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Community Health & Disease Surveillance Newsletter

Sultanate of Oman Ministry of Health

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'Vaccine Cold Store Management' Training Centre

Background

Immunization is recognized worldwide as an important measure to ensure the health of the children. One of the critical factors to positive outcomes in immunization programmes is ensuring that the quality of vaccines has been maintained from production to delivery to children and mothers. In all health care systems vaccine procurement, storage and distribution are vital to this process.

From the 1998 global programme review and many other evaluations, it emerged that logistical problems remain an obstacle to achieving substantial progress in immunization. Vaccine management can be defined as the main component in all immunization efforts including accelerated disease control activities as well as improving coverage and introduction of new vaccines.

Vaccine management is a generic term encompassing various aspects of activities, programmes and services involving the use and disposal of 'vaccines', from the manufacturers to the end-users. Vaccines are delicate products, which are easily destroyed if handled incorrectly. Experience has shown that cold chain and particularly, the national cold store are the most critical elements of any immunization system. Vaccine management system is considered efficient if it ensures the good quality of vaccines, ensures continuity of immunization services with a high coverage, and minimizes wastage. Therefore, lack of a sound vaccine management system results in overall low performance.

The Department of Vaccines and Biologicals (V&B) of WHO has launched an initiative to address the vaccine management issue through worldwide training centres.

One of the first such centres would be established in the Sultanate of Oman.

Objectives

The overall objective of the Vaccine Management Training Centre (VMTC) is to improve vaccine management practices at country level through a series of workshops offered by selected vaccine management training centres and defined follow-up procedures. Specific objectives are summarized as follows:

- Support countries in training vaccine managers who can perform the necessary skills and functions for their post.

- Improve vaccine management practices that fully protect vaccines in countries starting from arrival to the point of use.

VMTC activities would include training, evaluation and follow-up activities. Training activities will be organized targeting two separate groups: training centre facilitators and country participants. Evaluation activities will include initial and end term evaluation of the training centres and trainees. Follow-up activities will mainly target graduates of the vaccine management courses through password protected web access and mentors. The cluster will also monitor projects implemented by the graduates.

VMTC would be offering two different courses: *'vaccine Store Management Course'* & *'vaccine Management Course'*.

"High standards need to be maintained in the lower level stores, but efforts & commitment at these lower levels may be wasted if the primary store is inadequate"

This is 'no' theoretical risk – it has happened. If the threat of such major and unacceptable failure is to be eliminated, then equipment should be procured, installed, operated and maintained to the highest international standards, and vaccines should be handled with the utmost attention to detail. Similarly high standards need to be maintained in the lower level stores, but effort and commitment at these lower levels may be wasted if the primary store is inadequate.

Programme staff is responsible for maintaining vaccine quality from the time when a shipment arrives in the country until the moment when a dose is administered – a period of nine months or more. This is a substantial responsibility, which should be placed in the hands of personnel who are adequately trained for the task.

Vaccine cold store management course is designed in connection with the WHO-UNICEF *'Effective Vaccine Store Management Initiative'* (EVSM) and it requires that countries sending participants to this course should adopt the EVSM initiative and conduct an assessment prior to attending the meeting.

Excepts from the letter written by WHO-EMRO Regional Director, Dr. Hussain El Gezairy to HE the Minister of Health, Dr. Ali Bin Mohammed Bin Moosa dated 30th December 2002

"WHO-UNICEF Cold Store Certification Initiative (CSCI) assessment tool (protocol) was field tested from 24th to 28th September 2002 in Muscat, Oman. The assessment team members composed of staff from WHO headquarters, the Regional Office and UNICEF Supply Division were extremely impressed with the performance of the Oman's EPI and primary cold store staff. Although the purpose of this exercise was to field test the protocol, Oman Central Vaccine store fulfilled all the ten criteria to a high standard and could easily obtain the certification. The professionalism of the staff and the system in place were highly appreciated. We believe Oman has a lot to share in the field of immunization with the rest of the world while improving its capacity as a training center.

We are proposing to establish the first WHO training center for this purpose in Oman.

The training center to be established in Oman within the Global Training Network (GTN) will be one of the global training center open to participants from the region as well as from rest of the world. We believe Oman becoming the first WHO accredited vaccine management training center will not only help other countries in improving vaccine management practices, but also help your country to be recognized for its achievements in the field of vaccination as well as to improve its training capacity."

'Vaccine Store Management' course

Experience shows that the primary cold store remains the most critical & vulnerable element of an immunization system because this is where vaccines are received, stored and distributed in bulk. When there is an equipment or management failure at this primary level, large quantities of vaccine would be destroyed in a few hours. The immunization services of an entire country may then be placed at risk and the financial loss could run to millions of dollars.

The course is designed for 5 working days covering the following areas:

- Pre-shipment and arrival procedures
- Maintaining correct storage temperatures

(Continued on page 6)

Strengthening Congenital Anomalies & Genetic Blood Disorders (GBD) Surveillance

Background

Over a period of the last three decades the infant mortality in Oman declined from estimated 118 in the year 1970 to 16.2 per 1000 live births *(Annual Health Report 2002)*. This reduction has been due to the good prenatal and postnatal care and efficient infant immunization programme (EPI) as well as due to the overall improved child health care delivery through a strong health service infrastructure. Much of this drop in the infant mortality was in the age group beyond one month. The decline in the neonatal period has been relatively less remarkable especially in the children below one week.

Congenital anomalies substantially contribute to the mortality in the early neonatal period. Of the total hospital deaths due to all causes in all age groups 4% are due to congenital anomalies *(Annual Health Report 2002)*. Few retrospective hospital based studies in the past have shown that congenital anomalies contribute to 15 to 17 % of foetal deaths. Amongst the total hospital discharges in 2002 including deaths due to all causes, congenital anomalies contributed 1.2% *(Annual Health Report 2002)* and of these almost one third deaths were within one week.

Earlier population based studies in Oman have shown a prevalence of Down's syndrome as 1 in 400 births and sickle cell trait, G6PD deficiency and β-Thalassemia as 6%, 18% and 2% respectively.

Consanguineous marriages, a known risk for congenital anomalies are relatively common in Oman and the rates vary from 40% to 60%. Furthermore improved health care has increased the survival rate of these children.

To address this issue effectively a modified data collection system and regional registry has been initiated for congenital anomalies and genetic blood disorders (GBD) in Oman from the year 2003.

Strengthening the Reporting System

From the beginning of year 2003 the data collection system has been further strengthened and simplified to capture essential information and avoiding duplication. A single reporting form is used to collect information on congenital anomalies and genetic blood disorders.

The information would be made available not only at the national and subnational level but also at the level of parent health care facility. The treating physician would then have an access to the information on child's genetic disorder at all the times.

Benefits of the New Reporting System

The ultimate purpose of this new reporting system is to create a valid database on the congenital anomalies and genetic bloods disorders at national, subnational and institutional level. Following benefits are envisaged:

- Such database would allow over the years to monitor the most prevalent disorders in Oman with their regional distribution.
- Information on the relationship of the type of disorders and its association with known risk factors such as consanguinity and with the certain tribes and/or families.
- Improving the follow-up and management of cases at the institutional level.
- The database would facilitate the policy makers to decide on the best strategic interventions to deal with the identified priority problems.
- It would be possible to evaluate the impact of these strategic interventions over a period of time.

Notification & Registry

- All the Omani children as well as the children whose either of the parents (mother or father) are Omani would be registered.
- Any physician who encounters an infant or child with congenital anomaly whether diagnosed at birth or afterwards but detected for the first time should fill-up the notification form as well as the card. Several systemic congenital anomalies or genetic blood disorders may manifest later in the childhood. Hence such cases may be encountered by clinicians other than a Paediatrician such as an internist, surgeon, urologist, Orthropaedician and other. The reporting of the condition is therefore mandatory to all.

"The congenital anomalies substantially contribute to the mortality in the early neonatal period."

- All children born on or after January 1st, 2000 and detected to have genetic blood disorders, external or internal anomaly/s or have multiple anomalies that fit into any of the syndromes, or inborn error of metabolism that are detected at birth or any time after birth are to be notified as and when detected irrespective of the time elapsed since birth.
- A fresh notification form is required for a new anomaly or any new genetic disorder detected.
- Notification is mandatory for anomalies detected both in the live born as well as still born.
- The Notification form is one single form that allows incorporation of information on congenital anomalies and genetic blood disorders and has three sections viz. A, B and C.

"All children born on or after 1st January 2000 & detected to have GBD &/or anomaly/s that are detected at birth or any time after birth are to be notified as & when detected."

Section A is common and contains demographic profile of the mother and father, and the child and is to be filled by the nurse or a doctor.

Section B pertains to medical and obstetrical history and information on the birth outcome to be filled by the diagnosing physician and only for congenital anomalies.

Section C is common to diagnosed congenital anomalies and genetic blood disorders in the child and should also be filled by the diagnosing clinician.

A short list of common anomalies, syndromes and genetic blood disorders with ICD-10 codes is provided on the reverse side of the notification form to facilitate the reporting doctor (refer Fig.-1).

Fig. 1:
Common Congenital Anomalies & Genetic Blood Disorders
(printed on the reverse side of the notification form along with ICD-10 code)

Neurological
- Anencephaly & similar malformations, encephalocoele, microcephaly, congenital hydrocephalus, spina bifida

Eye & Ear
- Anophthalmos, micro & macroophthalmos, congenital lens malformations, congenital glaucoma, congenital malformation of ear causing hearing defect, other congenital malformations of ear

Circulatory
- Malformations of cardiac chambers & connections, septal defects, malformations of pulmonary & tricuspid valves, malformations of great arteries and great veins

Respiratory
- Chonal atresia & other malformations of nose, congenital malformation of larynx, congenital malformation of trachea & bronchus excluding TA fistula, congenital malformation of lungs

Cleft lip & Palate
- Cleft palate, cleft lip, cleft palate & lip

Digestive system
- Anomalies of oesophagus (including tracheo-oesopageal fistula), upper alimentary tract, small gut, large gut, biliary tract & liver

Genital & Urinary system
- Undescended testes, hypospidiasis, indeterminate sex, renal agenesis including Potter's syndrome, Congenital cystic kidney diseases, obstructive defects of urinary system, other congenital malformation of urinary system

Musculoskeletal
- Congenital deformities of hip, deformities of feet, congenital musculoskeletal deformities of head, face, spine & chest polydactily, syndactily, other congenital malformations of limb(s), skeletal dysplasias, congenital diaphragmatic hernia, exompholocele, gastroschisis, prune belly syndrome

Dermatological
- Congenital ichthyosis, epidermolysis bullosa, phakomatosis, malformations due to known exogenous (pheyntoin, warfarin, alcohol syndrome)

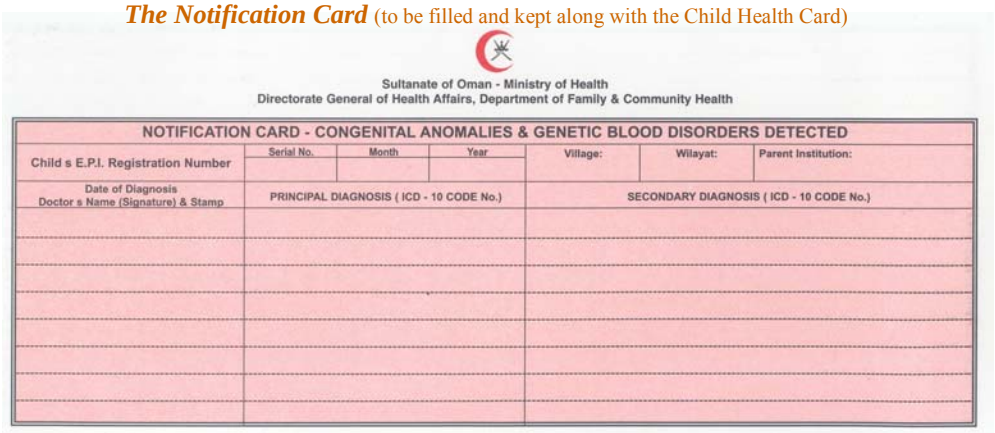
Multiple System Syndromes
- Predominantly affecting facial appearance, associated with short stature, predominantly involving limbs including VATER

Chromosomal
- Down's syndrome, Edward's syndrome & Patau's syndrome, Turner's syndrome, Klinefelter's syndrome & other male phenotypes, Fragile-X Syndrome

Hereditary blood disorders (Laboratory confirmed)
- G6PD deficiency (partial activity excluded), β-Thalassemia major, sickle cell disease (trait excluded)

Fig. 2

The Notification Card (to be filled and kept along with the Child Health Card)



Sultanate of Oman - Ministry of Health
Directorate General of Health Affairs, Department of Family & Community Health

NOTIFICATION CARD - CONGENITAL ANOMALIES & GENETIC BLOOD DISORDERS DETECTED

Child s E.P.I. Registration Number	Serial No.	Month	Year	Village:	Wilayat:	Parent Institution:

Date of Diagnosis Doctor s Name (Signature) & Stamp	PRINCIPAL DIAGNOSIS (ICD - 10 CODE No.)	SECONDARY DIAGNOSIS (ICD - 10 CODE No.)

Notification Card (Pink) is meant to be the permanent record of the child's primary/secondary diagnosis related to congenital anomalies &/or genetic blood disorders (fig.2).

Reporting by Parent Institution

After filling all the required information; send the white original copy of the notification form to the regional MCH Coordinator and retain the pink copy in the outpatient record of the baby. The reporting doctor should also fill-in the pink congenital anomaly card (fig-2) and attach it to the child health card. Parent health care facility should also maintain a congenital anomaly register that would facilitate periodic updating.

Reporting by Non-Parent Institution

The reporting physician should fill-in the notification. He or she should then send both copies (white and pink) to the parent institution.

At birth the notification should be attached to the white copy of the child health card and sent to the parent institution. All efforts should be taken by the reporting doctor to fill in all the available information (ANC card, Child Health Card).

Parent institution on receiving the white copy would fill-up the EPI number and/or any missing information and send the same to the regional MCH coordinator. The pink copy should be however retained in the duplicate white copy of the child health card.

The notification card (fig.-2) should also be filled-in by the doctor at the time of detecting congenital anomaly of GBD for the first time and should always be attached to the Child Health Card kept with the mother.

The Regional Registry

The Regional MCH coordinator would be overall responsible for the Regional Registry. He/she would verify the completeness of information and allocate serial registration number and pass on the form to the regional health information officer (RHIO).

The RHIO would then compile all information in a regional database. Only the notifications belonging to the region would be included. By month end the information would be transferred along with other statistical data to the health information section in the MoH HQ.

A quarterly report on the notified cases would be prepared and sent to the department of family and community health by the MCH coordinator on a standardized format provided.

An informative compact-disk (CD) with clinical pictures of common congenital anomalies seen in Oman has been provided to the regions that should prove useful for the purpose of self-learning as well as for training and orientation of the staff.

It is envisaged that the new reporting system would strengthen the surveillance of congenital anomalies and genetic blood disorders in the Sultanate.

"It is envisaged that the new reporting system would strengthen the surveillance of the congenital anomalies & Genetic Blood Disorders in the Sultanate."

(Continued from page 2)

- Maintaining sufficient cold store capacity
- Buildings, equipment and transport
- Effective maintenance
- Effective store management
- Reliable delivery to intermediate stores (or lower levels)
- Minimize damage during distribution
- Standard operating procedures
- Financial and human resources

The EVSM questionnaire is developed as an assessment tool based on the identified indicators and benchmarking. It is made up of 14 worksheets covering informative and analytical data, and presents the results in a graphical format. Any deviation from the ideal 100% score would indicate a need for corrective action. It is expected that participants discuss the action plans during the course with facilitators and finalize them on their return to their duty stations.

"Oman from Eastern Mediterranean region of WHO has been identified as a TC for ***'Vaccine Store Management'.*** *The Ministry of Health would collaborate with the local WHO office for the organization of its first training course in October 2003."*

Vaccine Management Training course

Vaccine management course is designed in connection with vaccine management project and it requires that countries sending participants to this course should conduct vaccine management assessment prior to their attendance and work on the project details during the course.

The course is designed for 5 working days covering the following areas:

- Adoption of global policies into national use
- Adequacy of the cold chain
- Availability of adequate quantities of vaccines
- Effective stock recording system
- Efficient vaccine distribution system
- Reliability of the cold chain
- Correct use of diluents
- Effective use of VVMs
- Effective use of MDVP
- Monitoring of vaccine wastage

Participants are expected to develop action plans based on the vaccine management assessment, discuss the plans with facilitators during the course and finalize them on their return. Same assessment will be used in 12-24 month following the project implementation to review the impact.

Training Centres (TC)

A training centre is defined as a cooperating institutional partner (*MoH, NGO, University, etc.*) with at least two and preferably three trainers and a commitment to organize at least two training courses per year.

WHO headquarters (HQ) in coordination with its regional offices and other partner organizations will identify training centres through an active and joint search. Candidate centres will be visited by a team and evaluated using a standard evaluation checklist. If the centre is found to be satisfactory, WHO-HQ will sign an initial agreement with the centre to be evaluated following the first two courses. On the successful completion of the first two courses, the WHO will accredit the centre as a VMTC training centre for a period of two years. Reassessment is required for continuation of accreditation at the end of the two-year period. A standard evaluation check list will be used in each reassessment.
At least one training centre will be established in each region of the WHO (PAHO/AMRO, EURO, EMRO, AFRO, SEARO, and WPRO) by the end of 2004.

Oman from the Eastern Mediterranean region of WHO has been identified as a TC for *'Vaccine Store Management'.* The MoH would be organizing its first training course in October 2003.

A team of four trainers from the Department of Surveillance and Disease Control, MoH HQ, Oman were nominated to attend the WHO organized training course held from 24th to 27th June 2003 in *Mabalingwe*, South Africa.

The other participants were from EMRO, AFRO & WPRO regions of WHO. They were trained in the training skills including principles of adult education, effective presentation techniques, use of interactive training methods, effective use of audio-visual materials and group dynamics.

The Course Content

The content of the workshop is based on the policies currently in use for vaccine management developed and supported by WHO/UNICEF and GAVI. The workshop will use case studies to illustrate some aspects of the programme. It also offers an intensive training that will cover all fundamental aspects related to the indicators used in the vaccine management practices assessment process.

The Course topics

- **Adequacy of the cold chain** relates to the type of cold chain equipment, availability of vaccine storage space and the knowledge of managers in adjusting supply periods when capacity seems to be limited. This also includes the optimal planning and utilization of the cold chain space.
- **Availability of adequate quantities of vaccines** indicates the capacity of the vaccine management to provide sufficient quantities of vaccine and other immunization supplies for immunization services at each level, and to forecast requirements.
- **A good stock recording system** gives an insight into vaccines and diluent stock movements.
- **Efficiency of vaccine distribution system** gives an insight into the ability to provide the right service at the right time and place.
- **Reliability of the cold chain** relates to the quality of the cold chain. It indicates how vaccine storage temperatures have been maintained within recommended limits. It also takes into account measures put in place to deal with accidental failures of the cold chain.
- **Correct use of diluent** indicates the correct handling and use of diluent. It also includes the availability and use of the proper diluent for each freeze-dried vaccine.
- **Effective use of VVMs** measures the knowledge, attitude and practices of the health workers and managers with regard to the use of VVMs as a managerial tool and indicates the impact of such a use on service delivery.
- **Effective use of MDVP** indicates whether adopted in the national EPI and the safety and effectiveness of vaccine use.
- **Monitoring of vaccine wastage** aims at showing if wastage rates are determined and an effective monitoring system is in place and managed.

The Trainees

Participants would be chosen from all over the world through a defined process that involves various parties including Ministries of Health, WHO country and regional offices and the WHO-HQ. A trainee should also prove proficiency in the course language.

The primary target audience would be the Vaccine Cold store managers or any other persons holding a title related to vaccine management at the national or sub-national level. They may be doctors, nurses, other professional health workers or graduates of other higher education institutions.

Training is not the end-activity of VMTC. It is linked with projects at country level such as vaccine management and WHO-UNICEF Effective Vaccine Store Management (EVSM) Initiative.

Reference

GTN (Global Training Network) Vaccine Management Training Cluster (VMTC), Conceptual framework and standard operating procedures (Draft) by WHO, Dept. of V&B, Access to Technologies, 2003.

"The training is not the end-activity of VMTC. It is linked with projects at country level such as vaccine management & WHO-UNICEF Effective Vaccine Store Management (EVSM) Initiative."

WHO-UNICEF
EFFECTIVE
VACCINE STORE
MANAGEMENT
INITIATIVE

SARS Preparedness & Response in Oman

Introduction

On 12th March 2003 a worldwide alert was issued by the Director General of World Health Organization for a new emerging disease named *"Severe Acute Respiratory Syndrome (SARS)"*. The syndrome was first described by *Dr. Carlo Urbani*, an Italian Epidemiologist working as a WHO consultant in Vietnam on February the 26th, 2003. The disease had spread globally through air travel. Till date more than 30 countries in the world have reported cases of SARS.

Amongst the countries of Eastern Mediterranean Region, only *Kuwait* reported a single case of SARS. 'NO' further suspected or probable cases of SARS have been reported either from Oman or other countries of EMRO.

"The MoH has adopted the recommendations of WHO posted & updated on their website & has taken all essential steps in concordance with the WHO recommendations to prevent the importation of SARS in the Sultanate".

HE the Minister of Health established a national task force under the chairmanship of HE the Undersecretary of Health Affairs, to deal effectively and efficiently with this global emergency. The Ministry of Health (MoH) has adopted the recommendations of WHO posted and updated on their website and has taken all essential steps in concordance with the WHO recommendations to prevent the importation of SARS in the Sultanate.

The task force members held several meetings to discuss various aspects of SARS viz. surveillance issues, quarantine, case definition and management, contact follow-up etc. During these meetings national policies and guidelines were evolved and finalized. These national guidelines represent Ministry's official policy on SARS. These standardized guidelines and action plan including various algorithms were distributed to all concerned in the country.

National Task Force

HE the Undersecretary of Health Affairs is the chairman of the National Task Force on SARS.

- The Director, DSDC is the designated focal point for SARS in Oman.
- Within the National Task Force following subcommittees were formed composed of experts in their respective fields:
  - Surveillance
  - Contact management
  - Airport screening
  - Infection Control
  - Case Management

The Central Public Health Laboratory is the designated laboratory for conducting the diagnostic tests for SARS.

Case Definition *(Revised by WHO on 1st May '03)*

The following suspect case definition recommended by World Health Organization was used universally for the purpose of surveillance. Updates available at WHO website on affected areas were incorporated on a daily basis.

Suspect case

1. A person presenting after **1 November 2002** with history of:
   - High fever (>38 °C/100.4 °F) **AND**
   - Cough or breathing difficulty **AND** one or more of the following exposures during the 10 days prior to onset of symptoms:

   Close contact with a person who is suspect or probable case of SARS
   - **History of travel**, to an area with recent local transmission of SARS
   - **Residing** in an area with recent local transmission of SARS
2. A person with an unexplained acute respiratory illness resulting in death after 1 November 2002, but on whom no autopsy has been performed.
   AND one or more of the following exposures during the 10 days prior to onset of symptoms:

- **Close contact** with a person who is suspect or probable case of SARS
- **History of travel** to an area with recent local transmission of SARS
- **Residing** in an area with recent local transmission of SARS

Note: ***Close contact:*** *having cared for, lived with, or had direct contact with respiratory secretions or body fluids of a suspect or probable case of SARS.*

Recent Local Transmission of SARS: *an area in which local chain(s) of transmission of SARS is/are occurring as reported by the national public health authorities.*

- **Exclusion criteria:** A case should be ex-

cluded if an alternative diagnosis can fully explain their illness.

Reclassification of cases: As SARS is a diagnosis of exclusion, the status of a reported case changes over time. A patient should always be managed as clinically appropriate, regardless of their case status.

Notification & Reporting

SARS is included henceforth in the Group A of the notifiable diseases under surveillance. Therefore the suspect cases should be reported immediately by quickest means of communication.

- In the regions the regional epidemiologist/regional focal point for communicable diseases should elicit complete history of movements and contacts of that case in the preceding two weeks. At the end of a thorough investigation the case then should be considered as epidemiologically compatible.
- Concurrently the clinical presentation of the case should be reviewed by the Head of the department of Internal Medicine or Paediatrics as applicable from the Regional Referral Hospital to determine the clinical compatibility of the case.

Only clinical presentation of SARS cannot be entirely relied upon since it may mimic common respiratory tract infection. The epidemiological compatibility of the case is more relevant. It is the detailed history of her/his movements in the last two weeks elicited by a thorough interrogation that would give a positive clue of SARS. Consult the national focal points for surveillance before reporting to reach a consensus.

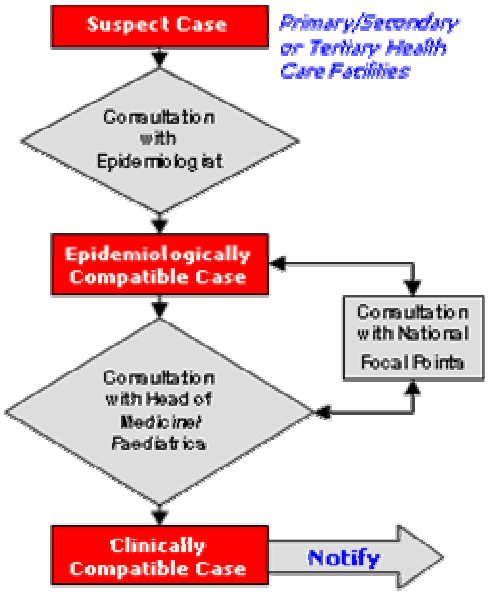
After establishing the high probability of exposure and the clinical compatibility; the case then should be notified.

Referral Protocol

A specially equipped quarantine ward with negative pressure ventilation has been designated in *Al Nahda* hospital in Muscat for admission and management of all suspect and probable SARS cases in Oman.

In situations the case cannot be transferred immediately due to some unforeseen circumstances the Regional Referral Hospital should admit the case and do the initial case management. Therefore the essential arrangements for strict barrier nursing and isolation room would also be made available in all the regional hospitals.

SARS Case Notification Algorithm



Due to the geographical location, the suspect cases of SARS detected in the Governorate of Dhofar as well as in Musandam would be managed locally. A special isolation room in the Sultan Qaboos hospital, Salalah and Khasab hospital was designated for admission of suspect SARS cases.

Airport Surveillance

Quarantine Officers (doctors & health inspectors) have been deployed at the ***Seeb*** International Airport from 19th March to provide on-site advice and also for screening of the passengers. They were trained on how to manage the sick passengers and the use of *personal protective equipment* (PPE).

- The suspect case should wear N95 mask.
- The doctor must immediately put on the SARS protective gear (PPE).
- Transfer case to the quarantine station at *Al Nahda* hospital at the earliest.

"At the end of a thorough interrogation the case should then be considered as epidemiologically compatible."

- Personnel transporting the sick passenger through the airport should wear PPE and avoid transporting the passenger through crowded areas and using shortest route.
- Screen all other well passengers.

Air Passenger Screening

All the air passengers are required to submit a written declaration on arrival at the *Seeb* international airport whether they visited the areas/countries listed in the declaration. If the answer is 'yes' then he/she would be considered to be a contact of suspect case of SARS and would be managed according to the WHO protocol. All details of his/her address in Oman and contact phone for the next two weeks would be noted.

An '*Information booklet on SARS*' would be provided to them explaining signs and symptoms of SARS, mode of transmission etc. The booklet would also include names and contact telephone numbers of the regional focal points.

Passive surveillance would be initiated for all such cases for a period of 14 days counted from their day of departure from affected area. During this period he/she is allowed to carry on usual activities. They are required to daily check for fever or respiratory symptoms. If any symptoms develop he/she should '*self-report*' to the specified regional focal point. It should be noted that the most consistent first symptom to develop is '*fever*'. The entire surveillance programme would be coordinated and supervised by the respective regional epidemiologist or the focal point of communicable diseases.

If the person under observation develops signs and symptoms compatible with suspect SARS he would be referred to the Quarantine station. If the diagnosis changes to 'probable' then the contact management would be aggressive and based on active surveillance.

Thermal scanning device monitored by radiographers was installed at the *Seeb* airport on 31st May to screen the passengers for fever, the earliest and most consistent sign of SARS.

Seaport Surveillance

The ships arriving in Oman at Muscat, Salalah and Sur seaport were monitored. Appropriate action algorithm was developed to ensure 'no' SARS cases enter the country through this portal. Although the risk of such importation was unlikely due to the time required for the journey from the Southeast Asia to the Sultanate.

*"A specially equipped quarantine ward has been designated in **Al Nahda** hospital in Muscat for admission & management of all suspect & probable cases of SARS in Oman."*

Suspension of the High-Alert Status of SARS in Oman

On July 5th, 2003 the World Health Organization declared that the human-to-human chain of transmission of SARS had been interrupted globally and there were no countries in the world with local transmission of SARS or any form of travel restrictions. It had been an achievement of great proportion especially for a new and poorly understood emerging disease of the 21st century.

Following the WHO recommendations the high-alert status of SARS in the Sultanate was lifted with effect from July 12th 2003. Similarly all restrictions at entry points (land, sea & air) as well as screening of passengers at the international airports and sea ports was suspended until further notice. The vigilance of SARS however would be continued as recommended by the WHO.

Entry Restrictions

No entry restrictions were ever imposed at the airport at any time in the Sultanate. However those entering Oman through land border check-posts and the sea ports; if arriving within two weeks from mainland China and Hong Kong were not permitted to enter the country (*vide Ministerial Order # 37/2003*).

The Preparedness Drill

In order to ensure that all the laid down action protocols are being followed at the airport as well as at the quarantine ward; practice sessions in the form of mock-drills were held on a periodic basis by the members of the task force. On the spot assessment and inputs were given.

All components of the preparedness plan functioned well during the entire period of surveillance and high alert.

Frequently Asked Questions (FAQ): SARS

Q1: What is SARS?

Ans.: SARS is an abbreviation of "*Severe Acute Respiratory Syndrome*" describing acute and severe illness affecting the respiratory system. SARS is a new emerging disease initially described as atypical pneumonia.

Q2: What causes SARS?

Ans.: SARS is caused by a coronavirus belonging to the family of viruses causing common cold in humans.

Q3: What is the mode of transmission?

Ans.: SARS spreads most commonly by person-to-person close contact with a symptomatic case. It may also spread through contaminated articles and droplets of body fluids. There is no frank airborne transmission.

Q4: What are the common symptoms?

Ans.: Fever (above 38^0 C) is the most common and consistent symptom of SARS. Cough, shortness of breath may also accompany fever. Other symptoms include diarrhoea, headache, malaise and myalgia.

Q5: Was there a case of SARS reported in Oman?

Ans.: **'NO'.** Oman or none of the GCC states except Kuwait (*one case of a Finnish national reported in April 2003*) ever reported a suspect or probable case of SARS since the beginning of surveillance from mid-March.

Q6: Who are at risk of acquiring infection?

Ans.: All ages and both sexes are at a risk if exposed to SARS virus since there are no natural antibodies against the new virus. However the friends and family members and the health care personnel involved in direct patient-care are especially at high-risk due to the need of close contact for transmission .

Q7: Is there any treatment available?

Ans.: **'NO'.** There is no specific treatment for the viral disease. Various regimes using antiretroviral drugs such as *ribavirin* have been tried including high doses of steroids. At this point of time WHO recommends to adopt the same therapy that would have been administered to any community acquired pneumonia under investigation.

Q8: Is there any vaccine for SARS?

Ans.: **'NO'.** Current pace of research may lead to early development of vaccine but not certainly within one year.

Q9: How to confirm the diagnosis of SARS?

Ans.: Diagnosis is confirmed by two categories of laboratory tests. One group of tests are serological that identify specific antibodies against coronavirus in blood (ELISA & IFA) which appear late in illness (10 days after symptoms) while others identify the viral genome (DNA) in a variety of body fluids by PCR.

Q10: How long the patient of confirmed SARS is infectious to others?

Ans.: From the beginning of clinical symptoms such as fever and cough till the patient becomes completely asymptomatic.

"SARS is the new emerging communicable disease of the 21st century that demonstrated how within a short span of four months it could be contained due to the collaborative efforts of all."

Communicable Diseases Quarterly Report

Second Quarter (April to June 2003)

ICD Code	Diseases	2003 Second Quarter				2002			2003
		Apr	May	Jun	Total	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar
GROUP 'A' DISEASES									
A00	Cholera	-	-	-	**0**	1(i)	1	-	-
A20	Plague	*Never Reported*							
A36	Diphtheria	*Last Case in 1992*							
A39	Meningococcal infection	-	2	2	**4**	2	1	-	1
A80	Poliomyelitis	*Last Case in 1993*							
	Acute Flaccid Paralysis	-	1	2	**3**	5	5	5	4
B05	Measles	-	-	-	**0**	-	-	1	1
B06	Rubella & [CRS]	-	-	-	**0**	1	-	-	-
A95	Yellow fever	*Never Reported*							
A82	Rabies	-	-	-	**0**		-	-	-
B20-24	HIV & [AIDS]	4 [2]	1 [0]	5 [4]	**10 [6]**	16 [11]	15 [11]	17 [3]	5 [5]
A75.0	Louse-borne typhus	*Never Reported*							
A68	Relapsing fever	*Last Case in 1997*							
A33	Tetanus Neonatorum (NNT)	*Last Case in 1995*							
A99	Viral Hemorrhagic fever	-	-	-	**0**	-	-	-	-
	Severe Acute Respiratory Syndrome (SARS)	-	-	-	**0**				
GROUP 'B' DISEASES									
A03.0	Typhoid fever	9	7	1	**17**	16	25	10	9
A01.4	Paratyphoid fever	-	1	1	**2**	7	2	4	4
A02	Food poisoning	17	106	133	**256**	263	365	150	201
A22	Anthrax	*Never Reported*							
A23	Brucellosis	18	17	20	**55**	33	26	29	50
A37	Pertussis	22	14	13	**49**	43	17	15	30
A35	Tetanus (Excluding NNT)	-	-	-	**0**	1	-	2	-
A90	Dengue	-	-	2 (i)	**2 (i)**	-	-	1 (i)	-
	Acute Viral Hepatitis - Total	**160**	**98**	**103**	**361**	**834**	**393**	**322**	**416**
B15	Viral Hepatitis 'A'	33	8	12	**53**	**234**	167	75	121
B16	Viral Hepatitis 'B'	6	10	2	**18**	**18**	18	4	7
B17.1	Viral Hepatitis 'C'	1	-	1	**2**	**6**	5	2	0
B17.0	Viral Hepatitis 'D' among 'B'	-	-	-	**0**	**-**	-	1	0
B17.2	Viral Hepatitis 'E'	-	-	-	**0**	**-**	1	0	1
B19/B17.8	Viral Hepatitis (Unspecified)	120	80	88	**288**	**615**	202	240	287
B55	Visceral Leishmaniasis	-	-	-	**0**	**-**	-	0	0
B55.1	Cutaneous Leishmaniasis	1	-	-	**1**	2	-	4	9
B65	Schistosomiasis	21	3	-	**24**	-	-	1	15
B74	Filariasis	1 (i)	-	-	**1 (i)**	-	1 (i)	0	0
B72	Dracunculiasis	*Certified by WHO as Eradicated from Oman*							
G00.0	Haemophilus influenzae type b, Meningitis	-	-	-	**0**	10	4	3	1
G00.1-9	Bacterial meningitis other than Nm & Hib	5	4	1	**10**	23	23	10	11
A87	Viral meningitis	2	-	-	**2**	6	10	1	6
G03	Meningitis - Unspecified	-	1	-	**1**	7	5	4	11
A30	Leprosy	-	-	1	**1**	-	1	2	3
A15	Pulmonary Tuberculosis Sputum Positive	10	11	6	**27**	39	24	24	16
A16	Pulmonary Tuberculosis Sputum Negative	4	5	2	**11**	6	8	3	9
A17-19	Extra-Pulmonary Tuberculosis	12	10	10	**32**	23	38	16	21
B50-54	Malaria (All sources)	25	42	57	**124**	179	227	99	58
A50-53	Syphilis	10	10	10	**30**	33	25	32	31
A54	Gonococcal Infections	15	28	15	**58**	47	46	46	23
GROUP 'C' DISEASES									
A03	Shigellosis	95	91	48	**234**	242	203	417	238
A06	Amoebiasis	606	413	240	**1,259**	1,257	1,178	1,624	1667
A09	Acute Gastro-Enteritis & Diarrhoea	9,463	8,753	5,989	**24,205**	20,667	23,023	37,823	36,282
B01	Chicken Pox	2,870	2,589	1,890	**7,349**	4,810	2,296	4,409	5,476
B26	Mumps	265	216	158	**639**	933	415	571	376
A71	Trachoma	25	26	14	**65**	153	58	74	176
J10-J11	Influenza	243	167	15	**425**	216	651	1,202	468

Communicable Diseases Quarterly Report by Regions

Second Quarter (April to June 2003)

ICD Code	Diseases	Total	Muscat	Dhofar	Dakhli-yah	North Sharqi-yah	South Sharqi-yah	North Batinah	South Batinah	Dhahira	Musan-dam	Al-Wustah
GROUP 'A' DISEASES												
A00	Cholera	0	-	-	-	-	-	-	-	-	-	-
A20	Plague	*Never Reported*										
A36	Diphtheria	*Last Case in 1992*										
A39	Meningococcal infection	4	1	-	-	-	2	-	-	1	-	-
A80	Poliomyelitis	*Last Case in 1993*										
	Acute Flaccid Paralysis	3	-	-	-	-	1	1	-	-	-	1
B05	Measles	0	-	-	-	-	-	-	-		-	-
B06	Rubella & [CRS]	0	-	-	-	-	-	-	-	-	-	-
A95	Yellow fever	*Never Reported*										
A82	Rabies	0	-	-	-	-	-	-	-	-	-	-
B20-24	HIV [AIDS]	10 [6]	3 [2]	1 [0]	-	-		2 [0]	-	4 [3]	0 [1]	-
A75.0	Louse borne typhus	*Never Reported*										
A68	Relapsing fever	*Last Case in 1997*										
A33	Tetanus Neonatorum (NNT)	*Last Case in 1995*										
A99	Viral Haemorrhagic fever	0	-	-	-	-	-	-	-	-	-	-
	Severe Acute Respiratory Syndrome (SARS)	0	-	-	-	-	-	-	-	-	-	-
GROUP 'B' DISEASES												
A03.0	Typhoid fever	17	4	3	2	-	-	4	-	-	1	3
A01.4	Paratyphoid fever	2	-	-	1	-	-	-	1	-	-	-
A02	Food poisoning	256	17	32	55	22	12	40	67	9	-	2
A22	Anthrax	*Never Reported*										
A23	Brucellosis	55	1	54	-	-	-	-	-	-	-	-
A37	Pertussis	49	14	1	2	-	-	15	3	13	-	1
A35	Tetanus (Non-NNT)	0	-	-	-	-	-	-	-	-	-	-
A90	Dengue	2 (i)	-	-	-	-	-	1 (i)	-	1 (i)	-	-
	Acute Viral Hepatitis - Total	361	14	22	20	107	53	90	19	19	5	12
B15	Viral Hepatitis 'A'	53	7	1	14	-	5	-	14	-	3	9
B16	Viral Hepatitis 'B'	18	2	5	1	-	1	1	4	4	-	-
B17.1	Viral Hepatitis 'C'	2	-	-	1	-	-	-	1	-	-	-
B17.0	Viral Hepatitis 'D' among 'B positive'	0	-	-	-	-	-	-	-	-	-	-
B17.2	Viral Hepatitis 'E'	0	-	-	-	-	-	-	-	-	-	-
B19/17.8	Viral Hepatitis Unspecified	288	5	16	4	107	47	89	-	15	2	3
B55	Visceral Leishmaniasis	0	-	-	-	-	-	-	-	-	-	-
B55.1	Cutaneous Leishmaniasis	1	-	-	1	-	-	-	-	-	-	-
B65	Schistosomiasis	24	1	23	-	-	-	-	-	-	-	-
B74	Lymphatic Filariasis	1 (i)	-	-	-	-	-	-	-	-	-	1 (i)
B72	Dracunculiasis	*Certified by WHO as Eradicated from Oman*										
G00.0	Haemophilus influenzae type b, Meningitis	0	-	-	-	-	-	-	-	-	-	-
G00.1-9	Bacterial meningitis except Nm & Hib	10	2	4	-	3	-	1	-	-	-	-
A87	Viral meningitis	2	-	-	-	-	-	-	--	2	-	-
G03	Meningitis - Unspecified	1	-	-	-	-	-	1	-	-	-	-
A30	Leprosy	1	-	-	-	-	-	-	1	-	-	-
A15	Pulmonary Tuberculosis Sputum Positive	27	5	2	3	1	-	8	3	2	2	1
A16	Pulmonary Tuberculosis Sputum Negative	11	1	1	2	1	-	1	3	2	-	-
A17-19	Extra-Pulmonary Tuberculosis	32	7	7	1	1	2	9	3	-	1	1
B50-B54	Malaria (All sources)	124	57	4	10	5	6	12	6	19	-	5
A50-A53	Syphilis	30	7	-	-	-	12	7	2	2	-	-
A54	Gonococcal Infections	58	8	7	1	-	17	16	-	5	3	1
GROUP 'C' DISEASES												
A03	Shigellosis	234	40	3	40	76	27	5	7	35	-	1
A06	Amoebiasis	1,259	261	7	320	167	192	61	29	134	29	59
A09	Acute Gastro-Enteritis & Diarrhoea	24,205	3,689	1,831	3,742	1,960	1,865	5,771	2,818	1,870	446	213
B01	Chicken Pox	7,349	2,130	522	888	424	281	1,639	710	344	369	42
B26	Mumps	639	107	20	262	14	9	73	41	112	1	-
A71	Trachoma	65	16	3	8	18	-	5	15	-	-	-
J10-J11	Influenza	423	68	-	67	104	-	90	-	96	-	-

Selected Communicable Diseases by Wilayat

Second Quarter (April to June 2003)

Region	Wilayat	AFP	Measles	Rubella	Pertus-sis	TB (Total)	TB Sputum Positive	Tetanus (Ex. NNT)	Malaria (All)	Viral Hepatitis (Total)	Leprosy	Meningo. Infection	Hib Men-ingitis	Leishma-niasis Visceral	Leishma-niasis Cutaneous
MUSCAT	Muscat				1					2					
	Seeb				6	8	5		26	2					
	Muttrah				1	1			10	4					
	Bowsher				2	1			14	3		1			
	Al Amerat				4	2			7	3					
	Quriyat					1									
DHOFAR	Salalah				1	7	1		4	10					
	Thumrait					1				2					
	Taqah					1	1								
	Mirbat					1									
	Sudah														
	Rakhyut														
	Dhalqut									6					
	Muqshan														
	Shaleem									4					
NORTH BATINAH	Sohar	1			1	5	2		4	39					
	Shinas				1	1	1		1	3					
	Liwa				1					15					
	Saham				8	4				28					
	Khabura					2	2		5	1					
	Suwaiq				4	6	3		2	4					
SOUTH BATINAH	Rustaq				1	2			1	4	1				
	Nakhl									1					
	Wadi Maawil									1					
	Al Awabi														
	Musanah					4	1		1	9					
	Barka				2	3	2		4	4					
DAKHLIYAH	Nizwa					1			3	5					
	Bahla					2	2		3	11					1
	Adam				1				1	1					
	Hamra					1	1								
	Manah								1						
	Sumail				1	1									
	Izki					1			1	3					
	Bid Bid								1						
DHAHIRA	Ibri				11				5	3		1			
	Yanqul									1					
	Dhank														
	Buraimi				2	4	2		11	15					
	Mahda								3						
NORTH SHARQIYAH	Ibra								2	11					
	Mudhaibi					2			3	64					
	Bidiyah									8					
	Al-Qabel									20					
	Dima Al-Tayeen					1	1			1					
	Wadi Bani Khalid									3					
SOUTH SHARQIYAH	Sur	1							3	10					
	Masirah					2			1	5					
	Al Kamil & Al Wafi									3					
	BBB Ali								2	15		2			
	BBB Hassan									20					
MUSANDUM	Khasab					3	2								
	Dibba								5	5					
	Bukha														
	Madha														
AL-WUSTAH	Haima														
	Duqum				1					7					
	Mahoot					1	1			4					
	Al-Jazer	1				1				1					
NATIONAL TOTAL		3	0	0	49	70	27	0	124	361	1	4	0	0	1

Age Distribution of Communicable Diseases

Second Quarter (April to June 2003)

ICD Code	Diseases	Total	Age Groups in Years								
			< 1	1-4	5-9	10-14	15-19	20-24	25-34	35-45	45+
GROUP 'A' DISEASES											
A00	Cholera	0	-	-	-	-	-	-	-	-	-
A20	Plague	*Never Reported*									
A36	Diphtheria	*Last Case in 1992*									
A39	Meningococcal infection	4	3	1	-	-	-	-	-	-	-
A80	Poliomyelitis	*Last Case in 1993*									
	Acute Flaccid Paralysis	3	-	3	-	-	-	-	-	-	-
B05	Measles	0	-	-	-	-	-	-	-	-	-
B06	Rubella & [CRS]	0	-	-	-	-	-	-	-	-	-
A95	Yellow fever	*Never Reported*									
A82	Rabies	0	-	-	-	-	-	-	-	-	-
B20-24	HIV [AIDS]	10 [6]	-	-	-	-	-	2 [2]	1 [2]	7 [1]	0 [1]
A75.0	Louse borne typhus	*Never Reported*									
A68	Relapsing fever	*Last Case in 1997*									
A33	Tetanus Neonatorum	*Last Case in 1995*									
A99	Viral Haemorrhagic fever	0	-	-	-	-	-	-	-	-	-
	Severe Acute Respiratory Syndrome (SARS)	0	-	-	-	-	-	-	-	-	-
GROUP 'B' DISEASES											
A03.0	Typhoid fever	17	-	1	1	-	1	3	5	2	4
A01.4	Paratyphoid fever	2	-	-	-	-	-	-	1	1	-
A02	Food poisoning	256	4	38	45	51	46	19	27	17	9
A22	Anthrax	*Never Reported*									
A23	Brucellosis	55	1	5	13	16	7	1	2	3	7
A37	Pertussis	49	30	3	5	10	1	-	-	-	-
A35	Tetanus (Non NNT)	0	-	-	-	-	-	-	-	-	-
A90	Dengue	2 (i)	-	-	-	-	-	1 (i)	-	1 (i)	-
	Viral Hepatitis - Total	**361**	**-**	**72**	**187**	**58**	**9**	**15**	**12**	**5**	**3**
B15	Viral Hepatitis 'A' (ELISA)	53	-	14	27	9	-	2	1	-	-
B16	Viral Hepatitis 'B' (ELISA)	18	-	-	-	2	1	8	4	3	-
B17.1	Viral Hepatitis 'C' (ELISA)	2	-	-	1	-	-	-	1	-	-
B17.0	Viral Hepatitis 'D' (ELISA) among 'B'	0	-	-	-	-	-	-	-	-	-
B17.2	Viral Hepatitis 'E' (ELISA)	0	-	-	-	-	-	-	-	-	
B19/B17.8	Viral Hepatitis Unspecified	288	-	58	159	47	8	5	6	2	3
B55	Visceral Leishmaniasis	0	-	-		-	-	-	-	-	-
B55.1	Cutaneous Leishmaniasis	1	-		-	-	1	-	-	-	-
B65	Schistosomiasis	24	-	-	10	1	6	2	5	-	-
B74	Lymphatic Filariasis	1 (i)	-	-	-	-	-	-	1 (i)		-
B72	Dracunculiasis	*Certified by WHO as Eradicated from Oman*									
G00.0	Haemophilus influenzae meningitis type b	0	-	-	-	-	-	-	-	-	-
G00.1-9	Bacterial meningitis other than Nm & Hib	10	8	1	-	-	-	-	-	-	1
A87	Viral meningitis	2	1	-	1	-	-	-	-	-	-
G03	Meningitis - Unspecified	1	-	-	1	-	-	-	-	-	-
A30	Leprosy	1	-	-	-	-	-	-	-	-	1
A15	Tuberculosis: Sputum Positive	27	-	-	-	-	2	6	4	1	14
A16	Tuberculosis: Sputum Negative	11	-	-	1		1	3	1	1	4
A17-19	TB Extra-Pulmonary Tuberculosis	32	1	1	-	-	4	2	6	5	13

Note:

1. *The quarterly data are provisional & should be scrutinized & verified by the focal point of communicable diseases (Epidemiologist) in the regions. Previous quarter data would be finalized in the following quarter after receiving the feedback.*
2. *Tuberculosis, Leprosy & HIV [AIDS] data are for nationals only.*
3. *(i) = imported case.*
4. *Currently laboratory diagnostic procedures are in the process of being laid down and standardized to classify Viral hepatitis into different types. Hence cases not subjected to testing are being classified as 'unspecified viral hepatitis'.*
5. *Schistosomiasis cases are discovered during active surveillance (contact screening) and/or population survey in Salalah Wilayat, Dhofar.*

Animal Bite Surveillance by Regions

Second Quarter (April to June 2003)

Region	Estimated Population at Risk (2002)	Type of Animal					Total Animal Bites Notified	Rate per 10,000 population	Annualized Rates of Animal Bites in Previous Quarters			
		Fox or Wild	Dog	Cat	Other Domestic	Others (unknown)			2002			2003
									Q2	Q3	Q4	Q1
Muscat	709,776	-	12	22	2	1	**37**	2.1	3.9	4.1	3.5	2.0
Dhofar	237,523	-	2	4	2	-	**8**	1.3	1.4	1.0	1.0	1.5
North Batinah	443,967	2	24	23	8	-	**57**	**5.1**	0.6	0.9	1.7	4.1
South Batinah	255,383	-	14	26	5	-	**45**	**7.0**	**6.5**	**10.1**	**7.5**	**9.6**
Dakhliyah	285,312	1	3	26	-	-	**30**	**4.2**	**5.9**	4.1	**4.8**	3.4
Dhahira	226,627	-	3	13	-	-	**16**	2.8	3.8	2.5	3.5	2.1
North Sharqiyah	147,377	-	3	44	4	1	**52**	**14.1**	**14.1**	**15.5**	**15.4**	**10.3**
South Sharqiyah	174,558	1	7	2	3	-	**13**	3.0	2.1	1.4	2.7	**4.6**
Musandam	35,941	-	2	-	-	-	**2**	2.2	2.3	**5.7**	2.9	3.3
Al-Wustah	21,278	-	-	3	-	1	**4**	**7.5**	**7.6**	**7.6**	**8.6**	**15.0**
Total	**2,537,742**	**4**	**70**	**163**	**24**	**3**	**264**	**4.2**	**4.1**	**4.3**	**4.2**	**4.1**

Note: Rodent bites are excluded

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Your opinion matters to us:

Any suggestions to improve upon the contents & the design of this Newsletter will always be gratefully received.

Your contribution is valuable to us:

Please write to us concerning your ideas & experiences, both good & bad. sharing them with a wider audience could benefit others, leading to new ideas, techniques & policies & helping to avoid struggling with problems others have already solved.

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