction

This paper describes the strategies adopted in Saudi Arabia to integrate maternal and child health (MCH) activities with other primary health care (PHC) components. The paper is a follow-up on a previous paper that described the efforts to augment hospital support of MCH care in Saudi Arabia [*1*].

Integration is to blend into a functioning whole. To be effective and efficient, PHC delivery requires successful integration both within individual PHC components as well as between different PHC components. This includes technical integration, which takes place at a policy- or decision-making level, as well as operational integration. Integrating the MCH programme with PHC was one of the Saudi Arabian MCH programme's specific objectives.

Experiences with integration

The World Health Organization (WHO) has taken a leading role in promoting health care integration, while at the same time recognizing that various human and non-human barriers to integration do exist [*2,3*]. WHO has also demonstrated the importance of integration in efforts to prevent accidents among children and adolescents, manage childhood diseases and improve maternal health programmes [*4–6*]. The WHO district health system is a model for vertical integration [*7*].

Reports from all over the world demonstrate the importance of integration — and the consequences of its absence. In Mexico, the fragmentation of the health system has been a major barrier to achieving the constitutionally mandated goal of health care for all [*8*]. In New Zealand, however, radical reforms in PHC have been characterized by decentralized management and integration of

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services [9]. Other success stories of integrating hospital and PHC health services have been reported from Viet Nam, where the integration process included community mobilization [10]. In France, the integration of hospital and overall health services was recognized as a prerequisite for making more rational use of health care resources [11]. The important role of supervision as a tool of integrating health centre services has been reported from Madagascar, with substantial qualitative and quantitative improvement in services [12]. Successful integration of immunization with family planning (FP) has been achieved in Togo, where FP awareness was increased by 18% and acceptance by 54% [13]. The integration of immunization, prenatal and perinatal care, and oral rehydration therapy has been reported in Benin and Guinea [14]. In Saudi Arabia, the successful integration of the Bilharzia Control Programme, which was begun in 1974, helped to maintain the prevalence of infestation at 1% by 1989, compared to initial prevalence levels ranging from 43% to 91% [15].

Rationale for integration in Saudi Arabia

A royal decree issued in 1980 led to the establishment of health centres by administratively integrating dispensaries, health offices and MCH centres into one unit. However, the responsibility for some PHC components remains outside the General Directorate of Health Centres. For example, immunization, communicable disease control and prevention of chronic diseases are the responsibility of the General Directorate of Parasitic and Communicable Diseases, while health education and environmental sanitation fall under the General Directorate of Preventive Health. Thus there is a need for technical integration and coordination at the policy- and decision-making levels.

On the organizational level, one significant barrier to integration is that MCH-related programmes are also run by institutions outside the Ministry of Health (MOH) and there is little coordination and collaboration between them. Particularly in urban areas, university and other governmental institutions operate independently and there is also a flourishing private sector (Table 1).

During the 1980s, efforts were focused on establishing comprehensive PHC services with selective strengthening of control of diarrhoeal diseases (CDD), immunization and MCH services. In the 1990s, there emerged new programmes, including the quality assurance (QA), programme of supportive supervision (POSS), baby-friendly hospital initiative (BFHI) and acute respiratory infection (ARI) programmes. In the mid-1990s, through two joint WHO review missions, more PHC-related programmes

Table 1 **Saudi Arabian health resources, 1996**

Resource	Ministry of Health	Other government	Private	Total
Health centres	1 731	–	598	2 329
Hospitals	176	39	75	290
Physicians	15 266	6796	8482	30 544
Nurses	34 947	15 679	10 588	61 214

were introduced. These included reproductive health and safe motherhood, adolescent health, women's health, control of chronic diseases, development of a district health system and strengthening of referral services for at-risk groups, mainly mothers and children. School health was revived and elderly care was also programmed. These programmes were also incorporated into the Seventh Five-year Health Plan for 2000–05. Financial constraints and a shortage of health workers necessitate effective and efficient integration and coordination.

Strategies and approaches taken to implement integration

Training

Basic and selective training is the initial step towards integration. Health workers are initially trained on a 3-day basic PHC course covering concepts, policies, strategies and components. Thereafter, physicians and nurses are selectively trained in MCH, hospital personnel in BFHI, physicians, administrators, pharmacists, public health officers and nurses are trained in QA, and physicians from smaller hospitals and health centres are trained in ARI.

A major undertaking to achieve integration has been training PHC workers in MCH. A 2-week integrated MCH course was developed which covers both traditional and current MCH topics. The morning sessions are didactic, while practicals are conducted in the afternoons and evenings, both at hospitals and health centres.

The course incorporates local and WHO-developed materials. Locally developed materials include: Arabic/English MCH manuals, QA manuals, evaluation questionnaires and a maternal card with a risk list adapted from Lennox's card [*16*], a child health register, a child health risk list adapted from Abdelgadir's list [*17*] and general registers and reporting forms. WHO materials include: BFHI, the safe-motherhood package, ARI and CDD materials, traditional birth attendant (TBA) guidelines and various periodicals. A protocol for case-finding of maternal deaths was developed, with an English questionnaire for hospitals and an Arabic version for home deaths.

Although the MCH content for physicians and nurses is different and published in separate manuals, the training was, with a few exceptions, combined. However, as the target physicians had completed the course, the participants were mostly nurses. Generally, training physicians and nurses together was possible without compromising their basic knowledge and skills and was not objectionable. Their job descriptions were revised and updated to conform to the training curricula. MCH training has also been an opportunity for interaction between health workers from different health centres. It is also believed that improved interaction between health centres and hospitals has been achieved through the training.

The MCH training programme was implemented with minimum local costs and as most target trainees have been covered (Table 2), the 2-week training is now held only for newcomers. However, one major prob-

Table 2 **Maternal and child health courses held and staff trained**

Group	Target	Actual	
		No.	%
Courses	558	515	92
Physicians	2848	2602	91
Nurses/midwives	5389	5056	94
Total personnel	8237	7658	93

lem is the frequent loss of trained expatriates.

The implementation of the PHC QA and POSS programmes was started by training 250 supervisors in eight regional workshops, each lasting 5 days. These supervisors then trained five target groups for short periods of 1–2 days per category on specific content using a single, comprehensive manual for physicians and separate manuals for nurses, pharmacists, administrators and public health officers. Central supportive supervision is carried out twice per year per region.

BFHI activities were started in 1992 at the Maternity and Children's Hospital, Riyadh, which was certified as baby friendly in 1993. BFHI training was started in 1995 with technical and material assistance from WHO. Initially, six central trainers were trained and they in turn trained 30 regional trainers, all of whom were paediatricians, obstetricians and nurses. The regional trainers then trained 100 local trainers with support from the central trainers. In each region a coordinator and a breastfeeding committee were appointed. The regional trainers also trained hospital personnel on how to implement BFHI. In December 1995, a BFHI administrator's course was held for 13 hospital administrators from Riyadh region and there are plans to extend this to other regions. In 1997, a Saudi code of breast-milk substitutes was drafted in collaboration with the related ministries. Based on a BFHI assessment questionnaire sent to each target hospital in 1998, about 15 hospitals are now believed to be potentially baby friendly.

Apart from training courses, workshops, seminars and symposiums are held for health personnel and the public. Health education is emphasized, but its role in health promotion and protection needs to be assessed. Television is also a major health education vehicle.

Services Integration

The health centre is the link between hospitals and communities. Health centre physicians are mainly responsible for administrative and technical functions, including initial examination of patients, examination of patients referred by a nurse, investigation, treatment, referral to hospitals and supervision. Nurses assist the physician, perform immunizations and well baby care, retrieve records and register information. They also undertake home visits for contact and defaulter tracing.

Because of the shortage of health workers, an integrated approach is necessary and health workers must work as a team. Hospital coordination offices streamline referral, which is made for any maternal risk factor. However, feedback is poor and irregular. In addition, dissatisfaction is often expressed by hospital consultants for what they consider unnecessary referrals. Hospitals further support heath centres with laboratory, X-ray and pharmaceutical services. BCG (bacille Calmette–Guérin vaccine) and HBV (hepatitis B vaccine) are given at birth in hospital, while tetanus toxoid for pregnant mothers and adolescents is given at heath centres. The development of an essential drugs list and the implementation of QA in essential drugs has led to savings in medicines and better case-management. Efforts are made to have standard hospital/health centre treatment protocols for CDD, ARI and BFHI based on WHO approaches. Home visiting and defaulter and contact tracing are limited by sociocultural factors; however, female health friends assist with home visits.

The ARI and CDD programmes are further examples of integrated hospital/health centre programmes. The ARI programme is

now vigorously implemented and CDD is already integrated within each health centre, where there is an oral rehydration salts (ORS) corner. With an overall coverage rate of 92%, the immunization programme demonstrates a model of successful integration between hospitals and health centres. Its integration with other MCH/PHC elements is being pursued, mainly through growth monitoring.

Although the communication between health centres is occasional, mostly through the transfer of records, some health centres provide support services to other health centres, including referral services. In some cases a doctor at one health centre may also cover another health centre. Visits by sectoral supervisors also facilitate links between health centres.

To evaluate the quality of MCH services, a comprehensive questionnaire encompassing all MCH-related programmes has been prepared and the evaluation will include hospitals for shared care.

Coordination

Intrasectoral coordination involves related central departments, while intersectoral coordination involves many ministries, including the Ministry of Education and the High Presidency of Girls Education, which includes appropriate MCH content in the secondary-school curriculum of girls. There has also been fruitful coordination with universities in the areas of training, continuing education and research. Close cooperation also exists with the Civil Registration Department for the registration of births, deaths and migration. The Institute of Public Administration and Management contributes to postgraduate training/education programmes. Special coordination also exists with other government health facilities, such as King Faisal Hospital and the military, National Guard and security forces hospitals, as well as with private sector institutions. A PHC club has been organized in Riyadh by the MOH, government hospitals and King Saud University. The club meets monthly. Similar PHC clubs have been established in several other regions. The Family and Community Medicine Society plays a major role in promoting PHC issues and PHC physicians constitute the majority of its members.

PHC information system

The PHC information system is composed of the family health file, a maternal card, a baby register, various data registers, a monthly reporting form and a regional monthly transmittal form. The Statistics Department of the MOH publishes an annual health report, but its data are obtained mainly from hospitals, detailing such aspects as numbers of facilities, attendants and operations. A workshop was conducted in September 1998 by the MOH and WHO in order to coordinate health data sources.

Repeated analysis of regional data on maternal risk factors reported to the General Directorate of Health Centres has revealed that the most significant risk factor is parity. The percentage of maternal at-risk cases varied between 27% and 62% and parity of five or more was the most common risk factor, ranging between 40% and 60% of all at-risk cases.

Reorganization of health services

Between 1984 and 1998, the number of health centres increased from 1119 to 1737. The number of PHC workers more than doubled (physicians increased from 4825 to 10 365 and nurses from 10 660 to 25 676). Health centre visits increased from about 30 million to 55 million. The public's literacy, awareness, health needs, demands and expectations also escalated.

The General Directorate of Health Centres is only partly responsible for PHC programmes. It provides technical and managerial support to 20 regional PHC directorates, which are responsible for implementing all PHC functions. Monitoring and follow-up of specific programmes are carried out by the directorate concerned. Technical integration of PHC policies and decisions is engineered by the General Directorate of Health Centres through meetings, internal correspondence, participation in scientific and training activities and feedback to regions. The health centres implement national or regional directives and guidelines and plans are prepared at all levels, including the health centre level.

The MOH is currently reviewing a proposal for reorganizing its administrative structure, possibly including the establishment of a central assistant deputy post for PHC to encompass the General Directorates of Reproductive and Family Health, Child Health and Immunization, Health Education, and Health Centres Affairs. It is hoped that this new PHC department will have sufficient authority and resources to successfully fulfil its functions.

With the assistance of WHO, the district health system is to be assessed in two regions. The referral process is continuously evaluated and streamlined and will be strengthened with advice from WHO. Suitable referral hospitals or health centres will be upgraded. This entails decentralizing activities and delegating responsibility, with clear definition of the function of different levels.

Health systems research

An integrated case-finding study on maternal mortality was carried out in 1998 in hospitals, health centres and communities. While hospital consultants assessed hospital cases, sectoral PHC supervisors reviewed the registered pregnant mothers for the study period at each health centre, traced defaulters and checked at-risk cases for outcome. Other sources of information were members of the health friends committees, village leaders and imams. The regional civil registration departments also provided lists of all female deaths between 15 years and 49 years of age who died during the study period. Each registered pregnant mother was expected to bring her infant for the first diphtheria–pertussis–tetanus (DPT) vaccine dose 6 weeks after birth. If she did not, then her whereabouts were checked. If babies were brought for vaccination by a relative rather than the mother, it was indirectly verified whether his mother was alive, by asking about breastfeeding. In at least one case, a maternal death was identified in this way.

The overall approach was a sort of audit of maternal care services and the experience was an example of integration between hospitals and health centres.

Aids and barriers to implementation

MCH/PHC integration in Saudi Arabia is strengthened by various favourable factors, including a relatively good socioeconomic situation, excellent transportation and communications infrastructures and wide media coverage. The health infrastructure has high coverage and is equitably distributed. Also, strong family and community ties and general concern about health prompt people to seek good care. Both the individual and community can freely express their views on health care delivery and may file their complaints to the highest authority, and receive a prompt response. The economic boom of the mid-1970s led to improvements in income and education and health care for everyone.

The fact that the economic boom preceded PHC in 1978 led to the predominance of tertiary care. The PHC centres erected or hired have been comparatively less attractive than hospitals; some are in bad shape, are modestly equipped and run by general physicians with little access to specialist consultants.

The great need for health workers led to worldwide recruitment, and the differing backgrounds, cultures and languages of medical personnel has adversely affected the integration process.

Initially, hospitals felt threatened by the new PHC approach. In addition, the PHC enthusiasts believed that the hospitals' role could be greatly curtailed and there were fewer referrals to hospitals. This led to a perception that antenatal care (ANC) was becoming a PHC monopoly; to counteract this, hospital authorities began, for example, to demand that normal pregnancies be referred three times. Furthermore, an elaborate pregnancy risk-factor list was recommended. Currently, the number of referrals has been reduced to two per pregnancy, one at 16–18 weeks for an ultrasound scan and another at 34–36 weeks for a final check-up, possibly using ultrasound. However, some pregnant women resist unnecessary referrals. An ongoing MOH/WHO interregional trial is assessing the possibility of reducing the number of normal ANC visits to four only [*18*]. The demand for consultant care and self-referral often disturbs the smooth functioning of shared maternal care, thereby lowering ANC coverage at health centres.

It is hoped that family and community medicine physicians will opt to be PHC providers. However, the time required for attaining the fellowship and the unwillingness of fellows to work at the health centre level have hindered the achievement of this goal. Training, continuing education and supervision of general practitioners are temporary strategies being pursued to improve MCH/PHC services. The importance of continuous medical education is clear. Although voluntary, it is a professional obligation, but clear guidelines need to be defined for different levels of care.

Although the role of PHC physicians and nurses in maternity care is limited in Saudi Arabia, it is necessary for emergency and high-risk cases, as well as to serve those who prefer to deliver at a health centre or at home. Upgrading the MCH competency of PHC workers is therefore a necessity. Reproductive health and safe motherhood are expected to be incorporated into nursing curricula.

In 1996, there were four medical schools and 18 male and 26 female technical health institutes. At present, however, 82.9% of physicians and 78.0% of nurses are expatriates and 79.9% of nurses are females. Nationalizing jobs will permit better interaction between communities and health staff and health education will become more appropriate and effective.

The reporting of births and maternal deaths by hospitals and health centres is deficient. The link between the mother and her newborn with the health care system is the immunization card, given at the hospital after the baby receives its BCG and the first dose of HBV. Although over 90% of births take place in health facilities, hospital personnel do not complete the natal and postnatal sections of the maternal card satisfactorily as this is considered a health centre card. In some cases discovered by PHC staff, women were delivered by caesarean section, discharged and then readmitted with puerperal complications and died in hospital, but were not reported as maternal deaths. It has been recommended that the information system be unified, with hospitals and health centres using the same

child health register and maternal card for normal cases, avoiding duplication and saving printing costs. As the cards are home-based, this will help to integrate hospital and health centre services, as well as serving as educational tools for the family.

The integration of specially funded programmes which require extra efforts and offer no incentives may arouse dissatisfaction in health workers. The discontinuation of funding may affect the sustainability of programmes, while the programme focal point may manage to isolate the programme activities as a special presence [*2*]. However, in Saudi Arabia these constraints are negligible considering the availability of local funding, good salary scales and strict discipline in managing programmes.

Other limitations to integration include cultural factors, which cause shortages of staff, particularly females. Service delivery to women is constrained by the gender barrier. Male and female clinics are separate, and supervision by male staff is limited. ANC attendance may be jeopardized by the inability of the husband to accompany the wife, especially during working hours. The husband's understanding and involvement are necessary. However, the 1996 Saudi Family Health Survey found that ANC coverage was high, with 90.0% of pregnant women having had at least one ANC check [*19*]. Tetanus toxoid coverage, however, was only 53.8%.

Home visits are less likely and may not be welcomed. Unfortunately, because women, for cultural reasons, do not welcome being examined after childbirth and the lack of home visits, the perinatal period and the puerperium are obscure areas. The 1996 Saudi Family Health Survey found that only 48% of mothers received postnatal care.

It is accepted that the most crucial measure for overcoming barriers to integration is education, particularly female education so that more women will join the nursing and medical professions. The female literacy rate is now 70%, and 80% of women aged 20–24 years have completed primary education and 44% secondary education.

Raising public awareness about the roles of the different health facilities will also facilitate the smooth functioning of the health care system. Furthermore, it is essential to assess patient satisfaction to better meet patient expectations.

Coordinated administration and management of hospitals and health centres, with the involvement of community representatives, will ensure the success of integration. The formulation of female and male health friends committees and the material contributions made to the programme by the communities served demonstrate a growing community involvement in health care.

The activities of BFHI have been extended from hospitals to health centres and communities, with the health friends committees functioning as community support teams for promoting breastfeeding. Persistent efforts have been made to train health workers in child nutrition, both through regular courses and on the job. Still, there are problems with data entry and interpretation of growth charts. Training and continuing education are therefore relentlessly pursued. Integrating the services of TBAs in remote areas with PHC services was tried in the southern region in 1997 with the cooperation of MOH, WHO and the Abha branch of King Saud Medical College. The initial results of these efforts were encouraging and justified further attempts. Unfortunately, 3 out of the 11 TBAs tested positive for Hepatitis B or C and were excluded from the programme.

Child-spacing is not officially promoted and is the personal choice of a couple. Hos-

pitals, however, provide FP services, including tubal ligations, to consenting couples. Hospital physicians also prescribe contraceptive methods that can be obtained from private pharmacies, although obtaining birth control pills from a pharmacy does not require a prescription. The role of health institutions in meeting FP needs has to be further identified and articulated. Health workers should be suitably trained to provide FP advice and services, which are an integral part of the safe motherhood/MCH services. The 1996 Saudi Family Health Survey found that FP knowledge among women of reproductive age was 91.3%, prior use of any method was 54.3%, prior use of modern methods was 51.3%, current use of any method was 31.7% and current use of modern methods was 28.5% [*19*].

Recent maternal health and mortality statistics

The 1996 Saudi Family Health Survey reported that 90% of births took place in hospitals and 71.4% received a physician's assistance at the delivery [*19*]. Of the hospital deliveries, 68.3% delivered at MOH facilities, 18.2% at other government facilities and 13.5% at private facilities.

A hospital-based study in 1989–92 found a maternal mortality rate of 17.6 per 100 000 live births (155 maternal deaths over 3 years out of 850 000 pregnancies and 880 000 births) [*20*]. Mortality was higher among the uneducated, illiterate and poor, and was especially high among those who had given birth seven or more times. The most important causes of maternal death were pulmonary embolism and ruptured uterus.

In 1996, the Department of Statistics reported 35 maternal deaths, 21 in hospitals and 14 at home. The causes were: antepartum haemorrhage, 18 cases (51.5%); abortion, 5 cases (14.3%); eclampsia, 2 cases (11.4%); other causes, 2 cases (5.7%). In 1997, 85 maternal deaths and 399 601 live births were reported, giving an MMR of 21/100 000 live births. Maternal deaths are certainly underreported, considering unidentified abortions, home deaths and deaths among illegal residents.

In general, it was felt that there was over-diagnosis of pulmonary and amniotic fluid embolism as a cause of death of hospital cases, perhaps to avoid medicolegal implications, or due to a rarity of common causes. A number of maternal deaths were avoidable with a known history of previous caesarean section, stillbirth or hypertension.

The total live births during the study have not yet been completely reported. Given the problems in obtaining a correct numerator or denominator, a current tendency is to underscore the causation of maternal mortality, rather than its ratio [*21*]. A separate paper on maternal mortality is envisaged.

Infant mortality decreased from 30 per 1000 in 1990 to 21.4 per 1000 in 1997. The under-5 mortality similarly declined from 34 per 1000 to 31 per 1000 [*1*]. The perinatal mortality was given by a national hospital-based study published in 1995 to be 11.47 per 1000 [*22*].

Future directions

The following general principles of PHC must be pursued further:

- equity of care
- community participation
- multisectoral approaches
- use of appropriate technology

- an emphasis on health protection and promotion.

The dominance of clinical care at the expense of PHC has to be rectified. The political and professional resistance to PHC must be overcome. There is a need for more political support of PHC, including allocating the necessary funds for it. Future PHC strategies must emphasize comprehensive and integrated health care. Technical integration at policy- and decision-making levels is required, and operational integration is needed at the PHC level. Generally, future planning at any level should give priority to rural and periurban settings and those at high risk.

The QA and POSS programmes are helping to achieve operational integration and will be maintained. Supervisory visits will continue to emphasize on-the-job training and continuing education. The annual reporting of MCH indicators will be improved and expanded to include other PHC indicators. Coordination with the Department of Statistics is mandatory to achieve technical and operational integration and to ensure feedback to the regional directorates. Computerization of the PHC information system will be promoted to enhance services integration and improve programme effectiveness.

To improve referral, the MCH risk lists will be revised with a view to making them simpler, more relevant and more precise. Other PHC components need similar guidelines for referral and feedback to the referring institution. The hospital coordination offices are to be adequately upgraded. The role of female staff in managing MCH services will be supported and the skills of PHC managers, who may not be medical personnel, are to be upgraded, stressing community involvement and participation and intersectoral coordination. This will be especially emphasized in the areas of communicable disease control and environmental sanitation. Apart from health friends committees, village leaders, particularly women, will be mobilized.

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