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Community Health & Disease Surveillance Newsletter

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National Health Statistics & Information System (NHSIS)

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Background

The National Health Statistics and Information System (NHSIS) is represented by the Directorate of Information and Statistics (DHIS) in the Ministry of Health. The NHSIS developed remarkably over the years. In 1990, only 9 statisticians were responsible to capturing health data. With the establishment of the Under-secretariat of Planning in 1991 and the Directorate General, noteworthy developments took place. The health information section was upgraded to the ‘Directorate of Information and Statistics’ (DHIS). Similarly ‘Directorate of Research and Studies’ (DRS) was also established. The number of statisticians in 2007 grew to 72. The DHIS

was assigned the responsibility of NHSIS. The decentralization policy led to establishment of health regions. As a consequence the regional offices for health information and statistics were established. Data collection was decentralized to regional level. **The NHSIS was viewed as a ‘model’ and many countries have sent their staff for**

training in NHSIS.

The objectives of the NHSIS is to ensure that reliable, relevant, up-to-date and timely health and health related information are available and accessible for health managers at different levels of the health system to:

- Support decision making at different levels of health management
- Allow the formulation of health policies, plans and strategies

The Bilingual MoH Annual Statistical Report , Oman
The defacto reference book for the health planners



- Allow monitoring and evaluation of implementations of health plans
- Allow health services management at macro levels
- Allow measuring health status of the population and monitoring trends and changes

- Allow identification of health and health related problems and their prioritization
- Allow identification of health care and medical needs
- Allow evaluation of effectiveness of the health system performance
- Allow evaluation of health status and

health system performance in comparison with other countries

Introduction

The current article describes the NHSIS in Oman and refers to the results of an assessment of the NHSIS performed during 2007. The assessment was performed in collaboration with stakeholders of health information together with technical support from the 'Health Metrics Network (HMN)' in World Health Organization (WHO). The NHSIS is described according to its 6 components as follows:

1. Context and Resources

When describing resources of NHSIS, one has to consider three main aspects: (a) *Policy and planning*: which actually refers to the legal, regulatory and planning context within which the NHSIS functions, the mechanisms by which data are being made available from different sectors whether public or private health sectors or non-health sectors and the strategic plans to ensure coordination among its different components.; (b) *Institutional, functional and human resources* and (c) *infrastructure*.

(a) Policy and Planning: The NHSIS is run by MoH. The objectives, strategies and procedures for all components of health information system are clearly laid out and documented and are applicable only to MoH health institutions. There are operational and policy documents and functioning committees that regulate and control the functions and mechanisms of NHSIS. These include: Health Statistics Manual, Statistical Law and Statistical Strategy.

Health Statistical Manual is a detailed manual describing data collection forms and procedures and is developed by the DHIS. It is implemented in MoH health institutions since 2000. The manual describes all elements of data, data sources, data forms, definitions of different terms, data processing and management. The manual also describes and defines a list of relevant indicators as well as data information presentation. However, the manual requires to be updated to incorporate changes in the data forms and recent developments.

Statistical Law The first statistical law in the Sultanate of Oman was issued in 1988 and

remained in force until the new law was issued in 2001. The new statistical law was promulgated by a Royal Decree (No. 29/2001). The law was issued to regulate the collection and publication of statistical data in the country. It has defined Ministry of National Economy (MONE); with its two pillars social and economic statistics, as the authority to issue the regulations and decisions necessary for implementation of the law and an authority for publishing data and results of statistical surveys and population census according to an annual work plan. The law has obliged all government units, private entities and individuals to provide the MONE with data requested. It has also provided government units the right to gather and publish statistical data that fall within their domain. The law has covered a number of issues that would support NHSIS. MoH as well as other health care providers were given the right to collect and publish their own data. However, the law does not see the NHSIS as a separate entity and therefore information required from the public and private sectors, to respond to specific needs of health information system, would be directed through MONE. This may require close coordination with MONE to enforce requirements of NHSIS.

Statistical Strategy As the awareness of the importance of statistics and information increases, the statistical units in the country increased and an increasing need for coordination among these units has emerged over the years. A statistical strategy was prepared by MONE for the period of 2006-2020 with the vision to promote production and utilization of high quality statistical data through strengthening coordination among different statistical units, employing developments in statistical methods and information technology and facilitating access to data and information.

Statistical Advisory Committee (SAC) and Statistical Technical Committee (STC) The statistical law has stipulated the formation of a "Statistical Advisory Committee" to review regulations prepared by MONE for implementation of the statistical law. The committee is chaired by MONE and has members at Undersecretary Level from

"The objectives, strategies & procedures for all components of health information system are clearly laid out & documented & are applicable only to MoH institutions."

different sectors (ministries) including MoH. In brief, its role is to review regulations made by MONE for the implementation of the statistical law and strategy and coordinates efforts for promoting statistical work in the country. The SAC consider and enforce issues to support NHSIS through Undersecretary for Planning Affairs of MoH as a member of the committee. The SAC is aided by a technical committee at **Directorate General Level, "Statistical Technical Committee (STC)". The STC is chaired by Undersecretary for MONE and has member from different sectors or ministries who are mainly directorate generals.**

(b) HIS Institutions, Human resources & Financing: The NHSIS is the responsibility of DHIS within the Directorate General of Planning, MoH. DHIS is a separate body within the DGP in MoH. It is fully equipped with computers, printers, colored printers, scanners, CD writers and communication facilities including telephone lines, fax machine and internet accessibility. The decentralization policy had enforced the establishment of similar bodies at the regional level within MoH; namely Regional Health Information Section (RHIS). Communications among DHIS and RHISs are well established by telephone, fax, and emails. There is no wide area network (WAN); however, data exchanges take place through emails. Health care providers other than MoH have similar statistical units. These later provide DHIS with necessary data on request to the limit of its availability. However; more coordination is required to further enhance communications and data exchange.

In addition to DHIS and RHISs, other units within MoH capture health and health related data. These are mainly specialized units in certain health domains e.g. directorate of non-communicable diseases who host the cancer registry, directorate of communicable diseases who hosts communicable disease surveillance, tuberculosis registry and HIV registry, directorate of malaria who host notifications for malaria cases and directorate of environmental health who hosts data sets for occupational injuries and poisoning registry. Other sources of health related information come from organizations other than health or-

ganizations e.g. Road traffic accidents data that come from ROP.

In summary, there are multiple islands for health information, within and outside MoH, making the health information system partially fragmented. Although there are close links among such units and DHIS hosting the NHSIS, more coordination is required. Coordination should help to make data timely and accurately available to NHSIS and to reduce burden of data management for non-statistical units.

Statistical units in the country, comprising the NHSIS, are run by statisticians in addition to one physician with clinical epidemiology and biostatistics qualifications at the DHIS. MoH has 72 statisticians as of Dec 2007. Statisticians are trained to deal with health related data through on-job training. One statistician has received training in applied epidemiology (master level) and another PhD in biostatistics. In an attempt to train and qualify nationals in health statistics to ensure stabilization of the health information system, DHIS in MoH has **collaborated with 'Department of Mathematics and Statistics' (DOMAS) in Sultan Qaboos University, Muscat** to establish a bachelor degree in Health Statistics (major statistics, minor health statistics). The curriculum was developed by DHIS and tailored to fulfill the needs of the NHSIS. The curriculum has emphasized other aspects such as epidemiology, health research, categorical data analysis, demographic and health care statistics and health management. The degree course was established in 1997. Total 43 have graduated of whom 36 joined MoH and 2 joined statistical units in other health organizations.

There are no epidemiologists employed within the NHSIS. Epidemiologists in MoH work mainly at the central level as unit directors in health domains; communicable diseases and non-communicable diseases. In addition, every health region has one epidemiologist. However, they are mainly concerned with the interpretation of data and information produced by NHSIS and its utilization to monitor the performance of the health system in their respective domains which is merely using the outputs. There is a need to further strengthen the

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coordination between epidemiologists and statisticians at the regional level. Coordination should be formally established at all steps of capturing, processing, analyzing and reporting health data.

Almost all health care facilities run by MoH and other public health care providers are fully computerized (except the private sector). **Patients’ records are managed electronically** and a wealth of information is available. Despite the full computerization, the data can not be directly analyzed from **health institutions’ databases. Data have to be extracted in table format** (frequency distribution tables) and re-entered on separate databases. This latter exerts burden to the system to capture routine health data. Also, desegregating data into different classification variables is limited by the initial design of the tables. Changing these initial table-format reports requires intensive interaction and coordination among the NHSIS and the Information Technology Units (IT). A stronger coordination among NHSIS and IT is required and is presumed a crucial element for further development of NHSIS.

DHIS supervising the NHSIS does not keep an independent budget but financed through the recurrent budget of MoH. All equipments, human resources and software requirements are planned and incurred through MoH purchase mechanisms. The same applies to other fragments of NHSIS within MoH and outside MoH.

(c) HIS Infrastructure: As mentioned, DHIS is fully equipped with computers, printers, colored printers, scanner, CD writers and communication facilities including telephone lines, fax machine and internet accessibility. DHIS is located within the MoH main building. The Local Area Network (LAN) is maintained; including all security measures, by the Directorate General of Information Technology. A logical drive (an independent server) is assigned for DHIS where all national data sets are stored. Backups are made using more than one media; tapes, CDs and mobile hard drives. Read only access for national sets of data is given to different levels of decision makers for their use of data. The DHIS has four main databases; InfoBank for routine

data captured from health care facilities, School Health Database, Private Database from private health care establishments and B&D Database for notifications of births and deaths. The first three databases are cross linked and the fourth acts as a stand alone system. All databases are built in-house and continuously updated for changes.

The same databases are run in the Regional Health Information Section (RHIS) for easy exchange of data sets. The RHIS are fully equipped similar to DHIS. They are located in the main buildings of the regional headquarters (directorate of health services). Each RHIS has its own satellite statistical units in the respective Wilayat (districts); the smallest peripheral health administrative unit. Communications by telephone, fax, and emails are well established among DHIS and RHIS as well as among the RHIS and its own Wilayat satellites. Data exchange is mainly through emails as there is no wide area network (WAN) yet.

The statistical units for health care providers other than MoH are also fully equipped with computers and communication facilities. However, software development (databases) for data capture is not as well developed as in MoH. Although telephone lines, fax machines and internet connection are available, their communication with DHIS (running the NHSIS) is limited and more coordination is therefore required to develop databases and communication.

2. Essential Health Indicators

The NHSIS has identified a set of indicators to be published on annual basis. The set of indicators are arranged in such a way as to define inputs to the health system, processes, outcomes and health status as shown below:

1. Input indicators:

- Demographic indicators
- Health services indicators
- Human resources indicators
- Economic indicators

2. Process indicators:

- Health services utilization indicators

3. Outcome and health status indicators:

- Indicators reflecting performance and achievements of health domains identified in the Five-Year Health Develop-

ment Plan

- Morbidity and mortality indicators

In addition the indicators describing the status towards achieving Millennium Development Goals (MDGs) are also published.

Data capture forms are updated on annual basis depending on needs and thus linking data capture to indicator requirements.

A number of health surveys and studies are executed over the years based on needs for planning and monitoring purposes and each provides a list of health and health related indicators. A list of studies and their findings is published annually with relevant updates.

Reviewing the list of indicators shows that there are some missing that describe determinants of health especially economic indicators, environmental and behavioral indicators. **The absence of 'National Health Accounts' limits the availability of detailed economic indicators.** Other indicators can not be desegregated according to sex or proper age groups especially those that describe health status; an example would be morbidity indicators. Recently mortality data are available from registration of vital events' notifications which is a parallel system to vital registration. The mortality data can be desegregated according to sex, age groups and geographical distribution.

3. Data Sources

NHSIS utilizes data from following sources:

- Census data
- Vital registration (for births and deaths)
- Health Surveys
- Administrative and Service records within Ministry of Health and other health care providers (public or private)
- Health and Diseases Records

There are other sources of information that are used regularly but do not constitute part of the information reported by NHSIS. These include:

- Records from central Ministries e.g. Ministry of National Economy, Ministry of Social Affairs, Ministry of Education and others
- Health researches and studies published in peer and non-peer reviewed journals
- International publications/periodicals

Census: The first General Census of popu-

lation, housing and establishments was carried out in Oman by MONE in December 1993 and the second in December 2003. Adequate resources for their execution and analysis of its results was available. In addition to basic demographic data; information on children ever born and still living, deaths, maternal deaths and disabilities were captured and would provide ample information for NHSIS. According to the first census, the total population of Oman was 2,018,074 of which 534,848 were expatriates (26.5%). The 2003 census showed total population of 2,340,815 of which 559,257 (23.9%) were expatriates. Prior to census demographic information, population estimates and projections were based on surveys viz. Child Mortality Survey (1986) and Child Health Survey (1988). The average annual population growth rate was 1.5% (1.8% for Omani and 0.4% for non-Omani). The Omani population had median age of 15.7 years in 2003 compared to 12.1 in 1993. In 2003 census about 41% of the population was below 15 years and 0.7% above the age of 65 years.

Vital Registration: The Sultanate of Oman has started obligatory civil registration including vital registration (VR) from May 2004. It is the responsibility of Directorate General of Civil Status at Royal Oman Police (DGCS, ROP). Capturing data on births and deaths outside health facilities is improving slowly. Examples of missing data include: cause of death, early neonatal deaths etc. indicating need for coordination among different sectors. The forms for notification of births and deaths were developed in coordination with MoH. However, DGCS has less interest in health related data. This necessitated the development of a parallel database that captures this information from source documents. The DGCS has agreed to share copies of notifications from health care providers, community and Omani missions outside the country with MoH including other public and private health care providers. This lead to electronic compilation of birth and death events across the country. Through technical support from HMN, the VR system and data quality especially mortality statistics were assessed with identifying ways for

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improvements.

Surveys: Health surveys are among the most important sources of health information. The Directorate of Research and Studies (DRS) within the Directorate General of Planning is responsible for executing a number of surveys and studies and also for compiling those studies executed by other departments. A large scale survey is being conducted by DRS every 5 years to provide multiple indicators. Surveys and studies provide information mainly related to determinants of health which are difficult to obtain through the routine health information system such as risk factors related to lifestyle as determinants for non-communicable diseases, indicators related reproductive health and women empowerment and measures of knowledge, attitude, practice and behavior. More studies are needed that measure response of health system to non-health needs of the population, assess health system, provider and patient satisfaction, and hospital and health centers performance. Summary of studies and results from 1993 are published in the ‘**Annual Health Report**’.

Administrative Records: Administrative records contain data about health care facilities; their numbers, types, geographical distribution, their structure, functioning units and staffing. Expenditure data are available from central administrative records but still can be desegregated by region of expenditure. Central records contain consumption of medicines and consumables. Financial records are not based on accrual basis and thus National Health Account is difficult to produce on routine basis. Administrative records also include records about training health institutions, their specialties (as nursing institutes, public health institute, etc), students enrolled and graduated and their specialties all desegregated according to sex.

The administrative records of MoH can be surveyed and data can be easily captured. The same does not apply to health care providers other than MoH especially the private sector. Number of health care facilities is captured routinely on monthly basis, staffing is captured quarterly, while data on expenditure, medicines and consumables

are captured on annual basis. Most of the administrative records are computerized. More integration with DGIT would result in better utilization of available data.

Service Records: Services records provide data about utilization of health care facilities viz. outpatient attendance by clinics, specialty, sex and age group, attendants to ancillary services as laboratories, x-ray departments etc. Utilization of inpatient services is also provided from services records. Other available service records describe service delivery (process of health care) as immunizations, antenatal care, birth spacing, school health, dental services etc.

Service records exist in health care facilities as hospitals and health centers. All service delivery data are captured routinely on monthly basis. All services records in health care facilities are computerized. Very few validation studies or surveys are performed to ensure accuracy of data captured. However, statisticians posted in different health regions and Wilayat are expected to visit these records on regular basis and validate the data reported from these records. Service records of health care providers other than MoH needs to be strengthened to provide the required information on regular basis.

Health and Diseases Records: These are patients records in health care facilities, both for outpatient and inpatients. In addition, there are a number of other records related to communicable disease surveillance, national registries viz. Cancer, Tuberculosis, Congenital Anomalies and Diabetes. Health facility records are sources for morbidity and mortality data in addition to service utilization. The communicable disease surveillance includes 14 diseases (and 2 conditions) that require immediate notification within 24 hours, 15 that require notification within one week and 3 diseases (and 2 conditions) to be reported within one month. Cancer registry includes information on all cancer cases diagnosed or managed in the country based on histological diagnosis. Nationals diagnosed in neighboring countries are also registered through proper coordination with the hospitals. Tuberculosis register includes information of all TB patients diagnosed within

the country. Treatment of TB is only available in public health care facilities and this ensures registration of all cases. The register includes data on follow-up and treatment outcome. Congenital anomalies register enlists all congenital conditions detected in newborns from year 2000 onwards. Health records in health care facilities outside MoH need to be visited and used properly. Efforts are made such that health registers include cases diagnosed or detected by all health care providers. However, this should be properly validated.

4. Data Management

In brief, forms for data collection are being designed at central level in coordination with different health programs and with inputs from all health regions. The different forms are collected in booklet format. There are four booklets; the first captures data related to ambulatory care activities and morbidity and should be completed by all health care institutions. The second captures data related to inpatient statistics and morbidity and should be used by hospitals. Third booklet contains forms to capture morbidity and management for selected specialties and the fourth is designed for the private health sector.

Data forms are completed in health institutions at the beginning of each month to capture data of the previous month. Data forms are revised and sent to a statistician **'Supervisor of Health Information System'** who is responsible for the Wilayat (district) where the health institution is located. The statistician is responsible to look into the data for any inconsistencies and missing data and to coordinate with the health institution to correct errors if any and then to feed the data into a database called **'InfoBank'**. He then forwards the data electronically to another statistician **'Supervisor of Health Information System'** at the regional level who scrutinizes data for inconsistencies and missing data then compiles. He forwards the compiled data to Directorate of Information and Statistics (DHIS) at the central level.

Special forms are designed to capture summary information from public health care providers other than MoH. These later forms are completed on annual basis.

Other data compiled on annual basis include data from different health registers e.g. cancer registry, TB register and others. Other forms were designed to capture data for school health biannually. Separate forms are available to capture data on human resources on quarterly basis. Other forms are also available to capture data from other administrative records such as financial data, data on medicines, and data about graduates from training health institutions, and others on annual basis.

A manual was designed and published that described forms and defined terms. However, this manual needs updating especially as the forms were updated over the years.

5. Information Products

The information products of NHSIS are mainly health indicators as follows:

Morbidity Indicators: Morbidity indicators are calculated from different sources: health and diseases records surveyed on monthly basis (part of routine health information system) and from health surveys. Health and diseases records of MoH facilities constitute the main source of morbidity from routine health information system. Records of health care providers other than MoH are not easily accessible to be surveyed as they have no powerful information or statistical units. However, MoH provides 77% of inpatient services, 31.7% of dental services and 67.3% of outpatient services as it runs 83% of hospitals and 85.5% of hospital beds. The health services in Oman is provided free of charge to all citizens and government employees. This is in favor of high coverage for morbidity if captured from health care facilities. The routine health information system ensures the availability of morbidity statistics (with its limited coverage) on monthly basis. In addition data are validated and checked regularly for completeness and accuracy.

Mortality Indicators: Mortality indicators are produced using data from different sources: the health and diseases records which provide data on inpatient (hospital deaths), cases that are brought dead and deaths happening in accident and emergency departments. It also provides cause specific deaths e.g. deaths because of acute respiratory diseases, protein energy malnu-

“Special forms are designed to capture summary information from public health care providers other than MoH. These later forms are completed on annual basis.”

“There is a relatively strong routine health information system within MoH that reviews almost all relevant administrative & health & diseases records in MoH institutions on monthly basis.”

trition, tuberculosis and HIV. Mortality data are available on monthly basis from MoH facilities. Health and diseases records for care providers other than MoH are also surveyed on regular basis for deaths but only on annual basis.

Vital registration system and notifications of deaths is one important source. It has only started in May 2004 but seen to be reaching high coverage levels. Other sources of mortality indicators include projections using census data as the basis for projection.

Health System Indicators: For MoH health institutions the routine information system captures data regularly on monthly basis that describe health system resources, utilization and outputs. Data are regularly validated and checked for appropriateness and consistency. Data from health care providers other than MoH are available on annual basis. Recent efforts are made to capture data regularly on monthly basis from private sector. Coverage is estimated at 65% for utilization and outputs and 100% for human resources.

Risk Factors Indicators: Health surveys and studies are the main source on indicators that describe determinants of health. A large scale, multi-indicator survey is executed every 5 years in addition to other individual studies. It is ensured that health surveys are executed with representative samples that would ensure applicability of estimated indicators to target population.

Strengths and Weaknesses

Despite great achievements the assessment revealed strengths and weaknesses in the system that need to be addressed.

Strengths

1. There exists a strong political will and support to strengthen the NHSIS and to use evidence based decisions
2. There is a relatively strong routine health information system within MoH that reviews almost all relevant administrative and health and diseases records in MoH institutions on monthly basis
3. There exists adequate statisticians in MoH to run the routine information system
4. Infrastructure of the NHSIS is well estab-

lished for current and near future needs

5. The establishment of a vital registration system to register births and deaths
6. Well documented, regular annual report of health system, with morbidity and mortality indicators.

Weaknesses

1. Despite the political will and support, specific needs of NHSIS from the public and private health care providers have to be directed through MONE (an authority for Central National Statistics). This requires close coordination to avoid any impact on data collection and compilation from different sources affecting representativeness of the information
2. Similar to NHSIS in MoH the equivalent bodies in other health care providers need further strengthening.
3. Relatively weak coordination between statisticians and the epidemiologists.
4. **The ‘National Health Statistics and Information System’ and ‘Information Technology’ are two separate bodies. Close coordination among them is crucial**
5. **The absence of ‘National Health Accounts’ limits detailed assessment of the efficiency of the health system**
6. Although major health surveys and studies findings are available, these should be in electronic format for easy access.
7. More efforts are needed to increase coverage of registration of vital events
8. The absence of health related data from the database of DGCS limits the use of VR. Alternatively notification database was utilized. There is need to integrate or strongly coordinate the two databases
9. Physicians and other health workers need training in assigning cause of death, coding morbidity and use of information.

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Oman Global School-based Health Survey Round One (2005)

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Background

In 2001, WHO, in collaboration with UN-AIDS, UNESCO, and UNICEF, and with technical assistance from the Centres for Disease Control and Prevention (CDC) initiated development of the *Global School-based Student Health Survey* (GSHS). Since 2003, ministries of health and education around the world have been using the GSHS to periodically monitor the prevalence of important health risk behaviours and protective factors among students. To date Oman, Jordan, Lebanon, Morocco, UAE have completed the survey. This report summarizes results of the 1st GSHS conducted (April 2005) in Oman by Ministry of Health in collaboration with Ministry of Education.

Purpose

The purpose of the GSHS is to provide accurate data on health behaviors and protective factors among students to:

- Help countries develop priorities, establish programmes, and advocate for resources for school health and youth health programmes and policies;
- Establish trends in the prevalence of health behaviours and protective factors by country for use in evaluation of school health and youth health promotion;
- Allow countries, international agencies, and others to make comparisons across countries and within countries regarding the prevalence of health behaviours and protective factors;
- Establish baseline Data on health risk behaviours; and
- Establish trends in the prevalence of health behaviours and protective factors in Oman for use in evaluation of school health and youth health promotion.

The GSHS is a school-based survey conducted primarily among students aged 13-15 years. It measures behaviors and protective factors related to the leading causes of mortality and morbidity among youth and adults in Oman. They are:

- Dietary behaviours

- Hygiene
- Physical activity
- Protective factors
- Sexual behaviours that contribute to HIV infection and other STI
- Violence and unintent

Sampling

The 2003 OMAN GSHS employed a two-stage cluster sample design to produce a representative sample of students in grades from 7th to 10th.

The first stage is done on schools Level - All schools containing 7th, 8th, 9th, and 10th grades were included in the sampling frame. Schools were selected systematically with probability proportional to enrolment in 7th, 8th, 9th, and 10th grades using a random start. 51 schools were sampled.

The second stage of sampling consisted of randomly selecting intact classrooms (using a random start) from each school to participate. All classrooms in each selected school were included in the sampling frame. All students in the sampled classrooms were eligible to participate in the GSHS.

The data set was cleaned and edited for inconsistencies. Missing data were not statistically imputed. Software that takes into consideration the complex sample design was used to compute prevalence estimates and 95% confidence intervals. GSHS data are representative of all students attending grades from 7th to 10th in Oman.

Weighting

A weighting factor was applied to each student record to adjust for non-response and for the varying probabilities of selection. The weight used for estimation is given by:

$$W = W1 * W2 * f1 * f2 * f3$$

Where:

W1 = the inverse of the probability of selecting the school;

W2 = the inverse of the probability of selecting the classroom within the school;

“The GSHS is a school-based survey conducted primarily among students aged 13-15 years & it measures behaviors & protective factors related to the leading causes of mortality & morbidity among youth & adults in Oman.”

“Implementation of the national school health strategy will improve the coordination between the various other concerned sectors to promote the school community's health.”

f1 = a school-level non-response adjustment factor calculated by school size category (small, medium, large). The factor was calculated in terms of school enrollment instead of number of schools.

f2 = a student-level non-response adjustment factor calculated by class.

f3 = a post-stratification adjustment factor calculated by grade.

Results

The main findings are as follow:

2,979 questionnaires were completed in 51 schools. The school response rate was 100%, the student response rate was 97%, and the overall response rate was 97%.

Dietary behaviour

19.5% of students were describing themselves as slightly overweight or overweight. 31.5 % of students were trying to lose weight. 77.2% of students usually ate fruit and 73.4% of students usually ate vegetables one or more times per day during the past 30 days. 50.3% of students who ate breakfast most of the time. 33.4 % of students usually drink carbonated soft drinks. 10% ate at a fast food restaurant.

Hygiene

5.4% of students did not clean or brush their teeth during the past 30 days. 6.3% of students never or rarely washed their hands before eating during the past 30 days. Percentage of students whose toilets at school are not clean was 43.5% while 18.6% of students mentioned that there are no enough toilets at school.

Physical activity

23.3% of students were physically active all 7 days during the past 7 days for a total of at least 60 minutes per day. 34.3% of students spent three or more hours per day doing sitting activities during a typical or usual day. No significance difference between males and females were reported. 72.1% of students were taught in any of their classes during this school year the benefits of physical activity.

Protective factors

33.8% of students missed classes or school without permission on one or more of the past 30 days. 69.6% of students reported

their parents or guardians checked to see if their homework was done most of the time or always during the past 30 days. 62.5% of students reported their parents or guardians understood their problems and worries most of the time or always during the past 30 days.

Health education on HIV Infection and Other STI's

97.6 % of students had ever heard of HIV or AIDS. Overall, 65.5% of students had been taught in any of their classes about HIV or AIDS during this school year. 60.2 % of students had been taught in any of their classes how to avoid HIV or AIDS during this school year. 34.7 % of students ever talked about HIV or AIDS with their parents or guardians.

Violence and Unintentional Injury

During the past 12 months, 41.2% of students were in a physical fight. 26.3% of students were seriously injured and 36.2% of students were bullied on one or more days during the past 30 days.

Recommendations:

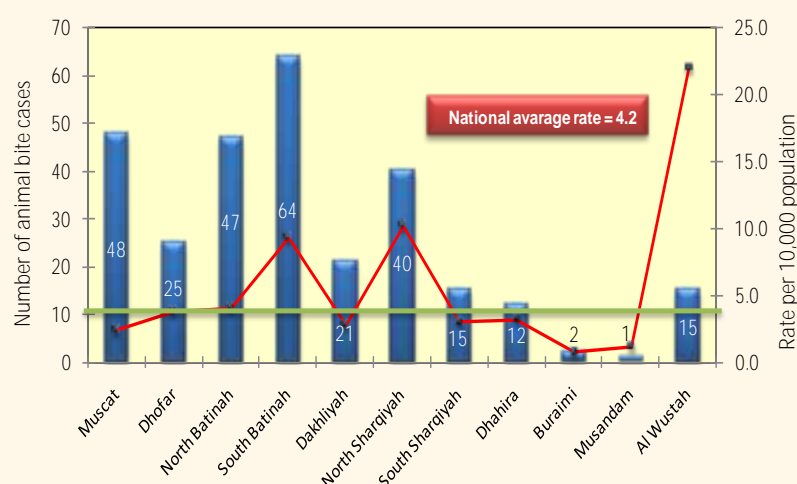
1. **Implementation of the national school health strategy will improve the coordination between the various other concerned sectors to promote the school community's health**
2. **Health promoting schools initiative should be expanded in all schools in the Sultanate.**
3. **Evaluation and modification of the health education program in the schools**
4. **More capacity building of the school health staff, teachers and social workers**
5. **Improvement of the relations between the families and schools for more guidance and building of self esteem of students.**
6. **GSHS is considered a base of surveillance system for risk behaviors and protective factors at schools and it should be repeated every 3 years**



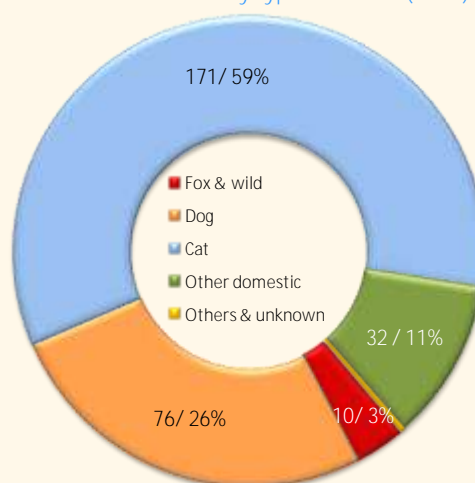
Animal Bite Surveillance Data

Second quarter: April to June 2008

Notified animal bites by Regions (# & annualized rate/10,000 population)



Notified animal bites by type of animal (# / %)



Brief Summary & Observations on Communicable Disease Surveillance Data: Second quarter - April to June 2008

Group A Diseases & Syndromes

- AFP: Four AFP cases were reported from Musanah (South Batinah), Mudaibi (North Sharqiyah), Mutrah and Bawsher (Muscat) which were later classified as non-polio AFP with final diagnosis of Guillian Barre Syndrome in Musanah case and myositis in other three cases.
- Fever & Rash illness: Of the 320 cases reported in Q2, blood sample was not collected in 5 cases hence classified as clinical measles (1- S.Sharqiyah, 1- N.Batinah, 3-Muscat). Of the 3 seropositive cases 2 were imported (Asia) and none were due for vaccination (i.e. <1 yr). 3 rubella cases were seropositive (N.Batinah, S.Sharqiyah & Dakhliah).
- Meningococcal infections: No case of meningococcal disease was reported.
- Hib Meningitis: In Q2, one case was reported from Dima Wa Al Tayeen (N.Sharqiyah). The case was vaccinated.
- Pulmonary Tuberculosis: Of the reported cases, 33 were sputum positive and 11 were sputum negative.
- Food poisoning: 24 minor episodes accounting for 150 cases were reported in Q2.
- Other priority diseases (unlisted): One imported (Thailand) case of travel associated Dengue fever (Type-4) was reported from Bowsher Wilayat (Muscat). Travel history within past 2 weeks was elicited.

Group B Diseases

- Meningitis: 16 cases of bacterial meningitis other than Nm and Hib were reported.
- Viral Hepatitis: **Total 259 cases were reported of which only 11 were confirmed as type 'A'. A large number of samples (248) were not tested (unspecified) due to shortage of diagnostic kits at the Central Public Health Laboratory.**
- Pertussis: 30 clinical cases were reported of which two were confirmed by IgM ELISA. Of these one child was aged less than 1 year hence the IgM positivity could be vaccine related. A paired sample is required for confirmation.
- Brucellosis: 35 cases were reported from the endemic Dhofar Governorate except one from Muscat.
- Leishmaniasis: 3 sporadic cases of cutaneous Leishmaniasis were reported from Muscat, N. Batinah and Buraimi.
- HIV [AIDS]: 11 new HIV infections were diagnosed and 8 AIDS cases were reported among the HIV positive chronic carriers.

Group C Diseases

- Varicella: In the Q2 a total of 22,226 cases of chickenpox (annualized incidence rate = 32.4/1,000 population) were reported from all over the country.
- Mumps: 189 cases of clinical mumps were reported through the passive surveillance system while from sentinel sites 84 cases were reported that were subjected to laboratory confirmation. Of these 27 were IgM positive.

Communicable Disease Surveillance Data: *By Month*

Second quarter: April to June 2008

| Priority Communicable Diseases | 2008 | | | | 2007 | | | 2008 |
|---|----------------|---------|--------|-----------|---------------|---------------|---------------|---------------|
| | April | May | June | Total | Q2 Apr-Jun | Q3 Jul-Sep | Q4 Oct-Dec | Q1 Jan-Mar |
| Group A Diseases | | | | | | | | |
| Cholera | - | - | - | 0 | - | 3 | 2 | - |
| Plague | Never reported | | | | | | | |
| Yellow Fever | Never reported | | | | | | | |
| Meningococcal Infection | - | - | - | 0 | - | 1 | 2 | 1 |
| H. influenzae type b, meningitis (<i>Hib</i>) | - | - | 1 | 1 | - | - | - | 0 |
| Rabies | - | - | - | 0 | - | - | - | 0 |
| Malaria (<i>Imported Cases</i>) | 59 | 96 | 126 | 281 | 213 | 245 | 187 | 103 |
| Pulmonary Tuberculosis (<i>sputum positive</i>) | 16 | 7 | 10 | 33 | 24 | 37 | 18 | 15 |
| Group A Syndromes | | | | | | | | |
| Acute Flaccid Paralysis [Polio] | 2 | 1 | 1 | 4 | 5 | 3 | 17 | 4 |
| Fever & Rash-Illness | 113 | 112 | 85 | 320 | 276 | 133 | 160 | 173 |
| <i>Clinical Cases</i> | 1 | 2 | 2 | 5 | - | 3 | - | 1 |
| Measles (<i>IgM positive</i>) | 1 (i) | 1+1 (i) | - | 1 + 2 (i) | 2 | 1 | 4 | 4 |
| Rubella (<i>IgM positive</i>) | 2 | 1 | - | 3 | - | - | - | 0 |
| Congenital Rubella Syndrome (<i>CRS</i>) | - | - | - | - | - | - | - | - |
| Severe Acute Respiratory Syndrome (<i>SARS</i>) | Never reported | | | | | | | |
| Acute Haemorrhagic Fever Syndrome | - | - | - | 0 | - | - | - | - |
| Food Poisoning (<i>Infectious origin</i>) | 63 | 53 | 43 | 159 | 124 | 208 | 116 | 80 |
| Group B Diseases | | | | | | | | |
| Bacterial Meningitis (<i>other than Hib & Nm</i>) | 6 | 4 | 6 | 16 | 5 | 5 | 8 | 3 |
| Viral Meningitis | - | - | - | 0 | 3 | 2 | 2 | 0 |
| Other Meningitis (<i>unspecified</i>) | 1 | 4 | 3 | 8 | 9 | 3 | 11 | 12 |
| Acute Viral Hepatitis (<i>Total</i>) | 98 | 76 | 85 | 259 | 215 | 143 | 134 | 192 |
| Acute Viral Hepatitis A | 3 | 4 | 4 | 11 | 136 | 87 | 61 | 103 |
| Acute Viral Hepatitis B | - | - | - | 0 | 14 | 2 | 7 | 9 |
| Acute Viral Hepatitis C | - | - | - | 0 | 7 | 8 | 3 | 2 |
| Acute Viral Hepatitis D (<i>amongst B positive</i>) | - | - | - | 0 | - | - | - | 0 |
| Acute Viral Hepatitis E | - | - | - | 0 | 1 | - | 3 | 0 |
| Acute Viral Hepatitis (<i>unspecified</i>) | 95 | 72 | 81 | 248 | 57 | 46 | 60 | 78 |
| Typhoid & Paratyphoid Fever | 1 | 13 | 10 | 24 | 18 | 12 | 13 | 9 |
| Clinical Pertussis [IgM positive] | 14 [2] | 7 | 9 | 30 [2] | 35 | 34 | 19 | 18 |
| Trachoma (<i>active</i>) | 7 | 5 | 11 | 23 | 35 | 20 | 6 | 14 |
| Brucellosis (<i>human</i>) | 14 | 12 | 9 | 35 | 24 | 25 | 13 | 17 |
| Leishmaniasis Cutaneous (CL) | 2 | 1 | - | 3 | - | 1 | 2 | 1 |
| Leishmaniasis Visceral (VL) | - | - | - | 0 | - | - | - | 0 |
| Schistosomiasis (<i>intestinal</i>) | - | - | - | 0 | - | - | - | 0 |
| Pulmonary Tuberculosis (<i>sputum negative</i>) | 2 | 6 | 3 | 11 | 8 | 10 | 3 | 9 |
| Extra-pulmonary Tuberculosis | 15 | 9 | 8 | 32 | 21 | 33 | 14 | 28 |
| Leprosy | - | 1 | - | 1 | - | - | - | 0 |
| HIV [AIDS] | 2 [3] | 4 [3] | 5 [2] | 11 [8] | 10 [9] | 10 [8] | 7 [2] | 23 [9] |
| Group C Diseases and Syndromes | | | | | | | | |
| Influenza Like Illnesses (<i>ILI</i>) | 5287 | 3578 | 2964 | 11829 | 8673 | 11431 | 14789 | 10950 |
| aLRTI & Pneumonia (<i>childhood</i>) | 1336 | 1083 | 821 | 3240 | 4237 | 2947 | 6021 | 4746 |
| Acute 'Watery' Diarrhoea (<i>childhood</i>) | 3044 | 2484 | 1969 | 7597 | 8224 | 6302 | 8797 | 10783 |
| Chickenpox | 9171 | 8451 | 4604 | 22226 | 18637 | 10461 | 11956 | 18838 |
| Clinical Mumps [Sentinel sites-IgM positive] | 69 [11] | 76 [12] | 44 [4] | 189 [27] | 173 | 124 [10] | 153 [22] | 148 [20] |

Communicable Disease Surveillance Data: *By Regions*

Second quarter: April to June 2008

| Priority Communicable Diseases | Total | Muscat | Dhofar | North Batinah | South Batinah | Dakhliyah | North Sharqiyah | South Sharqiyah | Dhahira | Buraimi | Musandam | Al Wustah |
|---|----------------|--------|--------|---------------|---------------|-----------|-----------------|-----------------|---------|---------|----------|-----------|
| Group A Diseases | | | | | | | | | | | | |
| Cholera | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Plague | Never reported | | | | | | | | | | | |
| Yellow Fever | Never reported | | | | | | | | | | | |
| Meningococcal Infection | 0 | - | - | - | - | - | - | - | - | - | - | - |
| H. influenzae type b, meningitis (<i>Hib</i>) | 1 | - | - | - | - | - | 1 | - | - | - | - | - |
| Rabies | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Malaria (<i>Imported Cases</i>) | 281 | 117 | 25 | 45 | 26 | 16 | 10 | 10 | 1 | 12 | 1 | 18 |
| Pulmonary Tuberculosis (<i>sputum +ve</i>) | 33 | 8 | 5 | 9 | 3 | 1 | 2 | 2 | 1 | - | - | 2 |
| Group A Syndromes | | | | | | | | | | | | |
| Acute Flaccid Paralysis [Polio] | 4 | 2 | - | - | 1 | - | 1 | - | - | - | - | - |
| Fever & Rash-Illness | 320 | 27 | 12 | 81 | 80 | 34 | 12 | 60 | 13 | 1 | - | - |
| <i>Clinical Cases</i> | 5 | 3 | - | 1 | - | - | - | 1 | - | - | - | - |
| Measles (<i>IgM positive</i>) | 1 + 2 (i) | 1 (i) | 1 (i) | - | 1 | - | - | - | - | - | - | - |
| Rubella (<i>IgM positive</i>) | 3 | - | - | 1 | - | 1 | - | 1 | - | - | - | - |
| Congenital Rubella Syndrome (<i>CRS</i>) | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Severe Acute Respiratory Syndrome (<i>SARS</i>) | Never reported | | | | | | | | | | | |
| Acute Haemorrhagic Fever Syndrome | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Food Poisoning (<i>Infectious origin</i>) | 159 | 3 | 7 | 13 | 5 | 38 | 53 | 7 | 30 | 1 | - | 2 |
| Group B Diseases | | | | | | | | | | | | |
| Bacterial Meningitis (<i>other than Hib & Nm</i>) | 16 | 5 | 1 | 3 | 1 | 4 | - | 1 | 1 | - | - | - |
| Viral Meningitis | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Other Meningitis (<i>unspecified</i>) | 8 | - | - | 7 | - | - | 1 | - | - | - | - | - |
| Acute Viral Hepatitis (<i>Total</i>) | 259 | 11 | 23 | 42 | 79 | 8 | 34 | 52 | 5 | 4 | - | 1 |
| Acute Viral Hepatitis A | 11 | 5 | - | - | 5 | - | - | - | - | 1 | - | - |
| Acute Viral Hepatitis B | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Acute Viral Hepatitis C | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Acute Viral Hepatitis D (<i>amongst B +ve</i>) | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Acute Viral Hepatitis E | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Acute Viral Hepatitis (<i>unspecified</i>) | 248 | 6 | 23 | 42 | 74 | 8 | 34 | 52 | 5 | 3 | - | 1 |
| Typhoid & Paratyphoid Fever | 24 | 3 | 2 | 7 | 1 | 4 | - | 6 | - | - | 1 | - |
| Clinical Pertussis [<i>IgM positive</i>] | 30 [2] | 8 | 1 | 8 [1] | 5 | 3 | 1 [1] | - | 2 | 2 | - | - |
| Trachoma (<i>active</i>) | 23 | - | - | - | 2 | 2 | 18 | 1 | - | - | - | - |
| Brucellosis (<i>human</i>) | 35 | 1 | 34 | - | - | - | - | - | - | - | - | - |
| Leishmaniasis Cutaneous (CL) | 3 | 1 | - | 1 | - | - | - | - | - | 1 | - | - |
| Leishmaniasis Visceral (VL) | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Schistosomiasis (<i>intestinal</i>) | 0 | - | - | - | - | - | - | - | - | - | - | - |
| Pulmonary Tuberculosis (<i>sputum negative</i>) | 11 | 3 | 4 | 1 | 1 | - | - | 1 | 1 | - | - | - |
| Extra-pulmonary Tuberculosis | 32 | 8 | 7 | 6 | 1 | 3 | 4 | 1 | 2 | - | - | - |
| Leprosy | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| HIV [AIDS] | 11 [8] | 2 [2] | - | 4 [3] | 1 [1] | 0 [1] | 1 [0] | 0 [1] | 3 [0] | - | - | - |
| Group C Diseases and Syndromes | | | | | | | | | | | | |
| Influenza Like Illnesses (<i>ILI</i>) | 11829 | - | 145 | 101 | 96 | - | 11416 | - | 43 | 4 | 24 | - |
| aLRTI & Pneumonia (<i>childhood</i>) | 3240 | 133 | 745 | 339 | 847 | 547 | 210 | 392 | 1 | 5 | 13 | 8 |
| Acute 'Watery' Diarrhoea (<i>childhood</i>) | 7597 | 747 | 816 | 2205 | 147 | 2098 | - | 463 | 719 | 222 | 141 | 39 |
| Chickenpox | 22226 | 3104 | 1930 | 4166 | 3097 | 3869 | 1008 | 1866 | 1681 | 872 | 340 | 293 |
| Clinical Mumps [<i>IgM positive</i>] | 189 [27] | 37 | 34 [3] | 32 [3] | 6 [27] | 2 [13] | 2 [2] | 16 [5] | 6 [9] | 6 | 1 [1] | 1 |

Communicable Disease Surveillance Data: *By Wilayat*

Second quarter: April to June 2008

| Region / Governorate | Wilayat | AFP | Measles | Rubella | Meningococcal infection | Viral Hepatitis A | Viral Hepatitis B | Malaria | Pertussis [IgM +ve] | TB Total | TB Sputum positive |
|----------------------|----------------------|-----|-----------|---------|-------------------------|-------------------|-------------------|---------|---------------------|----------|--------------------|
| Muscat | Muscat | | | | | 1 | | | | 2 | 1 |
| | Mutrah | 1 | 1 (i) | | | 2 | | 26 | | 7 | 2 |
| | Bawsher | 1 | | | | 1 | | 57 | 4 | 1 | |
| | Seeb | | | | | | | 31 | 2 | 6 | 3 |
| | Al Amerat | | | | | 1 | | 1 | 1 | 1 | |
| | Qurayat | | | | | | | 2 | 1 | 2 | 2 |
| Dhofar | Salalah | | | | | | | 17 | 1 | 13 | 4 |
| | Taqah | | | | | | | 2 | | 1 | |
| | Mirbat | | 1 (i) | | | | | | | 2 | 1 |
| | Thumrait | | | | | | | | | | |
| | Sadha | | | | | | | | | | |
| | Rakhyut | | | | | | | | | | |
| | Dhalkut | | | | | | | | | | |
| | Shaleem | | | | | | | 6 | | | |
| North Batinah | Muqshan | | | | | | | | | | |
| | Mazyoona | | | | | | | | | | |
| | Sohar | | | 1 | | | | 24 | 3 | 5 | 1 |
| | Suwaiq | | | | | | | 6 | 2 | 4 | 4 |
| | Saham | | | | | | | 1 | | 1 | 1 |
| | Shinas | | | | | | | | | 2 | 1 |
| South Batinah | Liwa | | | | | | | 14 | 1 [1] | | |
| | Khaburah | | | | | | | | 2 | 4 | 2 |
| | Rustaq | | 1 | | | 4 | | 7 | | 1 | 1 |
| | Barka | | | | | 1 | | 15 | 4 | 2 | |
| | Musanah | 1 | | | | | | 2 | 1 | 2 | 2 |
| | Nakhl | | | | | | | 1 | | | |
| Dakhliyah | Wadi Maawil | | | | | | | | | | |
| | Al Awabi | | | | | | | 1 | | | |
| | Nizwa | | | 1 | | | | 4 | 1 | 1 | |
| | Samail | | | | | | | 4 | | 2 | 1 |
| | Bahla | | | | | | | 2 | 1 | | |
| | Izki | | | | | | | 1 | 1 | | |
| | Adam | | | | | | | 1 | | | |
| | Al Hamra | | | | | | | 1 | | | |
| North Sharqiyah | Manah | | | | | | | 2 | | | |
| | Bidbid | | | | | | | 1 | | 1 | |
| | Ibra | | | | | | | 1 | 1 [1] | | |
| | Mudaibi | 1 | | | | | | 6 | | 1 | 1 |
| | Bidiyah | | | | | | | 1 | | 2 | 1 |
| | AL Qabil | | | | | | | 1 | | 1 | |
| South Sharqiyah | Dima Wa Al Tayeen | | | | | | | 1 | | 2 | |
| | Wadi Bani Khalid | | | | | | | | | | |
| | Sur | | | | | | | 8 | | 3 | |
| | Jalan Bani Bu Ali | | | 1 | | | | | | | |
| | Jalan Bani Bu Hassan | | | | | | | | | 1 | 1 |
| Dhanira | Al Kamil Wa Al Wafi | | | | | | | 2 | | | |
| | Masirah | | | | | | | | | | |
| | Ibri | | | | | | | | 2 | 1 | |
| | Yankul | | | | | | | | | 1 | |
| Buraimi | Dhank | | | | | | | 1 | | 1 | 1 |
| | Buraimi | | | | | 1 | | 7 | 2 | 1 | |
| | Mahda | | | | | | | 2 | | | |
| Musandam | Sunaina | | | | | | | 3 | | | |
| | Khasab | | | | | | | | | | |
| | Daba Al Biya | | | | | | | 1 | | | |
| Al Wustah | Bukha | | | | | | | | | | |
| | Madha | | | | | | | | | | |
| | Haima | | | | | | | 16 | | 1 | 1 |
| | Duqum | | | | | | | 2 | | | |
| Total | Mahoot | | | | | | | | | 1 | 1 |
| | Al Jazer | | | | | | | | | | |
| Total | | 4 | 1 + 2 (i) | 3 | 0 | 11 | 0 | 281 | 30 [2] | 76 | 33 |

Communicable Disease Surveillance Data: *Age Distribution*

Second quarter: April to June 2008

| Priority Communicable 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 | | | | | | | | | | | |
| Cholera | 0 | - | - | - | - | - | - | - | - | - | - |
| Plague | Never reported | | | | | | | | | | |
| Yellow Fever | Never reported | | | | | | | | | | |
| Meningococcal Infection | 0 | - | - | - | - | - | - | - | - | - | - |
| H. influenzae type b, meningitis (<i>Hib</i>) | 1 | - | 1 | - | - | - | - | - | - | - | - |
| Rabies | 0 | - | - | - | - | - | - | - | - | - | - |
| Pulmonary Tuberculosis (sputum positive) | 33 | - | - | - | 1 | 1 | 4 | 7 | 1 | 19 | |
| Group A Syndromes | | | | | | | | | | | |
| Acute Flaccid Paralysis [Polio] | 4 | - | 1 | 3 | - | - | - | - | - | - | - |
| Fever & Rash-Illness | 320 | 93 | 146 | 64 | 7 | 2 | 1 | 4 | 1 | 2 | |
| <i>Clinical Cases</i> | 5 | 1 | 3 | 1 | - | - | - | - | - | - | |
| Measles (<i>IgM positive</i>) | 1 + 2 (i) | 1 + 2 (i) | - | - | - | - | - | - | - | - | |
| Rubella (<i>IgM positive</i>) | 3 | - | 1 | 2 | - | - | - | - | - | - | |
| Congenital Rubella Syndrome (<i>CRS</i>) | - | - | - | - | - | - | - | - | - | - | |
| Severe Acute Respiratory Syndrome (<i>SARS</i>) | Never reported | | | | | | | | | | |
| Acute Haemorrhagic Fever Syndrome | 0 | - | - | - | - | - | - | - | - | - | |
| Food Poisoning (<i>Infectious origin</i>) | 159 | 3 | 24 | 29 | 28 | 20 | 14 | 20 | 12 | 9 | |
| Group B Diseases | | | | | | | | | | | |
| Bacterial Meningitis (<i>other than Hib & Nm</i>) | 16 | 8 | 3 | 1 | 1 | - | - | - | 1 | 2 | |
| Viral Meningitis | 0 | - | - | - | - | - | - | - | - | - | |
| Other Meningitis (<i>unspecified</i>) | 8 | 1 | 3 | 2 | 1 | 1 | - | - | - | - | |
| Acute Viral Hepatitis (<i>Total</i>) | 257 | 8 | 83 | 68 | 44 | 9 | 11 | 15 | 8 | 11 | |
| Acute Viral Hepatitis A | 11 | - | 6 | - | - | - | 1 | - | 2 | - | |
| Acute Viral Hepatitis B | 0 | - | - | - | - | - | - | - | - | - | |
| Acute Viral Hepatitis C | 0 | - | - | - | - | - | - | - | - | - | |
| Acute Viral Hepatitis D (<i>amongst B positive</i>) | 0 | - | - | - | - | - | - | - | - | - | |
| Acute Viral Hepatitis E | 0 | - | - | - | - | - | - | - | - | - | |
| Acute Viral Hepatitis (<i>unspecified</i>) | 248 | 8 | 77 | 68 | 44 | 9 | 10 | 15 | 6 | 11 | |
| Typhoid & Paratyphoid Fever | 24 | 2 | 4 | - | 3 | 1 | 6 | 2 | 2 | 4 | |
| Clinical Pertussis [<i>IgM positive</i>] | 30 [2] | 21 [1] | 8 [1] | 1 | - | - | - | - | - | - | |
| Trachoma (<i>active</i>) | 23 | - | 1 | 6 | 7 | 7 | - | 1 | 1 | - | |
| Brucellosis (<i>human</i>) | 35 | - | 8 | 6 | 6 | 4 | 6 | - | 3 | 2 | |
| Leishmaniasis Cutaneous (CL) | 3 | - | - | - | - | 1 | - | 1 | - | 1 | |
| Leishmaniasis Visceral (VL) | 0 | - | - | - | - | - | - | - | - | - | |
| Schistosomiasis (<i>intestinal</i>) | 0 | - | - | - | - | - | - | - | - | - | |
| Pulmonary Tuberculosis (<i>sputum negative</i>) | 11 | 1 | - | - | 1 | - | 1 | 3 | 1 | 4 | |
| Extra-pulmonary Tuberculosis | 32 | - | 1 | 1 | 1 | 3 | 5 | 7 | 4 | 10 | |
| Leprosy | 1 | - | - | - | - | - | - | 1 | - | - | |
| HIV [AIDS] | 11 [8] | - | - | - | - | 1 [0] | 2 [0] | 2 [2] | 4 [5] | 2 [1] | |

Note:

- High proportion of unspecified Viral Hepatitis in Q2 is due to shortage of diagnostic ELISA kits in CPHL.
- The quarterly data are **'provisional'** & should be scrutinized & verified by the focal point of communicable diseases (Epidemiologist) at the provincial level. The data would be finalized, after receiving feedback.
- The Group C data should also be carefully checked & verified for accuracy. Ensure that case definitions are strictly followed.
- Tuberculosis, Leprosy & HIV [AIDS] data are for nationals only.
- All notified cases of Malaria are imported cases.
- (i) = imported case.

“The wisest mind has something yet to learn.”



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Your contribution is valuable to us:

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

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While submitting articles related to studies conducted in Oman, the authors should attach a copy of the approval of ethical committee/research committee of the institution or the Regional Directorate.

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