



Sultanate of Oman

Ministry of Health



Commemorating a Decade of Publication

This quarterly Newsletter was first published in the year 1992 & with this issue it is entering in its 11th year of successful publication. On this occasion on behalf of the editorial board I thank all those who contributed & supported this venture. This in-house publication not only publishes topics of general interests to the medical fraternity but also narrates the new policies & progress of the various health programmes of Ministry of Health. The ultimate purpose of this venture is to impart knowledge & information & thus improve the quality of health services. This undertaking has also served as an effective feedback tool. We continue to strive to make this endeavour more informative to the targeted users.

*Dr. Ali Jaffer M. Suleiman
Director General of Health Affairs*

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National Injection Safety Survey

(June/July 2001)

Background & Rationale

Owing to the global concerns over the injection safety, a new standardized assessment tool was developed by WHO/BASICS (*Basic Support for Institutionalizing Child Survival Project*) within the framework of the Safe Injection Global Network (SIGN) coalition to help member countries to conduct a rapid assessment of the prevalent injection practices.

In Oman, due to the concerns of transmissible infections such as hepatitis B and HIV, disposable syringes have been in vogue for vaccines as well as for all other injections since the early seventies.

In order to validate the assumption that in Oman all components of safe injection practices are being followed a national survey was undertaken by the Department of Surveillance & Disease Control (DSDC) in June/July 2001 in collaboration with the World Health Organization. The standardized assessment tool developed by WHO/BASICS was adapted to the country situation and used for this purpose.

Objectives

- To determine whether health facilities meet the necessary requirements in terms of injection equipment, supplies, & waste disposal

- To determine whether the critical steps of injection administration are executed in accordance to the recommended standards
- To identify unsafe injection practices that could potentially be targeted by injection safety interventions
- To estimate the proportion of health-care facilities where injection practices are safe to health care providers, beneficiaries & communities
- To provide policy & decision makers with recommendations to modify existing policies or formulate new ones on injection safety in immunization & therapeutic services

“The injection safety assessment was conducted using the new WHO/BASICS standardized assessment tool that was developed in the framework of the SIGN coalition”.

Survey Methodology

The cross-sectional survey covered the entire country, which is administratively, divided into 7 Regions & 3 Governorates (provinces), and further into 59 Wilayat (districts). The sampling unit was a health care facility providing primary health care services and was selected by two-stage cluster sampling technique.

The regions were listed and ranked. North & South Sharqiyah regions and the North & South Batinah regions were pooled together. The identification of the clusters within the region was done by PPS (probability proportional to size) sampling technique.

Sample size

In each of the eight selected regions, a cluster of 10 primary health care facilities was selected randomly. The estimated total sample size was $8 \times 10 = 80$ health care facilities. However, in Governorate of Muscat only 18 primary health care facilities were available (for the two selected clusters). Hence, a total of 78 primary health care facilities were finally included in the sample.

Inclusion & Exclusion Criteria

All government health facilities providing primary health care viz. health centres, extended health centres, & Wilayat hospitals were included. Private clinics as well as hospitals providing secondary &/or tertiary care institutions were excluded.

Implementation

Four teams of field workers from the cadre of national EPI supervisors were recruited for the survey. Each team collected data for two clusters (20 health facilities).

Field workers were trained from 4th to 6th June 2001 by a visiting WHO consultant in Muscat. During the training, the field workers were familiarized with the survey questionnaire. Emphasis was placed on the tactfulness of observations while conducting the interviews. A practical demonstration of the method of conducting interviews and structured observations was done. In summary the interviewers were trained on the questionnaire to reach high standardization.

The selection of the region, the names of the health institutions as well as the day of visit was not disclosed to the regional authorities to ensure that only the prevailing practices were observed.

Data Collection

(Methods, Instruments & Procedures)

Survey data collection was conducted employing two different but complementary methods. The first method was using a systematic observation of the health facility focusing on matters pertaining to supplies of injection equipment, handling and delivery of injection services, safety precautions and waste disposal procedures.

The second method was by interviewing the injection providers and supervisors as primary source of data using a standard

(Continued on page 8)

National Quality Assurance/Improvement Programme in PHC

Background

Over the last three decades, the Sultanate of Oman achieved exponential strides in health development, reflected in the widely acclaimed rapid improvement in health indicators and building of a comprehensive modern health infrastructure. However, the challenge is to maintain the success and to continue the improvement. Therefore, the issue of quality assurance/improvement (QA/I) of health care has assumed a pivotal role for the future health development prospects. The programme has been placed high on the Ministry of Health (MoH) agenda as is reflected in the 6th five-year health plan. The establishment of a functional QA/I System in PHC services is considered the essential entry point and a high priority. It is worthwhile to note that many ingredients of the QA/I are already found in the current practices.

The Vision

That the QA/I Programme in Oman would be recognized internationally as the excellent model for providing the highest quality standards of PHC services.

The Mission

The QA/I Programme in Primary Health Care (PHC) aims at the attainment by all people of the highest possible level of quality of health care. The QA/I Programme would accomplish this mission by addressing the needs of the community and by supporting the PHC staff through advocacy, education and continually improving the system through which they deliver the client care. The QA/I Programme shall create stimulating, friendly and highly professional environment that would support the principles of teamwork, empowerment and continuous quality improvement.

The Goal

The overall GOAL of the National QA/I

Programme is to institutionalize quality in PHC to ensure efficiency, effectiveness and equity of health services with the ultimate GOAL to achieve user satisfaction.

The Objectives

- The development and implementation of standards in PHC facilities that define requirements for quality health service provision throughout all levels of service delivery.
- Accurate and ongoing assessment of performance of PHC facilities through the identification of deficiencies and requirements for meeting the prescribed standards.
- Improving outcome of PHC services.
- Empowerment of staff and introducing motivating factors to encourage proactive involvement of all PHC staff in QA/I activities.
- Optimal and efficient use of resources and mobilize adequate resources to sustain QA/I in PHC.
- Building effective community partnerships and encourage community participation in QA/I efforts.

Programme Strategies

The programme would adopt the following strategies to achieve its goals and objectives:

- Establishing a *Quality Management Structure* at the national and regional levels.
- Establishing and upgrading *Quality Management System* (QMS) in selected PHC facilities in the pilot phase before expansion and full coverage.
- Qualifying a team of *Quality Assurance Professionals* to lead QA/I Programme activities in their regions.
- Establishing ongoing *Quality Audit System* for monitoring Quality Management System in PHC institutions.
- Adopting *FOCUS-PDCA* approach as a tool for continuous quality improve-

“The Quality Assurance & Improvement Programme in Primary Health Care aims at the attainment by ALL people of the HIGHEST possible level of QUALITY of health care”.

ment.

- Establishing, implementing and maintaining *POSS* (Programme of Supportive Supervision) at the national level.
- Strengthening *partnership* with the community and health related sectors and organizations (WHO, University, sister health organizations).

Methodology

Implementation of the National QA/I Programme comprises of three phases viz. introductory, early implementation and the expansion phase.

1. Introductory Phase:

The purpose of this phase is to ensure that the key MoH officials get acquainted and approve the vision, goals, strategies and approaches of the QA/I Programme. The activities include...

- Endorsement by MoH
- Initiation of contact with directors of departments under Directorate General of Health Affairs (DGHA) to provide information about the programme's vision, goals, strategies and approaches.
- Holding comprehensive and thorough orientation meetings and workshops.
- Building the national capacity to establish the quality policy and direct the programme activities accordingly.
- These initial activities would establish the management structure. The involvement of senior MoH officials facilitates consensus building and decision making. Coordination with interested partners (e.g. WHO) is critical, and should be ensured early in the planning phase.

2. Early Implementation Phase

- During this phase, the programme is implemented in limited PHC facilities (pilot) and that would provide the basis for future planning and implementation.
- The National QA/I Committee should select the proposed PHC facilities for

initial development and establishment of QMS.

- The top management of the region and the key personnel of the selected facilities would be well oriented.

3. Expansion Phase

- This phase includes efforts to broaden the range and expand the implementation of QMS to other PHC facilities (in the same or other regions).
- Problems identified during the early implementation phase are addressed, priorities established, and strategies for expansion are developed.
- Other activities in this phase include further strengthening and enrichment of central and regional capacities.
- The speed of implementation is determined by the time required to build the capacity at the central and regional level.
- To broaden the National QA/I Programme coverage to the entire Sultanate that may need nearly three years. In the mean time the policy would be to continue to provide technical support to all regions.

Programme Principles & Fundamentals

The following principles and fundamentals are essential for the sustained success of the QMS:

1. **Customer Focus:** PHC services should be designed to meet the needs and requirements of the community and even strive to exceed their expectations. The QA/I Programme shall use customers' perceptions and satisfaction on a regular basis in its evaluation of the PHC services.
2. **System and Process Approach:** A desired result is achieved more efficiently when activities and related resources are managed as a process. Identifying, understanding and managing interrelated

*“ The Quality Assurance & Improvement Programme shall use **customers’ perceptions & satisfaction** on a regular basis in its evaluation of the PHC”.*

processes as a system contributes to the PHC Organization's effectiveness and efficiency in achieving its objectives.

3. **Top Management:** Through visionary leadership, top management (at all levels) should create a conducive environment where all staffs are fully involved and in which a QA/I Programme can operate effectively. Top management should carry out regular systematic evaluations of the suitability, adequacy, effectiveness and efficiency of the QA/I Programme.
4. **Teamwork:** Because work is accomplished through processes and systems in which different people fulfil different functions, it is essential to involve in the quality improvement efforts those who fulfil these functions. This brings their insights to the understanding of changes that need to be made and to the effective implementation of the appropriate processes, as well as, to the development of ownership of the improved processes and systems.
5. **Documentation:** Documentation enables communication of the intent and consistency of action. Its use contributes to:
 - Achievement of conformity to customer requirements & quality improvement
 - Provision of appropriate training
 - Repeatability & traceability
 - Provision of objective evidence, &
 - Evaluation of the effectiveness and continuing suitability of the QA/I Programme
6. **Factual Approach to Decision Making:** Effective decision is based on the analysis of data and information. Data are needed to analyze processes, identify problems, and measure performance. Changes can then be tested and the resulting data analyzed to verify that changes have actually led to improve-

ments.

7. **Scope of the QA/I Programme:** Customer care is multidimensional and, in most cases, requires the services of many sections/units as well as many individuals within and sometimes outside the PHC Facility. Therefore, the scope of the established QMS shall include not only clinical services but also management and support services. Thus QMS functions would be organization-wide. They would be directed to all individuals involved directly or indirectly in customer care (not only doctors or nurses).
8. **Systematic Quality Monitoring:** The QA/I Programme shall establish mechanisms and methods that can monitor and control the occurrence of non-conformities (sub-standards) on regular basis.
9. **Self-Assessment:** PHC facility's self-assessment is a comprehensive and systematic review of the activities and results referenced against a model of excellence. Self-assessment will provide an overall view of the performance of the organization and the degree of maturity of the QMS. It will also help to identify areas requiring improvement in the PHC facility and to determine priority.
10. **Continual Improvement** The QA/I Programme shall have a positive approach so that it will be directed towards continually improving the PHC services *"not just to identify outliers"*. This is achieved by emphasizing system and process approach *"rather than individuals"*. Reducing threat to individuals and promoting the team spirit. Also, there would be no long-term fixed standards, but it would be a continuous process of improvement of standards established by customers and professionals.

*"There would be no long-term fixed standards, but it would be a **continuous process of improvement of standards established by customers & professionals**".*



Diabetes Mellitus in Oman

Diabetes Mellitus (DM) is a global public health problem and is a leading cause of morbidity and mortality. Projections for the year 2025 estimate the global burden of disease to increase by 122% with a total of 300 million people affected ⁽¹⁾. Developing countries, where resources are scarce, are expected to witness a 170% increase in diabetes mellitus compared to 40% in developed countries. In the Eastern Mediterranean Region diabetes is expected to increase by 150% in the first quarter of this century ⁽²⁾.

Data from the annual national statistical report indicate that inpatient morbidity for diabetes mellitus has risen steadily from 1528 cases in 1986 to 3695 cases in the year 2000 ⁽³⁾.

To estimate the magnitude of the problem in the country, the Ministry of Health has conducted two surveys (table 1) ten years apart showing a 40% increase in diabetes and a 7% increase in impaired fasting glucose (IFG) ^(4,5).

Table 1
Prevalence of DM, IGT & IFG in Oman

Survey	Method Used	DM %	IGT %	IFG %
1991	2-h Post glucose load, plasma ⁽⁴⁾	10	10	—
	Fasting plasma glucose ⁽⁵⁾	8.3	—	5.7
2000	Fasting plasma glucose ⁽⁶⁾	11.6	—	6.1

IFG= Impaired Fasting Glucose; IGT= Impaired Glucose Tolerance; (For cut-off points, see reference 7)

Age specific rates for diabetes mellitus and IFG in the second survey conducted in 2000, are shown in figure 1, ⁽⁶⁾ The highest

prevalence of diabetes (26.2% and 28.3%) was found in males aged 80+ and females aged 60-69 years.

Fig 1
Prevalence of DM & Impaired Fasting Glucose, Oman, 2000

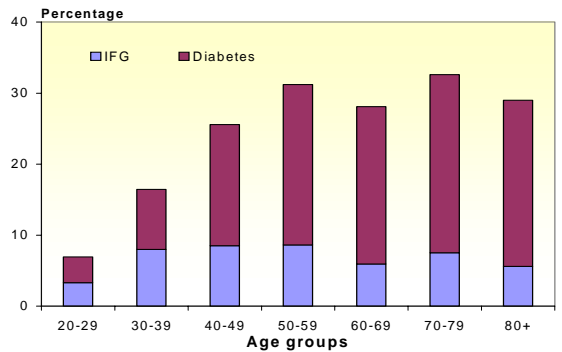
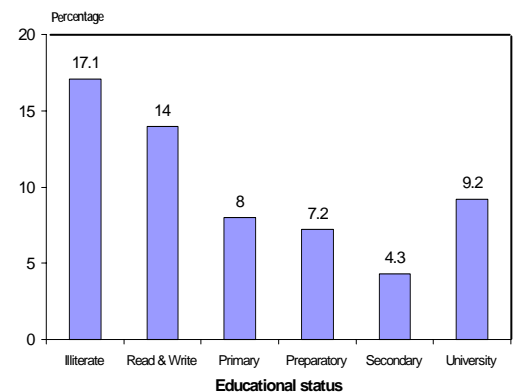


Figure 2 shows the crude prevalence of diabetes and IFG increasing with decreasing levels of literacy.

Fig 2
Prevalence of DM by Educational Status, Oman, 2000



Not only is diabetes mellitus highly prevalent but data showed that a large majority of people with diabetes are undiagnosed. In the last survey, over 66% of the patients were not aware of their disease (table 2).

Table 2
Discrepancy between Self-reported Diabetes & Status Determined by Fasting Plasma Glucose, Oman, 2000

Do you have Diabetes?	Fasting Blood Test		
	Positive	Negative	Total
Yes	192	75	267
No	380	5139	5519
Total	572	5214	5786*

* excludes 23 subjects who had fasting glucose determined but missing self-reported diabetes status.

(DM was defined as fasting plasma glucose ≥ 7 mmol/litre⁽⁷⁾)

Recognizing the importance of diabetes as a significant public health problem in the Sultanate of Oman, the Ministry of Health established a national programme for diabetes control and prevention in 1991. The sixth five-year health development plan 2001-2005 has identified diabetes mellitus as a major priority. Excluding Musandam and Al-Wustah regions (scarcely populated), a specialist in diabetes was appointed in all other regions in line with the policy of decentralization. National guidelines for management of diabetes mellitus were published in 1996 and are being updated currently. Anti-diabetic drugs and insulin are being made available free of charge to all Omanis. The National Diabetes Registry has been established to monitor the profile of people with diabetes and their complications. Efforts are also underway for Oman to join the International DiaMond registry for Type 1 Diabetes Mellitus.

Primary prevention through lifestyle changes plays a pivotal role in the control of diabetes and its complications. In recent years the Ministry's policy has been to integrate the diabetes programme into the local primary health care services. In order to optimize management of diabetes mellitus at the primary health care level, the

establishment of the diabetes mini clinics in primary health centres is being promoted.

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في الحركة صحة وبركة



"I propose that the theme for World Health Day 2002 [be] Fit for Health. This will give particular visibility to ways in which individuals and communities can influence their own health and well-being."

Dr Gro Harlem Brundtland,

54th World Health Assembly
12 May 2001

<http://www.who.int/world-health-day/eng.shtml>

"Recognizing the importance of diabetes as a significant public health problem in the Sultanate of Oman, the Ministry of Health established a national programme for diabetes control and prevention in 1991".

National Injection Safety Survey *Contd.*

(Continued from page 2)

questionnaire as instrument.

During the WHO consultant's visit, the questionnaire was revised and refined to fit into local circumstances after carefully studying the prevailing injection practices. The part of the standard survey questionnaire referring to auto-disable and sterilizable injection equipment was omitted. It was ensured that the questionnaire covered all the major areas and issues related to injection equipment, procedures and waste management in Oman. Data collection was started on June 10th and was completed by July the 7th.

Results & Discussion

All 78 selected health facilities were visited during the survey. One facility in Sharqiyah was closed hence was substituted by a nearby health centre. Most of the primary health care facilities were from rural areas. The 14 hospitals included in the survey were either Wilayat or Local hospitals providing primary health care services.

Supply and Maintenance of Injection Equipment

Oman has long abandoned using sterilizable syringes and needles and in the early seventies. Single use disposable injection equipment has since been used in all the government and private health facilities for immunizations and other curative skin piercing procedures. Needle-removers or Needle-cutters are not used in any of the health facility in Oman. Safety boxes for disposal of injection wastes and sharps were available universally.

Supply of disposable syringes in almost all facilities was found to be abundant in relation to the reported workload of weekly injections. The syringes of 1ml, 2ml, 3ml, 5 ml, and 10ml were supplied attached with needles. Of these, 1ml, 2ml and 3ml were used for immunizations while the 5ml sy-

ringes were used only for transferring the diluent.

On an average, 4096 syringes were in stock per health facility while the weekly average injection load for each was 245. In other words, the supply would allow each facility to continue providing injection services for almost 16 weeks. However only one of the visited facilities had supplies sufficient for less than two weeks.

It was also observed that only 3 (3.8%) institutions were out-of-stock for less than a month. After further clarification it was learnt that the shortage was due to faulty inventory and indenting system in those health facilities and not due to the actual shortage. It should be noted that in Oman the injection equipments and the vaccines are disbursed by two independent stores (central medical and vaccine stores). The respondents unanimously confirmed that enough quantities of injection equipments were generally available at the health facilities and that on 'NO' occasions were vaccinations or therapeutic injections abandoned due to non-availability of injection equipments.

Injection practices

On the day of the visit, 27 (34.6%) health facilities were providing immunization services. Average 12.9 injections for immunization were administered per day per institution (range = 1 to 150). Similarly during the visit 12 (15.4%) of the health facilities were also engaged in curative activities involving injections. On an average 22.2 injections were offered for therapeutic purpose per day per institution (range = 1 to 190).

63.2% of the injections administered were given for therapeutic purpose while 36.8% were given for vaccination. On the day of the visit, 27 (34.6%) health facilities were

“Oman has overall a high standard of injection safety. The practice of using reusable injection equipment has long been abandoned in favour of disposable syringes & needles.”

having immunisation sessions while 12 (15.4%) were providing therapeutic injection services.

Box 1 shows that the majority of the indicators applicable to injection safety that were being practiced in the field and observed by the interviewers.

Box 1 Indicators of Injection Practice (Observations)

Clean designated table or tray (100%)

- Use of syringes & needles from sterile pack (100%)
- Removal of needles from multi-dose vial between injections (100%)
- Use of clean barrier to break ampoule (30.7%)
- For each reconstitution, use of sterile syringe & needle (100%)
- Reconstitution of vaccine/drug powder with correct volume of diluents (100%)
- Vials kept at 2-8⁰ C during period of use (100%)
- Shaking of vaccine vial prior to withdrawing content (100%)
- Re-capping of needles after injection (1 case)

While most of the above indicators were fulfilled in all the sites, the practice of the use of a clean barrier while breaking the ampoule was followed in only 12 (30.7%) facilities. The EPI manual clearly mentions not to recap the needle after injection. However recapping was observed in one of the surveyed institutions and any some others the waste disposal boxes contained recapped needles indicating that strict adherence to this safety precaution is not universal.

Table 1 gives details of needle stick injuries in the last 12 months reported by the health care provider during interviews. Fourteen (17.9%) institutions reported needle-stick injuries in the past 1 year with

one institution reporting 4 incidents. Although it's a small percentage it reveals an unsafe practice.

Table 1 Needle-stick Injuries in Last 12 months

Frequency	HI (n=78)	Percent
None	64	82
1 incident	8	10.3
2 incidents	5	6.4
4 incidents	1	1.3
Total incidents reported	22 incidents in 14 institutions	17.9

The injection providers and the supervisors were interviewed with a structured questionnaire to test their knowledge about injection safety. Some of the findings with response score are shown in Box 2.

Box 2 Indicators of Knowledge of Injection Providers & Supervisors (Interview)

- Removal of needle by hand before disposal (14.1%)
- Practice of throwing needle with syringe (79.5%)
- Knowledge of where to report after needle-stick injury (77.9%)
- Specific person assigned for sharps disposal (62%)
- In possession of 'EPI Manual' (100%)
- In possession of any other injection safety policy/protocol (28.2%)
- Never a shortage of syringes & needles in last year (96.2%)
- Never a shortage of safety containers for waste disposal in last year (93.6%)

The EPI manual was available in all the surveyed sites. And a majority adhered to the policy of disposal of syringe and needle together. However, a few (14.1%) believed needle removal by hand before disposal as

“The respondents unanimously confirmed that enough quantities of injection equipments were generally available at the health facilities & that on ‘NO’ occasions were vaccinations or therapeutic injections abandoned due to their non-availability.”

an appropriate practice. The health staffs from 18 (23.1%) health institutions were not aware of where to report after needle stick injury. Few (28.2%) institutions were in possession of other protocols besides the EPI manual for injection safety. Shortage of syringes and needles was felt by 3 and that of safety containers by 5 health facilities in the last 12 months. This information however was not in concordance with the observation that there was ample supply of all the required equipment in all the health facilities surveyed.

“Oman has overall a high standard of injection safety. The practice of using reusable injection equipment has long been abandoned in favour of disposable syringes and needles.”

Injection Waste Disposal

In all of the health facilities surveyed the waste disposal safety boxes were universally available. Box 3 summarises some of the important observations.

Box 3 Indicators of Safe Waste Disposal (Observations)

- Presence of sharps boxes in injection room/area (96.2%)
- Presence of overflowing pierced or open container (6.4%)
- Full sharp boxes stored safely waiting for disposal (84.6%)
- Full sharp boxes stored unsupervised waiting for disposal (12.8%)
- Sharps in open container exposing to needle-stick injury (38%)
- Evidence of used sharps around the health facility (9%)
- Transport of waste off-site (100%)

In all the surveyed sites the disposal was done at a remote site away from the health facility. However, in 7 (9%) of the institutions sharps were observed around the health facility. Unsupervised sharps boxes were observed in 10 (12.8%) while unsafe storage of full boxes was observed in 9 (11.5%) health facilities. These indicators thus reveal that the injection waste

disposal activities were far from being ideal.

Final disposal by incineration of the waste is the standard recommended method. However the facilities for incineration of hazardous waste (medical/sharps) were not available universally. Only the modern referral hospitals at the regional headquarter Wilayat had the appropriate facilities for incineration. In some regions the peripheral health centres and hospitals (33.3%) have developed a mechanism to transfer the hazardous waste for final disposal to the regional hospital incinerator. However such procedures are not followed in other regions. In the majority (66.6%) of the facilities the final disposal was either done by burning (37.2%), burial (1.3%) or by dumping (28.2%) on the municipal land. Obviously such practices are unsafe and hazardous.

Conclusions

- Oman has overall a high standard of injection safety. The practice of using reusable injection equipment has long been abandoned in favour of disposable syringes and needles. The MoH has issued clear guidelines in the form of ‘*EPI Manual*’ to all the health institutions, which by and large are followed universally.
- The system of regional and national supervision and monitoring of the EPI programme is well established and functioning.
- The stock of injection equipment including the safety disposal boxes in all the health institutions is ample. The indenting procedures for the injection equipment including safety containers should be streamlined so that there are no shortages.
- Use of clean barrier while opening the ampoule is not practiced universally that may lead to the risk of personal injury

and/or contamination of the contents of the ampoule. Specific instructions should be issued in this regard.

- The health staffs are generally aware of the safety concerns of MoH. However the policies and guidelines encompassing all aspects of injection safety need to be widely disseminated.
- Needle-stick injuries still continue to occur in some facilities. Although relatively few instances are on record. Clear reporting and management protocol should be developed.
- Recapping and manual removal of needles is a dangerous practice. The survey revealed that although these are not the common practices in Oman but are still observed in few places. The MoH policy clearly states against recapping and manual removal of needles. Its field implementation needs further emphasis

and reinforcement.

- The area of safe disposal of sharps and other injection waste is relatively weak and needs further strengthening.

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“The MoH policy clearly states against recapping and manual removal of needles. Its field implementation needs further emphasis and reinforcement.”

The 10 Golden Rules

(For Effective Implementation of the Quality Assurance & Improvement Programme)

1. *All, at the central, regional & peripheral levels must believe that change is important & valuable for the future.*
2. *There has to be a vision of QA/I Programme that paints the picture of the desired future state that everyone sees & understands.*
3. *Everyone must be behind the quality improvement strategies to achieve the vision.*
4. *The leaders everywhere must serve as role models & set an example.*
5. *Training should be provided for the required new skills to effectively and efficiently establish, implement and maintain the QA/I program.*
6. *Measurement, monitoring and evaluation systems should be established so that program results can be quantified.*
7. *Continuous feedback should be provided to everyone.*
8. *Existing & potential barriers must be identified & removed.*
9. *Coaching & technical support must be provided continuously.*
10. *Recognition & incentive systems must be established to effectively reinforce desired outcome.*

Communicable Diseases Quarterly Report

First Quarter (January to March 2002)

ICD Code	Diseases	2002				2001			
		First Quarter				Q1	Q2	Q3	Q4
		Jan	Feb	Mar	Total	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
GROUP 'A' DISEASES									
A00	Cholera	-	-	-	0	-	-	5+2(i)	1
A20	Plague	<i>Never Reported</i>							
A36	Diphtheria	<i>Last Case in 1992</i>							
A39	Meningococcal infection	4	-	-	4	9	4	1	1
A80	Poliomyelitis	<i>Last Case in 1993</i>							
	Acute Flaccid Paralysis	-	-	1	1	5	3+1(i)	3	3
B05	Measles	2	1	1	4	1(i)	1(i)	2	11
B06	Rubella & [CRS]	1	1	-	2	[1]	-	-	-
A95	Yellow fever	<i>Never Reported</i>							
A82	Rabies	-	-	-	0	-	-	-	-
A75.0	Louse-borne typhus	<i>Never Reported</i>							
A68	Relapsing fever	<i>Last Case in 1997</i>							
A33	Tetanus Neonatorum (NNT)	<i>Last Case in 1995</i>							
A99	Viral Hemorrhagic fever	-	-	-	0	-	-	-	-
GROUP 'B' DISEASES									
A03.0	Typhoid fever	5	4	10	19	19	19	32	23
A01.4	Paratyphoid fever	1	-	3	4	4	2	4	8
A02	Food poisoning	89	28	64	181	160	299	435	272
A22	Anthrax	<i>Never Reported</i>							
A23	Brucellosis	20	14	11	45	25	37	41	39
A37	Pertussis	9	9	3	21	16	20	11	7
A35	Tetanus (Excluding NNT)	-	-	1	1	-	1	1	1
A90	Dengue	-	-	-	0	-	-	1(i)	-
	Viral Hepatitis - Total	128	186	217	531	346	478	370	285
B15	Viral Hepatitis 'A' (ELISA)	9	21	54	84				
B16	Viral Hepatitis 'B' (ELISA)	4	3	1	8	9	14	8	14
B17.1	Viral Hepatitis 'C' (ELISA)	-	-	-	0				
B17.0	Viral Hepatitis 'D' (ELISA) among 'B'	-	-	-	0				
B17.2	Viral Hepatitis 'E' (ELISA)	-	1	-	1				
B19/B17.8	Viral Hepatitis Unspecified	115	161	162	438	361	461	354	270
B55	Leishmaniasis	3	2	2	7	3	2	1	2
B65	Schistosomiasis	-	-	-	0	2(i)	-	-	2(i)
B74	Filariasis	-	-	-	0	-	-	3 (i)	-
B72	Dracunculiasis	<i>Certified by WHO as Eradicated from Oman</i>							
G00.0	Haemophilus Meningitis type b	3	2	4	9	2	5	7	8
G00.1-9	Bacterial meningitis other than Nm & Hib	12	5	10	27				
A87	Viral meningitis	1	-	3	4				
G03	Meningitis - Unspecified	-	-	-	0	19	26	20	32
A30	Leprosy	1	-	4	5	1	-	2	1
A15-A19	Pulm. Tuberculosis Sputum Positive	9	11	13	33	38	25	22	26
	Pulm. Tuberculosis Sputum Negative	5	1	3	9	1	10	7	8
	Extra Pulmonary Tuberculosis	8	6	6	20	18	29	21	19
B50-B54	Malaria (All sources)	26	32	27	85	100	122	252	161
A50-A53	Syphilis	11	8	14	33	31	49	36	40
A54	Gonococcal Infections	27	22	25	74	81	70	48	43
GROUP 'C' DISEASES									
A03	Shigellosis	122	102	72	296	485	290	360	373
A06	Amoebiasis	458	425	502	1,385	1,431	1,152	992	1,427
A09	Acute Gastro-Enteritis & Diarrhoea	11,758	9,799	9,834	31,391	32,521	22,219	23,434	29,726
B01	Chicken Pox	1,054	1,209	1,632	3,895	3,886	4,557	3,104	3,170
B26	Mumps	180	168	230	578	809	1,371	620	694
A71	Trachoma	42	27	46	115	139	171	130	133
J10-J11	Influenza	284	283	210	777	901	789	692	1,363

Communicable Diseases Quarterly Report by Regions

First Quarter (January to March 2002)

ICD Code	Diseases	Total	Muscat	Dhofar	Dakhliyah	North Sharqiyah	South Sharqiyah	North Batinah	South Batinah	Dhahira	Musandam	Al-Wustah
GROUP 'A' DISEASES												
A00	Cholera	0	-	-	-	-	-	-	-	-	-	-
A20	Plague	<i>Never Reported</i>										
A36	Diphtheria	<i>Last Case in 1992</i>										
A39	Meningococcal infection	4	1	-	1	1	-	-	1	-	-	-
A80	Poliomyelitis	<i>Last Case in 1993</i>										
	Acute Flaccid Paralysis	1		-		-	-	1	-		-	-
B05	Measles	4	2	-	-	-	-	-	-	2	-	-
B06	Rubella & [CRS]	2	1	-	-	-	-	1	-	-	-	-
A95	Yellow fever	<i>Never Reported</i>										
A82	Rabies	0	-	-	-	-	-	-	-	-	-	-
A75.0	Louse borne typhus	<i>Never Reported</i>										
—A68	Relapsing fever	<i>Last Case in 1997</i>										
A33	Tetanus Neonatorum (NNT)	<i>Last Case in 1995</i>										
A99	Viral Haemorrhagic fever											
GROUP 'B' DISEASES												
A03.0	Typhoid fever	19	5	4	3	-	2	5	-	-	-	-
A01.4	Paratyphoid fever	4	-	-	2	-	1	1	-	-	-	-
A02	Food poisoning	181	15	26	24	3	15	71	8	18	-	1
A22	Anthrax	<i>Never Reported</i>										
A23	Brucellosis	45	2	42	-	-	-	-	-	-	-	1
A37	Pertussis	21	7	3	-	1	-	3	5	2	-	-
A35	Tetanus (Non NNT)	1	-	-	-	-	-	1	-	-	-	-
A90	Dengue	0	-	-	-	-	-	-	-	-	-	-
	Viral Hepatitis - Total	531	33	54	87	109	55	34	125	7	2	25
B15	Viral Hepatitis 'A' (ELISA)	84	10	-	54	-	2	-	1	-	-	17
B16	Viral Hepatitis 'B' (ELISA)	8	1	-	1	4	1	1	-	-	-	-
B17.1	Viral Hepatitis 'C' (ELISA)	0	-	-	-	-	-	-	-	-	-	-
B17.0	Viral Hepatitis 'D' (ELISA) among 'B'	0	-	-	-	-	-	-	-	-	-	-
B17.2	Viral Hepatitis 'E' (ELISA)	1	-	-	1	-	-	-	-	-	-	-
B19/	Viral Hepatitis Unspecified	438	22	54	31	105	52	33	124	7	2	8
B55	Leishmaniasis	7	-	6	-	-	1	-	-	-	-	-
B65	Schistosomiasis	0	-	-	-	-	-	-	-	-	-	-
B74	Filariasis	0	-	-	-	-	-	-	-	-	-	-
B72	Dracunculiasis	<i>Certified by WHO as Eradicated from Oman</i>										
G00.0	Haemophilus Meningitis	9	2	1	1	-	-	1	2	2	-	-
G00.1-	Bacterial meningitis other than Nm	27	4	3	2	1	3	4	9	-	-	1
A87	Viral meningitis	4	-	-	-	-	-	2	-	2	-	-
G03	Meningitis - Unspecified	0	-	-	-	-	-	-	-	-	-	-
A30	Leprosy	5	2	1	-	-	-	1	1	-	-	-
A15-	Pulm. Tuberculosis Sputum Positive	33	7	4	3	3	2	8	4	2	-	-
	Pulm. Tuberculosis Sputum Negative	9	3	3	-	1	1	1	-	-	-	-
	Extra Pulmonary Tuberculosis	20	6	6	1	1	1	2	1	2	-	-
B50-	Malaria (All sources)	85	36	3	3	2	8	18	7	8	-	-
A50-	Syphilis	33	2	4	5	-	3	11	2	4	1	1
A54	Gonococcal Infections	74	11	21	-	-	8	23	7	-	1	3
GROUP 'C' DISEASES												
A03	Shigellosis	296	40	5	34	32	35	19	16	27	36	52
A06	Amoebiasis	1,385	118	6	237	189	291	177	74	99	38	156
A09	Acute Gastro-Enteritis & Diarrhoea	31,391	5,579	2,845	3,091	2,536	3,842	6,245	4,379	1,698	688	468
B01	Chicken Pox	3,895	751	460	432	105	157	1,128	540	210	87	5
B26	Mumps	578	181	65	125	16	15	75	65	34	2	-
A71	Trachoma	115	2	-	46	19	-	2	43	3	-	-
J10-J11	Influenza	777	171	13	5	583	-	5	-	-	-	-

Selected Communicable Diseases by Wilayah

First Quarter (January to March 2002)

Region	Wilayah	Acute Flaccid Paralysis	Measles	Rubella	Pertussis	TB (Total)	TB Sputum Positive	Tetanus (Ex. NNT)	Malaria (All)	Viral Hepatitis (Total)	Leprosy	Meningo. Infection	Leishmaniasis
MUSCAT	Muscat		1		1				1	13			
	Seeb				1	6	3		14	1			
	Muttrah		1	1	2	6	2		7	3	1		
	Bowsher				3	1			10	9		1	
	Al Amerat								4	6	1		
	Quriyat					3	2			1			
DHOFAR	Salalah				1	7	3		3	40	1		4
	Thumrait				2					1			
	Taqah					4	1			12			
	Mirbat					1							2
	Sudah												
	Rakhyut												
	Dhalqut									1			
	Mugshan												
	Shaleem					1							
NORTH BATINAH	Sohar	1		1		5	4		13	1			
	Shinas					1					1		
	Liwa				2			1					
	Saham					2	2		2	16			
	Khabura					1	1		1	9			
	Suwaiq				1	2	1		2	8			
SOUTH BATINAH	Rustaq					3	3		1	54			
	Nakhl				4	1				3			
	Wadi Maawil									1			
	Al Awabi								1	3			
	Musanah								2	28			
	Barka				1	1	1		3	36	1	1	
DAKHLIYAH	Nizwa								2	18			
	Bahla					1	1			41			
	Adam								1				
	Hamra					1				10			
	Manah									1			
	Sumail					1	1			11			
	Izki					1	1			5		1	
	Bid Bid								1				
DHAHIRA	Ibri				2	1	1		5	2			
	Yanqul					1							
	Dhank					1				3			
	Buraimi		2			1	1		1	2			
	Mahda								2				
NORTH SHARQIYAH	Ibra					2	1		1	10			
	Mudhaibi				1	2	1		1	49		1	
	Bidiyah									37			
	Al-Qabel					1	1			5			
	Dima Al-Tayeen									7			
	Wadi Bani Khalid								1				
SOUTH SHARQIYAH	Sur					1			2	4			1
	Masirah								2	7			
	Al Kamil & Al Wafi					2	1		2	6			
	BBB Ali					1	1		2	12			
	BBB Hassan									26			
MUSANDUM	Khasab									2			
	Dibba												
	Bukha												
	Madha												
AL-WUSTAH	Haima									3			
	Duqum												
	Mahoot									21			
	Al-Jazer									1			
NATIONAL TOTAL		1	4	2	21	62	33	1	85	531	5	4	7

Age Distribution of Communicable Diseases

First Quarter (January to March 2002)

ICD Code	Diseases	Total	Age Groups in Years								
			< 1	1-5	5-10	10-15	15-19	20-24	25-34	35-44	> 45
GROUP 'A' DISEASES											
A00	Cholera	0	-	-	-	-	-	-	-	-	-
A20	Plague	<i>Never Reported</i>									
A36	Diphtheria	<i>Last Case in 1992</i>									
A39	Meningococcal infection	4	-	2	1	1	-	-	-	-	-
A80	Poliomyelitis	<i>Last Case in 1993</i>									
	Acute Flaccid Paralysis	1	-	1	-	-	-	-	-	-	-
B05	Measles	4	2	1	-	1	-	-	-	-	-
B06	Rubella & [CRS]	2	-	1	1	-	-	-	-	-	-
A95	Yellow fever	<i>Never Reported</i>									
A82	Rabies	0	-	-	-	-	-	-	-	-	-
A75.0	Louse borne typhus	<i>Never Reported</i>									
A68	Relapsing fever	<i>Last Case in 1997</i>									
A33	Tetanus Neonatorum	<i>Last Case in 1995</i>									
A99	Viral Haemorrhagic fever	0	-	-	-	-	-	-	-	-	-
GROUP 'B' DISEASES											
A03.0	Typhoid fever	19	-	2	3	3	2	1	4	3	1
A01.4	Paratyphoid fever	4	-	-	-	-	-	-	1	1	2
A02	Food poisoning	181	-	17	26	35	24	28	21	17	13
A22	Anthrax	<i>Never Reported</i>									
A23	Brucellosis	45	-	7	10	7	7	3	4	4	3
A37	Pertussis	21	15	-	2	4	-	-	-	-	-
A35	Tetanus (Non NNT)	1	-	-	-	-	-	-	1	-	-
A90	Dengue	<i>Never Reported</i>									
	Viral Hepatitis - Total	531	3	124	294	59	12	9	11	6	13
B15	Viral Hepatitis 'A' (ELISA)	84	-	19	54	10	-	-	-	-	1
B16	Viral Hepatitis 'B' (ELISA)	8	-	1	1	-	2	2	1	-	1
B17.1	Viral Hepatitis 'C' (ELISA)	0	-	-	-	-	-	-	-	-	-
B17.0	Viral Hepatitis 'D' (ELISA) among 'B'	0	-	-	-	-	-	-	-	-	-
B17.2	Viral Hepatitis 'E' (ELISA)	1	-	-	-	-	-	-	-	-	1
B19/B17.8	Viral Hepatitis Unspecified	438	3	104	239	49	10	7	10	6	10
B55	Leishmaniasis	7	1	-	3	1	1	1	-	-	-
B65	Schistosomiasis	0	-	-	-	-	-	-	-	-	-
B74	Filariasis	0	-	-	-	-	-	-	-	-	-
B72	Dracunculiasis	<i>Certified by WHO as Eradicated from Oman</i>									
G00.0	Haemophilus Meningitis type b	9	6	3	-	-	-	-	-	-	-
G00.1-9	Bacterial meningitis other than Nm & Hib	27	14	1	8	1	-	1	-	1	1
A87	Viral meningitis	4	-	1	1	2	-	-	-	-	-
G03	Meningitis - Unspecified	0	-	-	-	-	-	-	-	-	-
A30	Leprosy	5	-	-	-	-	-	-	1	2	2
A15-A19	Tuberculosis: Sputum Positive	33	-	-	-	-	3	5	4	2	19
	Tuberculosis: Sputum Negative	9	-	-	1	1	1	-	-	4	2
	TB Extra-Pulmonary	20	-	-	-	2	5	4	3	2	4

Note:

1. The quarterly data are provisional & should be scrutinized & verified by the focal point of communicable diseases (Epidemiologist) in the regions. Previous quarter data would be finalized in the following quarter after receiving the regional feedback.
2. Tuberculosis & Leprosy data are for nationals only.
3. (i) = imported case.
4. Currently laboratory procedures are in the process of being laid down for classification of Viral hepatitis into different types. Hence presently the related data are incomplete.

Animal Bite Surveillance by Regions

First Quarter (January to March 2002)

Region	Population at Risk (2001)	Type of Animal					Total Animal Bites	Annualized Rate per 10,000 population for Q1	Annualized Rates of Animal Bites in Previous Quarters			
		Fox or Wild	Dog	Cat	Other Domestic	Others (unknown)			Year 2001			
									Q1	Q2	Q3	Q4
Muscat	661,145		31	26	1		58	3.5	4.2	3.2	3.6	3.5
Dhofar	224,993			4	2		6	1.1	2.2	0.05	1.2	1.0
North Batinah	423,460		8	6	7		21	2.0	4.4	2.9	3.6	3.3
South Batinah	243,593		5	20	3		28	4.6	7.6	8.0	8.8	8.3
Dakhliyah	272,141	1	7	26	2		36	5.3	3.8	7.0	6.4	6.1
Dhahira	214,997	2	6	8	1	1	18	3.3	3.9	3.0	3.2	3.7
North Sharqiyah	140,342		5	23	6	1	35	10.0	11.2	12.1	14.8	12.3
South Sharqiyah	166,233		7	1	1		9	2.2	6.1	6.1	3.6	4.3
Musandam	34,007		2				2	2.4	1.2	0.0	4.8	2.4
Al-Wustah	20,345	2	1	1	2		6	11.8	6.0	10.0	4.0	6.9
Total	2,401,256	5	72	115	24	2	219	3.6	4.9	1.13	4.8	4.6

Note: Rodent Bites excluded



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