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Community Health & Disease Surveillance Newsletter

Sultanate of Oman *Ministry of Health*

Inside this issue:

HIV/AIDS Epidemic: Monitoring Status in Oman
Part 1

Background

Since the first description of AIDS as a new disease in 1981, the HIV infections have emerged as a major public health problem worldwide. Today globally over 40 million people are living with HIV.

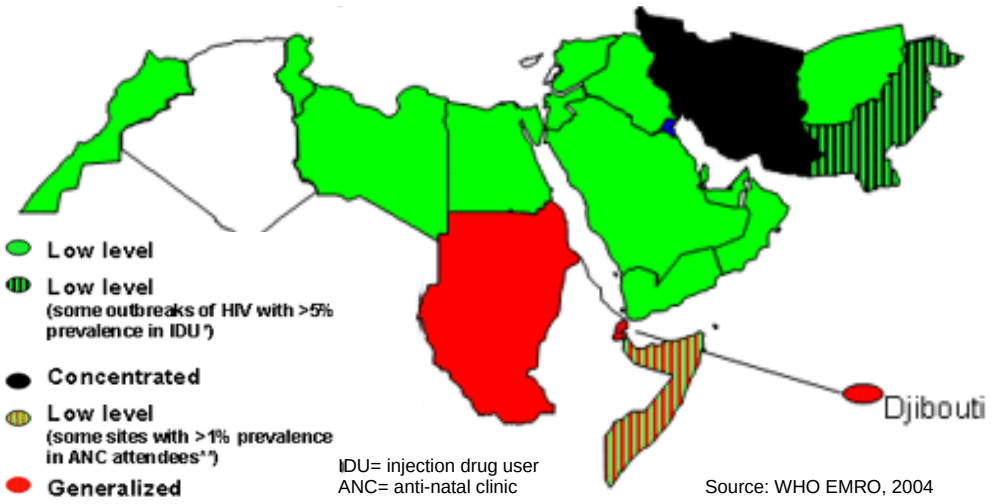
The first case of HIV in Oman was reported in 1984. Since then till December 2005, 1446 cases were on record. Of these 459 cases have so far died.

The numbers steadily increased till 1994. From 1995 to 1998 a declining trend was observed. Since 1999 the incidence is stationery with an average of 87 cases per year.

By the end of 2005 as per the national database there were 565 AIDS cases and 876 asymptomatic HIV carriers. The incidence of HIV/AIDS in 2004 was 3.9 per 100,000 population. By the end of 2005 the male to female ratio among reported cases is 2.7:1. The maximum number of reported cases belong to the age group 20-44.

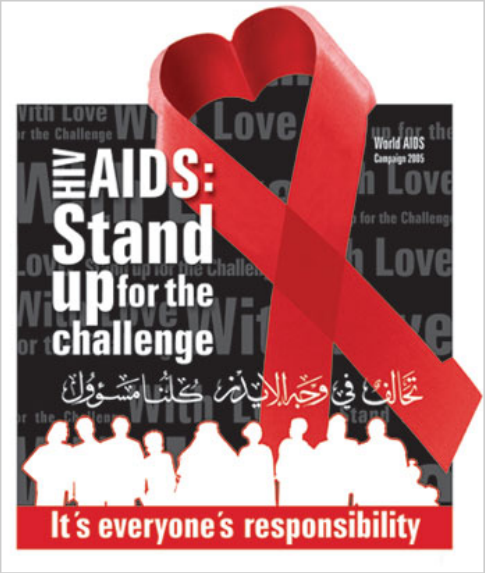
More cases were reported from provinces with large urban population viz. *Muscat* Governorate and *North Batinah* region. The main modes of transmission are sexual (heterosexual and homosexual) and intravenous drug use (IDU). Blood transfusion is no longer reported as a risk factor and transmis-

Fig.1
Type of HIV/AIDS Epidemic in the Eastern Mediterranean Region of WHO



IDU= injection drug user
ANC= anti-natal clinic

Source: WHO EMRO, 2004



"Oman has been classified by World Health Organization as a low level epidemic country for HIV/AIDS."

sion from mother to child was about 4% previously, only one case of such transmission was reported in the last three years.

Oman has been classified by WHO as a low level epidemic country.

In Ministry of Health the HIV/AIDS control programme was established in 1986 within the Department of Communicable Disease Surveillance and Control. A National Technical Committee on AIDS (NTCA) was established in 1987. Initially the program focused on Information, Education & Communication, epidemiological surveillance, blood safety and standardised case management. From 1996 onwards sentinel surveillance initiative was undertaken targeting identified high-risk groups.

In summary the current programme strategies are focused on early detection, case management and prevention of transmission as well as screening of the high risk.

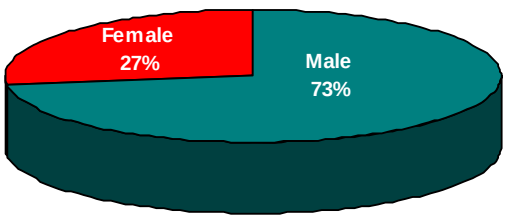
Core Indicators

Due to the diversity of HIV epidemics around the world existing HIV surveillance systems are ill-equipped to capture this diversity, or to explain changes over time in mature epidemics. Efforts are now being made to build on existing systems, strengthening their explanatory power and making better use of the information they generate. The **"second generation surveillance system"** aims to concentrate resources where they will yield information that is most useful in reducing the spread of HIV and in providing care for those affected. It means concentrating data collection in populations most at risk of becoming newly infected with HIV—populations with high levels of risk behaviour or young people at the start of their sexual lives. For the purpose of using the core indicators countries have been classified into low prevalence states and those with generalized epidemics. The Sultanate of Oman is a low prevalence state. Currently the National Aids Control Program in Oman is in the process of launching second-generation surveillance activities.

Epidemiology of HIV/AIDS in Oman (status as of 31st Dec. 2005)

There was a rising trend in reported HIV cases in Oman till 1994 since the first case was reported in 1984. There has been relative stabilisation in the number of reported new cases since 1997. Till the end of 2005 a total of 1447 cases were reported and over a third of these reported cases among the nationals have died. At the end of 2005, 987 cases are alive. The male to female ratio among them is 2.7:1 (Fig.2).

Fig. 2
Gender Distribution of HIV/AIDS Cases:



Almost 50% of the reported cases were from the *Muscat Governorate* where in 27% of the Omani population is residing. So also in *North Batinah* region there were more cases, these are indicative of the relatively higher prevalence in the urban settings.

Fig. 3
Age Distribution of AIDS Cases: 1985-2005

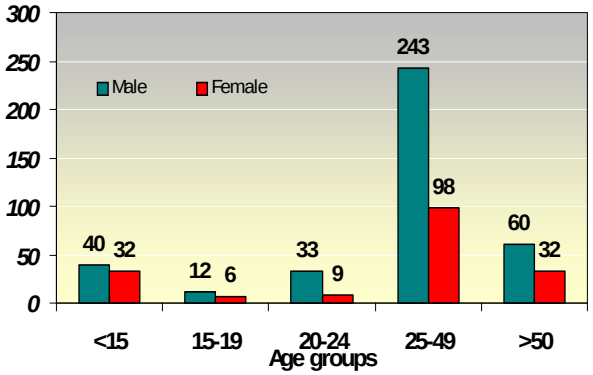
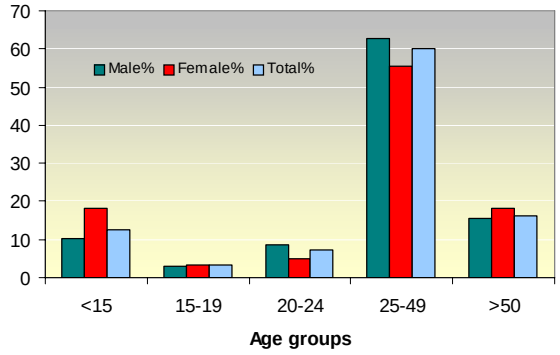


Fig. 4
Age and Sex Distribution of HIV/AIDS Cases 1985-2005



The main age group affected with HIV infection was the 20-49 years. This is true of both sexes (Fig. 3 & 4). There was a significant drop in the Paediatric cases in the recent years (since 2003). The age distribution among AIDS cases also follows a similar pattern (Fig. 3).

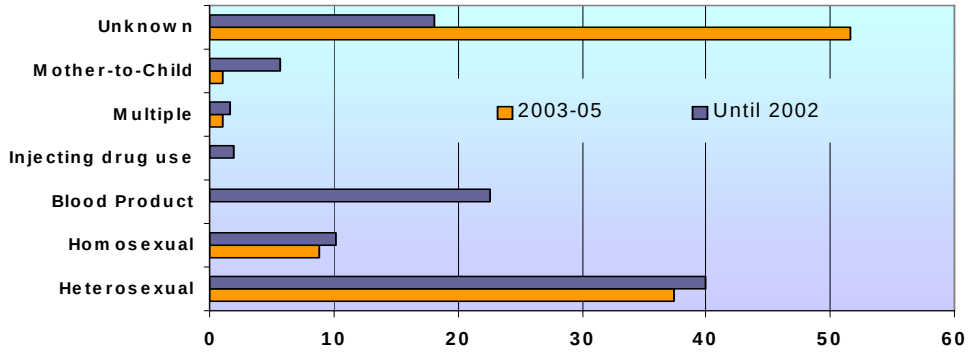
In the early 1980's, the major mode of transmission was through the contaminated blood and blood products. These cases declined significantly after introduction of mandatory screening in blood banks. By the early 1990's, the identified HIV transmission route was mainly sexual (hetero and homosexual) as per previous reports (Table-1). In the last decade injecting drug users (IDU) acquired prominence as one of the major modes of transmission. As of 2005, 68 cumulative cases of mother-to-child transmission were on record with the last case being reported in the year 2003. At present the chief mode of transmission is the sexual transmission (hetero and homosexual) and infection through drug abuse accounting for 53% of cases. Other modes were blood transfusion (11.2%) and mother-to-child (4.7%). In nearly 40% of the cases recorded till 2003 the route of transmission could not be ascertained. Similar trends were observed in AIDS patients taken alone (Fig.4).

"As of 2005 in Oman, 68 cumulative cases of mother-to-child transmission were on record with the last case being reported in the year 2003."

Table 1
Prevalence (%) of Risk-Factors Amongst HIV/AIDS Cases: 1985-2005 (n=565)

Modes of Transmission	Males		Females		Total till 2005
	Till 2002	2003-05	Till 2002	2003-05	
Blood Transfusion	0.0	0.0	28.1	7.7	11.2
Heterosexual	54.5	41.4	47.0	38.0	41.2
Homo/Bisexual	0.0	18.8	0.0	15.9	12.0
Mother-to-Child	3.6	2.2	9.0	3.7	4.7
IV Drug Use	0.0	3.2	0.0	7.9	5.1
Multiple	0.0	0.5	0.6	6.0	3.8
Unknown	41.8	33.9	15.3	20.8	22.0
Total	100.0	100.0	100.0	100.0	100.0

Fig.5
Changing Trend in the Distribution of Risk Factors: Before & After 2003



"The National AIDS Control Programme (NAP) supervises & provides support to the implementation of HIV/AIDS & STI-related activities in the country.."

Comparison amongst the risk factors before and after 2003 (Fig.5) shows the predominant prevalence of sexual mode and IDU. The transmission through blood and blood products is absent. However it is also important to note that the component of "unknown risk factor" has relatively increased significantly.

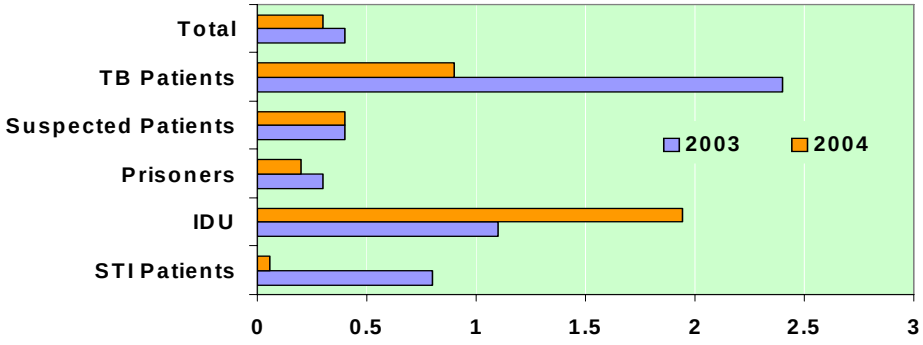
Table-2
Age & Sex Distribution of Recently Reported HIV/AIDS Cases 2003-05

Age group	2005		2004		2003	
	M	F	M	F	M	F
<15	2	1	3	1	1	0
15-19	5	0	1	0	0	1
20-24	10	3	7	1	12	3
25-49	53	13	36	11	39	15
>50	9	3	8	3	9	4
Total	79	20	55	16	61	23

New HIV/AIDS cases notified in 2003, 2004 and 2005 were 86, 71 and 84 respectively (Table-2). Thus on an average the Annual incidence of notified HIV among the nationals is around 4.3 per 100,000. The average number of AIDS cases reported remained more or less constant at around 30 cases per year for the past 10 years giving an incidence of around 1.9 per 100,000 population.

Among the high risk groups the prevalence of HIV was highest among TB patients (2.5%) and amongst IDU (2%) (Fig.6). This is significant on the background that a decline was observed in the rate of HIV detection among the screened STI cases. Of the 2045 screened in 2003 and 2004 only three cases were positive for HIV indicating low prevalence of 0.15%.

Fig.6
Prevalence (%) of HIV Amongst the High-Risk Groups: 2003 & 2004



The National AIDS Control Programme (NAP) supervises and provides support to the implementation of HIV/AIDS and STI-related activities in the country. Data are compiled from the regions and annual report is produced giving an overview of activities in priority areas. The NAP also ensures the follow-up of recommendations made at the regional or international forums on HIV/AIDS that are relevant to the situation in Oman. The initial short term plans resulted in establishment of HIV testing facilities and manpower development for HIV/AIDS counselling.

The first mid term plan from 1990 to 1995 focused on Information, Education & Communication, epidemiological surveillance, blood safety and standardised case management. In the second midterm plan from 1996-2000 sentinel surveillance initiatives were undertaken targeting patients attending the Sexually Transmitted Infections (STI) clinics.

The current HIV/AIDS surveillance strategies apart from screening of STI patients target the other known high risk population subgroups viz. blood donors, IV drug users, prisoners etc. in addition to case reporting. All TB cases are also screened for HIV with mandatory notification. In summary the current programme strategies are focused on early detection, case management and prevention of transmission as also high risk groups screening (Table-3).

According to the available information the current surveillance system relies primarily on case reporting which is functioning reasonably accurate in addition to appropriate screening. The major strength of the programme lies in the mandatory HIV screening policy of blood donors and TB patients. Data from all these sources is complete, regular and accurate.

The STI clinics at the designated sites are referring the cases for HIV screening. The data from the dermatology clinics help in understanding the high-risk behaviour in the community. However this appears to be the only source of information.

Table-3
Summary of Approaches & Strategies

1.	Information, Education & Communication
2.	Epidemiological & Behaviour surveillance
3.	Blood Safety
4.	Case management including clinical treatment support and counselling
5.	Programme management

The data indicates only the incidence of cases that are being reported to the Ministry of Health institutions. More information is needed to define the actual situation of STIs in the country. There is thus a possibility of considerable underreporting as it is a well known fact these patients tend to prefer private health care due to their concern for confidentiality.

To be continued...

"The data indicates only the incidence of cases that are being reported to the Ministry of Health institutions. More information is needed to define the actual situation of STI & HIV in the country."

(Part 2 of this article will be published in the next issue of this Newsletter)

Immunization Data Quality Self-Assessment (DQS)

Implementation in Oman

Background

Most countries track the performance of their immunization programmes through hierarchical administrative monitoring systems. In a typical system, staff at local health facilities compile vaccination data from daily immunization logs or tally sheets and report these to a district health officer monthly. Ideally, staff at both the health facility and at the district level use these reports to evaluate progress in achieving immunization coverage goals. The district officer compiles the coverage data from all facilities and reports them either monthly or quarterly to the national level. National level staffs use these data to assess national and district performance and to compile annual reports that are submitted to WHO and UNICEF.

When efficient, accurate and timely reporting occurs at each level of the hierarchy, administrative monitoring systems provide a strong basis for planning, reviewing progress and identifying areas needing additional efforts to deal with low-coverage or high drop-out rates.

*"The coverage surveys are **NOT** a substitute for administrative reporting &the timely monitoring of programme effectiveness at the community level."*

Immunization Coverage Surveys

Community-based surveys have traditionally been used to verify reported vaccine coverage and to obtain point estimates of immunization coverage levels; they have also revealed substantive inaccuracies in administrative monitoring systems. Coverage surveys are **NOT**, however, a substitute for administrative reporting and the timely monitoring of programme effectiveness at the community level.

Coverage surveys typically provide information on birth cohorts from previous years and therefore do not provide the continual flow of information needed for local programme management. Coverage surveys also vary in precision, and their data may be subject to recall bias and quality problems. Furthermore, they do not provide information on the quality of the monitoring system or identify the cause of inaccuracies. Therefore, administrative monitoring systems are needed to provide critical information on an ongoing basis to local staff in order to determine whether coverage targets are being met.

Data Quality Audit (DQA)

WHO developed an evaluation protocol, known as the immunization data quality audit (DQA) to verify the consistency of national reports based on administrative monitoring systems. The DQA also assesses the quality, efficiency, security and usefulness of the system at each reporting level to enable practical recommendations to be made for improving the system. DQA uses DTP-3 as an indicator.

What DQA measures?

The DQA reviews two key performance measures. One measure is the verification factor (VF), a district-based indicator of reporting consistency. For each district, the VF is calculated for the previous year's reported activity using following formula:

with...

i = district indicator (i = 1, 2, 3, 4) and

j = health unit indicator (j = 1, 2, ..., 6).

$$VF_i = \left[\frac{\sum_{j=1}^{6} x_{ij}}{\sum_{j=1}^{6} y_{ij}}\right] x \frac{Rd_i}{Rn_i}$$

And where...

x_{ij} = # of re-counted DTP-3 vaccinations found in the records of the j^{th} health unit of the i^{th} district

y_{ij} = # of reported DTP-3 vaccinations from the j^{th} health unit of the i^{th} district

Rd_i = at the district level, the # of all DTP-3 vaccinations reported from all health units from the i^{th} district to the national level

Rn_i = at the national level, # of reported DTP-3 vaccinations reported by the i^{th} district.

The national VF is calculated as the

weighted average of district VFs.

A VF of ‹ 1 indicates an inability to verify all of the doses of DTP-3 reported to have been administered (over-reporting). Conversely, a VF › 1 indicates that a higher number of doses were recorded as being administered at peripheral health-service levels than are reflected in the number sent to more central levels (under-reporting). These inconsistencies could primarily be due to missing health unit tally sheets or logs, discrepant tally sheets or logs or a mixed problem of missing and discrepant data.

The second key measure is the **Quality Index (QI)**, a quantitative measure of the quality of each component at each level of the monitoring system. QIs are based on questions and observations at national level, district level and health-unit level. The questions and observations in the QIs are grouped into five components

In calculating the QI scores, one point is given for each question answered correctly or task observed to have been performed correctly. Scores are calculated for each level of the health service and for each of the components, with the number of correct answers and correctly performed tasks as numerator and the number of answers and observations as denominator.

The DQA provides a quantitative indication of reporting consistency and quality. This facilitates comparisons of results over time or place. It also diagnoses specific weaknesses in the monitoring system that, if addressed, could improve its precision, efficiency, security and usefulness.

This analysis identifies important challenges that must be faced in order to improve immunization monitoring systems. It indicates that corrective efforts must be focused at peripheral levels (districts and health units) if quality and consistency are to be improved. Previous studies have shown that immunization staff in provincial and local areas have weak skills in using quantitative immunization data. Efforts to improve data analysis and use at the local level could in turn stimulate improvements in the accuracy of the data collected because staff may take an interest in their own data and value the opportunity to demonstrate local achievements and guide local planning.

All countries, regardless of coverage levels, may have substantive inconsistencies in their reporting systems and would benefit from systematic assessments such as the DQA.

Immunization Data Quality Self-Assessment (DQS) Methodology

The immunization Data Quality Self-assessment (DQS) methodology was adopted from the Data Quality Audit (DQA) that was launched within the framework of the Global Alliance for Vaccines and Immunization (GAVI). Thus DQS is a tool that can serve to prepare for, and follow-up on, a DQA.

The DQS is designed to assess district monitoring and evaluate the quality of coverage data. It has been designed specifically for use by local staff at implementation at district levels. It is therefore a tool that can contribute significantly to the Reach Every District (RED) Initiative, that aims at ensuring that all districts are effectively covered by immunization services.

Improved data quality will allow for better district-level analysis, and therefore for better targeting resources to those areas where the need is highest. The DQS is intended to become a routine monitoring tool at district level. Its major objectives are:

- To assess the **quality** of the immuniza-

"The DQS is a tool that can serve to prepare for, & follow-up on, a DQA. In addition, its design as a tool for district-level staff makes it highly suitable for use in existing on-going monitoring exercises."

tion monitoring system (qualitative) using questionnaire designed by the team.

- To assess **accuracy** of data (reported numbers) of immunizations (quantitative) by comparing data collection forms at different levels.
- To assess the **timeliness** of reporting by browsing available records.

The final goal of the DQS is to integrate the relevant options for a country into routine monitoring practices and management of immunization activities.

"The final goal of the DQS is to integrate the relevant options for a country into routine monitoring practices & management of immunization activities. ."

During the inter-country meeting of the EPI program managers in 2005 the WHO regional office urged the member states to implement the DQS tool to monitor and improve immunization services.

Immunization Programme Monitoring in Oman

Oman is divided into ten health governorates and regions (provinces) and further into 60 districts (Wilayat). The Ministry of Health (MoH) is the regulatory authority and provides free immunization services to a total population of about 2.5 million. The Government sector is primarily responsible for providing health care at all levels.

The Expanded Program on Immunization (EPI) was formally launched in Oman in 1981. Administratively the program management is under the Department of Communicable Disease Surveillance & Control (DCDSC). The immunization coverage data in specific format are received from all government and private health units through the provincial directorates and are compiled nationally in a database program. All coverage information is stratified by Wilayat of residence.

Initially the EPI was monitored with a strong component of central supervision. Standardized national policies were introduced along with establishment of an effective recording and defaulter retrieval system. The concept of catchment area of the health institution was instrumental in assigning the immunization responsibilities to the parent institution. As a result the immunization coverage reached near 100% by mid-nineties; not just nationally but also at the district (Wilayat) level. Independent community based house-to-house surveys in the past have provided supporting evidence on the coverage data.

The supervision and monitoring of the EPI at the provincial level coincided with the decentralization of the health services. The regional EPI supervisors have been trained in all aspects of the programme. They in turn train and supervise the staff at Wilayat and institutional level. Now the EPI program in Oman is fully integrated into the primary health care services and has been completely institutionalized.

Implementing DQS in Oman

The Ministry of Health (DCDSC) decided to implement the DQS to further fine-tune the performance of EPI in the country and identify problem areas if any.

An initial National participatory DQS workshop was held from 25th to 27th February 2006 in *Muscat*. Two participants (EPI supervisors) from each of the eight health regions participated. The sparsely populated provinces of *Al-Wustah* and *Musandam* were not represented. The training was facilitated by the national EPI supervisors.

The three levels of the system were included (provincial, district & health unit) for assessment. The antigen selected was measles vaccine and the period for verification was the last three months of the year

(Sep. to Dec. 2005). Eight out of 10 populous provinces (80%) were included for application of DQS. Systematic random sampling technique was utilized for the selection of 2 districts from each selected province, and 2 health units from each selected districts (Wilayat).

Initial Briefing

The participants were briefed through a presentation on DQS followed by group work to develop and design the data collection tools (qualitative questionnaires for each level as well as data accuracy forms).

Group Work

Participants were divided into 3 working groups and assigned a leader & reporter. A facilitator joined the group participated and encouraged discussions. Each group presented the finalized version of each questionnaire. In addition listing of required documents (sources of data) needed during field work was done.

Briefing on field testing of the questionnaires was done. The groups were nominated, one for each level of health services.

Field Questionnaire

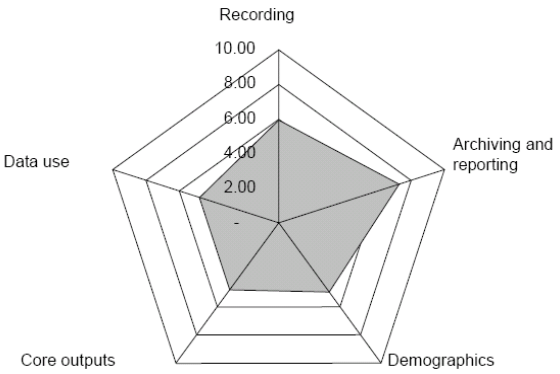
The questions in each qualitative questionnaire were grouped into 5 main categories or domains (Fig.1) for provincial level viz.

1. Recording & reporting
2. Data use
3. Planning and supervision & feedback
4. Demographics
5. Availability of records & record keeping

For district and health unit level four domains were selected (Fig. 2).

The final questionnaires included 18, 21 and 36 questions for governorate, districts and health unit level. The data collection forms were translated into *Arabic* language.

Fig.1
Graphical Presentation of QI Scores in the Five Domains



- In each field team a leader was selected who was given the responsibility for filling the forms in conjunction with other members.
- One National EPI supervisor joined each of the field teams for guidance.
- A meeting was conducted with the groups after completion of field work to receive feedback. Open discussion followed to clarify any issues.

Field Testing & Assessment

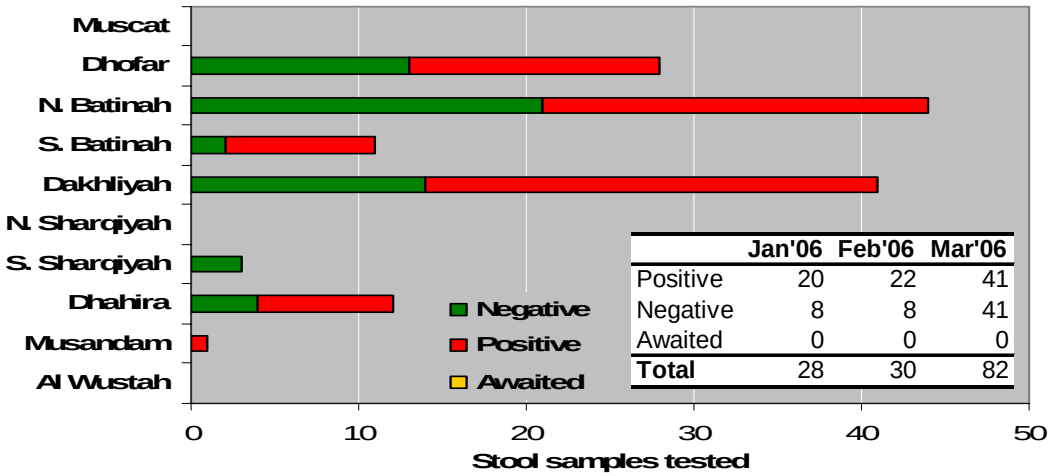
The workshop was followed by actual assessment in districts and health units. Field testing of the questionnaires was conducted in the Governorate of *Muscat* at different administrative levels i.e. province, district and health unit level. The assessments included review of accuracy verification factors at different levels and a self designed questionnaire reviewing and monitoring quality issues.

Two participants were assigned to each of the 8 selected provinces for fieldwork. It was ensured that the assessment was done by the participant from another province to reduce the bias.

"The assessments included review of accuracy verification factors at different levels & a self designed questionnaire reviewing & monitoring quality issues."

Rotavirus Sentinel Surveillance Monitoring: 1st Quarter

Results of Stool Samples Tested for Rotavirus Sentinel Surveillance by Provinces January to March 2006



	Jan'06	Feb'06	Mar'06
Positive	20	22	41
Negative	8	8	41
Awaited	0	0	0
Total	28	30	82

Note: Stool samples were not collected from sentinel sites of Muscat, North Sharqiyah & Al Wustah regions.

"The DQS results showed that overall quality index was highest at health unit level (93%) followed by province level (87%) while district level came the last (78%)."

RESULTS

Quality Index (QI)

Results were summarized & presented in tabular & graphical presentation, followed by draft recommendations and a plan of action.

The DQS results showed that overall quality index was highest at the health unit level (93%) followed by the province level (87%) while district level came the last (78%).

The scores for different domains of quality questionnaire viz. registration, recording/ reporting, data use, supervision/feedback & demographics were calculated. Maximum score obtainable was 10. An MS Excel datasheet was used to record and compile the scores at the three levels. A radar chart was automatically generated by the template (Fig.2).

Health unit level scores were 9.85, 9.63, 8.24 and 7.89 in registration, record keeping/reporting, data use & supervision/ feedback respectively.

District level scores were 9.09, 8.07, 7.81 and 5.19 in record keeping/reporting, data use, demographics, & supervision/ feedback respectively.

Province level: scores were 9.13, 9.05, 8.75, 8.39 and 7.5 in data use, supervision/ feedback, record keeping /reporting, registration and demographics respectively.

Data Accuracy

Accuracy Ratio (AR) was calculated as a percentage by dividing number of counted Measles doses given during Sep-Dec'05 by number of Measles doses reported from the health unit during the same period.

Regarding accuracy of data, community sample of children was 100% accurate except in 2 health units (95 & 96.1 %).

At health unit level the accuracy ratio (AR) ranged from 95% to 100% (Table 1 & 2) the lowest being observed in *two* health centres (95 & 96.1 %) indicating an outstanding over-reporting. On the other hand, highest under-reporting was observed in *two* health units (106.3% & 105.1%). Other health units ranged be-

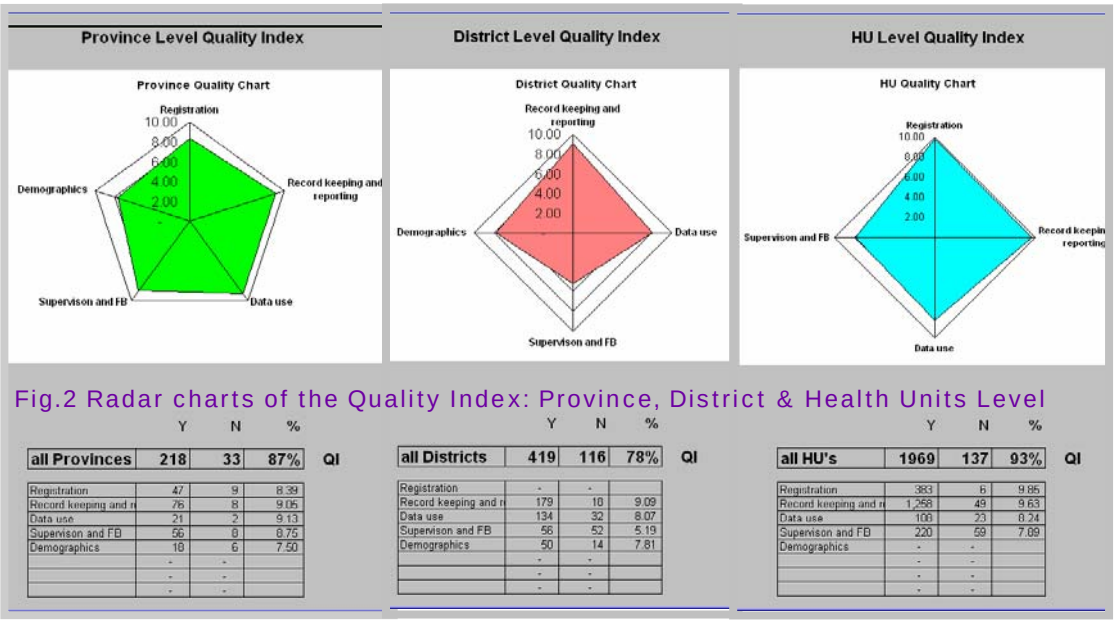


Fig.2 Radar charts of the Quality Index: Province, District & Health Units Level

	Y	N	%	QI
all Provinces	218	33	87%	QI
Registration	47	9	8.39	
Record keeping and r	76	8	9.05	
Data use	21	2	9.13	
Supervison and FB	56	8	8.75	
Demographics	18	6	7.50	

	Y	N	%	QI
all Districts	419	116	78%	QI
Registration	-	-		
Record keeping and r	179	10	9.09	
Data use	134	32	8.07	
Supervison and FB	56	52	5.19	
Demographics	50	14	7.81	

	Y	N	%	QI
all HU's	1969	137	93%	QI
Registration	383	6	9.85	
Record keeping and r	1,268	49	9.63	
Data use	100	23	8.24	
Supervison and FB	220	59	7.09	
Demographics	-	-		

tween 96.8% - 103.7%.

Individual AR at district level showed that highest over-reporting was observed in 15 districts out of 16 (100%), while under-reporting was highest in only one district (123.3%) from *North Batinah* (Table-2).

Table-1
Accuracy Ratio by Province

Province - AR %		District-1	District-2
Muscat	101.36	102.00	101.01
Dhofar	99.9	100.0	99.9
South Batinah	102.2	103.0	101.1
North Batinah	100.0	100.0	100.0
South Sharqiyah	100.0	99.3	100.3
North Sharqiyah	100.0	100.0	100.0
Dakhliyah	100.7	101.3	100.0
Dhahira	101.4	96.9	102.0

Provincial level showed the least variation in AR that ranged between 97.8% in *North-Batinah* and 100.1% in *Muscat*.

Conclusions

The DQS exercise has proved useful and practical in monitoring the quality of immunization reporting in Oman. Although overall the system was functioning alright some areas were identified for further strengthening. The specific recommendations will be implemented with integration of DQS into the existing monitoring system.

Ref.: WHO/IVB/05.04 May 2005 &
Bull World Health Organ vol.83 no.7, p.503-510. ISSN 0042-9686 July 2005

"The DQS exercise has proved useful & practical in monitoring the quality of immunization reporting in Oman."

Table-2
Accuracy Ratio by Selected Province, Districts & Health Units

Province - AR %		District-1	HU 1	HU 2	District-2	HU 1	HU 2
Muscat	100.1	100.0	106.3	101.6	100.0	105.1	100.0
Dhofar	100.0	100.0	100.0	100.0	100.0	100.0	99.9
South Batinah	100.0	100.0	103.2	100.0	100.0	101.6	100.0
North Batinah	97.8	100.0	100.0	100.0	123.3	100.0	100.0
South Sharqiyah	100.0	100.0	95.0	100.0	100.0	100.7	96.8
North Sharqiyah	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Dakhliyah	100.0	100.0	100.0	103.7	100.0	100.0	100.0
Dhahira	100.0	100.0	96.1	100.0	100.0	100.0	102.4

Communicable Diseases Quarterly Report

First Quarter (January to March 2006)

ICD Code	Priority Communicable Diseases	2006 First Quarter Jan	Feb	Mar	Total	2005 Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec
Group 'A' Diseases									
A00	Cholera	-	-	-	**0**	-	-	-	-
A20	Plague	*Never reported*							
A95.9	Yellow Fever	*Never reported*							
A39, 39.0, 39.2-39.4	Meningococcal Infection	-	2	-	**2**	-	-	-	1
G00.0	H. influenzae type b, meningitis *(Hib)*	1	-	-	**1**	-	-	-	1
A82	Rabies	-	-	-	**0**	-	-	-	-
B50-54	Malaria	27	18	22	**67**	77	172	196	110
A-15	Pulmonary Tuberculosis (sputum positive)	14	8	10	**32**	19	31	21	25
	Gr. 'A' Syndromes								
-	Acute Flaccid Paralysis *(AFP)*	1	1	1	**3**	4	7	5+2(Polio)	7
-	Fever & Rash-Illness	37	57	37	**151**	140	149	116	142+5(i)
B05	Measles *(IgM +)*	-	2	4	**6**	2	7	3	1
B06	Rubella *(IgM +)*	1	1	-	**2**	3	10	3	-
P35.0	Congenital Rubella Syndrome *(CRS)*	-	-	1 (i)	**1 (i)**	-	-	-	1 (i)
U04, 04.9	Severe Acute Respiratory Syndrome *(SARS)*	*Never reported*							
A99	Acute Haemorrhagic Fever Syndrome	-	-	-	**0**	-	-	-	-
A02	Food Poisoning *(Infectious origin)*	34	39	34	**107**	26	127	184	111
Group 'B' Diseases									
G00.1-9	Bacterial Meningitis *(other than Hib & Nm)*	-	2	2	**4**	2	5	2	7
A87	Viral Meningitis	-	1	-	**1**	-	1	1	2
G03	Other Meningitis *(unspecified)*	2	3	3	**8**	13	19	15	7
	Acute Viral Hepatitis (*Total*)	**111**	**172**	**201**	**484**	**207**	**249**	**239**	**260**
B15	Acute Viral Hepatitis A	90	101	84	**275**	48	24	44	174
B16	Acute Viral Hepatitis B	3	7	3	**13**	15	9	20	11
B17.1	Acute Viral Hepatitis C	3	1	2	**6**	4	4	5	2
B17.0	Acute Viral Hepatitis D *(amongst B positive)*	-	-	-	**0**	-	-	-	-
B17.2	Acute Viral Hepatitis E	1	1	0	**2**	-	1	7	2
B19/B17.8	Acute Viral Hepatitis *(unspecified)*	**14**	**62**	**112**	**188**	**140**	**211**	**163**	**71**
A03.0, 01.4	Typhoid & Paratyphoid Fever	-	8	1	**9**	10	19	19	13
A37	Pertussis *(clinical)*	11	4	4	**19**	2	18	8	8
A71	Trachoma *(active)*	-	-	1	**1**			6	7
A23	Brucellosis *(human)*	7	4	8	**19**	22	22	43	25
B55.1	Leishmaniasis Cutaneous (CL)	-	-	-	**0**	1	2	1	4
B55	Leishmaniasis Visceral (VL)	-	-	-	**0**	-	1	1	-
B65	Schistosomiasis *(intestinal)*	1	-	-	**1**	-	2	-	-
A16	Pulmonary Tuberculosis *(sputum negative)*	2	1	3	**6**	6	7	10	10
A17-19	Extra-pulmonary Tuberculosis	16	7	10	**33**	20	21	26	16
A30	Leprosy	-	-	-	**0**	-	2	2	1
B20-24	HIV [AIDS]	5 [4]	6 [2]	5 [0]	**16 [6]**	17[19]	18[6]	19[4]	9[6]
Group C Diseases & Syndromes									
J10-11	Influenza Like Illnesses *(ILI)*	144	98	146	**388**	1058	824	676	1256
-	aLRTI & Pneumonia *(childhood)*	5023	4090	884	**9997**	3361	6803	2386	4188
-	Acute 'Watery' Diarrhoea *(childhood)*	1145	1598	3973	**6716**	13162	9615	6893	10277
B01	Chickenpox	2311	2779	2629	**7719**	5465	4857	3063	4235
B26	Mumps	103	83	105	**291**	197	226	200	233

Communicable Diseases Quarterly Report by Regions

First Quarter (January to March 2006)

ICD	Priority Communicable Diseases	Total	Muscat	Dhofar	Dakhliyah	North Sharqiyah	South Sharqiyah	North Batinah	South Batinah	Dhahira	Musan-dam	Al-Wustah
Group 'A' Diseases												
A00	Cholera	**0**	-	-	-	-	-	-	-	-	-	-
A20	Plague	*Never reported*										
A95.9	Yellow Fever	*Never reported*										
A39, 39.0,	Meningococcal Infection	**2**	1	-	-	-	-	-	1	-	-	-
G00.0	H. influenzae type b, meningitis *(Hib)*	**1**	1	-	-	-	-	-	-	-	-	-
A82	Rabies	**0**	-	-	-	-	-	-	-	-	-	-
B50-54	Malaria	**67**	24	4	3	9	4	16	2	4	1	-
A-15	Pulmonary Tuberculosis (sputum+)	**32**	2	1	2	5	-	8	3	4	6	1
	Gr. 'A' Syndromes											
	Acute Flaccid Paralysis *(AFP)*	**3**	-	-	1	-	-	1	-	1	-	-
	Fever & Rash-Illness	**151**	15	11	27	2	22	36	29	5	4	-
B05	Measles *(IgM +)*	**6**	2	4	-	-	-	-	-	-	-	-
B06	Rubella *(IgM +)*	**2**	1	-	-	-	-	-	-	-	1	-
P35.0	Congenital Rubella Syndrome *(CRS)*	**1 (i)**	-	1 (i)	-	-	-	-	-	-	-	-
U04,04.9	Severe Acute Respiratory Syndrome	*Never reported*										
A99	Acute Haemorrhagic Fever Syndrome	**0**	-	-	-	-	-	-	-	-	-	-
A02	Food Poisoning *(Infectious origin)*	**107**	6	-	21	12	16	-	12	39	-	1
Group 'B' Diseases												
G00.1-9	Bacterial Meningitis *(except Hib & Nm)*	**4**	2	1	-	-	-	-	1	-	-	-
A87	Viral Meningitis	**1**	1	-	-	-	-	-	-	-	-	-
G03	Other Meningitis *(unspecified)*	**8**	2	-	-	-	-	5	1	-	-	-
	Acute Viral Hepatitis *(total)*	**484**	**46**	**10**	**12**	**125**	**74**	**154**	**1**	**6**	**4**	**52**
B15	Acute Viral Hepatitis A	**275**	4	-	6	90	48	106	-	-	-	21
B16	Acute Viral Hepatitis B	**13**	1	3	1	1	4	2	1	-	-	-
B17.1	Acute Viral Hepatitis C	**6**	-	-	1	-	-	5	-	-	-	-
B17.0	Acute Viral Hepatitis D *(amongst B +)*	**0**	-	-	-	-	-	-	-	-	-	-
B17.2	Acute Viral Hepatitis E	**2**	-	-	-	1	-	1	-	-	-	-
B19/B17.8	Acute Viral Hepatitis *(unspecified)*	**188**	41	7	4	33	22	40	-	6	4	31
A03.0,	Typhoid & Paratyphoid Fever	**9**	6	1	1	-	1	-	-	-	-	-
A37	Pertussis *(clinical)*	**19**	7	1	-	3	-	7	1	-	-	-
A71	Trachoma *(active)*	**1**	1	-	-	-	-	-	-	-	-	-
A23	Brucellosis *(human)*	**19**	-	19	-	-	-	-	-	-	-	-
B55.1	Leishmaniasis Cutaneous *(CL)*	**0**	-	-	-	-	-	-	-	-	-	-
B55	Leishmaniasis Visceral *(VL)*	**0**	-	-	-	-	-	-	-	-	-	-
B65	Schistosomiasis *(intestinal)*	**1**	-	1	-	-	-	-	-	-	-	-
A16	Pulmonary Tuberculosis *(sputum neg.)*	**6**	1	-	-		-	1	2	-	2	-
A17-19	Extra-pulmonary Tuberculosis	**33**	1	-	-	-	1	2	5	9	8	-
A30	Leprosy	**0**	-	-	-	-	-	-	-	-	-	-
B20-24	HIV [AIDS]	**16 [6]**	1 [1]	-	1 [1]	1 [0]	4 [1]	9 [2]	-	0 [1]	-	-
Group C Diseases & Syndromes												
J10-11	Influenza Like Illnesses *(ILI)*	**388**	-	280	-	36	-	5	-	65	2	-
-	aLRTI & Pneumonia *(childhood)*	**9997**	610	1275	1884	721	917	2770	355	1407	58	-
-	Acute 'Watery' Diarrhoea *(childhood)*	**6716**	1128	1089	1082	58	686	1173	788	613	95	4
B01	Chickenpox	**7719**	1248	1183	1665	616	401	540	946	770	279	71
B26	Mumps	**291**	155	37	23	20	12	19	14	9	1	1

Selected Communicable Diseases by Wilayat

First Quarter (January to March 2006)

Region	Wilayat	AFP	Measles	Rubella	Meningo-coccal Infection	Hib Meningitis	TB (Total)	TB Sputum Positive	Viral Hepatitis A	Viral Hepatitis B	Malaria (All)	Pertussis	Leprosy
MUSCAT	Muscat						1				2		
	Seeb		1	1	1	1	9	2	1		12	1	
	Muttrah		1				3	2				2	
	Bowsher						5	1	1		8	3	
	Al Amerat						3	2		1	2	1	
	Quriyat								2				
DHOFAR	Salalah		2				6	1		3	4	1	
	Thumrait		2				1	1					
	Taqah						1						
	Mirbat						2	1					
	Sadah						1						
	Rakhyut												
	Dhalqut												
	Muqshan												
	Shaleem												
	Mazyoona												
NORTH BATINAH	Sohar						5	4	4		6	5	
	Shinas								37		1	1	
	Liwa	1							50		3		
	Saham						1		2	1	5	1	
	Khabura						2	1	7		1		
	Suwaiq						3	3	4	1			
SOUTH BATINAH	Rustaq						3	1					
	Nakhl				1		1						
	Wadi Maawil						1						
	Al Awabi												
	Musanah						2						
	Barka						3	2		1	2	1	
DAKHLIYAH	Nizwa						1				2		
	Bahla						2						
	Adam								3		1		
	Al Hamra												
	Manah												
	Samail								1	1			
	Izki								1				
	Bid Bid	1					2	2	1				
DHAHIRA	Ibri	1					2				1		
	Yanqul												
	Dhank												
	Al Buraimi						2	2			3		
	Mahda								2				
NORTH SHARQIYAH	Ibra										3		
	Al Mudhaibi						4	4	70	1	4	3	
	Bidiyah						1	1	18		2		
	Al Qabel												
	Dima Al Tayeen								1				
	Wadi Bani Khalid												
SOUTH SHARQIYAH	Sur								15				
	Masirah						1		9				
	Al Kamil Wa Al Wafi												
	Bilad Bani Bu Ali								7	1			
	Bilad Bani Bu Hassan								17	3			
MUSANDUM	Khasab			1			2	1			1		
	Dibba												
	Bukha												
	Madha												
AL-WUSTAH	Haima												
	Duqum												
	Mahoot						1	1	22				
	Al Jazer												
NATIONAL TOTAL		3	6	2	2	1	71	32	275	13	67	19	0

Age Distribution of Communicable Diseases

First Quarter (January to March 2006)

ICD Code	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											
A00	Cholera	**0**	-	-	-	-	-	-	-	-	-
A20	Plague	*Never reported*									
A95.9	Yellow Fever	*Never reported*									
A39, 39.0, 39.2-39.4	Meningococcal Infection	**2**	2	-	-	-	-	-	-	-	-
G00.0	H. influenzae type b, meningitis (*Hib*)	**1**	1	-	-	-	-	-	-	-	-
A82	Rabies	**0**	-	-	-	-	-	-	-	-	-
A-15	Pulmonary Tuberculosis (sputum+)	**32**	-	-	-	-	2	2	7	2	19
	Gr. 'A' Syndromes										
	Acute Flaccid Paralysis (*AFP*)	**3**	-	2	1	-					
	Fever & Rash-Illness	**151**	42	75	19	8	4	1	1	1	-
B05	Measles (*IgM +*)	**6**	2	1	2	-	1	-	-	-	-
B06	Rubella (*IgM +*)	**2**	-	2	-	-	-	-	-	-	-
P35.0	Congenital Rubella Syndrome (*CRS*)	**1 (i)**	1 (i)	-	-	-	-	-	-	-	-
U04, 04.9	Severe Acute Respiratory Syndrome	*Never reported*									
	Acute Haemorrhagic Fever Syndrome	**0**	-	-	-	-	-	-	-	-	-
A02	Food Poisoning (*Infectious origin*)	**107**	4	17	21	21	21	7	6	5	5
Group 'B' Diseases											
G00.1-9	Bacterial Meningitis (*except Hib & Nm*)	**4**	2	-	1	-	-	-	-	-	1
A87	Viral Meningitis	**1**	-	-	-	-	-	-	1	-	-
G03	Other Meningitis (*unspecified*)	**8**	3	1	2	-	1	-	1	-	-
	Acute Viral Hepatitis (*Total*)	**484**	**11**	**147**	**187**	**84**	**15**	**8**	**14**	**7**	**11**
B15	Acute Viral Hepatitis A	**275**	5	84	122	55	6	-	-	1	2
B16	Acute Viral Hepatitis B	**13**	-	-	-	-	1	2	7	1	2
B17.1	Acute Viral Hepatitis C	**6**	-	-	-	1	-	-	1	2	2
B17.0	Acute Viral Hepatitis D (*amongst B +*)	**0**	-	-	-	-	-	-	-	-	-
B17.2	Acute Viral Hepatitis E	**2**	-	-	-	-	-	1	1	-	-
B19/B17.8	Acute Viral Hepatitis (*unspecified*)	**188**	6	63	65	28	8	5	5	3	5
A03.0, A01.4	Typhoid & Paratyphoid Fever	**9**	-	3	3	1	-	1	-	-	1
A37	Pertussis (*clinical*)	**19**	12	7	-	-	-	-	-	-	-
A71	Trachoma (*active*)	**1**	-	-	-	-	-	-	1	-	-
A23	Brucellosis (*human*)	**19**	-	5	3	6	2	1	1	1	-
B55.1	Leishmaniasis Cutaneous (*CL*)	**0**	-	-	-	-	-	-	-	-	-
B55	Leishmaniasis Visceral (*VL*)	**0**	-	-	-	-	-	-	-	-	-
B65	Schistosomiasis (*intestinal*)	**1**	-	-	-	-	-	-	-	-	1
A16	Pulmonary Tuberculosis (*sputum Neg.*)	**6**	1	-	-	-	1	-	-	-	4
A17-19	Extra-pulmonary Tuberculosis	**33**	-	-	-	1	1	7	10	5	9
A30	Leprosy	**0**	-	-	-	-	-	-	-	-	-
B20-24	HIV [AIDS]	**16 [6]**	-	1 [0]	-	-	2 [0]	6 [0]	3 [2]	2 [2]	2 [2]

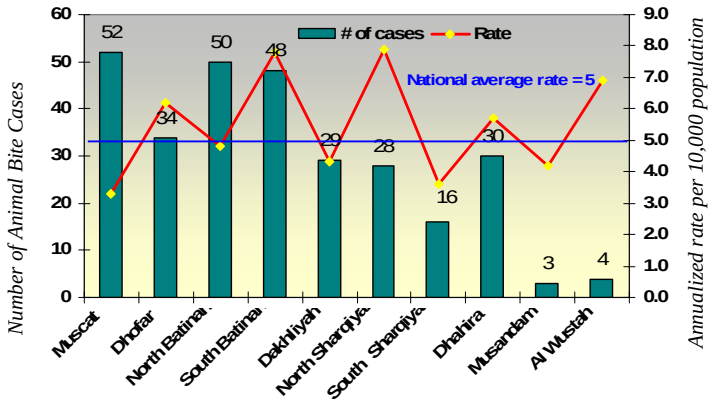
Note:

- *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. Similarly the Group C data should also be carefully checked & verified for accuracy ensuring that the case definitions are strictly followed.*
- *Tuberculosis, Leprosy & HIV [AIDS] data are for nationals only.*
- *Unspecified cases of acute viral hepatitis are due shortage of diagnostic kits and would be subsequently tested in the next quarter.*
- *(i) = imported case.*

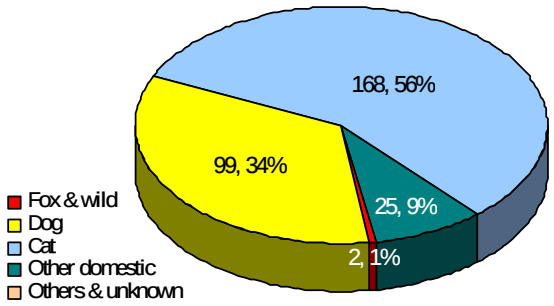
Animal Bite Surveillance Data

First Quarter (January to March 2006)

Notified Animal Bites by Regions (# & rate)



Notified Animal Bites by Type of Animal (#, %)



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