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# Community Health & Disease Surveillance Newsletter

## Editorial Board

Executive Editor:

Dr Ali Jaffer Mohammed

Special Issue on:

### “Family and Community Health”

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Contributors

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Dr Salwa Al Shahabi  
Dr Jamila Al Abri  
Dr Nahida Al Lawati

Co-Editors :

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Dr Shyam Bawikar

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## Interventions to Reduce Neonatal Mortality

### Global Scenario

Globally the under-five and infant mortality rates have been decreasing at a faster pace than neonatal mortality, as a result neonatal deaths represent an increasing proportion of the childhood deaths. During the period 1980 to 2000 childhood deaths from 1 month and 5 years declined by a third while deaths in the first month declined only by a quarter all over the world.

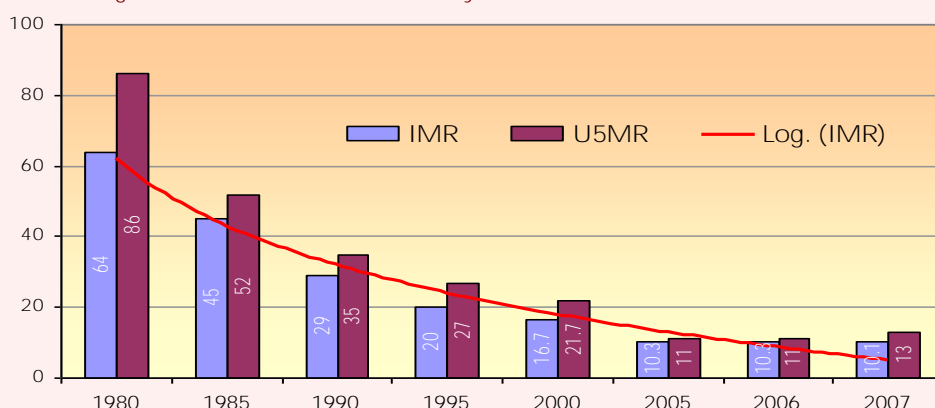
In Oman this decline during the same period has been more remarkable. The under 5-mortality fell from over 86 per 1000 to 21.4 per 1,000 live births and the infant mortality from over 64 per 1000 to 16.7 per 1,000 live births (Fig. 1).

Based on the latest global evidence as high as 4 million infants die in the first month of life while half of them die in the first 24 hours. Neonatal mortality accounts for 40

percent of the under-five deaths and 60 percent of the infant mortality rate. Even these figures understate the scale of the problem that affects the child in the neonatal period. For instance more than one million children who survive birth asphyxia each year go on to suffer from cerebral palsy, learning disorders and other disabilities. For every newborn that dies, another 20 suffer from birth injury, complications arising from pre-term deliveries, congenital malformations or other neonatal conditions.

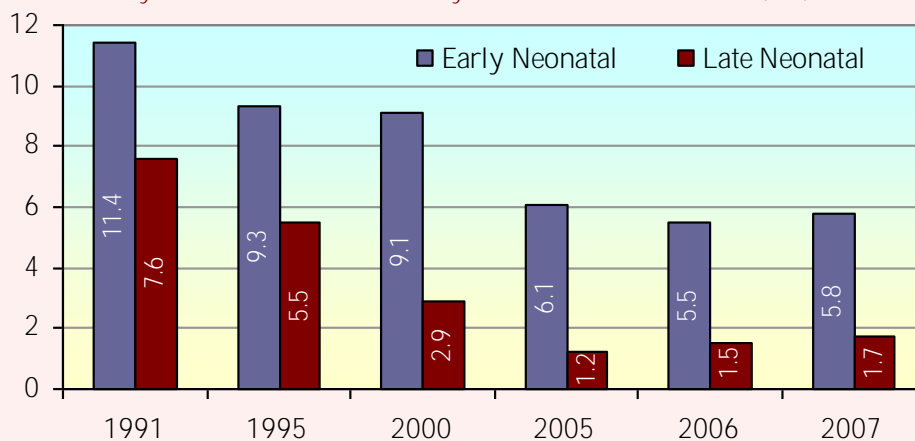
Fig. 2 shows the neonatal mortality rates in Oman from the year 1991 to 2007. The early neonatal deaths have fallen from 11.4 per 1,000 to 5.8 per 1,000 live births. The late neonatal deaths have fallen from 7.6 per 1,000 to 1.7 per 1000 live births. These

Fig-1: Infant and Under 5 Mortality Rates in Oman: 1980-2005, 06, 07



Source: Annual statistical report 2007, Ministry of Health

Fig-2  
Early and Late Neonatal Mortality Rates in Oman: 1991-2005, 06, 07



Source: Annual statistical report 2007, Ministry of Health

“The Lancet neonatal survival series published in 2005 estimated that 3 million of the 4 million neonatal deaths can be prevented globally.”

reductions are considerably lower than the reduction in the under-5 and infant mortality rates. The early neonatal mortality is about four times higher than the late neonatal mortality in Oman.

Averting neonatal deaths is pivotal to reducing child mortality. The Lancet neonatal survival series published in 2005 estimated that 3 million of the 4 million deaths can be prevented globally, if high coverage is achieved (90 percent) through a package of proven, cost effective interventions that are reached through outreach, families and communities and facility-based clinical care across a continuum of perinatal care - antenatal, intra-partum and postnatal care. While increasing skilled care is essential the Lancet neonatal survival series highlights the importance of interim solutions that can save lives of 40 percent of newborns in community settings for instance expanding programs to prevent mother-to-child transmission of HIV.

Actions required to save newborns include setting evidence-based and result-oriented plans at the national level relevant to the country situation.

### Introduction

Over the past several years the Department of Family and Community health has been putting in place several interventions for the improved survival of the newborns in

Oman. Also integrating these interventions into a continuum of maternal and child health care model similar to the one proposed in the Lancet series published in 2005. Necessary adaptations were made to suit the situation in Oman through refinements of service delivery modes such as health facility based care and the outreach services.

These adaptations represent a more advanced level of health care that is in line with the socioeconomic development of the country.

### Facility-based Clinical Care

#### *During pregnancy*

Health facility based clinical care during the pregnancy includes early booking, skilled obstetric care i.e. early risk assessment and intervention at appropriate level, matching the place of delivery to the maternal and foetal service needs during delivery. During labour efficient emergency obstetric care to manage complications such as obstructed labour, breach, pre-eclampsia and pre-term labour, antibiotics for pre-term rupture of membranes and use of Corticosteroids for pre-term labour. Revised sets of guidelines on management of pregnancy complication are under development as standardized guidelines for the continuum of care starting at pregnancy until ending at post-natal period.

### *At birth*

Health facility based clinical care for the baby during childbirth and neonatal period includes resuscitation, emergency newborn care during illness especially neonatal sepsis and asphyxia and care of very low birth weight. Asphyxia is not only an important cause of neonatal mortality but also cause problems such as cerebral palsy. To minimize birth asphyxia two major steps were taken viz. provision of basic equipment for resuscitation at all delivery places and training of health care providers on neonatal resuscitation. A workshop on neonatal resuscitation for the instructors as well as for the providers was organized by the department with the support of UNICEF in December 2007. Total forty health care providers (35 doctors and 5 nurses) from 24 delivery facilities were certified in modern resuscitation based on American Academy of Paediatrics (MRBAAP) by a team from King Faisal Specialist hospital, Saudi Arabia. Amongst the doctors, seven were certified as instructors. A follow-up course was conducted in December 2008 under the supervision of the same team of consultants. The previously trained instructors trained another group of 30 providers (17 doctors and 13 nurses) and were certified in MRBAAP. In addition one hospital in Oman is under the process of being certified as accredited training centre for neonatal resuscitation.

### *Neonatal period & infancy*

Care for the newborns was further improved through development of guidelines for two different levels of health care i.e. level-1 for primary care and level-2 for first referral health facility. A set of aids was developed on resuscitation, basic care, hypoglycaemia management and jaundice management and are in use. The neonatal care guidelines are the part of the continuum of care during pregnancy.

### **Outreach Services (outpatient)**

#### *During pregnancy*

**Folic acid supplementation:** The outreach services in the continuum of care starts with the supplementation of folic acid for the women who are planning preg-

nancy. The supplementation is offered from early stages of pregnancy to prevent congenital anomalies such as neural tube defects. The women are advised to take folic acid from the initial booking or whenever their pregnancy is confirmed. In addition the flour is also fortified with folic acid as a general nutritional supplementation.

**Standardized ANC visits:** Since 2007 antenatal care was made consistent with the WHO recommended evidence based care. **A system of standardized '6-visit ANC' system** is offered for all the low-risk pregnancies. In addition an ultrasound and obstetric consultation is also offered at the referral health care facility at 22-24 weeks. WHO recommends total 4 ANC visits for the low-risk mothers. However in Oman the extra two visits and ultrasound examination are included offering an extra opportunity to the mother for risk evaluation.

High-risk cases are referred to the first referral level and are offered necessary additional services. The basic package of ANC services includes the routine investigations viz. screening for Rh-incompatibility and exclusion of antenatal and perinatal infections such as STIs and HIV (where evidence of STIs exists). Detection and treatment of bacteruria is also included in the routine ANC system.

### *Neonatal period & infancy*

Neonatal and young infant care of the integrated management of childhood has been strengthened by revising the IMCI guidelines. The training contents of IMCI guidelines have been further improved by incorporating additional newborn care skills such as resuscitation, management of neonatal emergencies and management of pre-term care.

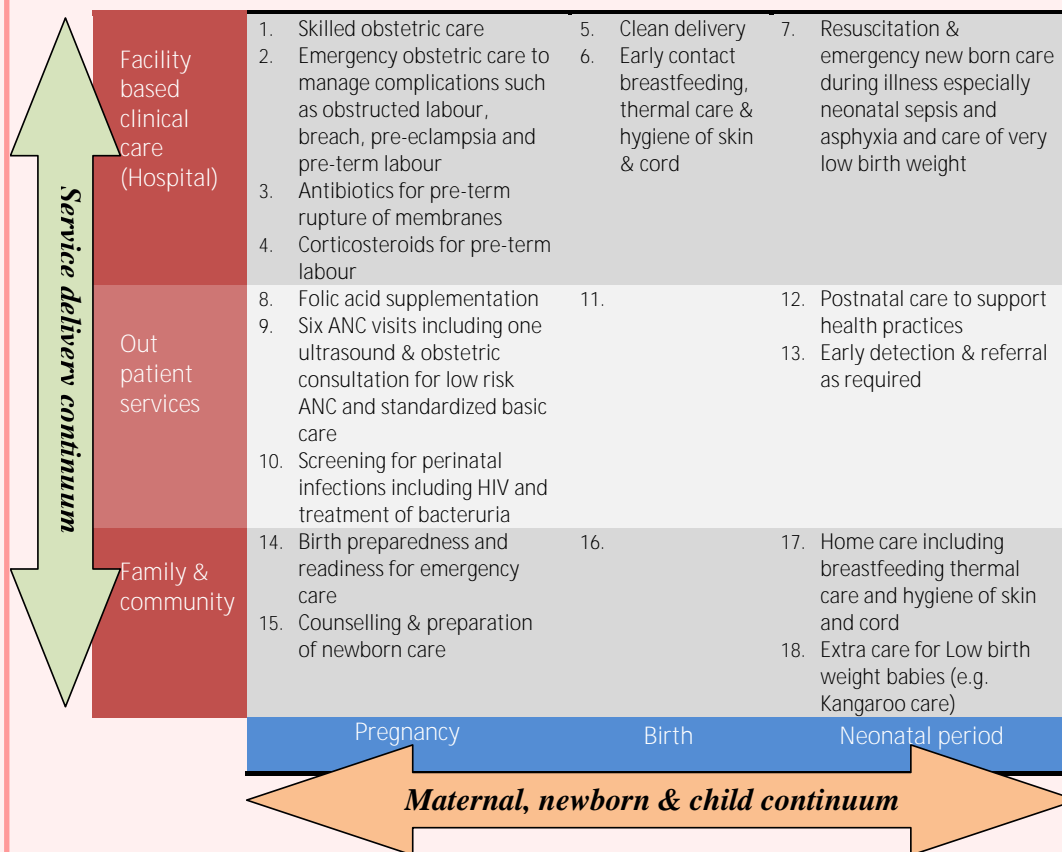
### **Family & Community**

#### *During pregnancy*

Birth preparedness and readiness for emergency care is important to avoid complication during labour and this is done through education and counselling. The women are also counselled and prepared for the newborn care during ANC period.

“To minimize birth asphyxia two major steps were taken viz. provision of basic equipment for resuscitation at all delivery places & training of health care providers on neonatal resuscitation.”

Fig-3: High impact, evidence based interventions to reduce neonatal mortality in Oman within the continuum of maternal and child health



“There is a strong connection between family and community. The positive synergy between these two elements helps a child to develop a healthy and productive life.”

*Note: This figure includes 16 interventions with proven efficacy to reduce neonatal mortality. Other important intervention carried out during this period such as neonatal screening for hypothyroidism, hearing screening, monitoring of congenital anomalies are not included in the figure because their primary effect is not on reduction neonatal mortality.*

**Neonatal period**

Children are born into families, but as we know from the African proverb “It takes a village to raise a child.” The survival and development of the child are the result of the combined efforts of the family and community, their cultural practices and customs and their living conditions. Thus there is a strong connection between family and community. The positive synergy between these two elements helps a child to develop a healthy and productive life.

Home care of newborns especially Low Birth Weight babies is important for their survival and home based interventions include breastfeeding, thermal care, prevention of hypoglycaemia hygiene of skin and cord and extra care for pre-term with Kangaroo Mother Care. This package of home care is given through counselling at dis-

charge, postnatal visits and home visits in case of high-risk babies.

The service delivery continuum for the care in pregnancy, birth, neonatal period and post neo-natal period is illustrated in the figure-3. This conceptual model embodies a complimentary and comprehensive intervention, which will have synergistic effect producing expected outcome of improved neonatal care in the days ahead.

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## Neonatal Screening for Congenital Hypothyroidism

### Introduction

Congenital hypothyroidism (CH) is estimated to occur in one in every 3000 to 4000 births in most geographic areas of the world with some ethnic variation in frequency. It is higher in iodine deficient populations. Considering its high incidence and the fact that it can be detected & treated easily, hypothyroidism screening is considered a cost effective child health intervention. Simple oral therapy with cheap and easily available drug (thyroxin) is effective in correcting the deficiency and preventing the disease manifestation and its sequelae.

Since clinical signs at birth are less obvious the only effective means of diagnosing it early is by the biochemical tests. Assessing levels of thyroid stimulation hormone (TSH) in the blood is well accepted as a screening test for the congenital hypothyroidism, which is also presumed to be adequately sensitive.

In Oman as a first step towards hypothyroidism screening a pilot study was conducted during the last quarter of 2004 to identify a suitable cutoff value for TSH and other logistic issues. Umbilical blood sampling option was chosen because of the ease of obtaining samples and universal coverage of all births. A total of 1530 babies were screened during the 3 months period. 1501 had TSH values below 20  $\mu\text{mol}$ , while 26 cases had values between 20 to 40 and 2 cases were above 40  $\mu\text{mol}$ . Repeat TSH values and T4 values were normal for all cases up to 40  $\mu\text{mol}$ . None of the positive cases had an initial TSH value of 40 or less. Hence 40  $\mu\text{mol}$  was taken as the cut off value for regular screening at birth which was started on Jan 1<sup>st</sup>, 2005. All the logistical problems were identified and resolved during the trial period.

Currently the screening is done as a two step procedure. The first step is a TSH test done at birth on the blood from the umbilical vein of babies born in hospitals and capillary blood for babies born outside hospitals (approximately 2%). Initial positives with TSH above 40  $\mu\text{mol}$  are re-tested for TSH and T4 within 2-3 weeks. The parents

are informed of the testing process through distribution of brochure at delivery.

### Results of 3 years of screening

During the 3-year period total 56 cases were detected with an incidence of 1 in 2700 live births with an acceptable 10:1 false positive and around 2% false negative rate. The case occurrence was sporadic without any predilection for area or region. The screening was initially positive in 0.5% cases of newborns and 1 in 9 of the initial positives were finally diagnosed as *Conge-*

Table-1, 2 & 3  
Neonatal Screening for Congenital  
Hypothyroidism by Provinces: 2005, 06 & 07

2005

Region	Live births*	Cases
Royal hospital	6077	2
Muscat	3784	1
Dhofar	4115	1
North Batinah	6856	1
South Batinah	3778	0
North Sharqiyah	3466	1
South Sharqiyah	4088	5
Dakhliyah	5727	2
Dhahira	3578	3
Al Wustah	160	0
Musandam	436	0
Total	42065	16

2006

Region	Live births*	Cases
Royal hospital	6139	1
Muscat	4078	1
Dhofar	4162	4
North Batinah	7260	1
South Batinah	4019	0
North Sharqiyah	3775	3
South Sharqiyah	4418	2
Dakhliyah	6170	3
Dhahira	3476	1
Al Wustah	143	0
Musandam	476	0
Total	44116	16

2007

Region	Live births*	Cases
Royal hospital	6401	1
Muscat	4300	-
Dhofar	4564	2
North Batinah	7928	5
South Batinah	4257	2
North Sharqiyah	3967	2
South Sharqiyah	4674	4
Dakhliyah	6220	2
Dhahira	3794	5
Al Wustah	140	1
Musandam	362	-
Total	41009	24

\*Source: Ministry of Health, Annual Statistical Books, 2005, 06, & 07

“Assessing levels of thyroid stimulation hormone (TSH) in the blood is well accepted as a sensitive screening test for the congenital hypothyroidism.”

“The PEAS provides a uniform set of questions that can be used as a self-assessment tool in evaluating the way in which the various parts of individual screening systems function.”

*nial Hypothyroidism*. The three-year screening outcome is shown in tables 1-3 below.

### Program Evaluation and Assessment Scheme (PEAS)

Newborn screening is a system composed of six components: education, screening, follow-up, diagnosis, management, and evaluation. It may be viewed more simplistically as a pre-analytic, analytic, and post-analytic system in which laboratory analysis is preceded by pre-analytic education and specimen collection/submission and followed by post-analytic follow-up, diagnosis, education/counselling, intervention and outcome evaluation.

The Program Evaluation and Assessment Scheme (PEAS) provides a uniform set of questions that can be used as a self-assessment tool in evaluating the way in which the various parts of individual screening systems function. Health Resources and Services Administration, Maternal and Child Health Bureau, Genetic Services Branch and National Newborn Screening and Genetics Resource Centre jointly developed this system at the Department of Paediatrics, University of Texas Health Science Centre, San Antonio. The system was adapted to Oman and used for evaluating the program in 2008.

There are many technical questions within the PEAS, and therefore it was done separately for the laboratory part and the follow up and clinical management part. The PEAS checklist was used to assess the detailed

steps of follow-up procedures, follow-up communication, diagnostic criteria, parent education, counselling, medical management of detected cases to identify opportunities for improvement. The following table shows the specific areas weaknesses, which need improvement.

### Conclusions

- The incidence CH is 1 in 2700 live births which is within the expected incidence.
- The cutoff value of 40  $\mu\text{mol}$  for TSH is reasonably acceptable but may be reviewed to reduce number that need recall.
- The umbilical sampling is acceptable method especially as CH is the only screening test performed currently.
- PEAS is a useful tool to identify weakness and deficiencies at all levels of health system for neonatal screening.

### Recommendations

- A more detailed standard operating procedures covering the entire process from sample collection to assessment of clinical outcome should be developed
- Conduct the PEAS once every two years to monitor the process and make necessary adjustments
- Outcome indicators to be determined for positive cases
- A follow-up study of the positive cases is necessary to know the outcome

Based on the recommendations following

Table-4  
Program Evaluation and Assessment Scheme (PEAS)

Deficiencies /weaknesses	No. of regions
Defined protocol for invalid results not available	6
Summation of out of range data not available	4
End points not defined	6
Written script for telephonic communication not available	9
Non-availability of parent education materials	3
Work coverage for outside duty hours not available	9
Inadequate documentation of communication	6
Concise information for next steps not well defined	9
Specialized team for counselling not available	9
Specific information on follow-up is provided with out of range results not available	7
Parents support net works not available	9
Parents are not asked to review services	8
Record of educational materials not maintained	8

## Antenatal Screening for HIV

### Introduction

Pregnant women living with HIV are at risk of transmitting HIV to their infants during pregnancy, during birth or through breastfeeding. Well over 90% of new infections among infants and young children occur through Mother-to-Child transmission (MTCT). Without any intervention, between 20% to 45% of infants may become infected with HIV. The estimated risk of acquiring HIV being 5-10% during pregnancy, 10-20% during labour and delivery, and 5-20% through breastfeeding. This risk can be reduced to less than 2% by package of evidence-based timely interventions (2).

### Global Situation

At the end of year 2007, 33.2 million people were estimated to be living with HIV, 2.5 million people became newly infected and 2.1 million people died of AIDS, (1) see figure 1.

(Continued from page 6)

activities are planned to take place

- Update the guidelines on systems and management in lieu of the problems and recommendations of PEAS. Share the latest evidence-based practices with the regional experts for their inputs such as paediatricians/neonatologist before implementing at the national level.
- Continue monitoring the screening programme through PEAS Tool and rectify the identified problems
- Follow-up of the positive under treatment cases for management outcomes

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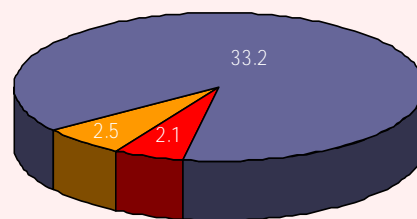
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### Situation in EMR

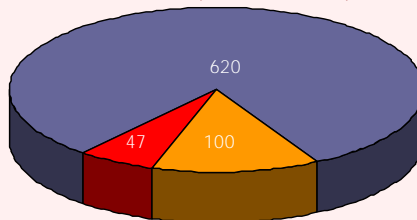
An estimated total of 75,000 people living with HIV/AIDS are living in EMRO. An estimated 47,000 adults and children died as a result of HIV infection (3). 55.6% of reported AIDS cases in the region to date are

Fig-1: WHO Estimates on Global Burden of HIV - 2007 (in millions)



■ Deaths due to AIDS ■ New HIV infections ■ People living with HIV

Fig-2: WHO-EMR Estimates on Burden of HIV—2006 (in thousands)



■ People living with HIV ■ New HIV infections ■ Deaths due to AIDS

adults aged between 25 and 39 years; 8.1% are youth aged between 15-24 years and 1.8% are children below 5 years of age. 30% of the cumulative total reported AIDS cases are female (3) Figure 2.

Estimated HIV prevalence in adult population in Gulf countries in 2004 was 0.2 in Bahrain, 0.1 in Oman and 0.1 in Yemen. (4)

### Situation in Oman

Amongst the total 122 female HIV/AIDS cases registered in MOH health care facilities between the years 2001 to 2007, more than 80% were in the age group of 15-49 years and around 7% were below the age of 14 years. Although for the same period total male cases registered were 501 (Annual Health Report, Ministry of health of Oman 2001 –2007 (5), Table-1

A survey of ANC register of 2005 (1 Jan-31 Dec) showed 51920 registered women in MoH care facilities, of which 32 had confirmed syphilis and 7 were HIV positive (DFCH, 2006).

“At the end of year 2007, globally 33.2 million people were estimated to be living with HIV, 2.5 million people became newly infected and 2.1 million people died of AIDS.”

Table 1: Age Distribution of Female HIV Cases 2001 - 2007 (Oct)

Age Group	# (%)
0-14 years	9 (7.4)
15-24 years	18 (14.8)
25-49 years	80 (65.6)
50+ years	15 (12.3)
Total	122 (100)

### Mode of Transmission

Table-2 below shows the various modes of HIV transmission documented in HIV positive and AIDS cases from 1984 to 2007 (Oct).

Table-2: Mode of Transmission in HIV Infection & AIDS Cases\*: 1984 - 2007(Oct)

Transmission Mode	HIV Infection	AIDS Cases
Blood Transfusion	49	111
Heterosexual	292	293
Homo/Bisexual	118	90
IDU	59	20
Mother-to-child	41	35
Multiple	41	12
Unknown	176	168

**Since 1994 no case of HIV/AIDS due to Blood Transfusion was reported.**

*\*MoH, Unpublished data*

Unpublished Ministry of Health data from 2000 to 2007 show that there were total 26 cases of HIV below the age of 15 years of which 23 (88%) were due to vertical transmission. Six cases reported in children less than 10 years age during 2006-2007 (6) were infected from their mothers.

In Oman the attendance of ANC services is estimated to be more than 98%. Annually 52,000 to 54,000 pregnant women attend the ANC clinics, thus providing an opportunity of early detection and intervention to prevent mother to child transmission.

Hence, in view of increasing numbers of vertical transmission of HIV to newborns and positive impact of starting the management early during antenatal, intra-partum and postpartum period, MoH has planned to initiate screening of all pregnant mothers for HIV in early 2009. Screening and

management will be carried out for all pregnant registered in the govt. MOH and sister health institutions and private health institutions in the country.

### Primary Objectives

- Establish universal HIV screening system for antenatal mothers for early detection & appropriate management.
- Reduce MTCT and thus reduce incidence of HIV amongst children.

### Secondary Objectives

- To estimate HIV sero-prevalence in pregnant women at national & regional level by age and in general population.
- Obtain baseline data for policy decisions and for monitoring trends
- Identify service needs such as backup manpower, capacity building in case management, counselling etc.

### MoH Policies on Antenatal Screening

- All registered pregnant women in the ANC clinics of MoH, sister govt. health institutions and private health care facilities in Oman will be screened for HIV.
- Primary health care doctors/ nursing staff/midwives will collect blood sample for HIV along with other routine tests following pre-test counselling and verbal consent and send to the regional health care facilities.
- Every pregnant mother will be explained while blood collection as follows (verbal consent) **"few routine blood tests are being done to check your health status related to nutrition and if you have any infections which can have implications for you and your baby's health and to achieve better outcome by early management"**.
- All confirmed HIV positive mothers would be counselled and treated with antiviral drugs and newborns during postpartum period.
- Case evaluation and provision of antiviral drugs or any other indicated man-

*(Continued on page 11)*

"Unpublished Ministry of Health data (2000-07) show that there were total 26 cases of HIV below the age of 15 years of which 23 (88%) were due to vertical transmission."



## Breast Cancer Screening

### Introduction

Globally breast cancer represents 10% of all cancers diagnosed annually (1) and is one of the most significant health concerns. It is a progressive disease and if detected in early stage it carries a better prognosis as it can be treated successfully. Till the early 1980s the incidence and mortality due to breast cancer was high in both developed and developing countries. In developed countries introduction of screening programs for early detection has reduced the mortality rate (1) significantly.

Several methods of early detection and confirmation of breast cancer have been applied worldwide; these are the **“Breast Self Examination”** (BSE), clinical examination by the health care providers, mammography, ultra-sonography, and magnetic resonance imaging (MRI), scintimammography and position emission tomography. Where none of the methods has been independently fully effective in breast cancers detection, each one of them has some role in different target groups, considering age and breast cancer risk. In addition this other factors that affect the breast screening program success are local logistics and resource feasibility, technical competency in imaging and accurate radiographic interpretation. Breast self examination has largely helped in raising awareness in the community and bringing the individuals in seeking the services early for any abnormality detected and going through the needful investigation. Similarly clinical breast examination (CBE) by the trained providers has helped in detection of breast cancers in younger age group women whose malignancies/lumps could go undetected by routine mammography. Few studies have claimed contribution of self-breast examination in combination with clinical breast examination in reduction of breast cancer mortality up to 20% by virtue of early detection and management. (2).

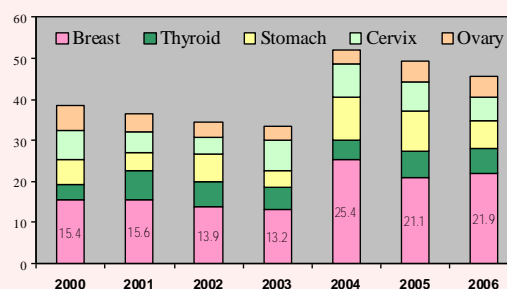
In Oman breast cancer is the commonest cancer in women that accounted for 21.5 % of all cancers among females in 2006 (fig-1) (3). The prevalence of breast cancer increases with increasing age (figure-2) (3).

In consideration of breast cancer being the

highest among cancers in women in Oman and further to the advantage of early detection to the management and its outcomes, Department of Family and Community Health (DFCH) plans to initiate breast cancer screening program by using combination of breast self-examination, clinical breast examination and mammogram.

The program will target women between the ages 40-50 years by training them on breast-self examination and screening the high-risk group by mammogram. Additionally, the program will emphasise on conducting clinical breast examination for all women by the service providers in all reproductive health clinics such as antenatal, gynaecology, birth spacing etc.

Fig.1: Incidence of 5 Most Common Cancers amongst Females: 2000-2006



### Objectives of BSE program

- Early diagnosis of breast cancer and management by the providers
- Raise awareness of women on their body changes related to breast

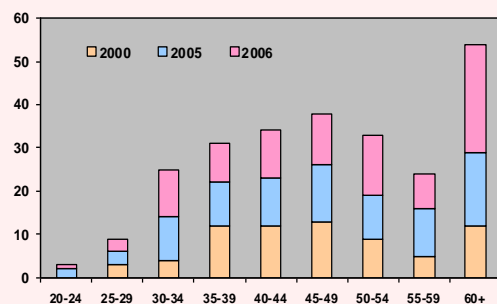
Reduce the morbidity and mortality due to breast cancer in the population

The program services will be as follows:

- All primary and secondary health care levels will provide service aimed at early detection and management of breast cancer cases, each according to their backup support and technical expertise.
- Clinical breast examination will be carried out in all areas of reproductive health services such as antenatal, post-natal, birth spacing, Gynaecology, and other out patient clinics such as GP clinic etc. Efforts will be done to avail all

“The program will target women between the ages 40-50 years by training them on breast-self examination and screening the high-risk group by mammogram.”

Fig.2: Reported Cancer Breast in Females by Age Groups: 2000, 2005 & 2006



contact opportunities with women to screen for breast cancer.

- Women aged 40-50 years will be invited from the community by various advocacy means or redirected from other OPDs to visits the BSE clinic and be trained in BSE.
- The health care providers (HCP) trained in clinical breast examination will provide services in the BSE clinic. They will be trained on the breast models.
- To standardize the method of clinical breast examination all the health care providers working in all areas of reproductive health services and in other areas such as general physician (GP) clinic will be trained in the clinical breast examination.

*Primary Health Care level*

- Clinical evaluation by taking history and

breast examination

- Train women aged 40-50 on breast self examination by using breast model
- Encourage and allow woman to do breast examination on her own breast under the supervision of trained staff, advise her to continue the same on monthly basis at home and, report early for any abnormality detected.
- Provide information to the woman in the form of provision of leaflet and also explaining to her on the benefits and limitation of breast self-examination and association of increase in risk of breast cancer with age.
- Women age 40-50 years with selected risk factors for breast cancer will be referred to secondary health care level for mammogram.
- If breast lump/s are detected by the service providers of BSE clinic, woman will be referred to surgeon at secondary level.

*Secondary Health Care level*

- Patient will be further evaluated and managed surgically and or medically as per the individualised needs.
- Women requiring specialised investigations and management not feasible at secondary level will be referred to tertiary health care level (Royal Hospital)

“To standardize the method of clinical breast examination health care providers working in all areas of reproductive health services and in other areas (GP clinic) will be trained.”

Table 1: Steps towards Early Detection of Breast Lump/s

Activity	School		
	Age: 12 years	Age: 14 years	Age: 16 years
Awareness	Health education, using leaflets Introducing chapter in the upcoming “Fact for Life” book for this age group		
Training in BSE by trained teachers/peers		On models	
Activity	Health Services		
	Age: 10-17 years	Age: 20 -40 year	Age: 40 -50 years
	Adolescent health clinic	ANC, Birth Spacing, Gynaecology & GP clinic	BSE clinic
Awareness	<ul style="list-style-type: none"> <li>• Health education</li> <li>• Leaflet</li> </ul>	<ul style="list-style-type: none"> <li>• Health education</li> <li>• Leaflet</li> </ul>	<ul style="list-style-type: none"> <li>• Health education</li> <li>• Leaflet</li> </ul>
Clinical examination by HCP		By HCP	By HCP
Training in BSE on model by HCP	On model		On model
BSE by woman under supervision of HCP			Examination by woman of her own breast

## The Pilot study

Before implementing the breast self screening program nationally, DFCH has planned to pilot the breast screening program in all the Ministry of Health institutions of two of the regions (North Sharqiyah and Dhahira) in early 2009. In perspective of pilot initiation the standard operative procedure guidelines have been developed in collaboration with the regions and regional training were initiated.

Learning from the pilot experience, feasibility of launching breast screening program nationally will be assessed and then implemented after having met the logistics, training and management information system needs.

All possible venues of contact opportunity will be used for awareness and education, breast self-examination and clinical exami-

nation by the providers for the respective age group, see table 1

In conclusion, globally breast cancer is a leading cause of death and disability. In Oman it is the most frequent cancer among female. Hopefully, initiation of the screening program will aid in early detection, early intervention of this common reproductive age cancer, thereby to achieve the over all goal of reducing its morbidity and mortality.

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(Continued from page 8)

agement as per the guidelines will be free of cost for the Omani nationals.

- At regional level obstetricians, neonatologist, and HIV expert focal person will team up to manage the HIV/AIDS pregnant mother and babies.
- All contacts will be traced and screened for HIV including her children below 15 years age. HIV positive cases will be managed as per their individualized needs at specialist facility.
- No discrimination will be done while handling positive cases or their contacts with respect to evaluation or management.
- Counsellors will be trained in general counselling and specific to HIV/AIDS.
- All along the confidentiality of the case and her contacts will be maintained.
- Positive HIV samples will be retested at Darsait laboratory with ELISA and Western Blot and/or molecular test.

A chapter on HIV/AIDS is included in the revised guidelines on 'pregnancy and child birth management' and the system for reporting has been established.

### Planned Activities:

- Training of master trainers in counselling.
- Provide each MoH health care facility with one trained counsellor
- Training of health care providers on the new system and guidelines.

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"In Oman breast cancer is the most frequent cancer among females. Initiating the screening program will aid in its early detection and early intervention."

## Monitoring Caesarean Section Rates

### Introduction

The caesarean section (CS) is defined as delivery of foetus through incision in the anterior abdominal wall (laparotomy) and the uterine wall (hysterotomy).

Proportion of births by caesarean section is considered as one of the indicators of usage of safe motherhood services. This indicator together with many others is used to measure access to safe motherhood services that contribute to reduction of maternal mortality (1). Thus rate of caesarean section should reflect the extent to which pregnant women access life-saving obstetric care.

In some settings with low access of surgical care facilities, caesarean rates may be accurate indicator of essential obstetric care services provided to pregnant mothers, as majority of the caesarean sections conducted are expected to be a life saving measure for the mother and to some extent life saving conditions of foetus.

On the other hand, in places where caesarean section rates are unusually high or are **increasing, it can't be assumed that the majority of them are done for maternal reasons only.** As the coverage of services increases, indications of caesarean sections broaden to include often foetal problems pointing to a possibly of unnecessary sections.

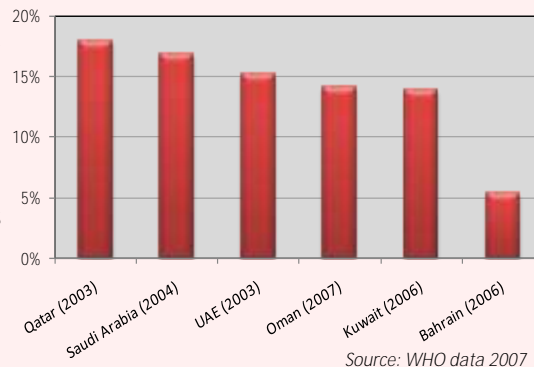
For the last two decades, increasing caesarean trend has been seen both in developed and developing countries. These increasing trends in CS has prompted extensive research and hospital audits to evaluate the reasons and justifications for caesarean section, following which it has been concluded that CS rate could be reduced with careful assessment and setting selection rules for the indications.

The Technical Working Group assembled by WHO having reviewed the evidence based research concluded that caesarean section should account for not less than 5% and not more than 15%, as a proportion of all births in the population UNICEF/WHO/UNFPA 1997 (2).

### CS Rates in Gulf Region (GCC States)

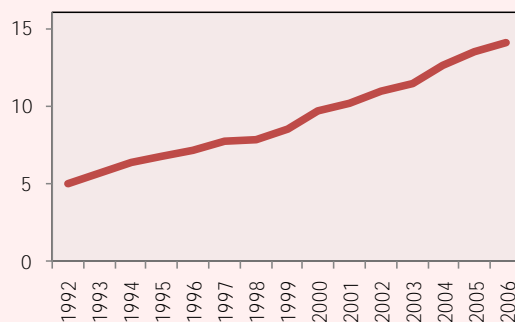
As per WHO data 2007 'making pregnancy safe data base EMR: 2007' caesarean section (CS) rates for the Gulf countries show lowest CS rate 5.4% (2006) in Bahrain to the highest in Qatar 18% (2003) and Oman some where in the middle with 14.1% (2007) (3) figure 1.

Fig.1  
Caesarian Section Rates in GCC States



In Oman rate of CS has shown a rising trend. As per ministry of health annual health Statistical report it has increased from 5% in 1990 to 14.1% in 2007 (4), although it is still within the prescribed range by WHO see figure 2.

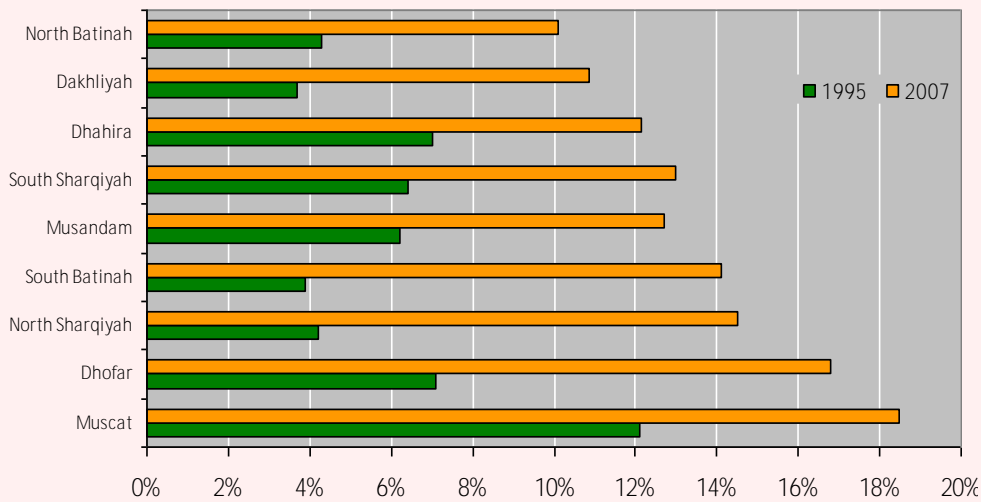
Fig.2  
Rising Caesarian Section Trend (Rate)  
Oman: 1992-2006



A similar increase in CS rate has been seen at the regional level with some inter-regional variation ranging from highest in Muscat to lowest in North Batinah (4), see figure 3.

“The increasing trend in caesarean section has prompted extensive research and hospital audits to evaluate its reasons and justifications.”

Fig.3: Trend of Caesarian Section Rates in Regions: 1995 and 2007



### Emergency vs. Elective CS

Traditionally CS has been divided into either elective or emergency procedure. Emergency when procedure is done within minutes to save the life of woman or baby or conditions where both mother and baby are well but early delivery is needed (example woman with planned CS arriving in labour) and delivery time to suit woman or staff (6) (C). In case of suspected or confirmed acute foetal compromise delivery should be accomplished as soon as possible, audit purpose standard is within 30 minutes (6).

In Oman there have been far more proportion of caesarean sections performed in

emergency than elective, illustrating its proportion (4) in figure 4.

### Indications for CS

The recognised common indication/ common practices for doing C/S are divided in to maternal/foetal, maternal, foetal and placental (Table 1).

First five Common indications for caesarean section in Oman over a period of 4 years 2004-2007 in the order of frequency were foetal distress, foetal mal-presentation, previous caesarean section, cephalo-pelvic disproportion, dystocia (5) (Table 2).

Breech presentation: For singleton uncomplicated term breech at 36 weeks a trial of

“In Oman there have been far more proportion of caesarean sections performed in emergency than elective.”

Fig.4: Caesarian Section Rates: Emergency vs. Elective 2000-2007

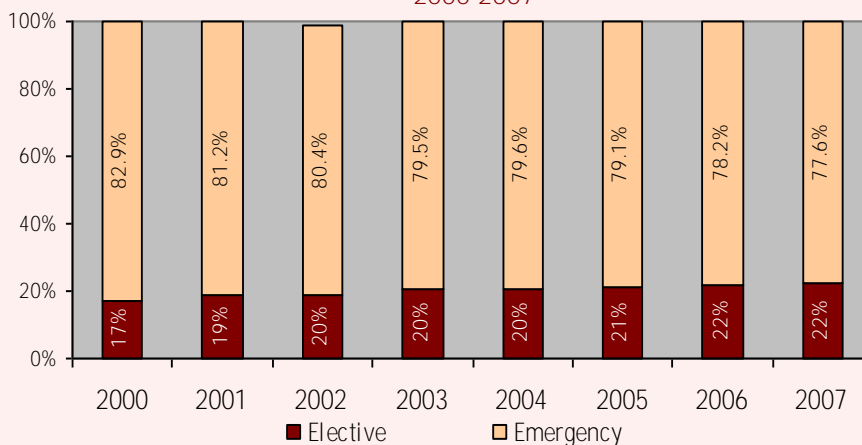


Table 1: Recognized Indications for Caesarean Section

Maternal/foetal	Maternal	Foetal	Placental
Dystocia	Maternal disease	Foetal	• Placenta praevia
• Cephalo-pelvic disproportion	eclampsia/severe pre-eclampsia	• Foetal distress	• Abruptio placentae
• Failed induction of labour	• Diabetes mellitus	• Cord prolapse	
• Abnormal uterine action	• Cardiac disease	Foetal mal-presentation	
	• Cervical cancer	• Breech	
	Previous uterine surgery	• Transverse lie	
	• Classical caesarean section	• Brow presentation	
	• Previous uterine rupture		
	• Full thickness myomectomy		
	Birth canal obstruction		
	• Fibroid		
	• Ovarian tumour		

Source: HACKER/MOORE essentials of Obstetrics and Gynaecology, second edition.

Table 2: Caesarean Sections Performed According to Indications Oman: 2004, 2005 &amp; 2007

Indication	2004		2005		2007	
	#	%	#	%	#	%
Foetal distress	880	20.5	1127	26.4	999	26
Mal presentation	633	16.8	757	17.7	787	20.5
Previous 2 LSCS or previous classical CS	668	17.7	473	11.1	696	18.1
Cephalo-pelvic disproportion	521	13.8	513	12	508	13.2
Dystocia	250	6.6	435	10.2	343	8.9
Chronic medical conditions (DM/HT/Cardiac disorders)	333	6.4	200	4.7	226	5.9
Vaginal bleeding (Placenta praevia/abruptio placentae)	152	3.6	174	4.1	189	4.9
Cord prolapse	37	0.98	45	1.1	49	1.3
Maternal exhaustion	12	0.32	114	2.7	43	1.1
Infections: Active Herpes/ HIV/ Other infections	10	0.27	45	1.1	8	0.2
Others	328	8.7	384	9.0	524	13.6
Total of CS	3764	12.2	4268	11.9	4372	14

Source: Department of Family and Community Health, Ministry of Health

“The effect of planned Caesarean Section in improving the outcome of second twin remains uncertain hence CS should not be routinely offered.”

external cephalic versions should be offered, exceptions include women in labour, women with uterine scar or abnormality, foetal compromise, ruptured membranes, vaginal bleeding or medical conditions. (A) (6)

Pregnant women with singleton breech presentation at term, for whom external cephalic version is contraindicated or has been unsuccessful, should be offered CS to reduce perinatal mortality and neonatal morbidity (A) (6)

### Multiple pregnancies

In otherwise uncomplicated twin pregnancies at term where the presentation of the first twin is cephalic, perinatal morbidity and mortality for the second twin are increased. However, the effect of planned CS

in improving the outcome of second twin remains uncertain hence CS should not be routinely offered. (C) In twin pregnancy where first twin is not cephalic the effect of CS is in improving the outcome is uncertain, but current practice is to offer a planned CS. (GPP) Planned CS for uncomplicated pregnancy should not be carried out before 38 weeks this increases the risk of respiratory problems in the babies (B) (6).

### Pre-term births

Pre-term births or small for gestation babies both are at increased risk of morbidity and mortality, however effects of planned CS in improving the outcomes remains uncertain and therefore should not be routinely offered (C) (6)

### Previous CS

Trial of vaginal birth should be provided for women who had: previous low transverse CS, has singleton vertex presentation and no absolute contra-indication for CS (placenta praevia, previous classical CS) provided, hospital has feasibility of taking the women for CS in emergency and has availability of skilled evaluation of labour and routine maternal and foetal surveillance (6).

### Dystocia (prolonged difficult labour)

CS is indicated where augmentation has failed to secure progress, there is lack of descent of head together with signs of caput and moulding suggesting cephalo-pelvic disproportion or foetal compromise (6)

### Placenta praevia

Women with placenta that partly or completely covers internal cervical os (grade 3 or 4 placenta praevia) should be offered CS (D) (6)

### Sexually transmitted infections

HIV/AIDS in the mother is an indication for planned CS at 38 weeks to prevent MTCT. There is insufficient evidence to support CS in women with Hepatitis B (B) or hepatitis C alone (C) to prevent MTCT. Herpes simplex infection (HSV) Women with primary infection occurring in third trimester should be offered CS to prevent MTCT. Where as women with chronic HSV infection should not be offered CS as it does not prevent MTCT (6).

### Conclusions

Worldwide CS rates have shown an increase both in developed and developing in last two decades. Following extensive prospective research and hospital audits, countries with high CS rate have been able to reduce the rates by setting practice standards especially for indication like previous CS and dystocia. Worldwide CS have been commonly performed for breech presentation, multiple pregnancies, especially if presenting baby has non-vertex presentation, pre-term births, previous CS and mother having HIV or active sexually transmitted

diseases.

In Oman foetal distress, mal-presentation and previous 2 LSCS or previous classical CS have been the three common indications for CS in 2007.

The Ministry of Health has been monitoring CS rate since the early nineties and monitoring of indications for CS has been launched from 2004. CS rate in Oman has shown an increasing trend over the years although within the permissible limits.

World Health Organization has recommended a caesarean section rate not less than 5% and not more than 15%. Oman is committed to the millennium goal of reduction of maternal mortality by 2/3 from its benchmark rate in 1993. Availability of CS is an essential component of the service to save the life of mother hence must continue to remain as an option.

The Ministry of Health, Oman continues to monitor the trends and looks into the issues of avoidable CS. The Department of Family and Community Health also continues its efforts to sensitise the service providers to review their data and encourage auditing of CS and to contain themselves within the WHO recommended prescribed range.

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“Oman is committed to the millennium goal of reducing maternal mortality by 2/3 from its benchmark in 1993. Availability of CS is an essential service component to save the life of mother.”



**"The wisest mind has something yet to learn."**



Sultanate of Oman  
Ministry of Health

*Address for Communication:*

Directorate General of Health Affairs  
Ministry of Health HQ, PO Box 393, PC 113,  
MUSCAT , Sultanate of Oman  
Tel: + (968) 24 600808  
Fax: + (968) 24 696099  
E-mail: dg-ha@moh.gov.om

Visit: [http://  
www.moh.gov.om](http://www.moh.gov.om)

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