

July-September 2009



Community Health & Disease Surveillance Newsletter

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Special Issue on:

“National Ear Health Care Program”

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Inside this issue:

From Editor's Desk	1
Public-Private Partnership for Ear Care	2
Newborn Hearing Screening Initiative	3
Ear Care through School Health	5
Middle Ear Diseases—PHC Level	7
Early Interventions for Hearing Disabled	8
Caring for Hearing Aids	9
Animal bite surveillance data—Q2	11
Summary and observations: Q2 data	11
Communicable disease surveillance data—Q2	12—15

From Executive Editor's Desk

Hearing impairment and deafness are serious disabilities as they cause social and economic burden on communities and health services. Nearly 278 million people worldwide suffer from moderate to profound hearing loss in both ears. The impact of hearing impairment on a child's speech, language, education and social integration makes it an additional priority.

Although 'hearing loss' was addressed through ENT services in previous decade, organized approach was adopted following a national survey in 1996. The Ear Health care program in Oman was launched in 2000. In the 6th and 7th Five year of Health Plan of Ministry of Health Oman, 'Ear' Domain was included.

In 1996 survey, the observed prevalence of hearing loss of all grades was 5.5% of which 2% was of disabling grade (severe and profound). Hereditary and infectious diseases were the main causes of hearing impairment in children while presbycusis was the principle cause of hearing impairment in elderly. The program set goals of reducing avoidable hearing loss and provide rehabilitative services in early stages.

Following strategies were adopted:

- Integration of Ear Health Care in Primary Health Care system to identify and treat middle ear diseases.
- Identification and care of children with hearing impairment in schools.
- Universal newborn hearing screening to detect hearing impaired and commence

their care before 2 years of age.

- Building capacity of regional ENT units for addressing middle ear diseases and provide rehabilitation facilities.
- Identify and address noise pollution especially in industries.
- Promoting healthy hearing behavior among community.
- Establish public-private partnership at national and international levels to provide low cost hearing aids and cochlear implants.
- Generate evidence based information to monitor and evaluate ear health care program.
- Establish a dynamic 'National Ear Health Care Committee' to recommend national policies for healthy hearing.

Eye and ear health care globally as well as in Oman is a joint program. The 'Prevention of Blindness' is much evolved both globally and in Oman. While Ophthalmologist dedicate their full time for eye care, ENT specialists can spare 33% of their focus on ear health care as they have to also dedicate time for nose and throat problems.

Despite all challenges, ear health care in Oman has made remarkable progress. I take this opportunity to congratulate them and ensure all support to further healthy hearing for all in Oman.

Dr Ali Jaffer Mohammed, *Chairman*
National Ear Health Care Committee

Public-Private Partnership for Ear Care

Dr Harith Al Harthy
Eye & Ear Health Care Program

The public health approach to ear care in Oman aims to control modifiable factors and conditions that could result in hearing impairment (HI) or hearing loss (HL). The HI and HL could be either congenital (since birth) or could be acquired later on in life. The acquired conditions could either result in hearing loss at an early stage of life like infection of the middle ear or it could result in hearing loss later like noise induced hearing loss.

Ear Care Program (ECP) was re-vitalized in 2000 with the merger of the eye and ear care programs. This was complemented with the formation of a national ear committee in 2008 with wide representation of different partners related to ear care. Activities are planned and conducted with cooperation of other departments/programs like Primary Health care, school health, Mother and Child Health, etc. Other governmental bodies like the Ministry of Education, Ministry of Higher Education and Ministry of Social Development also contribute in ear care in Oman. In recent years role of private sector has increased in partnering with Ministry of Health in health care delivery in Oman. In this article, the role of the private sector in ear care program of Oman is described.

Ear care is provided through primary, secondary and tertiary ENT services as well as an array of general and specialized ENT clinics and hospitals. The public health approach to prevent deafness is coordinated for all of these institutions by the national ear health care program.

The private sector in Oman functions as ear care provider for the nearly 0.8 million expatriate populations residing in Oman. It also supplies and maintains modern equipment and consumables utilised for the diagnosis and management of ear diseases. Another important aspect of the private **sector's contribution to ear care in Oman** is through the support and sponsorship of different projects and activities of ear care. To demonstrate these different aspects, we could look into an important program that

targets control of the congenital causes of deafness called universal newborn hearing screening program (NHSP). Each child born in Oman has the right to undergo hearing screening soon after birth. As many deliveries (for Omani and expatriate expectant mothers) take place in private hospitals, private hospitals have introduced neonatal hearing screening services. These screening equipment are maintained by local dealers in private establishments. Furthermore, some private establishments like LNG – Oman have donated screening equipment for the governmental institutions.

An important aspect of partnership is through planning and conduction of research in the field of noise-induced hearing loss. With this partnership, the first hearing impairment and noise pollution study was carried out. The study included industrial clusters where staff of Petroleum Development of Oman and Al Rimah Polyclinic at Ruwi had provided their expertise and assistance.

Rehabilitation of hearing impaired is crucial in a country where risk factors for congenital anomalies related to hearing are quite common. Support of Sheikh Saud Bhawan to Al Amal School and Al Wafa Centres to procure hearing aids for children with hearing loss is exemplary.

Many common and hearing loss causing conditions are preventable by imparting knowledge and changing health behaviour. Noise pollution caused by vehicles, listening to loud music, communication devices, noise exposure in industries like aviation and construction has increased risk of hearing impairment in early age. Making public aware of these hazards and use of protecting devices is a joint responsibility of service provider as well as public health units. Media has played an important role in this initiative in Oman.

With the clearly demonstrated mutual benefits of partnership with the private sector, we look forward to enhance this partnership and achieve the goals of providing ear care service of international standards to all residents of Oman.

“An important aspect of partnership is through planning and conduction of research in the field of noise-induced hearing loss.”



Newborn Hearing Screening Initiative

Dr Rajiv Khandekar
I/c Eye & Ear Health Care Program

Early detection of hearing impairment in a child helps in timely action like providing hearing aid, cochlear implant, training the child in using these devices and start speech therapy. The Ministry of Health piloted and then implemented 'National Universal Hearing Screening Program' in year 2000. Each child born in Oman has the right to undergo the test for hearing. Hearing screening is now integrated in newborn screening package and the result must be mentioned in the Child Health Card.

How hearing develops in a child?

A child born with hearing loss will not be able to speak. But a deaf child can speak if hearing is improved before the age of six months. Thus screening newborn for hearing will help parents and doctors to take required steps at an early stage.

How hearing screening of newborn

is conducted?

Screening machines to test hearing are available in all regions in Ministry of Health institutes with facilities for child birth. This screening is quick and practical to check the hearing of newborn. If the test displays 'pass', the newborn has normal hearing. In some babies, the ear is not developed at birth. Hence, if the screening test fails, it should be repeated after six weeks. Detailed ear examination and investigations

Fig.1: The Hearing Screening Machine



are required if hearing screening test is 'fail'. The test cannot detect hearing loss due to the damage to the 8th cranial nerve that connects the brain and ear. The chart

The Ministry of Health piloted and then implemented 'National Universal Hearing Screening Program' in year 2000."

Fig.2: Flow Chart showing steps of hearing screening of newborn in Oman

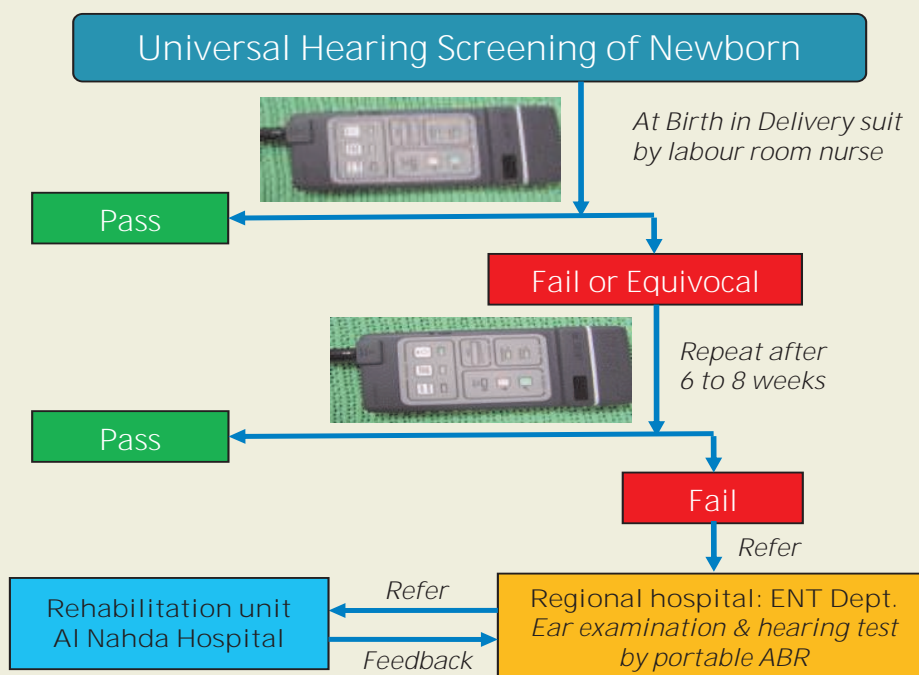


Table: 1 Regional coverage for newborn hearing screening: 2006-08

Region/ Governorate	Machines in 2008	2008		2007		2006	
		Live births	Screened	Live births	Screened	Live births	Screened
Muscat	6	9431	4932	10701	3048	10217	6006
Dhofar	8	4912	4461	4564	3561	4162	2368
N Batinah	3	9006	7091	7928	5758	7260	905
S Batinah	4	4170	4276	4257	1626	4019	1574
Dakhliyah	6	6849	2140	6222	4857	6170	6229
N Sharqiyah	7	4113	4401	3967	2685	3775	3031
S Sharqiyah	10	4552	5136*	4672	2711	4418	2248
Dhahira	3	2986	852	2806	184	3476	1623
Buraimi	2	1088	370				
Musandam	2	441	504 [#]	988	524	476	522
Al Wustah	4	140	52	362	203	143	84
Oman	55	47688	34215	46467	23864	44116	24590
Coverage %			71.7		51.4		56

* Additional screening of <1 years old children in South Sharqiyah
[#] Screening of children born in UAE of Omani mothers, hence excluded

“Those who still fail the test will be referred to specialist in Al Nahda Hospital for further investigations and also for fitting suitable hearing aids.”

explains steps of screening.

How does this screening machine work?

The machine has main body and a probe. The tip of the probe is placed in the ear canal. It transmits sound waves in the ear. If cells of the internal ear are alive and functioning, they reflect this sound wave. The receiver in the probe catches the reflected waves. The electronic component in the main body interprets the test and displays as ‘pass,’ ‘fail’ or ‘repeat the test’. Relatively quiet area is needed for such test. When the newborn is sleeping, staff should conduct the hearing screening. The test takes one minute but the entire procedure may take longer. This test is safe and does not cause any side effects to the child.

What if hearing screening test shows ‘Fail’?

Health staff should not panic. The test should be repeated after cleaning the ear. If the test again fails, the child will be seen by ear doctor at six week of age. The doctor will examine the ears and repeat the hearing screening. If the child has delayed ear development but within normal range, the test at six weeks will be ‘pass’ and the ear examination will be normal. Those who still fail the test will be referred to specialist in Al Nahda Hospital for further investigations

and also for fitting suitable hearing aids. By using hearing aids, the child will get hearing stimulus and his/her speech could develop after speech therapist train the child.

Indicators that are used to monitor the regional progress of newborn hearing screening:

- ◆ Coverage of Phase I screening: # of newborn assessed for hearing/total live birth x 100
- ◆ Number of children screened per screening equipment
- ◆ Quality of phase I screening: false positive cases.
- ◆ Number of children found to have defective hearing in Phase II.
- ◆ Number of children improved/developed speech due to intervention

Conclusions

It is important that coverage of 1st level and repeat screening is more than 95%. Required resources are essential for increasing the coverage. However, it was noted that commitment and careful use of equipment are the keys for the success.



Ear Care through School Health

Dr Sahar Abdou Helmi

Superintendent, Department of School Health

Evidence based information favor more resources to promote the health of the community through schools. In the fourth five years plan (1991-95), Ministry of Health had developed the school health program with its objectives, strategies and activities.

The objectives of the school health in Oman is to provide a comprehensive health services to fulfill physical, mental, emotional needs of the school children. Screening of school children for early detection of health problem is one of the strategies. Hearing is an important sensory perception and is also essential for the development of speech functions. Hearing screening was introduced in Oman as one of the activities of school health program since the school academic year 1992-93. In 1999-2000 with the launching of the ear health care at primary level, a comprehensive organized ear health program in schools was developed.

Specific Objectives

- Early detection and management of common ear and hearing impairment among 1st grade students.
- Promote safe hygiene hearing practices among school students.

Activities

- Capacity building of school health staff: Training workshops for primary ear care

at regional level are conducted periodically.

- Screening of students in grade one, seven and ten for the common ear diseases and manage the detected cases.
- Hearing screening of 1st grade students by using portable audiometer.
- Referring all students with ear problems or hearing disabilities to ENT clinics.
- Health education sessions for ear care to all students in different levels.

Resources

- Manpower: A team of master trainers supervise and monitor the implementation of ear care activities. The school health team comprising of general practitioner doctor and school health nurse conduct activities in schools. Cases with ear or hearing problems are referred to ENT specialist.
- Audiometry and ear examination are carried out in health clinics of all schools.
- Guidelines: The standard operating procedures for ear care for school students are given in the Ear Health Care Manual, 2nd edition (2005).
- Audiometers: Portable audiometers are used in hearing screening. They are periodically calibrated. The headphones curtail external sounds disturbances. The audiometer has buttons for selecting bands of frequencies (500 Hz, 2 KHz and

“Hearing screening was introduced in Oman as one of the activities of school health program since the school academic year 1992-1993.”

Fig.1: Typical Audiometry Chart showing results of the test



“Further management of middle ear diseases and those suspected with hearing impairment is carried out by ENT specialist.”

4 KHz and the intensity of the sound (25 and 35 dB) Right and left ear are tested at random. A relatively quiet area and not a sound proof room is essential for the audiometry screening.

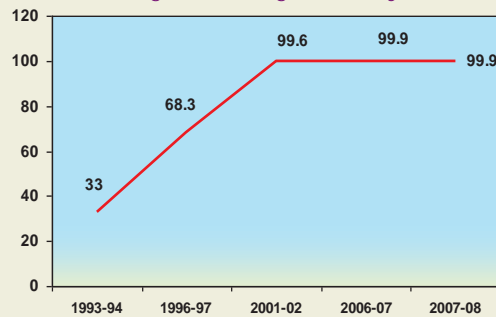
If a student fails to respond to any of the test, the screening is repeated after 15 days. If again the response is same, student is referred to ENT doctor for confirmation and further management.

- Otoscope is used to detect diseases of ear canal and ear drum. They are available only in primary health centers. Hence health staffs should carry otoscope.
- Medicines: In school health clinic, wax softeners, chloramphenicol ear drops and analgesic ear drops are available. General practitioner who is trained in primary ear care examines and treats the student at PHC.

Achievements

Audiometric Screening: High coverage of screening in all regions after comprehensive ear care in 1999 and contribution of school health teams is worth noting.

Fig.2: Chart showing coverage of hearing screening for five years



Detection and care of common ear diseases

In 2007/2008 about 246 cases (0.7%) among 1st grade, 181 cases (0.3%) in 7th grade and 124 cases (0.26%) among 10th grade students in grade ten were detected. Further management of middle ear diseases and those suspected with hearing impairment is carried out by ENT specialist. The quality of screening is reviewed by the ear care master trainers team.

Fig.3: Student of 1st grade being tested for hearing status



Research and publication

School health staffs participated in the community based survey conducted in 1996. A study was conducted in Dhofar to measure the cost effectiveness of hearing tests in 7th grade students. The numbers of ear cases detected were less and hence the screening was not cost effective.

Health education

Sessions are carried out to target all students. Health education materials (posters and pamphlets) are distributed to the students.

Reporting system

Hearing status and ear diseases details are being reported in the student health record which is kept in his file.

By the end of each school academic year, school health doctor will fill the ear health care form which gives information about the audiometric coverage, number of students diagnosed with external abnormalities, cases referred to the ENT clinics with their feedbacks and cases with hearing aids. Data from all schools are compiled and the report on annual ear health care in schools is prepared.

Constraints

Health education materials are not enough. Well prepared audiovisual materials will have better impact.

- ◆ Audiometers and manpower are limited and therefore 7th grade ear screening is postponed.
- ◆ Feedback regarding referred students from ENT clinics to PHC or schools is poor.

Middle Ear Diseases – Management at Primary Level

Dr Mazin Khabori
Head of ENT department, Al Nahda Hospital

The commonest symptoms related to middle ear conditions are hearing impairment, pain and discharge. A primary care physician may have cases with such problems:

- ◆ Acute Otitis Media (AOM)
- ◆ Otitis Media with Effusion (OME)
- ◆ Chronic Suppurative Otitis Media (CSOM) with central perforation
- ◆ CSOM with cholesteatoma or granulations.

The aim of this article is to offer tips to General practitioner in managing common middle ear diseases. The General Practitioner should suspect clinically and initiate the treatment if required and refer appropriately when indicated.

Acute otitis media (AOM)

Acute onset, earache with blocked ear sensation or hearing impairment. It is often preceded by upper respiratory tract infection (URTI). Otoscopy shows congested tympanic membrane. A large percentage is of viral etiology and do not need antibiotics. Pain management is enough in majority of cases. 80% become better without antibiotics.

Dry mopping with clean tissue rolled into a cone and then inserted in the canal to soak the discharge till almost dry is all that is

needed. Ear drops have no role at this stage. H. Influenza is the common causative organism in bacterial acute otitis media.

Refer if:

1. Bulging tympanic membrane with increasing otalgia and no response after 48 hours of oral antibiotics.
2. Persistent ear discharge even after a week of oral antibiotics
3. Tenderness /redness /swelling behind the ear on the mastoid region

Chronic Suppurative Otitis Media (CSOM) with central perforation

This could be sequel of AOM; typically the patient has intermittent mucopurulent ear discharge which gets aggravated during episodes of URTI or after swimming. Pseudomonas Aerigenosa is the typical causative bacteria but E. Coli or other coliforms could be implicated. Otoscopy will reveal various sizes and shapes of central perforation of pars tensa with clear margins all around. Severe pain can indicate fungal infection.

The management can be as follows:

- ◆ Aural hygiene taking precautions not to allow water entering the ear during bathing or showering. Use of clean cotton smeared with Vaseline to block the ear during shower etc. Aural toilet for discharge
- ◆ Oral antibiotics are not needed; topical

(Continued on page 10)

“The aim of this article is to offer tips to General Practitioner in managing common middle ear diseases.”

- ◆ Shortage and turn over of school health staff affect the quality of work and increase burden of their training.

Conclusions

Ear health care through schools is a well organized program in Oman. Further improvements of quality of screening and referral/feedback system are desired. The national ear health care committee with members from Ministry of Education and Ministry of Social Development will improve the collaboration and care of those students in need of special education and/ or affordable hearing aids.

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Early Interventions for Hearing Disabled Newborn

Dr Sheikha Mujaini

Audiologist, Al Nahda Hospital

The goal of neonatal screening program is to "increase the proportion of newborns screened for hearing loss by age one month, diagnosed by three months, and enrolled in appropriate intervention services by the age of six months."

The number of infants born with significant permanent hearing loss is one to three infants per 1000, and an estimated additional three infants per 1000 with moderate degrees of hearing loss (American Speech-Language-Hearing Association).

Why is early identification and early intervention for hearing loss so important?

It is widely understood and accepted that hearing is critical for the development of speech, language, communication skills, and learning. The earlier that hearing loss occurs in a child's life, the more serious the effect on the child's development. Similarly, the earlier the hearing loss is identified and intervention begun, the less serious the ultimate effects. Recent research indicates that children identified with hearing loss before 6 months develop language (spoken or signed) at par with their hearing peers.

Objective measures for Newborn Hearing Screening

The objective measures currently used for newborn hearing screening are evoked otoacoustic emissions (OAE) and the auditory brainstem response (ABR). Both techniques provide objective information about auditory system function.

Definition of Hearing Loss

The newborn hearing screening regulations define hearing loss to mean a permanent unilateral or bilateral hearing loss of mild (30 to 40 dB HL) or greater degree in the frequency region (500-4000 Hz) important for speech recognition and comprehension.

Goals of early intervention

- ◆ Facilitate the child's language develop-

ment to achieve developmental milestones on schedule.

- ◆ Enhance the family's understanding of the infant's needs and build family support in parenting the infant.
- ◆ Monitor the child's progress and make decisions for intervention and education as the child develops

Consequences of late identification of hearing loss include delayed speech and language development and associated effects on social and emotional growth and academic achievement. Advances in technology have made it possible to detect the presence of hearing loss in the neonatal period. When early detection of hearing loss is coupled with the provision of effective early intervention, the impact of the hearing loss on language and other areas of development may be lessened. Because universal newborn hearing screening reduces the average age for intervention, improved hearing and increased pre-language stimulation over that period, it might be considered as an important benefits of newborn hearing screening.

Depression is a common stress-related response among parents (mothers more than fathers) of children with hearing loss. Maternal depression places children with hearing loss at additional risk for emotional, communication, and cognitive difficulties, because of the implications for emotional availability and effective interactions between mothers and children. Studies also showed that a lack of social competence in hard of hearing youths occurred in correlation with parental stress experience. Increased behavioral problems were associated with poor emotional adaptation and a generally stressed family situation. In addition, hearing-impaired children and their parents might benefit psychologically by avoiding regret in future caused by a delayed diagnosis and treatment.

Rehabilitation for Children Diagnosed with Hearing Loss

- Provision and training to use personal Amplification Devices

"It is widely understood and accepted that hearing is critical for the development of speech, language, communication skills, and learning."

Caring for Hearing Aids

Dr Samiya Al Harthy
Audiologist, Al Nahda Hospital

What is a hearing aid?

A hearing aid is a small electronic device that could be placed in or behind the ear. It makes some sounds louder so that a person with hearing loss can listen, communicate, and participate more fully in daily activities. A hearing aid can help people hear more in both quiet and noisy situations.

How do hearing aids Work?

A hearing aid has three basic parts: a microphone, amplifier, speaker and powered by a battery. The hearing aid receives sound through microphone, converts it to electrical signals and sends to an amplifier which increases power of the signals and then sends them to the ear through speaker.

The appropriate type of hearing aid will depend on the type and degree of hearing loss. There are four basic styles of hearing aids that are currently recommended. Each style may use different levels of technology. These are: behind the ear (BTE), in-the-ear (ITE), in-the-canal (ITC), and intra-canal (CIC). The different levels of technology are described as conventional (analog), improved (analog/programmable instruments), and advanced (fully digital programmable). Even the best hearing aids cannot bring damaged hearing back to normal. New technology however, has made a significant difference in the way these devices compensate for hearing loss. One of the main problems with traditional hearing aids is that they amplify all sounds, both loud and soft. The result is often confusion and frustration for the hearing aid user. The newest, most sophisticated hearing aids can be adjusted to compensate for

- Plan and operate for Cochlear Implants
- Initiate speech therapy

Conclusions

Health staff of primary health centre should be vigilant to identify the children with hearing impairment and ensure that they

some of the natural patterns of hearing loss, and provide greater flexibility and clarity in difficult listening environments.

Which hearing aid will work best?

The hearing aid that will work best depends on the kind and severity of hearing loss. If a hearing loss is in both ears, two hearing aids are generally recommended because two aids provide a more natural signal to the brain. Hearing in both ears also will help client to understand speech and locate where the sound is coming from. A hearing aid will not restore normal hearing. With practice, however, a hearing aid will increase awareness of sounds and their sources.

How hearing aid can be adjusted?

Hearing aids take time and patience to use successfully. Wearing hearing aids regularly will help client adjust to them and be familiar with its features. One should practice for putting in and taking out, cleaning, identifying right and left aids, and replacing the batteries of the hearing aid in presence of the audiologist. Client will learn how to **adjust the aid's volume and to program it** for sounds that are too loud or too soft. Also he will learn how to test it in listening environments where they have problems with hearing.

Client may experience some of the following problems as they adjust to wearing aid:-

- ◆ Feeling uncomfortable: Some individuals may find a hearing aid to be slightly uncomfortable at first.
- ◆ Voice sounds too loud: **The "plugged-up" sensation that causes a hearing aid user's voice to sound louder inside the head** is called the occlusion effect, and it is very common for new hearing aid users. Most individuals get used to this

are counseled for further rehabilitative action. The gains of early intervention are many fold and they will make child and parent happy.



"The hearing aids take time and patience to use successfully. Wearing hearing aids regularly will help client adjust to them and be familiar with its features."

“Gradual hearing impairment sometimes goes unnoticed by parents but noticed and reported by the teachers.”

effect over time.

- ◆ Feedback from hearing aid: A whistling sound can be caused by a hearing aid that does not fit or work well or is clogged by earwax or fluid.
- ◆ Hearing a background noise: A hearing aid does not completely separate the sounds that client want to hear from those ones that they do not want to hear. Sometimes, such hearing aids need adjustments.
- ◆ Hearing a buzzing sound with usage of cell phone: Some people who wear hearing aids or have implanted hearing devices experience problems with the radio frequency interference caused by digital cell phones. Both hearing aids and cell phones are improving, however, so these problems are occurring less often.

How to take care of hearing aid?

Proper maintenance and care will extend

the life of hearing aid: Following measures should be taken by hearing aid user:

- ◆ Wipe the outside of the hearing aid/ear mold daily with a soft, dry cloth.
- ◆ Keep away from heat and moisture.
- ◆ Avoid using hairspray or other hair care products while wearing hearing aids.
- ◆ Turn off hearing aids when not in use.
- ◆ Replace dead batteries immediately.
- ◆ Keep replacement batteries and small aids away from children and pets.
- ◆ The battery compartment should be left open at night to insure that the hearing aid is off and remains dry.
- ◆ Do not attempt to clean the hearing aid by inserting pins or toothpicks into the openings.
- ◆ Hearing aids should be professionally cleaned every 3 to 6 months.



(Continued from page 7)

antibiotic ear drops are usually enough. Ear drops should be instilled only after the discharge has been cleaned and alternate positive and negative pressure on tragus is applied to push the discharge through the perforation into the middle ear.

Refer if:

1. Suspect cholesteotoma.
2. Discharge not responding to treatment.
3. Discharge turns blood stained or foul smelling.
4. If surgery is needed as curative treatment after 10 years of age.

CSOM with Cholesteotoma or granulations

The discharge which is foul-smelling or sometimes blood stained. It may be small in amount sometimes not even noticed. Flare up is during upper respiratory tract infection (URTI). Otoscopy will show granulations or whitish flakes of cholesteotoma in the postero-superior region of the tympanic membrane. Medical treatment is ineffective and for flare-ups only; *Pseudomonas aerigenosa* is the typical causative bac-

teria but *E. coli* or other coliform organisms could be implicated

Refer if:

1. Need for surgical management.
2. Almost all of these patients will be considered for surgery irrespective of age.
3. Refer urgently if persistent pain/s welling around the ear/headache/change in the gait or any neurological symptoms or signs are seen.

Otitis Media with Effusion

Gradual hearing impairment sometimes unnoticed by parents but noticed and reported by the teachers. Occasional nocturnal earache is often the only other symptom. Otoscopy may shows mild congestion of the tympanic membrane which may be retracted. Majority of patients do not need treatment and they recover in 8-12 weeks. Main morbidity is often missed and they may lead to learning difficulty due to hearing loss

Refer if:

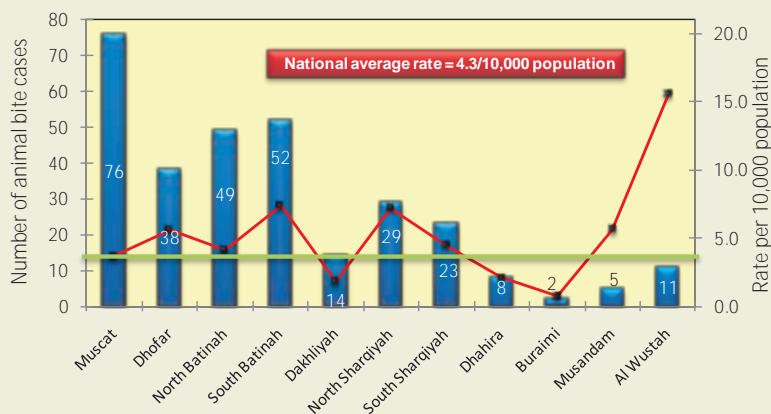
- Not responding in 8 weeks' time.



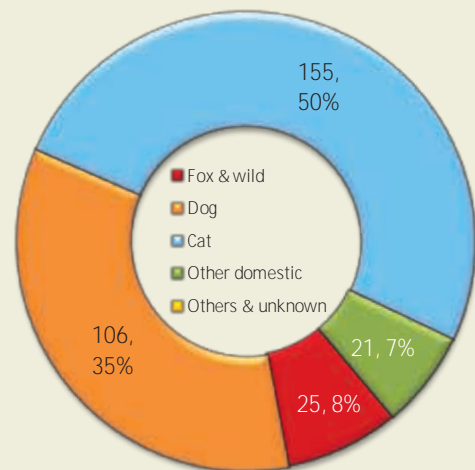
Animal Bite Surveillance Data

Second quarter: April to June 2009

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 2009

Group A Diseases & Syndromes

- AFP: Four AFP cases were reported from Mutrah and Al Amerat (Muscat), BBB Ali (South Sharqiyah) and Al Khaboura (North Batinah), were later classified as non-polio AFP with final diagnosis of 1 case each of myalgia, reactive arthritis and two synovitis. Three years old child from Khaboura (North Batinah) was not followed-up after 60 days unfortunately due to his death due to drowning in swimming pool; however his stool result was negative for polio.
- Fever & Rash illness: Of the 231 reported cases in Q2, 1 was classified as clinical case and 2 were serologically confirmed as measles. The 9 months old child from Buraimi was not due for MMR and a 32 years old female was not vaccinated. Both attended a marriage party in UAE. No secondary cases were reported among contacts and both were of genotype D8.
- Meningococcal infections and Hib Meningitis: Meningococcal disease and Hib meningitis was not reported in the second quarter.
- Pulmonary Tuberculosis: Of the reported cases, 27 were sputum positive and 5 were sputum negative.
- Food poisoning: 11 minor episodes accounting for 41 cases were reported in Q2.

Group B Diseases

- Meningitis: 2 cases of bacterial meningitis other than Nm and Hib were reported and 8 were unspecified.
- Viral Hepatitis: **Total 292 cases were reported of which 199 were confirmed as type hepatitis 'A'. 70 cases were classified as unspecified.** Seven and nine cases of acute hepatitis B and C respectively were confirmed.
- Pertussis: 14 clinical cases were reported.
- Brucellosis: 19 cases were reported from the endemic Dhofar Governorate.
- Leishmaniasis: 2 sporadic cases of cutaneous leishmaniasis were reported from Muscat and Dhofar while one visceral leishmaniasis was also reported from Dhofar.
- HIV [AIDS]: 18 new HIV infections were diagnosed and 5 AIDS cases were reported among the HIV carriers.

Group C Diseases

- Varicella: In the Q2 total 10,068 cases of chickenpox were notified.
- Mumps: 161 cases of clinical mumps were reported and 2 were serologically confirmed (IgM positive).



Communicable Disease Surveillance Data: *By Month*

Second quarter: April to June 2009

Priority Communicable Diseases	2009				2008			2009
	April	May	June	Total	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar
Group A Diseases								
Cholera	-	-	-	0	-	-	-	-
Plague	Never reported							
Yellow Fever	Never reported							
Meningococcal Infection	-	-	-	0	-	1	1	-
H. influenzae type b, meningitis (<i>Hib</i>)	-	-	-	0	1	1	-	1
Rabies	-	-	-	0	-	-	-	-
Malaria (<i>Imported Cases</i>)	68	129	91	288	281	335	347	92
Pulmonary Tuberculosis (<i>sputum positive</i>)	12	9	6	27	33	30	18	27
Group A Syndromes								
Acute Flaccid Paralysis [Polio]	2	1	1	4	4	2	9	8
Fever & Rash-Illness	67	118	49	231	320	209	148	158
<i>Clinical Cases</i>	1	-	-	1	5	4	2	3
Measles (<i>IgM positive</i>)	-	2	-	2	3	1	-	1
Rubella (<i>IgM positive</i>)	-	-	-	-	3	1	-	1
Congenital Rubella Syndrome (<i>CRS</i>)	-	-	-	0	1	-	-	-
Severe Acute Respiratory Syndrome (<i>SARS</i>)	Never reported							
Acute Haemorrhagic Fever Syndrome	-	-	-	0	-	-	-	-
Food Poisoning (<i>Infectious origin</i>)	13	29	35	77	159	170	60	36
Group B Diseases								
Bacterial Meningitis (<i>other than Hib & Nm</i>)	-	1	1	2	16	8	11	6
Viral Meningitis	-	-	-	0	-	-	-	1
Other Meningitis (<i>unspecified</i>)	3	3	2	8	8	7	13	6
Acute Viral Hepatitis (<i>Total</i>)	95	128	69	292	259	189	186	222
Acute Viral Hepatitis A	66	92	41	199	11	4	133	175
Acute Viral Hepatitis B	5	1	1	7	-	-	7	2
Acute Viral Hepatitis C	6	2	1	9	-	-	2	2
Acute Viral Hepatitis D (<i>amongst B positive</i>)	-	-	-	0	-	-	-	-
Acute Viral Hepatitis E	-	3	4	7	-	-	3	-
Acute Viral Hepatitis (<i>unspecified</i>)	18	30	22	70	248	185	41	43
Typhoid & Paratyphoid Fever	9	8	5	22	24	18	14	16
Clinical Pertussis [<i>IgM positive</i>]	6	4	4	14	30 [2]	17 [3]	6	10
Trachoma (<i>active</i>)	5	5	2	12	23	19	16	13
Brucellosis (<i>human</i>)	6	5	8	19	35	22	19	18
Leishmaniasis Cutaneous (CL)	2	-	-	2	3	2	1	-
Leishmaniasis Visceral (VL)	1	-	-	1	-	-	-	-
Schistosomiasis (<i>intestinal</i>)	-	1	-	1	-	-	-	-
Pulmonary Tuberculosis (<i>sputum negative</i>)	1	1	3	4	1	-	1	4
Extra-pulmonary Tuberculosis	5	15	9	29	32	22	29	28
Leprosy	-	-	1	1	1	-	1	-
HIV [AIDS]	8 [1]	6 [4]	4 [0]	18 [5]	11 [8]	13 [7]	19 [3]	14 [7]
Group C Diseases and Syndromes								
Influenza Like Illnesses (<i>ILI</i>)	52471	44721	27192	124384	11829	7041	13152	153137
aLRTI & Pneumonia (<i>childhood</i>)	271	246	120	637	3240	2914	4896	773
Acute 'Watery' Diarrhoea (<i>childhood</i>)	7612	5995	3703	17310	7540	5266	7045	30588
Chickenpox	3608	3811	2649	10068	21772	7378	4747	8607
Clinical Mumps [Sentinel sites-IgM positive]	42 [1]	73	46 [1]	161 [2]	187 [27]	120 [11]	418 [3]	195 [5]

Communicable Disease Surveillance Data: *By Regions*

Second quarter: April to June 2009

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>)	0	-	-	-	-	-	-	-	-	-	-	-
Rabies	0	-	-	-	-	-	-	-	-	-	-	-
Malaria (<i>Imported Cases</i>)	288	82	30	83	26	11	12	16	5	9	5	9
Pulmonary Tuberculosis (<i>sputum positive</i>)	27	7	5	6	2	3	1	1	2	-	-	-
Group A Syndromes												
Acute Flaccid Paralysis [Polio]	4	2	-	1	-	-	1	-	-	-	-	-
Fever & Rash-Illness	231	24	42	32	47	35	8	31	6	6	-	-
<i>Clinical Cases</i>	1	-	-	-	-	1	-	-	-	-	-	-
Measles (<i>IgM positive</i>)	2	-	-	-	-	-	-	-	-	2	-	-
Rubella (<i>IgM positive</i>)	-	-	-	-	-	-	-	-	-	-	-	-
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>)	77	-	6	16	8	5	32	10	-	-	-	-
Group B Diseases												
Bacterial Meningitis (<i>other than Hib & Nm</i>)	2	1	-	1	-	-	-	-	-	-	-	-
Viral Meningitis	0	-	-	-	-	-	-	-	-	-	-	-
Other Meningitis (<i>unspecified</i>)	8	-	1	1	-	3	1	2	-	-	-	-
Acute Viral Hepatitis (<i>Total</i>)	292	21	65	25	5	8	68	74	16	3	4	3
Acute Viral Hepatitis A	199	10	53	15	-	4	47	60	7	3	-	-
Acute Viral Hepatitis B	7	1	1	1	2	-	1	1	-	-	-	-
Acute Viral Hepatitis C	9	-	-	2	2	2	-	-	-	-	2	1
Acute Viral Hepatitis D (<i>amongst B positive</i>)	0	-	-	-	-	-	-	-	-	-	-	-
Acute Viral Hepatitis E	7	1	-	-	1	-	-	1	2	-	-	2
Acute Viral Hepatitis (<i>unspecified</i>)	70	9	11	7	-	2	20	12	7	-	2	-
Typhoid & Paratyphoid Fever	22	3	3	5	-	7	-	1	-	-	2	1
Clinical Pertussis [<i>IgM positive</i>]	14	4	-	-	3	3	4	-	-	-	-	-
Trachoma (<i>active</i>)	12	-	-	-	2	6	4	-	-	-	-	-
Brucellosis (<i>human</i>)	19	-	19	-	-	-	-	-	-	-	-	-
Leishmaniasis Cutaneous (CL)	2	1	1	-	-	-	-	-	-	-	-	-
Leishmaniasis Visceral (VL)	1	-	1	-	-	-	-	-	-	-	-	-
Schistosomiasis (<i>intestinal</i>)	1	-	1	-	-	-	-	-	-	-	-	-
Pulmonary Tuberculosis (<i>sputum negative</i>)	5	1	-	2	2	-	-	-	-	-	-	-
Extra-pulmonary Tuberculosis	29	10	7	4	2	1	1	-	4	-	-	-
Leprosy	1	-	1	-	-	-	-	-	-	-	-	-
HIV [AIDS]	18 [5]	7 [3]	-	10 [0]	-	-	-	-	0 [2]	1 [0]	-	-
Group C Diseases and Syndromes												
Influenza Like Illnesses (<i>ILI</i>)	124384	22314	9996	22006	13256	20621	7863	8991	8933	5340	3464	1600
aLRTI & Pneumonia (<i>childhood</i>)	637	108	77	33	80	113	55	117	18	22	-	14
Acute 'Watery' Diarrhoea (<i>childhood</i>)	17310	2223	728	3441	2373	3701	818	1173	2057	400	212	184
Chickenpox	10068	1561	769	1161	1230	2524	416	845	756	298	438	70
Clinical Mumps [<i>IgM positive</i>]	161 [2]	32	22	18 [1]	22 [1]	27	5	15	15	4	1	-

Communicable Disease Surveillance Data: *By Wilayat*

Second quarter: April to June 2009

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							3		2	1
	Mutrah					1		35		5	1
	Bawsher	1				2		21	1	3	1
	Seeb					1	1	18	3	6	2
	Al Amerat	1				6		5		1	1
	Qurayat									1	1
Dhofar	Salalah					10	1	11		10	4
	Taqah					2				1	
	Mirbat									1	1
	Thumrait					8		17			
	Sadha										
	Rakhyut					1					
	Dhalkut							2			
	Shaleem					1					
	Muqshan										
	Mazyoona					31					
North Batinah	Sohar					3		67		5	2
	Suwaiq						1	2		2	1
	Saham					12		5		2	
	Shinas									2	2
	Liwa							8			
	Khaburah	1						1		1	1
South Batinah	Rustaq							11		2	1
	Barka						2	8	3	4	1
	Musanah							5			
	Nakhl							2			
	Wadi Maawil										
	Al Awabi										
Dakhliyah	Nizwa							4	2		
	Samail							2		1	1
	Bahla							1			
	Izki					3					
	Adam					1		2		2	1
	Al Hamra								1		
	Manah							1	1		
	Bidbid							1		1	1
North Sharqiyah	Ibra					3		2			
	Mudaibi						1	7		1	1
	Bidiyah					39		2	1		
	AL Qabil					5		1	3		
	Dima Wa Al Tayeen									1	
	Wadi Bani Khalid										
South Sharqiyah	Sur					8	1	6		1	1
	Jalan Bani Bu Ali					20		6			
	Jalan Bani Bu Hassan	1				26		2			
	Al Kamil Wa Al Wafi					6		2			
	Masirah										
Dhahira	Ibri					3		4		4	2
	Yankul					4				1	
	Dhank							1			
Buraimi	Buraimi		2			3		6		1	
	Mahda							1			
	Sunaina							2			
Musandam	Khasab							4			
	Daba Al Biya							1			
	Bukha										
	Madha										
Al Wustah	Haima							7			
	Duqum							1			
	Mahoot							1			
	Al Jazer										
Total		4	2	0	0	199	7	288	14	61	27

Communicable Disease Surveillance Data: *Age Distribution*

Second quarter: April to June 2009

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>)	0	-	-	-	-	-	-	-	-	-
Rabies	0	-	-	-	-	-	-	-	-	-
Pulmonary Tuberculosis (sputum positive)	27	-	-	-	1	3	8	3	3	9
Group A Syndromes										
Acute Flaccid Paralysis [Polio]	4	-	3	1	-	-	-	-	-	-
Fever & Rash-Illness	231	91	91	19	5	2	4	13	4	2
<i>Clinical Cases</i>	1	1	-	-	-	-	-	-	-	-
Measles (<i>IgM positive</i>)	2	1	-	-	-	-	-	1	-	-
Rubella (<i>IgM positive</i>)	-	-	-	-	-	-	-	-	-	-
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>)	77	3	10	17	8	8	9	13	5	4
Group B Diseases										
Bacterial Meningitis (<i>other than Hib & Nm</i>)	2	1	-	1	-	-	-	-	-	-
Viral Meningitis	0	-	-	-	-	-	-	-	-	-
Other Meningitis (<i>unspecified</i>)	8	2	1	4	-	1	-	-	-	-
Acute Viral Hepatitis (<i>Total</i>)	292	3	104	94	36	14	3	16	10	12
Acute Viral Hepatitis A	199	2	82	75	28	7	2	2	-	1
Acute Viral Hepatitis B	7	-	-	-	-	-	-	3	2	2
Acute Viral Hepatitis C	9	-	-	-	-	2	-	2	3	2
Acute Viral Hepatitis D (<i>amongst B positive</i>)	0	-	-	-	-	-	-	-	-	-
Acute Viral Hepatitis E	7	-	1	2	-	-	-	3	-	1
Acute Viral Hepatitis (<i>unspecified</i>)	70	1	21	17	8	5	1	6	5	6
Typhoid & Paratyphoid Fever	22	1	4	3	2	1	1	4	-	6
Clinical Pertussis [<i>IgM positive</i>]	14	13	-	1	-	-	-	-	-	-
Trachoma (<i>active</i>)	12	3	1	4	2	2	-	-	-	-
Brucellosis (<i>human</i>)	19	-	5	4	-	3	4	1	1	1
Leishmaniasis Cutaneous (CL)	2	-	1	-	1	-	-	-	-	-
Leishmaniasis Visceral (VL)	1	1	-	-	-	-	-	-	-	-
Schistosomiasis (<i>intestinal</i>)	1	-	-	-	-	-	1	-	-	-
Pulmonary Tuberculosis (<i>sputum negative</i>)	5	-	-	-	-	1	1	-	-	3
Extra-pulmonary Tuberculosis	29	-	-	-	-	3	3	9	3	11
Leprosy	1	-	-	-	-	-	-	1	-	-
HIV [AIDS]	18 [5]	-	1 [0]	1 [0]	-	1 [0]	3 [1]	4 [3]	4 [1]	4 [0]

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.
- From year 2009, Group C data are compiled from computerized database by certain grouping of ICD-10 codes (Source: Nabd Al Shifa, DGIT, MoH)
- 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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*Concept, layout & Design
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Directorate General of Health Affairs,
Ministry of Health, Oman

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