



Sultanate of Oman

Ministry of Health



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National School Health Program

Background

All the strategies, activities, and services offered by, in, or in association with schools that are designed to promote students' physical, emotional and social development make up a school health program.

Every day around 580 thousand youngsters attend 1128 schools in Oman that comprises about 25% of the entire population of Oman (*Ministry of Education*). This represents a vulnerable and accessible age group in their formative years. Ideally school health program would include several, if not all, of the following:

- A healthy environment
- Nursing and other health services
- Health education
- Promotion of nutrition

They also face certain health problems related to vision, hearing, teeth, mental and social health that needs to be recognized early and timely acted upon.

Basic school health services came into existence in Oman in the year 1972 when the Ministry of Health (MoH) attempted to address the issue through its health institutions. The program was launched initially in Muscat region and later expanded to cover all schools

in the Sultanate.

The School Health Program in its present structure was initiated in the late 1990s and was thereafter included in the Five-Year Plans. More resources were provided especially the staff (doctors and nurses) to achieve coverage with one doctor every 5000 and one nurse every 2500 students.

From the 5th five-year plan (1995-2000) school health services were integrated into primary health care activities.

Policy

School health program is committed to provide highest quality standard of school health services. This is being achieved through addressing the needs of the students and supporting school health staff through recognition, training and continually improving the program.

Goal

To provide a comprehensive health care to all students equally. This should lead to reduction of morbidity and mortality and improvement in the quality of life.

Objectives

- To change beliefs, attitudes and practices of school children by providing them with adequate knowledge of good healthy habits which will in

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turn change their families and community.

- To provide a comprehensive health services that deal with the physical, mental and social health needs and problems of this population.
- To ensure a healthy school environment.

Strategies

1. To establish school health structure

National level: School health department is administratively under DGHA. The major task is to plan, supervise, and evaluate the school health activities with focus on capacity building of staff.

Regional level: School health section is administratively under the health affairs department in DGHS. School health section head is responsible for supervision, monitoring and evaluation of the program on regional level.

2. Coordination with Ministry of Education (MoE)

To achieve the objectives of the school health program the decision makers in both MoH & MoE meet regularly to discuss methods of implementation, progress and improvement of the program. School health joint committee is established at both national and the regional level.

The main tasks of the central committee are to plan, supervise, monitor, and support the school health services. It also shares responsibilities in improvement of the school curriculum.

3. Other strategies

Other strategies include capacity building of school health staff, establishment of health information system, establishment of audit system to evaluate the program, and conducting studies and research.

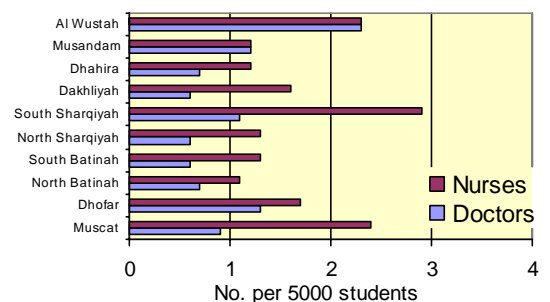
Resources

STAFF: School health program is being conducted through school health team

consisting of a doctor (general practitioner), a staff nurse, and a health inspector.

Fig.1

Distribution of School Health Staff by Regions



However, due to inequity of staff in the regions the integration process is implemented in two different forms. First, is **full integration** through which all school health activities are the responsibility of the Primary Health Care (PHC) team, with doctors and nurses acting as part-time school health workers. The second, is **partial integration** through which the curative services for students would be the responsibility of PHC team in PHC institutions, while other school based activities of the program are carried by the dedicated staff (doctors and nurses).

School Health teams visit schools on regular basis. About 92% of staff working in school health are from the PHC facilities. They work in schools for one or two days per week and in health institution for the rest as well as during school vacations. The school health department started assigning involvement of some teachers in the program as **health supervisor**. These to be *'focal points'* were trained in first aid, health education, and communication with parents.

Dentists, hygienists and DSA conducting the oral health services in schools.

CLINICS: Ideally every school should have a clinic where school health team can carry out their duties. In every new school build-

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"The school health department started assigning involvement of some teachers in the program as health supervisor. These to be 'focal points' were trained in first aid, health education, and communication with parents."

Department of Nutrition : *Activities Overview*

Background

The department of Nutrition was established in May 2000 under the Directorate General of Health Affairs by the Ministerial Decree No. 33/2000. The department includes various sections viz. **Dietetics, Community Nutrition, and Food Safety.**

Since its establishment, the department had strived to lay the foundation for the dietetics practices in the Ministry of Health institutions, through development of nutrition policies and manuals of standard operating procedures (SOP). The training of dieticians, diet technicians, and other Nutrition staff was also given due emphasis. Several nutrition surveys and studies were planned and are being conducted. Efforts were made to liaison with relevant Ministry of Health committees for updating the nutrition policies e.g. the guidelines for the management of severe PEM cases, complementary feeding policy etc. In the food safety area, the department was also actively involved towards the establishment of Hazard Analysis Critical Control Point (HACCP) system in the catering and food industry, as well as playing an active role in communication and food alerts, etc.

Dietetics

In order to establish the '*Dietetics section*' in the Ministry of Health institutions the job descriptions of the different categories of staff involved in the dietetics practices were laid down viz. *head of dietetics in a hospital, clinical dietitian, clinical diet technician, catering diet technician* as well as for the *community nutritionist*. These guidelines were distributed to the concerned staff and to the administrative personnel at the national as well as the regional level.

The Ministerial decree No. 13/1999 stated

that the dietetics section should be moved from the administrative affairs in which it is located, to the direct supervision of the Medical Officer in-charge (MOIC) of the hospital to further strengthen the technical role of the dietitians. In addition the procedures and protocol for the referral systems for dietitians to secondary and tertiary health care facilities were laid down on the basis of the successful pilot project conducted in the hospitals of Muscat Governorate. The dietetics section in hospitals is being integrated into the computer based HIMS (*health information management system*). This would further facilitate communication of the dieticians with the physicians and other health staff involved in patient care. The dietetics reporting forms have been standardized and were approved by the medical records committee.

In addition to the above mentioned activities technical training is also being given to the diet technicians that focuses on specialty areas such as management of nutrition therapy. In this course the diet technicians learn how to screen the high-risk patients after analyzing and deciphering the medical and laboratory data and develop a management plan for each patient on an individual basis. A series of workshops on nutritional management of Diabetes was held for the dietitians, physicians, as well as nurses to strengthening the team work approach for the management of diabetics. Also, a series of workshops were conducted to train nurses and diet technicians on the management of renal dialysis patients during the year 2002.

A manual of standard operations for the dietetics practices was developed at the department. It would be published in the latter part of the year 2002 after review by the experts.

In the area of quality control, the Department worked in close liaison with the Directorate General of Administrative Affairs and re-

"The department was also actively involved towards the establishment of Hazard Analysis Critical Control Point (HACCP) system in the catering & food industry, as well as playing an active role in communication & food alerts, etc."

viewed the catering contracts in the hospitals. The identified areas of concern were the hygienic practices in the hospital kitchens, patient's menus and nasogastric tube feeding. After studying nasogastric tube feeds of hospitalized patients, it was found that they were contaminated. As the practice was to prepare these from food items in the hospital kitchen, their nutritional content was found to be inadequate and they were prone to contamination. It was decided to utilize only pre-prepared mixture to overcome these drawbacks. These measures would contribute to improvement of their nutritional status and reduce the rate of infection in the patients thereby reducing the hospital stay. The department is actively following compliance to these recommendations through visits and meetings.

The training of the head of dietetics in a Masters course and training 20 diet technicians over the period of five years for a bachelor's degree is proposed.

Community Nutrition

The Department of Nutrition had been very active in the field of community nutrition, with activities that varied from research and surveys, to facilitating the revision of policies, and working with various sectors towards their implementation.

The department is participating in the 'Multi-center Growth Reference Study' (MGRS) coordinated by the WHO to develop an international growth reference curve for children from birth to five years of age. The MGRS study in Oman has now completed its fourth year and is scheduled to be concluded on February 2003. Details of the study had been highlighted in previous issues of this newsletter.

A national study was conducted to assess the prevalence of PEM in different regions in Oman in 1999. The results indicated that North Sharqiyah has the highest preva-

lence of PEM in all three indicators as 26.6%, 14.8% and 9.8% of the children were underweight, stunted, and wasted in the same order. Dakhliyah, South Batinah, and Musandam had underweight levels between 20-25. Whereas South Sharqiyah, North Batinah, Dhahira and Muscat have underweight levels below 20, these can be considered to have a moderate problem. The wasting levels being between 6.3% for South Sharqiyah and 8.9% for Dhahira. Dhofar does not have a significant problem.

The high prevalence of wasting called for an action to be taken, therefore the Integrated Management Approach to Malnutrition was started as an initiative to screen, identify malnourished case and manage these cases. A training manual and guidelines were developed in English and Arabic and a pilot phase was started in Dhahira, South and North Sharqiyah. The training of trainers workshop was conducted from 6th to 10th April 2002. This was attended by nutrition and 'Triple A' coordinators and a draft plan of action for training of health staff in primary health care services in all regions was finalized.

In the IMAM initiative, a group of villages within the catchment area of a primary health care institution was identified and all children below the age of 3 years in each village were measured by the community support groups. Malnourished children are referred to the Nutrition clinic in the health center, where they undergo nutritional and medical assessment coupled with a counseling program, until they improve for three consecutive months or grow above the age of three years.

In concordance with the IMAM initiative, a PEM registers and reporting format is being proposed, which will be discussed and finalized during the latter half of the year 2002. Also, the guidelines for management of severe PEM cases had been revised, discussed with various pediatricians and

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incorporated in the dietetics manual of operations.

A review of the procedures of measuring children in all primary health care services was conducted, and this resulted in a series of recommendations, which were to supply primary health care center, children clinics, and children wards with standard measuring equipments and calibration materials as well as training the nursing staff on accurate procedures for measuring children. Supplies were negotiated with the Directorate General of Engineering, and it was agreed to gradually fulfill the requirements of all health care facilities over the period of five years.

To support the program for PEM control, the complementary feeding policy went through an extensive review which resulted in a 10 step policy that is coherent with the latest developments in the nutrition field and WHO recommendations.

The new complementary feeding policy was adopted early this year, and a detailed guideline manual to supplement it is in preparation. The policy puts more focus on frequency of feeding at different age groups, the food quality and nutritional content, including proteins, energy and micronutrients contents. It also addresses active feeding and adaptation to the child's motor development.

As a member of the BFHI committee, the department worked with the committee towards development of education materials for mothers on breastfeeding and complementary feeding.

Since the establishment of the salt iodination law in 1996, the department of nutrition had been active in monitoring the levels of salt iodization household coverage. Analysis of the results of the household survey in 1996 showed that only 35% households were consuming iodized salt. By October 1997, 65% of the households were consuming iodized salt while in 1998

the percentage decreased to 61%

A monitoring study was conducted in 2000-01 at the household level to assess the salt iodization program and inspections were also carried out to examine industry compliance with the legal requirements. A situation analysis was carried out to assess the factors beyond that, and it was found that mislabeling, and repackaging of industrial salt play a major role in reducing the coverage of salt iodization in the household. Analysis showed that the consumption of iodized salt at the household level more or less remained static at 68.5%.

To provide adequate service to the patient's, community nutritionists had been appointed in several health institutions all over the country. Their task is to provide counseling to needy patients viz. patients with chronic disease, weight loss and malnourishment as well as pregnant and lactating mothers and mothers of malnourished infants.

Food Safety

The department of Nutrition had been actively participating in the activities of the National Food Safety Committee. Mainly providing technical advisory role in responding to food alerts and providing information whenever needed.

It also worked with the Department of Surveillance & Disease Control towards improving the foodborne disease surveillance system. A pilot project is currently being carried out in South Sharqiyah.

A national food law has been proposed, and a multisectoral committee is now actively working towards finalizing the first draft. Technical assistance of the World Health Organization had been sought, and the department is mediating this activity.

A National workshop on the implementation of **Hazard Analysis Critical Control Point** (HACCP) in the food catering sector and in the food industry was conducted in

“A national food law has been proposed, & a multisectoral committee is now actively working towards finalizing the first draft.”

Schistosomiasis Elimination Initiative in Dhofar

Background

The first locally contracted case of Schistosomiasis in Oman was reported in 1979 from the Governorate of Dhofar. The intermediate snail host *Biomphalaria arabica* for *Schistosoma mansoni* was reported from Dhofar Region as early as in 1896 (Wright & Brown). In the 1982 survey five fresh water reservoirs were found harbouring *B. arabica* snails in the region.

Various observations and studies in the past have revealed a focus of indigenous transmission of Schistosomiasis in Dhofar region. It was postulated that the infection was probably introduced by expatriate farm workers from endemic countries or by the immigrated East African-born Omani population. In 1982 a parasitological survey was carried out amongst people working in the Razat farm which showed 30% prevalence of *S. mansoni*. Indigenous cases of *S. haematobium* were never observed in Oman.

Most of the cases of Schistosomiasis in Oman were reported through the routine system of passive surveillance from 1992 to 2001. Most of these were classified as imported. These cases were detected in the capital area during the pre-employment screening programme for the expatriates.

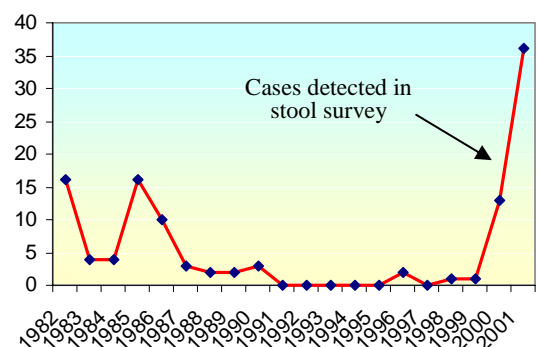
Interventional measures were undertaken

by the Department of Health Affairs (DGHS, Dhofar) in the past, such as treatment of diagnosed cases with *Praziquintel*, control of vector (mollusciciding), putting-up warning boards near the infected water reservoir, community education etc. and it was then believed that the local transmission was interrupted.

Fig. 1 shows the cases detected in Governorate of Dhofar from 1982 to 2001 including cases identified in stool surveys and contacts. During the period from 1991 to 1995 no indigenous cases of *S. mansoni* were observed in Dhofar. In 1996 two and in 1998 one case was reported but the surveillance of contacts did not reveal additional cases. In September 1999 one case was detected at Sultan Qaboos University Hospi-

“The absence of the disease during the period 1991 to 1995 could be attributed to the low level transmission that was not detected by conventional methods of diagnosis.

Fig. 1
Parasitologically diagnosed cases of
S. mansoni in Dhofar
1982-2001



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May 2002. The objective of this workshop was to train a selected group on principles of HACCP, and develop an outline of its implementation in Oman. Another objective was to assess the training needs in the country.

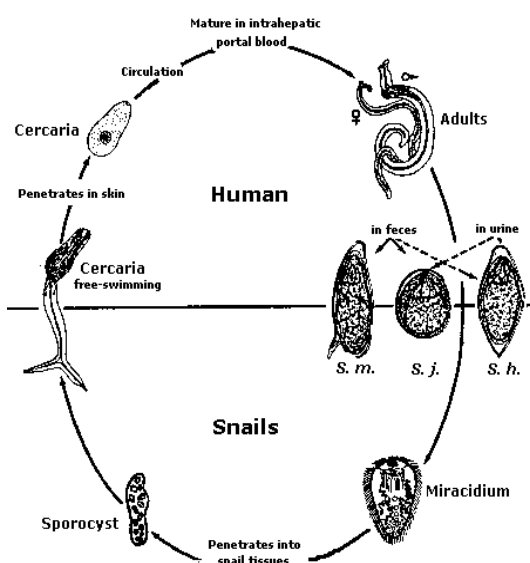
The department is also a member in the steering committee for the “Food Safety Conference” to be held in March 2003.

This conference is being hosted by the Ministry of Regional Municipalities, Environment, and Water Resources with the aim of exchanging information and finding solutions to the food safety issues in Oman as well as the Gulf region.



tal. Screening of the family contacts by stool examination revealed 8 cases of *S. mansoni*.

Fig.2
Life Cycle of Schistosoma



In the year 2000 and 2001, 6 and 36 cases respectively were detected by stool survey in Dhofar. Additional 139 cases were serologically diagnosed in 2001.

In intestinal Schistosomiasis there are usually a large number of sub-clinical cases and the clinical presentation is not very significant. Similarly a single casual examination of stool may not reveal the presence of infection. The absence of the disease during the period 1991 to 1995 hence, could be attributed to the low level transmission that was not detected by conventional methods of diagnosis.

The sudden rise in the actively detected cases in the last two years was apparently due to the **establishment of a recent transmission cycle** in *Ain Sahnut* area. Most of the detected cases gave positive history of visiting the water reservoir in the area. In addition the introduction of a more sensitive serological test for diagnosis has

helped in detection of missed and sub-clinical cases.

Current situation

In March 2000 a parasitological survey was carried out by the local health authority in 9 schools in Wilayat Salalah. Among the 512 samples examined, six were positive for *S. mansoni*. During the period October 2001 to March 2002 a research study (*Idris et al*) related to the different aspects of the disease was carried out in Dhofar. Some of the significant findings were:

- The parasitological study (800 stool samples) identified 36 new cases of *S. mansoni* among the school children from the rural areas of Salalah Wilayat.
- The serological surveys in schools (511 blood samples) as a part of the same research study revealed 139 sero-positive cases.
- The parasitological survey in the 9 schools revealed high prevalence in *Sheer* and *Zeek* schools. Presuming the school population is usually derived from defined catchment area it is assumed that the survey identified **two foci of high prevalence**.
- *Schistosoma mansoni* was the prevalent species in Dhofar
- The serological positive cases in schools ranged from 3% to 47%
- The serological tests were compatible with the hypothesis of recent infections
- A large number of sera from egg-negative children gave serologically positive results
- **Three potential transmission sites were identified viz. Razat farm, Tibraq & Siginitte**
- Rodents in Dhofar were found to be naturally infected with *S. mansoni*

“In intestinal Schistosomiasis there are usually a large number of sub-clinical cases & the clinical presentation is not very significant.”

- The *cercariae* obtained from snails were identified as being of *S. mansoni*
- As interpreted by the research workers the epidemiological situation of Schistosomiasis in Dhofar is at present largely 'UNKNOWN'. Available information suggests focal distribution of the disease but all vulnerable areas in the Governorate have yet NOT been identified.

Schistosomiasis elimination initiative

The ultimate goal is of elimination of indigenous transmission of *Schistosoma mansoni* in Dhofar Governorate and thus from Oman. This necessitates formulating a systematic and integrated plan of action for Schistosomiasis elimination. A process of constant monitoring of the situation in terms of occurrence of new cases as well as status of vector control should be integrated into the plan. Capacity building among the local health professionals would be the key component of this initiative.

Objectives

- To strengthen & sustain the control of indigenous transmission of *S. mansoni* through **active case finding** & **effective treatment** of all infected individuals.
- To **interrupt the indigenous transmission of Schistosomiasis** in Dhofar and thus in Oman by 2005

Strengthening Surveillance

Clinical cases indirectly reflect the transmission status and dynamics of Schistosomiasis in endemic areas. However, due to the longevity of the adult worms and the irreversible nature of late-stage sequelae, the relationship between transmission of Schistosomiasis and its clinical presentation is not always straight forward.

Case definitions may therefore have to be reviewed and adapted to the local setting. The adequate detection of (especially

early) clinical cases is important in view of surveillance. Various clinical presentations have been observed viz. Cercarial dermatitis, acute, early chronic and chronic Schistosomiasis.

Late stage sequelae viz. portal hypertension, splenomegaly and hypersplenism, ascites, upper GI bleeding from oesophageal and gastric varices and pulmonary hypertension. The relationship between Schistosomiasis, chronic hepatitis, colon and liver malignancies is still not clear.

Late stage sequelae due to Schistosomiasis may persist for a long time after the elimination of transmission and hence are not useful indicators of persisting transmission. On the other hand the signs and symptoms of early disease are highly relevant.

In areas where transmission has been interrupted clinical surveillance and preparedness has to continue especially in areas where the transmission potential remains high. It is therefore crucial to continue to detect **acute infections** and **early chronic morbidity**, and to determine whether they are **imported** cases or cases caused by a **resurgence** of transmission.

Misdiagnosis in a situation of low or interrupted transmission is of particular concern to public health authorities as it may lead to **inappropriate treatment**.

Confirmation of Diagnosis

Parasitologically diagnosed cases (by any method) needs at least one stool positive sample and to label as negative it needs at least 3 negative results.

Serologically diagnosed cases provided that it was not reported earlier otherwise a quantitative antibody assays should be done to confirm the diagnosis.

Histopathologically diagnosed cases e.g. by rectal biopsy.

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INTERVENTION STRATEGIES

1. Orientation & Training: Various symposia and workshop would be conducted for health care professionals. Following points would be emphasised:

- *Case definition*
- *History taking to reveal probable source of infection*
- *Symptomatology & early diagnosis*
- *Interpretation of laboratory tests*
- *Treatment regime & response*

2. The Registry: The index system for all cases would be maintained at the DHA Dhofar Governorate as well as at the national level (DSDC).

3. Training of the laboratory technicians: All technicians in MoH institutions as well as the private sectors would be trained in the standard diagnostic procedures. Effective training and quality control is an important component of laboratory surveillance.

4. Treatment: Standard treatment chemotherapy with single dose of Praziquantel (*Biltricide*) would be followed in the clinical setup as well as for the cases detected in surveys. Praziquantel is a safe drug with efficacy above 60 to 90%. It is used as a single dose (40 mg/Kg body weight). In identified **high prevalence** areas of Dhofar viz. *Zeek* and *Sheers* (30% & 47%) mass treatment without screening would be considered as one of the intervention strategy.

5. Monitoring of transmission: Serological surveillance would be used for monitoring ongoing transmission in the areas under control/elimination. Incidence of new cases amongst the target group of school children aged 6–18 years would be utilized for monitoring purpose. .

6. Surveillance of intermediate snail host
The record of water bodies harbouring

the vector snail *Biomphalaria arabica* would be maintained. Such maps would correlate with the cases in the local population. Selective mollusciciding would be done based on the transmission potential.

7. Environmental control: The objective is to promote favourable changes in the environment so that the snails are not infected. This can be achieved by provision of latrines & domestic water supply in the transmission sites to reduce the human contact with infected water. Also there is a need for environmental modification by construction of the banks for the *falaj* in some areas viz. *Tibraq* and *Sahnut* to control the breeding of Snails.

8. Mollusciciding operations: In low transmission area such as Dhofar mollusciciding is considered to be cost-effective in interrupting the transmission of *S. mansoni*. *Baylucide* (*Niclosomade*) was being used for this purpose since 1982. The application methods to be used would differ by type of water reservoir.

9. Health Education: Health education materials would be developed locally. The emphasis of health education would be directed to:

- School students through school health staff
- Community through Health institutions, Wali Office, prayer meetings in mosque and Omani Women association
- Individuals in Health institutions

10. Intersectoral collaboration & Community participation: Intersectoral cooperation and community participation are the crucial components of Schistosomiasis control as it involves changes in human behaviour as well as the environment. Such complex prob-

“Intersectoral collaboration & community participation are the crucial components of Schistosomiasis control as it involves changes in human behaviour as well as the environment.”

(Continued from page 2)

ing a furnished room is provided by MoE. 75% of schools in Oman have a clinic.

Each region has mobile dental clinics for oral health program.

EQUIPMENT: Basic diagnostic equipment is provided to the school health teams viz. thermometer, BP apparatus, stethoscope, weighing scale, measurement tape, and eye chart. The teams are utilizing portable audiometer on rotation for ear check-up .

MEDICINE: Drugs for minor illnesses and first aid are available in the clinic. Students are referred for further management.

PROGRAM ACTIVITIES:

1. Health Education:

- Health education is the most important activity in schools. It targets every student in all age groups. It is conducted by school health staff in the form of lectures and discussion with emphasis on mental health, nutrition, diabetes, and AIDS .
- **“Facts for life”** book in Arabic is distributed to students in second secondary grade. An essay competition among students is being held annually since last 6 years. The best 39 essays would be selected and the winners are awarded in a ceremony. English version of this book is

“Immunization is one of the most important activities in the schools that aims at protecting students from common childhood communicable diseases.”

(Continued from page 9)

lem necessitates the cooperation of all concerned individuals, sectors, organizations as well as of the community.

The identified main areas of cooperation & coordination with other sectors include:

- Re-designing of the irrigation scheme at *Sahanut* farm.
- Provision of Public water supply and latrines in the tourism areas to prevent visitors contracting the disease by com-

distributed in private & expatriate schools.

2. Comprehensive Health Care:

The health care package includes...

- Medical examination of all students in first primary & basic education before entering the school.
- Review health status with parents of students at first primary & basic education before entering school.
- Medical examination of all students in first intermediate & first secondary schools.
- Vision test for all students in first & fourth grades in primary & basic education, first intermediate & first secondary schools.
- Trachoma screening for students in first primary & basic education followed by community screening of affected students.
- Hearing test for first primary & basic education.
- Management of minor illness, first aid for minor injuries. Refer and follow-up of students requiring special care.

3. Immunization:

- It is one of the most important activities in the schools that aims at protecting students from common communicable diseases. The full immunization is ensured through checking the child health

ing in contact with water.

- Building cemented basins for swimming in popular places.
- Cautionary notice boards at the known transmission sites e.g. *Sahanut* & *Tubrak*.
- Cooperation of Ministry of Education in implementing school surveys & mass treatment.
- Mass media for health education.



card.

- Hepatitis B catch-up campaign was started from the academic year 2001/02.

School Immunization Schedule

| Grade | Vaccine |
|------------------------------|---|
| 1 st Primary | OPV Booster DT Booster if fully immunized DT two doses if not fully immunized |
| 6 th Primary | Td Booster if fully immunized Td two doses if not fully immunized |
| 2 nd Secondary | OPV Booster TT Booster if fully immunized TT two doses if not fully immunized |

4. Oral health activities:

- This program is targeted to students in grade one, two and four primary & basic education and consists of:
- Fissure sealant & filling of the first permanent molar in students of grade 1. .
- Screening of students in grade 2 and re-seal of affected sealed molar.
- Tooth brushing program: It targets grade 1 basic education & aims to create proper tooth-brushing habits in this group.
- Health education program for grade 4 primary students aims to increase awareness on prevention of dental diseases & benefits of fluoride .

5. School Environment:

School children live a significant part of their time as a human aggregate within a limited compact environment of the school. Any deterioration in that environment may be associated with the occurrence of disease outbreaks and associated high morbidity. These measures include the following:

- To ensure that the school is built away from sources of environmental pollution.
- To ensure that all school facilities are properly lit & ventilated.

- To ensure that the school has an adequate & safe water supply and appropriate refuse & sewage disposal facilities.
- To ensure that food supply, storage, preparation, and sale is of acceptable recommended standard of hygiene.
- To ensure that the school is free from insects & rodents through proper control measures.

6. Studies & research:

The main objective is to identify major health problems among this age group which may help in improving the quality of health of students. The major research done in last few years are:

- KAP study on hygiene, nutrition & smoking among students.
- Prevalence of allergy & bronchial asthma among students. (three phases).
- KAP on AIDS
- Adolescent Health

School health service Indicators for academic year (2000/2001) :

1. Doctor/student Ratio: 1/6000 (assuming 4 part-time doctors, equivalent to 1 full-time).
2. Nurse/students Ratio: 1/3000
3. % of healthy school canteens: 100
4. % of schools with approved water source: 99
5. % of schools infested with rodents: < 1
6. % of school immunization coverage: 100
7. % of underweight in 1st primary: 10
8. % of with intestinal parasites in first grade
9. % of with anemia in first secondary level

CONSTRAINTS

1. Shortage of school health staff.
2. Shortage in Arabic speaking female doctors.
3. Part-time Doctor's personal commitment is usually to his work in health care institution rather than in the schools.
4. High turnover of PHC staff affecting quality.
5. Shortage of mobile dental clinics.

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Communicable Diseases Quarterly Report

Second Quarter (April to June 2002)

| ICD Code | Diseases | 2002 | | | | 2001 | | | 2002 |
|---------------------------|--|---|------------|------------|------------|------------|------------|------------|------------|
| | | Second Quarter | | | | Q2 | Q3 | Q4 | Q1 |
| | | Apr | May | Jun | Total | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar |
| GROUP 'A' DISEASES | | | | | | | | | |
| A00 | Cholera | - | - | - | 0 | - | 5+2(i) | 1 | - |
| A20 | Plague | <i>Never Reported</i> | | | | | | | |
| A36 | Diphtheria | <i>Last Case in 1992</i> | | | | | | | |
| A39 | Meningococcal infection | 1 | - | 1 | 2 | 4 | 1 | 1 | 4 |
| A80 | Poliomyelitis | <i>Last Case in 1993</i> | | | | | | | |
| | Acute Flaccid Paralysis | 2 | 1 | 2 | 5 | 3+1(i) | 3 | 3 | 1 |
| B05 | Measles | - | - | - | 0 | 1(i) | 2 | 11 | 4 |
| B06 | Rubella & [CRS] | 1 | - | - | 1 | - | 1 | - | 2 |
| A95 | Yellow fever | <i>Never Reported</i> | | | | | | | |
| A82 | Rabies | - | - | - | 0 | - | - | - | - |
| A75.0 | Louse-borne typhus | <i>Never Reported</i> | | | | | | | |
| A68 | Relapsing fever | <i>Last Case in 1997</i> | | | | | | | |
| A33 | Tetanus Neonatorum (NNT) | <i>Last Case in 1995</i> | | | | | | | |
| A99 | Viral Hemorrhagic fever | - | - | - | 0 | - | - | - | - |
| GROUP 'B' DISEASES | | | | | | | | | |
| A03.0 | Typhoid fever | 9 | 4 | 3 | 16 | 19 | 32 | 23 | 19 |
| A01.4 | Paratyphoid fever | 1 | 2 | 4 | 7 | 2 | 4 | 8 | 4 |
| A02 | Food poisoning | 70 | 73 | 120 | 263 | 299 | 435 | 272 | 181 |
| A22 | Anthrax | <i>Never Reported</i> | | | | | | | |
| A23 | Brucellosis | 13 | 13 | 7 | 33 | 37 | 41 | 39 | 45 |
| A37 | Pertussis | 14 | 16 | 13 | 43 | 20 | 11 | 7 | 21 |
| A35 | Tetanus (Excluding NNT) | 1 | - | - | 1 | 1 | 1 | 1 | 1 |
| A90 | Dengue | - | - | - | 0 | - | 1(i) | - | - |
| | Viral Hepatitis - Total | 289 | 334 | 250 | 873 | 478 | 370 | 285 | 531 |
| B15 | Viral Hepatitis 'A' (ELISA) | 78 | 92 | 64 | 234 | | | | 84 |
| B16 | Viral Hepatitis 'B' (ELISA) | 7 | 6 | 5 | 18 | 14 | 8 | 14 | 8 |
| B17.1 | Viral Hepatitis 'C' (ELISA) | 2 | 1 | 3 | 6 | | | | - |
| B17.0 | Viral Hepatitis 'D' (ELISA) among 'B' | - | - | - | 0 | | | | - |
| B17.2 | Viral Hepatitis 'E' (ELISA) | - | - | - | 0 | | | | 1 |
| B19/B17.8 | Viral Hepatitis Unspecified | 202 | 235 | 178 | 615 | 461 | 354 | 270 | 438 |
| B55 | Leishmaniasis | - | 1 | 1 | 2 | 2 | 1 | 2 | 7 |
| B65 | Schistosomiasis | - | - | - | 0 | - | - | 2(i) | - |
| B74 | Filariasis | - | - | - | 0 | - | 3 (i) | - | - |
| B72 | Dracunculiasis | <i>Certified by WHO as Eradicated from Oman</i> | | | | | | | |
| G00.0 | Haemophilus Meningitis type b | 5 | 1 | 4 | 10 | 5 | 7 | 8 | 9 |
| G00.1-9 | Bacterial meningitis other than Nm & Hib | 6 | 9 | 8 | 23 | | | | 27 |
| A87 | Viral meningitis | 3 | 3 | - | 6 | | | | 4 |
| G03 | Meningitis - Unspecified | 3 | 4 | - | 7 | 26 | 20 | 32 | - |
| A30 | Leprosy | - | - | - | 0 | - | 2 | 1 | 5 |
| A15-A19 | Pulm. Tuberculosis Sputum Positive | 9 | 12 | 18 | 39 | 25 | 22 | 26 | 33 |
| | Pulm. Tuberculosis Sputum Negative | 3 | 1 | 2 | 6 | 10 | 7 | 8 | 9 |
| | Extra Pulmonary Tuberculosis | 7 | 9 | 7 | 23 | 29 | 21 | 19 | 20 |
| B50-B54 | Malaria (All sources) | 53 | 65 | 61 | 179 | 122 | 252 | 161 | 85 |
| A50-A53 | Syphilis | 13 | 12 | 8 | 33 | 49 | 36 | 40 | 33 |
| A54 | Gonococcal Infections | 22 | 14 | 11 | 47 | 70 | 48 | 43 | 74 |
| GROUP 'C' DISEASES | | | | | | | | | |
| A03 | Shigellosis | 127 | 51 | 64 | 242 | 290 | 360 | 373 | 296 |
| A06 | Amoebiasis | 562 | 324 | 371 | 1,257 | 1,152 | 992 | 1,427 | 1,385 |
| A09 | Acute Gastro-Enteritis & Diarrhoea | 8,803 | 5,792 | 6,072 | 20,667 | 22,219 | 23,434 | 29,726 | 31,391 |
| B01 | Chicken Pox | 1,493 | 2,229 | 1,088 | 4,810 | 4,557 | 3,104 | 3,170 | 3,895 |
| B26 | Mumps | 290 | 362 | 281 | 933 | 1,371 | 620 | 694 | 578 |
| A71 | Trachoma | 43 | 87 | 23 | 153 | 171 | 130 | 133 | 115 |
| J10-J11 | Influenza | 87 | 99 | 30 | 216 | 789 | 692 | 1,363 | 777 |

Communicable Diseases Quarterly Report by Regions

Second Quarter (April to June 2002)

| ICD Code | Diseases | Total | Muscat | Dhofar | Dakhliyah | North Sharqiyah | South Sharqiyah | North Batinah | South Batinah | Dhahira | Musandam | Al-Wustah |
|---------------------------|---------------------------------------|---|--------|--------|-----------|-----------------|-----------------|---------------|---------------|---------|----------|-----------|
| GROUP 'A' DISEASES | | | | | | | | | | | | |
| A00 | Cholera | 0 | - | - | - | - | - | - | - | - | - | - |
| A20 | Plague | <i>Never Reported</i> | | | | | | | | | | |
| A36 | Diphtheria | <i>Last Case in 1992</i> | | | | | | | | | | |
| A39 | Meningococcal infection | 2 | - | - | - | - | - | 1 | 1 | - | - | - |
| A80 | Poliomyelitis | <i>Last Case in 1993</i> | | | | | | | | | | |
| | Acute Flaccid Paralysis | 5 | 1 | - | - | - | - | 2 | 2 | - | - | - |
| B05 | Measles | 0 | - | - | - | - | - | - | - | - | - | - |
| B06 | Rubella & [CRS] | 1 | 1 | - | - | - | - | - | - | - | - | - |
| A95 | Yellow fever | <i>Never Reported</i> | | | | | | | | | | |
| A82 | Rabies | 0 | - | - | - | - | - | - | - | - | - | - |
| A75.0 | Louse borne typhus | <i>Never Reported</i> | | | | | | | | | | |
| —A68 | Relapsing fever | <i>Last Case in 1997</i> | | | | | | | | | | |
| A33 | Tetanus Neonatorum (NNT) | <i>Last Case in 1995</i> | | | | | | | | | | |
| A99 | Viral Haemorrhagic fever | 0 | | | | | | | | | | |
| GROUP 'B' DISEASES | | | | | | | | | | | | |
| A03.0 | Typhoid fever | 16 | 5 | 1 | 3 | - | - | 4 | - | 3 | - | - |
| A01.4 | Paratyphoid fever | 7 | 2 | - | 1 | - | - | 2 | - | 1 | 1 | - |
| A02 | Food poisoning | 263 | 22 | 38 | 26 | 13 | 14 | 79 | 23 | 47 | - | 1 |
| A22 | Anthrax | <i>Never Reported</i> | | | | | | | | | | |
| A23 | Brucellosis | 33 | - | 31 | 1 | 1 | - | - | - | - | - | - |
| A37 | Pertussis | 43 | 4 | - | 1 | 1 | 1 | 31 | 2 | 3 | - | - |
| A35 | Tetanus (Non NNT) | 1 | 1 | - | - | - | - | - | - | - | - | - |
| A90 | Dengue | 0 | - | - | - | - | - | - | - | - | - | - |
| | Viral Hepatitis - Total | 873 | 58 | 20 | 200 | 170 | 65 | 133 | 186 | 10 | 7 | 24 |
| B15 | Viral Hepatitis 'A' (ELISA) | 234 | 11 | - | 186 | 1 | 2 | 13 | 2 | - | 1 | 18 |
| B16 | Viral Hepatitis 'B' (ELISA) | 18 | - | 2 | 6 | 1 | 3 | 4 | 2 | - | - | - |
| B17.1 | Viral Hepatitis 'C' (ELISA) | 6 | 3 | - | - | - | - | 3 | - | - | - | - |
| B17.0 | Viral Hepatitis 'D' (ELISA) among 'B' | 0 | - | - | - | - | - | - | - | - | - | - |
| B17.2 | Viral Hepatitis 'E' (ELISA) | 0 | - | - | - | - | - | - | - | - | - | - |
| B19/ | Viral Hepatitis Unspecified | 615 | 44 | 18 | 8 | 168 | 60 | 113 | 182 | 10 | 6 | 6 |
| B55 | Leishmaniasis | 2 | - | 1 | - | 1 | - | - | - | - | - | - |
| B65 | Schistosomiasis | 0 | - | - | - | - | - | - | - | - | - | - |
| B74 | Filariasis | 0 | - | - | - | - | - | - | - | - | - | - |
| B72 | Dracunculiasis | <i>Certified by WHO as Eradicated from Oman</i> | | | | | | | | | | |
| G00.0 | Haemophilus Meningitis | 10 | 1 | 2 | 1 | 1 | 1 | - | 2 | 2 | - | - |
| G00.1- | Bacterial meningitis other than Nm & | 23 | 3 | - | 3 | - | 4 | 6 | 4 | 2 | 1 | - |
| A87 | Viral meningitis | 6 | 1 | 1 | - | 1 | - | 1 | - | 2 | - | - |
| G03 | Meningitis - Unspecified | 7 | 1 | - | 1 | 1 | 1 | 2 | - | - | 1 | - |
| A30 | Leprosy | 0 | - | - | - | - | - | - | - | - | - | - |
| A15- | Pulm. Tuberculosis Sputum Positive | 39 | 15 | 2 | 2 | 3 | 6 | 9 | 1 | - | - | 1 |
| | Pulm. Tuberculosis Sputum Negative | 6 | 1 | 1 | - | 1 | 1 | 1 | - | 1 | - | - |
| | Extra Pulmonary Tuberculosis | 23 | 5 | 4 | 2 | - | 1 | 7 | 1 | 3 | - | - |
| B50- | Malaria (All sources) | 179 | 100 | 18 | 11 | 2 | 5 | 10 | 14 | 14 | 2 | 3 |
| A50- | Syphilis | 33 | - | 1 | 2 | - | 6 | 20 | 1 | 2 | - | 1 |
| A54 | Gonococcal Infections | 47 | 7 | - | 1 | - | 14 | 6 | 5 | 3 | 9 | 2 |
| GROUP 'C' DISEASES | | | | | | | | | | | | |
| A03 | Shigellosis | 242 | 63 | 4 | 30 | 26 | 25 | 7 | 17 | 16 | 38 | 16 |
| A06 | Amoebiasis | 1,257 | 146 | 16 | 199 | 178 | 219 | 113 | 105 | 95 | 31 | 155 |
| A09 | Acute Gastro-Enteritis & Diarrhoea | 20,667 | 3,763 | 1,915 | 2,233 | 1,815 | 2,391 | 3,741 | 2,693 | 1,453 | 472 | 191 |
| B01 | Chicken Pox | 4,810 | 793 | 326 | 1,316 | 94 | 153 | 844 | 686 | 437 | 161 | - |
| B26 | Mumps | 933 | 244 | 36 | 261 | 64 | 20 | 105 | 126 | 65 | 7 | 5 |
| A71 | Trachoma | 153 | 22 | 2 | 94 | 7 | - | - | 18 | 10 | - | - |
| J10-J11 | Influenza | 216 | 87 | 17 | 12 | 13 | - | 1 | - | 54 | 32 | - |

Selected Communicable Diseases by Wilayat

Second Quarter (April to June 2002)

| Region | Wilayat | Acute Flaccid Paralysis | Measles | Rubella | Pertussis | TB (Total) | TB Sputum Positive | Tetanus (Ex. NNT) | Malaria (All) | Viral Hepatitis (Total) | Leprosy | Meningo. Infection | Leishmaniasis |
|------------------------|--------------------|-------------------------|----------|----------|-----------|------------|--------------------|-------------------|---------------|-------------------------|----------|--------------------|---------------|
| MUSCAT | Muscat | | | | | 1 | 1 | | | 22 | | | |
| | Seeb | | | 1 | 1 | 2 | 1 | 1 | 32 | 17 | | | |
| | Multrah | | | | 1 | 8 | 6 | | 24 | 3 | | | |
| | Bowsher | 1 | | | 2 | 4 | 4 | | 29 | 11 | | | |
| | Al Amerat | | | | | 3 | 2 | | 15 | 5 | | | |
| | Quriyat | | | | | 3 | 1 | | | | | | |
| DHOFAR | Salalah | | | | | 7 | 2 | | 18 | 14 | | | 1 |
| | Thumrait | | | | | | | | | 1 | | | |
| | Taqah | | | | | | | | | 3 | | | |
| | Mirbat | | | | | | | | | | | | |
| | Sudah | | | | | | | | | 2 | | | |
| | Rakhyut | | | | | | | | | | | | |
| | Dhalqut | | | | | | | | | | | | |
| | Muqshan | | | | | | | | | | | | |
| | Shaleem | | | | | | | | | | | | |
| NORTH BATINAH | Sohar | | | | 21 | 5 | 1 | | 6 | 4 | | 1 | |
| | Shinas | | | | 1 | 1 | | | 1 | | | | |
| | Liwa | | | | 8 | 1 | 1 | | | 3 | | | |
| | Saham | | | | 1 | 3 | 1 | | | 26 | | | |
| | Khabura | 1 | | | | 1 | 1 | | | 35 | | | |
| | Suwaiq | 1 | | | | 6 | 5 | | 3 | 64 | | | |
| SOUTH BATINAH | Rustaq | | | | | | | | | 82 | | | |
| | Nakhl | | | | 1 | 1 | | | | 3 | | | |
| | Wadi Maawil | 1 | | | | | | | | 1 | | | |
| | Al Awabi | | | | | | | | | 7 | | | |
| | Musanah | | | | 1 | | | | 2 | 34 | | | |
| | Barka | 1 | | | | 1 | 1 | | 8 | 60 | | 1 | |
| DAKHLIYAH | Nizwa | | | | 1 | | | | 3 | 24 | | | |
| | Bahla | | | | | 3 | 2 | | 4 | 82 | | | |
| | Adam | | | | | | | | 1 | | | | |
| | Hamra | | | | | | | | | 38 | | | |
| | Manah | | | | | | | | | 6 | | | |
| | Sumail | | | | | 1 | | | 1 | 24 | | | |
| | Izki | | | | | | | | 1 | 24 | | | |
| | Bid Bid | | | | | | | | 1 | 2 | | | |
| DHAHIRA | Ibri | | | | 2 | | | | 1 | 5 | | | |
| | Yanqul | | | | | | | | | | | | |
| | Dhank | | | | 1 | 1 | | | | 3 | | | |
| | Buraimi | | | | | 3 | | | 7 | 2 | | | |
| | Mahda | | | | | | | | 6 | | | | |
| NORTH SHARQIYAH | Ibra | | | | | 1 | 1 | | 1 | 26 | | | |
| | Mudhaibi | | | | | 2 | 2 | | 1 | 86 | | | 1 |
| | Bidiyah | | | | | 1 | | | | 24 | | | |
| | Al-Qabel | | | | | | | | | 16 | | | |
| | Dima Al-Tayeen | | | | | | | | | 17 | | | |
| | Wadi Bani Khalid | | | | 1 | | | | | 1 | | | |
| SOUTH SHARQIYAH | Sur | | | | | 3 | 3 | | 4 | 14 | | | |
| | Masirah | | | | | 2 | 1 | | | 4 | | | |
| | Al Kamil & Al Wafi | | | | | | | | | 14 | | | |
| | BBB Ali | | | | 1 | 3 | 2 | | 1 | 14 | | | |
| | BBB Hassan | | | | | | | | | 19 | | | |
| MUSANDUM | Khasab | | | | | | | | 1 | 7 | | | |
| | Dibba | | | | | | | | 1 | | | | |
| | Bukha | | | | | | | | | | | | |
| | Madha | | | | | | | | | | | | |
| AL-WUSTAH | Haima | | | | | | | | 1 | | | | |
| | Duqum | | | | | | | | 1 | 2 | | | |
| | Mahoot | | | | | | | | | 22 | | | |
| | Al-Jazer | | | | | 1 | 1 | | 1 | | | | |
| NATIONAL TOTAL | | 5 | 0 | 1 | 43 | 68 | 39 | 1 | 179 | 873 | 0 | 2 | 2 |

Age Distribution of Communicable Diseases

Second Quarter (April to June 2002)

| ICD Code | Diseases | Total | Age Groups in Years | | | | | | | | |
|---------------------------|--|---|---------------------|-----|-----|------|------|------|------|------|------|
| | | | < 1 | 1 - | 5 - | 10 - | 15 - | 20 - | 25 - | 35 - | > 45 |
| GROUP 'A' DISEASES | | | | | | | | | | | |
| A00 | Cholera | 0 | - | - | - | - | - | - | - | - | - |
| A20 | Plague | <i>Never Reported</i> | | | | | | | | | |
| A36 | Diphtheria | <i>Last Case in 1992</i> | | | | | | | | | |
| A39 | Meningococcal infection | 2 | - | 1 | - | - | - | - | - | 1 | - |
| A80 | Poliomyelitis | <i>Last Case in 1993</i> | | | | | | | | | |
| | Acute Flaccid Paralysis | 5 | - | 1 | - | 3 | 1 | - | - | - | - |
| B05 | Measles | 0 | - | - | - | - | - | - | - | - | - |
| B06 | Rubella & [CRS] | 1 | 1 | - | - | - | - | - | - | - | - |
| A95 | Yellow fever | <i>Never Reported</i> | | | | | | | | | |
| A82 | Rabies | 0 | - | - | - | - | - | - | - | - | - |
| A75.0 | Louse borne typhus | <i>Never Reported</i> | | | | | | | | | |
| A68 | Relapsing fever | <i>Last Case in 1997</i> | | | | | | | | | |
| A33 | Tetanus Neonatorum | <i>Last Case in 1995</i> | | | | | | | | | |
| A99 | Viral Haemorrhagic fever | 0 | - | - | - | - | - | - | - | - | - |
| GROUP 'B' DISEASES | | | | | | | | | | | |
| A03.0 | Typhoid fever | 16 | - | - | 4 | 1 | 1 | 2 | 4 | 3 | 1 |
| A01.4 | Paratyphoid fever | 7 | - | 1 | - | - | - | 2 | 3 | 1 | - |
| A02 | Food poisoning | 263 | 2 | 26 | 46 | 51 | 33 | 19 | 48 | 24 | 14 |
| A22 | Anthrax | <i>Never Reported</i> | | | | | | | | | |
| A23 | Brucellosis | 33 | - | 4 | 7 | 7 | 2 | 3 | 4 | 3 | 3 |
| A37 | Pertussis | 43 | 15 | 5 | 12 | 11 | - | - | - | - | - |
| A35 | Tetanus (Non NNT) | 1 | - | - | - | - | - | - | - | - | 1 |
| A90 | Dengue | 0 | - | - | - | - | - | - | - | - | - |
| | Viral Hepatitis - Total | 873 | 1 | 207 | 461 | 121 | 17 | 16 | 15 | 12 | 23 |
| B15 | Viral Hepatitis 'A' (ELISA) | 234 | - | 51 | 142 | 34 | 1 | 1 | 3 | 1 | 1 |
| B16 | Viral Hepatitis 'B' (ELISA) | 18 | - | 1 | 3 | 1 | 2 | 5 | 1 | 2 | 3 |
| B17.1 | Viral Hepatitis 'C' (ELISA) | 6 | - | - | - | - | - | 2 | - | 2 | 2 |
| B17.0 | Viral Hepatitis 'D' (ELISA) among 'B' | 0 | - | - | - | - | - | - | - | - | - |
| B17.2 | Viral Hepatitis 'E' (ELISA) | 0 | - | - | - | - | - | - | - | - | - |
| B19/B17.8 | Viral Hepatitis Unspecified ⁴ | 615 | 1 | 155 | 316 | 86 | 14 | 8 | 11 | 7 | 17 |
| B55 | Leishmaniasis | 2 | - | - | - | 1 | - | 1 | - | - | - |
| B65 | Schistosomiasis | 0 | - | - | - | - | - | - | - | - | - |
| B74 | Filariasis | 0 | - | - | - | - | - | - | - | - | - |
| B72 | Dracunculiasis | <i>Certified by WHO as Eradicated from Oman</i> | | | | | | | | | |
| G00.0 | Haemophilus Meningitis type b | 10 | 8 | 1 | - | - | - | - | 1 | - | - |
| G00.1-9 | Bacterial meningitis other than Nm & Hib | 23 | 9 | 4 | 3 | 3 | 1 | 2 | - | - | 1 |
| A87 | Viral meningitis | 6 | 3 | - | 2 | - | 1 | - | - | - | - |
| G03 | Meningitis - Unspecified | 7 | 3 | - | 1 | 2 | - | - | - | - | 1 |
| A30 | Leprosy | 0 | - | - | - | - | - | - | - | - | - |
| A15-A19 | Tuberculosis: Sputum Positive | 39 | - | - | - | - | 4 | 5 | 4 | 10 | 16 |
| | Tuberculosis: Sputum Negative | 6 | - | - | - | - | 1 | - | - | - | 5 |
| | TB Extra-Pulmonary | 23 | - | 1 | - | 1 | 4 | 1 | 4 | 3 | 9 |

Note:

- 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 regional feedback.
- Tuberculosis & Leprosy data are for nationals only.
- (i) = imported case.
- Currently laboratory procedures are in the process of being laid down for classification of Viral hepatitis into different types. Hence presently the related data are partially available.

Animal Bite Surveillance by Regions

Second Quarter (April to June 2002)

| Region | Population at Risk (2001) | Type of Animal | | | | | Total | Annualized Rate /10,000 population | Annualized Rates of Animal Bites in Previous Quarters | | | |
|-----------------|---------------------------|---------------------------|-----------|------------|----------------|------------------|------------|------------------------------------|---|------------|------------|------------|
| | | Fox or other wild animals | Dog | Cat | Other Domestic | Others (unknown) | | | 2001 | | | 2002 |
| | | | | | | | | | Q2 | Q3 | Q4 | Q1 |
| Muscat | 685,676 | 1 | 36 | 30 | | | 67 | 3.9 | 3.2 | 3.6 | 3.5 | 3.5 |
| Dhofar | 232,563 | 1 | | 6 | 1 | | 8 | 1.4 | 0.05 | 1.2 | 1.0 | 1.1 |
| North Batinah | 435,681 | | 5 | 2 | | | 7 | 0.6 | 2.9 | 3.6 | 3.3 | 2.0 |
| South Batinah | 250,603 | | 12 | 24 | 5 | | 41 | 6.5 | 8.0 | 8.8 | 8.3 | 4.6 |
| Dakhliyah | 279,829 | | 3 | 35 | 3 | | 41 | 5.9 | 7.0 | 6.4 | 6.1 | 5.3 |
| Dhahira | 221,687 | 1 | 7 | 9 | 3 | 1 | 21 | 3.8 | 3.0 | 3.2 | 3.7 | 3.3 |
| North Sharqiyah | 144,424 | 4 | 4 | 36 | 6 | 1 | 51 | 14.1 | 12.1 | 14.8 | 12.3 | 10.0 |
| South Sharqiyah | 171,160 | | 5 | 2 | 2 | | 9 | 2.1 | 6.1 | 3.6 | 4.3 | 2.2 |
| Musandam | 35,045 | | 1 | 1 | | | 2 | 2.3 | 0.0 | 4.8 | 2.4 | 2.4 |
| Al-Wustah | 21,019 | 2 | | 1 | 1 | | 4 | 7.6 | 10.0 | 4.0 | 6.9 | 11.8 |
| Total | 2,477,687 | 9 | 73 | 146 | 21 | 2 | 251 | 4.1 | 4.5 | 4.8 | 4.6 | 3.6 |

Note: Rodent Bites excluded



Sultanate of Oman Ministry of Health

Directorate General of Health Affairs
Phone: + (968) 600808
Fax: + (968) 696099
E-mail: aljamoh@omantel.net.om

MoH-HQ, PO Box 393, PC 113,
MUSCAT
<http://www.mohoman.org>

Direct all your queries to...

Department of Surveillance & Disease Control
Phone: + (968) 601921, 607524
Fax: + (968) 601832
E-mail: awadymoh@omantel.net.om

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NEWS IN BRIEF

- International Symposium on Schistosomiasis is being jointly organised by Ministry of Health & Sultan Qaboos University in Salalah from 27th September to 3rd of October 2002.

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.

Editorial Board

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