Augmenting hospital support of maternal and child health care, Saudi Arabia

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تعزيز دعم المستشفيات لرعاية صحة الأمومة والطفولة في المملكة العربية السعودية

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خلاصة : تصف هذه المقالة البرنامج التدريبي السعودي في صحة الأمومة والطفولة (1988-1997) من أجل تعزيز دعم المستشفيات للمراكز الصحية . فقد أعدت دلائل للمدربين والمتدربين في صحة الأمومة والطفولة، ثم طبقت في حلقات عمل للمدربين مدة كل منها أربعة أيام ، وفي برامج للمتدربين مدة كل منها أسبوعان . وتبين من التقييم الذي أجري في منتصف المدة ومن المتابعة أن هذا التدريب على درجة معقولة من الشمول والجودة. أما ما طرأ من تحسن في تكامل الخدمات فقد انعكس في استبيان حول مواقف المدربين ، وفي مقابلات مع المتدربين واستبيان لاستطلاع ملاحظاتهم . لقد تم حتى الآن تدريب 589 مدرباً، يعمل ثلاثة أرباعهم في المستشفيات . وقام هؤلاء بدورهم بتدريب 7658 متدرباً ، أي بنسبة 93% من العدد المستهدف. ومازال تنفيذ البرنامج مستمراً مع مواصلة تحديث محتواه.

ABSTRACT This paper describes the Saudi maternal and child health training programme (1988–1997) to augment hospital support of health centres. Maternal and child health trainer/trainee manuals were prepared, then implemented through 4-day trainers workshops and 2-week trainee courses. Mid-term evaluation and follow-up demonstrated reasonable coverage and quality of training. Improved integration of care was reflected by a trainers attitude questionnaire and a trainees interview/observation questionnaire. To date, 589 trainers have been trained, three-quarters of them from hospitals. They in turn have trained about 7658 trainees, 93% of target. The programme is ongoing with continuous updating of content.

Intensification de l'appui de l'hôpital aux soins de santé maternelle et infantile en Arabie saoudite

RESUME Cet article décrit le programme saoudien de formation en santé maternelle et infantile (1988–1997) visant à accroître l'appui de l'hôpital aux centres de santé. Des manuels du formateur/stagiaire consacrés à la santé maternelle et infantile ont été préparés puis introduits dans le cadre de séminaires-ateliers d'une durée de quatre jours pour les formateurs et de cours d'une durée de deux semaines pour les stagiaires. Une évaluation et un suivi à mi-parcours ont montré une couverture et une qualité de la formation correctes. Une amélioration de l'intégration des soins a été indiquée par les réponses à un questionnaire sur les attitudes des formateurs ainsi qu'à un questionnaire d'observation/interview des stagiaires. Jusqu'à la date de parution de cet article, 589 formateurs ont bénéficié d'une formation; les trois quarts d'entre eux étaient rattachés à des hôpitaux. Ils ont à leur tour formé environ 7658 stagiaires, ce qui correspond à 93% de l'objectif. Le programme se poursuit actuellement avec une mise à jour permanente de son contenu.

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Introduction

The aim of this paper is to describe the maternal and child health (MCH) training programme efforts (1988–97) to augment hospital support of maternal and child health care with emphasis on the role of hospital trainers.

Following the advent of the global primary health care (PHC) approach, the World Health Organization (WHO) recognized the need for hospital integration with PHC. Thus, guidelines for integration [*1*] and strengthening [*2*] of MCH care with PHC were developed, in addition to a practical guide on the care of mother and baby at the health centre level [*3*] and a publication on the functions of hospitals at the first referral level [*4*] and specifically for obstetric care [*5*]. The establishment of new hospitals with due consideration to their role in support of PHC was recently described in the Islamic Republic of Iran [*6*].

Table 1 shows physical and human resources in Saudi Arabia at the start of implementation of PHC (1984), of the MCH programme (1988) and more recently (1995). The need for hospital support of PHC was recognized at the inception of the MCH programme in 1988 (Figure 1). One of the specific objectives was to strengthen

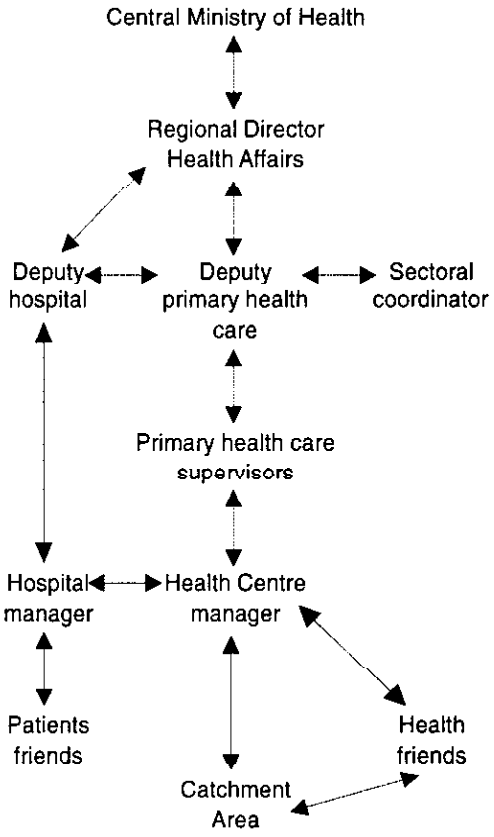

Figure 1 **Organization of health care, Saudi Arabia**

Table 1 **Human and physical resources, Saudi Arabia 1984, 1988 and 1995**

Resource	1984	1988	1995
Hospitals	86	162	177
Health centres	1119	1477	1725
Hospital beds per 1000 population	1.8	2.3	2.35
Health centre level			
General physicians	2371	3404	4339
Nurses	4259	6670	8924

the links between hospitals and health centres. As the majority of births in Saudi Arabia are institutional (Table 2), the hospital represents the first point of contact of the neonate with the health care system. Breast-feeding, immunization and detection of low birth weight and abnormalities constitute immediate care, while prenatal care, growth monitoring, control of diarrhoeal diseases and acute respiratory infections represent late shared care. However, MCH care has had its shortcomings, such as lack of standardized case-management and inadequacies in the information, refer-

Table 2 **Improved maternal care services, 1987, 1991 and 1996**

Service	1987[a]	1991[b]	1996[c]
Prenatal care at a health institution	70.0%	86.6%	94.0%
Delivery at an institution	74.0%	85.7%	92.2%

[a] *Child health survey 1987 [18]*
[b] *Maternal and child health survey 1991 [17]*
[c] *Vaccination coverage survey 1995 [19]*

ral and feedback processes. The current referral system and at-risk strategy were introduced in 1989 with the establishment of hospital coordination offices to streamline referral of cases. Then, starting in 1991, a PHC quality assurance (QA) programme was developed based on selected standards and indicators for certain PHC elements, including referral services [7]. In 1994, the QA programme became a programme of supportive supervision (POSS) for monitoring QA activities and educating health workers on a continuing basis. The district health system advocated by WHO was adopted by a few regions with a large area and difficult terrain, but the experience has not yet been finally evaluated.

Subjects and procedures

The first step of the MCH programme was the development of a trainer/trainee package in English and Arabic [8]. Initially, a standard list of MCH tasks and their breakdown into knowledge, skills and attitudes was taken from *Mid-level health worker training modules*, Meddex primary health care series, John A. Burns School of Medicine, University of Hawaii, 1993. The required tasks for physicians (39 maternal and 38 child health tasks) and nurses were then identified after interviews with officials and health personnel at central and regional levels. The educational objectives and training content were based on selected tasks, a list of which was included in the trainer manual and the relevant educational objectives preceded each chapter of the trainee manual.

The specific objectives of the MCH programme were:

- to train regional MCH trainers on organizing, conducting and evaluating the MCH programme;
- to train initially a physician and a nurse from each of the 1477 health centres on the MCH programme content;
- to integrate PHC elements related to MCH with a view to achieving better coverage and quality of MCH services;
- to promote links between hospitals and health centres with regard to shared MCH care;
- to establish continuing education in MCH through supportive supervision;
- to improve the MCH information system.

The manuals were evaluated by a workshop with participants from the Ministry of Health (MOH) and universities, mainly King Faisal University (KFU).

Training of trainers

Expected trainers were obstetricians, paediatricians, PHC supervisors and nurses; trainees were to be general physicians and nurses from health centres. Training of trainers was started in 1989, guided by WHO workshop methodology. They were trained by a central team including three staff members of KFU. The opening sessions of all training activities were attended by the Director-General of Health Affairs

and key administrators. At present, the workshop for trainers lasts four days and follows the usual workshop daily schedule of presentations, group discussions and plenary sessions. The workshop content is as follows.

- Day 1 covers handling demographic and MCH data compiled and discussed by participants prior to attending the workshop.
- Day 2 involves planning training activities with group sessions covering problem analysis, setting of priorities, task analysis, educational objectives and the development of a short training curriculum.
- Day 3 covers training methods and media with exercises involving role play, case-study, brainstorming and a demonstration of the mechanism of labour and resuscitation of neonates.
- Day 4 is on evaluation, including QA principles and supportive supervision; the groups practise developing exit questionnaires, follow-up questionnaires, performance checklists and outcome indicators.

Training of trainees

The trainers thus trained then train trainees from health centres for two weeks, according to a planned schedule. Immediate evaluation of training includes pre- and post-tests and assessment of sessions, trainers and course or workshop. Verbal feedback from participants is obtained by the central coordinator attending the last day of the first regional trainee course.

In each region, a coordinator is assigned the responsibility of programme implementation in coordination with the central level. A special reporting format has been used for collecting information about training and constraints and problems, which is done quarterly, annually and for the life of the programme. Follow-up questionnaires for both trainers and trainees are posted six months following training, and responses of trainers are analysed at the central level, while responses of trainees are analysed at the regional level.

Mid-term evaluation

In 1992, national evaluation of the training programme was conducted by a ministerial committee with representatives of KFU, Dammam. The objectives of the evaluation were to assess the coverage and quality of training. A trainers' questionnaire was completed simultaneously by all trainers in all regions, mainly assessing their attitude to the programme. An interview and observation questionnaire for trainees, comprising questions on selected MCH tasks and their components of knowledge and skills, was addressed to individual trainees on site by the evaluators. Two separate attitude questionnaires were used for trained and untrained staff. The evaluation committee agreed on evaluating a 10% sample of the trained health staff, to be compared with a 5% of sample of non-trained staff, distributed between rural and urban settings. The total number of health centre staff trained at the time of evaluation was 2579 (87.3% of the initial target) health workers; of these, about 300 physicians and nurses were evaluated and the control was 150 non-trained staff.

The systems, both at the health centre and training hospital, were checked during the mid-term evaluation. The needs of health centres for equipment and supplies were previously identified through standard lists and were requested. The evaluation report was endorsed by the Technical Committee of the Ministry of Health.

Results

To date, 18 MCH trainers' workshops have been held in various regions, sometimes twice or three times in one region, with the incorporation of participants from neighbouring regions. By early 1997, the total number of trainers trained was 589, 75% of them from hospitals (Table 3). These trainers in turn have trained 7658 health workers, of whom 2602 were general physicians and 5056 were nurses through 515 two-week courses. The target was to conduct 558 courses and train 8237 MCH workers from health centres.

Points of strength

Several positive results were identified through the national evaluation, mainly increased overall awareness and interaction between levels of care, with improved communication and coordination at managerial and service levels. Hospital practicals constituted a major portion of the trainee course and hospital trainers constantly revised and updated the MCH manuals. To some extent, there was a standardization of the shared activities and of the MCH data system, with adoption of PHC maternal cards and the at-risk strategy, requiring routine referral of pregnant mothers to specialized care twice, first between 16 and 18 weeks and later between 34 and 36 weeks to ensure their well-being.

Points of weakness

The main constraints to programme implementation were as follows. The criteria for selection of trainers were sometimes not adhered to, and some trainers were, therefore, very clinically-oriented and had no real experience of MCH/PHC. Because of lack of suitable incentives, there was a loss of trained trainers, which necessitated more workshops. Follow-up and supervision by hospital trainers was not feasible because of their routine commitments. Shortage of health centre staff occasionally hampered their release for training and the barrier to male physicians providing maternal care services was a general problem. A language barrier occasionally existed because some of the trainees were non-Arabic speaking expatriates.

Recommendations of evaluation

The recommendations of the 1992 national evaluation can be briefly summarized as follows:

- to strengthen supervision with involvement of hospitals and universities
- to expedite the identified training needs
- to train additional trainers and PHC supervisors
- to complete revision and updating of manuals
- to augment the role of hospitals in training
- to revise and unify the MCH information system
- to redistribute staff working in MCH care as required

Table 3 **Maternal and child health workshops for trainers by region, 1989–1998**

Region	No. of workshops	No. of trainers
Jeddah	3	98
Najran, Qassim, Riyadh, Gizan, Asir	2 each	321
Hafr Al-Batin, Medina, Al-Ahsa, Bisha, Hail	1 each	170
Total	18[a]	589

[a] *Including one traditional birth attendant trainers' workshop*

- to redistribute midwifery equipment and supplies between urban and rural settings as necessary
- to coordinate various MCH-related programmes.

One of the recommendations of the MCH evaluation was to evaluate the quality of services, at both the health centre and hospital levels. At present, this is ready for implementation.

Discussion

The wider acceptance of and commitment to PHC by various countries was not followed by smooth and successful integration of PHC and hospital services. This was partly due to the clinical-orientation of both the providers of care and the communities concerned. Saudi Arabia was no exception as tertiary care had flourished in the mid-seventies because of the surge in socioeconomic development prior to the introduction of PHC. The MCH programme was one of the approaches that dealt with the problem satisfactorily. However, the programme was developed and maintained with extreme difficulty. Initially, the involvement of hospital consultants in MCH training was not fully considered; hospital training was expected to adversely influence PHC health workers towards more clinically-oriented thinking. Two-week training courses for PHC workers were initially thought to be rather lengthy, considering the shortage of staff and the problems arising because of absence from their posts. However, such worries were gradually overcome and training continued and has reached the level of 93% coverage of MCH providers at the health centre level. Because of the vast area of Saudi Arabia and the large population size, and because the programme is a national one and there is a large number of target trainees, programme monitoring and follow-up by the central coordinator was initially difficult as most regions gained momentum simultaneously.

The constraints to the MCH programme development have been continually tackled. Selection criteria for trainers have been ensured. Manuals are dispatched prior to the workshop with enough time for them to be thoroughly studied, while workshop exercises cover most of the manuals' contents; evening assignments further stress the appropriate use of the manuals. The role of PHC supervisors has been fully defined and their collaboration with hospital trainers is encouraged. Mother and baby cards have been revised and an at-risk strategy has been introduced for both mother and baby. Redistribution of health personnel and equipment has been carried out in most regions; increasing use has been made of locally available educational materials. Revision and updating of manuals is ongoing. Continuing official support to programme efforts has ensured its establishment and progress.

The MCH programme experience paved the way for the QA programme in 1991, followed by the introduction of the POSS approach in 1994 for monitoring PHC services, mainly as self-audit and noticeable improvements in registration and reporting, referral and feedback have been seen. The MCH training programme was originally a programme addressing structural, performance and quality of life aspects. This was further strengthened by the advent of the QA and POSS programmes. Recent results of routine QA assessments at 120 health centres by central supervisors, using selected QA indicators, showed that the average prenatal registration was 80%, while the under-fives registration was 92%. Prenatal care attendance five times or more was

75%, while attendance at well-baby clinics five times or more in the first year was 85%, declining to 40% in the second year. This was the result of compulsory immunization of infants. The percentage of pregnant women receiving the standard prenatal care checks was 80%, while the those delivering at institutions was 95%. In spite of the limitations of routine statistical data, these last results were found to concur reasonably well with survey results.

The QA and POSS programmes were followed by the closely related baby-friendly hospital initiative (BFHI) and the acute respiratory infections (ARI) programmes, each with a similar training component. At present, integration and coordination of these related programmes are stressed, while training of newcomers continues. Revised manuals have incorporated appropriate hospital-related approaches of reproductive health, safe motherhood and adolescent health.

The role of obstetricians in reproductive health has been emphasized by WHO/International Federation of Gynaecology and Obstetrics (FIGO) [*9*], while the role of general practitioners in maternity care has been recognized by the Royal College of General Practitioners' Maternity Group, United Kingdom [*10*]. Similarly, the role of nurses has been identified [*11,12*]. The Saudi MCH programme could further involve obstetricians, paediatricians, nurses and PHC supervisors as a team.

Although the title of the paper refers to the role of hospitals in support of MCH, it is believed that the benefits are mutual, as judged by the responses of the participants at the end of the latest trainers workshop (Table 4). Interested trainers are expected to strengthen their training competence with their continuing involvement in the programme. Adult education is arousing a considerable amount of interest at present, both at official and non-official levels. At the official level, improved quality of care is sought through competency-based standards training and the efficiency and cost–benefits of training programmes are also considered. The MCH training programme, by avoiding payments, such as honoraria and extra per diems, has managed to keep training costs to a minimum. The main financial and time costs result from the absence of trainers and trainees from their usual work. However, the benefits of such training cannot be easily assessed in monetary terms.

It has been observed that many PHC physicians prepare for specialization while working for PHC. It is hoped that more and more of them will take up family and community medicine as their specialty.

It is hoped that integration with hospital services will not deflect PHC workers from their primary role in promoting community involvement and participation. Community-based care has been emphasized in the MCH training programme from the start, with promotion of home-visiting services, particularly in rural settings. However, clinic-based health centre services still predominate over community-based care because of cultural, logistical and managerial factors. Still, it is hoped to have socially and technically trained health workers who can work as a health team and respond to the expressed needs of the community, as advocated by WHO. For the needy areas, therefore, special trainers' workshops are to be held with the support of district hospitals which will focus on training traditional birth attendants (TBAs) teachers, with the aim of identifying TBAs and improving their performance [*13,14*]. The need for community support, mainly of female groups, is appreciated and thus the role of women's health friends committees at the catchment area of each health centre is be-

Table 4 **Post-workshop evaluation results, Jeddah 1996 (n = 35)**

Objectives successful	Completely successful	Generally success	Limited	Failed
Nature, requirements, responsibilities	38%	62%	–	–
Training principles	24%	76%	–	–
Training skills	43%	47%	9.5%	–
Content, knowledge	24%	71%	5%	–
Evaluation	43%	53%	4%	–

Table 5 **Vaccination coverage and communicable disease incidence before and after primary health care**

Disease	Vaccination coverage (%)		Communicable disease incidence per 100 000 children	
	1985	1995	1983	1995
Diphtheria	81	96.0	1.26	0.01
Pertussis	81	96.0	17.29	0.18
Tetanus	81	96.0	0.70	0.06
Poliomyelitis	81	96.0	1.02	0.01
Measles	79	94.4	304.38	14.41
Tuberculosis	88	94.1	52.20	11.52
Mumps	–	94.7	279.70	8.96
Hepatitis B	–	92.0	...	16.97

ing emphasized and monitored through the POSS activity.

The implementation of the MCH programme has been associated with a number of MCH-related surveys, mainly a maternal mortality study in 1989–92 [*15*], an infant mortality study in 1990 [*16*], an MCH survey in 1991 [*17*], and the recent national indices (Tables 5–7) reflect an improved health status of mothers and children. The results of the Saudi Family Health Survey, a follow-up to the 1987 Child Health Survey [*18*] are awaiting official approval. The re-

Table 6 **Diarrhoeal disease data, 1990–1995**

Indicator	1990	1993	1996
Availability of oral rehydration salts (%)	100	100	100
Use of oral rehydration salts (%)	72.5	89.6	93.5
Diarrhoeal mortality (per 100 000)	6	7	1.3

Table 7 **Health indicators 1960, 1989 and 1995**

Indicator	1960	1989	1995
Crude birth rate (per 1000)	49	42	36
Crude death rate (per 1000)	23	8	5
Population growth rate (%)	4.5	3.8	3.2
Life expectancy at birth (years)	44	69	71
Infant mortality rate (per 1000)	170	30	23
Under-5 mortality rate (per 1000)	292	34	31
Maternal mortality (per 100 000)	...	42	17.6
Children weighing < 2500 g at birth (%)	...	7	6

sults will reflect consumer satisfaction with detailed information on reproductive health. At present, a case-finding study on maternal mortality covering both hospitals and health centres is being implemented. A vaccination coverage survey report was published in 1995 [*19*].

In conclusion, training PHC and hospital trainers as a team has been a unique and successful experience. The overall programme activity is believed to have strengthened the links between the two levels of care and contributed to an overall improvement in the health of Saudi mothers and children.

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References

1. Hart RH, Belsey MA, Tarimo E. *Integrating maternal and child health services with primary health care. Practical considerations.* Geneva, World Health Organization, 1990.
2. *Strengthening maternal and child health programmes through primary health care. Guidelines for countries of the Eastern Mediterranean Region.* Alexandria, World Health Organization Regional Office for the Eastern Mediterranean, 1991 (EMRO Technical Publications Series, No.10).
3. *Care of mother and baby at the health centre: a practical guide. Report of a Technical Working Group.* Geneva, World Health Organization, 1994.
4. *The hospital in rural and urban districts. Report of a WHO Study Group on the functions of hospitals at the first referral level.* Geneva, World Health Organization, 1992 (Technical Report Series, No. 819).
5. *Essential elements of obstetric care at the first referral level.* Geneva, World Health Organization, 1991.

6. Assefzadeh S. Assessing the need to establish new hospitals. *Eastern Mediterranean health journal*, 1996, 2(2):334–9.

7. Ministry of Health, Saudi Arabia/ World Health Organization Regional Office for the Eastern Mediterranean. *Quality assurance in primary health care manual.* The Scientific Committee of Quality Assurance in Primary Health Care. Riyadh, Ministry of Health, General Directorate of Health Centres, 1994.

8. Baldo MH et al. *MCH package.* Riyadh, Ministry of Health, 1988.

9. *Women's health and safer motherhood: the role of the obstetrician and gynaecologist. A report of a pre-congress workshop organized by the joint WHO/ FIGO Task Force Rio de Janeiro, Brazil, 19–20 October* 1988. Geneva, World Health Organization, 1989.

10. *The role of general practice in maternity care. Report of RCGP Maternity Care Group.* United Kingdom, Royal College of General Practitioners, 1995.

11. World Health Organization/International Confederation of Midwives/United Nations International Children's Emergency Fund. *Women's health and the midwife. A global perspective. Report of a collaborative pre-congress workshop. The Hague, The Netherlands 21–22 August 1987.* Geneva, World Health Organization, 1987.

12. International Confederation of Midwives/ World Health Organization/United Nations Children's Fund. *Midwifery practice: measuring, developing and mobilizing quality care: report of a collaborative WHO/ICM/UNICEF pre-congress workshop, Vanconver, Canada, 7–8 May 1993.* Geneva. World Health Organization, 1994:2.

13. *Traditional birth attendants. A joint WHO/ UNFPA/UNICEF Statement.* Geneva, World Health Organization, 1992.

14. International Federation of Gynaecology and Obstetrics. Traditional birth attendants. A resource for the health of women. *International journal of gynecology and obstetrics*, 1985, 23:247–303.

15. Al-Meshari AA et al. *Report of maternal mortality 1989–92 in Saudi Arabia.* Riyadh, King Saud University Press, 1993.

16. Nour O et al. Rapid infant and child mortality transition in Saudi Arabia. *Annals of Saudi medicine*, 1992, 12:565–70.

17. Al-Mazrou YY et al. Maternal and child health in Saudi Arabia. Study design and methodology. *Journal of tropical pediatrics*, 1995, 41 (suppl. 1):1–7.

18. Al-Mazrou YY, Farid S. *Saudi Arabia child health survey.* Riyadh, Saudi Arabia. Ministry of Health. 1991.

19. Al-Mazrou YY et al. *Vaccination coverage survey, Saudi Arabia 1995.* Riyadh, Saudi Arabia, Ministry of Health, 1997.