

September 2008



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Special Issue on:

## “World Sight Day”

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# Community Health & Disease Surveillance Newsletter

WORLD SIGHT DAY |  
9 OCTOBER 2008



### Foreword...

The eye health care program in Oman evolved from the 'Trachoma Control Program' of 80's to 'Prevention of Blindness Program' of 90's and now a comprehensive 'VISION 2020' initiative of the new millennium.

The National Eye Health care Committee (since 1992) has representations from all stake holders including the Armed Forces and the University. The committee meets twice a year to discuss policy issues. To further expand its scope as VISION 2020 committee, representatives from different sectors are also invited on issue basis.

Oman has 15 hospitals, 30 clinics, 125 ophthalmologists, 50 refractionists and around 150 optometrists catering to the population. Integration of eye care into primary health care and school health since 1990 has enabled the programme to reach all. The rapid socioeconomic changes in Oman have resulted in rising trends of non-communicable and geriatric diseases. The eye complications of these diseases result in visual disabilities. Early detection and standard management are the strategies adopted for diabetic retinopathy (DR), glaucoma, Cataract and Age-related Macular Degeneration (AMD). Visual function assessment of children with special needs, screening for Retinopathy of Prematurity (RoP), nystagmus, anatomical defects of eyes,

cataract in newborn and amblyopia screening at 2.5 years of age are the important activities conducted for reducing the childhood blindness.

Eye health care manual and training manual are published describing standard operating procedures for eye care. A number of articles have been published in leading journals. Health education booklets on important eye diseases for have been locally produced. Presentations on program achievements in international and national meets have made them known to the scientific fraternity. The new website will soon make the eye health care program visible globally <http://eyecareprogram.net>

The Eye Health Care program staff participated with WHO and International Agency for the 'Prevention of Blindness (EMR)' in strengthening program in member states.

Other recent achievements include; integrating gender equity in the VISION 2020 - Oman, program approach for corneal complications of contact lenses and low vision rehabilitative services for children.

On the occasion of the World Sight Day, I congratulate all the staffs working for eye health care in Oman and encourage them to continue to do good work.

Dr Ali Jaffer Mohammed  
Executive Editor

The world's population are ageing. Don't be robbed of your vision  
VISION 2020: Working together to eliminate avoidable blindness  
[www.v2020.org/wsd08](http://www.v2020.org/wsd08)



“Optimum utilization of available resources, increasing awareness and involving non-ophthalmic health staff in increasing the uptake of cataract surgeries is urgently needed.”

## Cataract

Dr Abdulatif Al Raisi

*Head of Ophthalmology Department, Al Nahda Hospital*

Due to aging process, natural lens of eye becomes opaque and it is known as senile cataract. A simple surgery to remove this opaque lens and replace it with artificial lens restores the vision. Unfortunately 70% to 80% of blindness in this world is due to un-operated cataract. Oman has one of the highest Cataract Surgery Rates (CSR) (>2,000/M/Y) in the Middle Eastern countries. (Report of IAPB – EMR). In addition to the Ministry of Health, contribution of sister organizations and private sector in cataract management is highly appreciated. However, the data of two surveys (1996 and 2005) suggested that the backlog of un-operated cataract is increasing. The cataract surgery rate has remained same in last three years despite additional resources. Optimum utilization of available resources, increasing awareness and involving non-ophthalmic health staff in increasing the uptake of cataract surgeries is urgently needed.

Each region should operate at least 400 cataracts in a year, have >90% rate of Intra-ocular lens Implantation and the regions **are encouraged to undertake ‘Cataract Fortnight’ projects once a year to focus on screening for cataract and manage identifies cataract cases within regional hospitals.** They should also continue reviewing cataract surgery and take action to make cataract surgery more efficient and acceptable to the community. Adoption of Small incision Suture-less Cataract Surgery (SICS), training Omani ophthalmologists in newer technologies and providing additional re-

**Fig.1: Hypermature Cataract**  
*Do not wait until this stage!*



**Fig.2: The Phaco Machine**



sources to regions are some of the strategies implemented recently by the Ministry of Health to increase the CSR in Oman.

Cataract in children is usually of genetic or traumatic aetiology. Congenital Cataract due to TORCHES (Toxoplasmosis, Other, Rubella, Cytomegalo virus, Herpes/HIV, Syphilis) infections in mothers during pregnancies is rare in Oman. Cataract in children needs urgent care by ophthalmologists to prevent stunting of vision.

### Key points for the PHC Staff:

- Vision loss in cataract is a gradual and painless process.
- Cataract should be operated when a person experiences problems in performing his daily tasks. Vision alone is NOT the deciding criteria for deciding to operate cataract.
- Intra ocular lens is implanted at the time of cataract surgery in all eyes except with advanced diabetic retinopathy or dense corneal opacity.
- After recovering from the uneventful cataract surgery, the patients are now-a-days discharged from the hospital on **the same day. This is called ‘Day Cataract Surgery’.** Patients should be counseled to accept this concept.
- It is the right of the patient to approach operating surgeon/institution if he/she experiences problems during 48 hours after the surgery.



## Diabetic Retinopathy - A program approach in Oman

Dr Rajiv Khandekar

In-charge, Eye & Ear Health Program, NCD, Ministry of Health

### Background

Diabetes is a syndrome affecting different organs of the body. Vascular changes due to diabetes mainly affect heart, kidney, brain and eyes as these organs are supplied with end-arteries. The vascular changes can be seen with ophthalmoscopes, camera as structures (cornea, lens, vitreous) in front of the retina are transparent. Thus progress of the disease and effect of management could be monitored by viewing and documenting changes in these blood vessels and surrounding retina. Ophthalmologist can assist physician in this task. Technological development in eye care has made direct ophthalmoscopy an obsolete procedure. Digital cameras help to accurately document retinal images and with the help of software assist in comparing these images taken today with that of the past.

If a physician examines retina through undilated pupil, changes of diabetes are most likely to be missed in almost half of the cases. Even trained ophthalmologists (with equipment) could miss early changes in about 10% of cases. Hence the national program should aim to provide digital documentation facilities so that help of *Medical Retina Specialist* could be sought.

### Magnitude of the problem

As prevalence of diabetes was 10% among >20 Omani population, it is projected that nearly 90,000 people are likely to suffer from diabetes. Nearly 55,000 persons with diabetes are registered in Oman at end of 2007. With introduction of screening of >40 years old Omani citizen, this number is likely to be more. The diabetics are referred annually to eye specialist to evaluate their diabetic retinopathy status. Around 14.5% (8,000) of them suffer from Diabetic Retinopathy. If we assume that 15% of patients with DR have sight threatening condition, we will be treating 1,200 new cases with laser every year. Many of the cases treated with laser in the past will need repeat laser treatment either in fellow eye or in the same eye within next five years. Hence all

regional hospitals will have digital documentation and laser treatment by end of 2010.

### Primary prevention

Control of blood sugar and lipid levels, undergoing regular eye screening and adopting healthy lifestyle to reduce obesity, hypertension and fluctuation of glycaemic level are important primary preventive measures to avoid/delay diabetic retinopathy. The primary health staff could assist the patient in judicious diabetes control, counsel them for regular eye check up even though eye symptoms are absent. They should refer old diabetics as per the eye **doctor's advice as DR is linked to the duration of diabetes and hence chronic diabetics are at higher risk of developing DR.**

### Knowledge Attitude and Practice

A survey was conducted in Oman in 2008 to assess KAP of diabetics regarding the eye complication and treatment of diabetic retinopathy. Nursing staffs of diabetes clinics were the field staff of this study. Preliminary reports from three regions suggested that knowledge about eye complications, treatment and blindness due to diabetes was limited among patients with diabetes. However their attitude towards eye care and practices for periodic eye check up and laser treatment were very positive and encouraging. Using this surveys data as baseline, health promotion material could be prepared and their impact could be assessed by a follow up survey.

### Defaulter Retrieval System

An eye with diabetic maculopathy, proliferative diabetic retinopathy or preproliferative diabetic retinopathy near the posterior pole of eye could lead to blinding complications. Hence, these stages are defined as *Sight Threatening Diabetic Retinopathy* (STDR). Such person needs urgent intervention by ophthalmologists. If he/she does not accept recommended interven-

“An eye with diabetic maculopathy, proliferative diabetic retinopathy or preproliferative diabetic retinopathy near the posterior pole of eye could lead to blinding complications.”

**“The Arabic speaking health staff should support the initiative by counselling all diabetic patients to prevent Sight Threatening Diabetic Retinopathy (STDR).”**

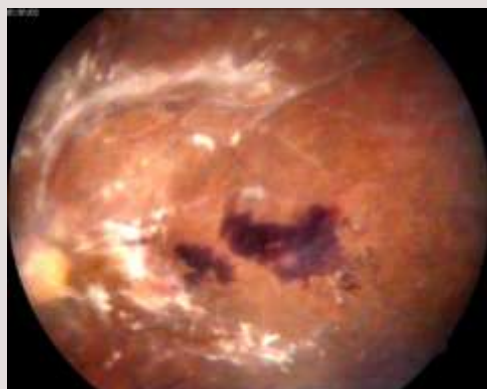
tion as scheduled, he/she is labelled as defaulter. The regional hospitals where management facilities are available have devised retrieval system. They maintain a STDR register and identify the defaulter if patient does not turn up for laser treatment. The details of these defaulters are given to hospital administrator to contact them with the help of staff of medical record section and Wilayat Director. They identify the barriers, solve problems for non-attendance and take reappointment at the earliest. This unique system was tested in two regions in 2007 and it is now a national policy. All regions should implement it and periodically evaluate its impact. The Arabic speaking health staff should support this initiative by counselling all diabetic patients so that they do not reach a stage of STDR and those with STDR should be appropriately guided for urgent management.

**Training of General Ophthalmologists in diagnosis & laser treatment**

Fig.1: Early Changes of DR



Fig.2: Late Complications of DR (untreated)



The Eye Health Care Committee aims to standardize diagnosis and management of diabetic retinopathy in Oman. In 2008-09 workshops will be held in different regions and medical retina specialist will teach standard screening and documentation skills to the general ophthalmologists. A Diabetic Retinopathy grading card is prepared for this purpose. It will be distributed to all eye units of Oman.

Fig.3: The Portable Reading Mouse



Nearly 100 digital images of different stages of DR will be used for this training.

Regional hospitals will have digital cameras and laser to treat

diabetic retinopathy by end of 2008. Ministry of Health in collaboration with Al Noor Association for the blind will organize a two-day training course (in evenings) in all regions. All general ophthalmologists are encouraged to acquire the skills to manage DR. Artificial retina (Reti-Eye) will be used for laser delivery training and the training workshop will be accredited by the MoH.

**Rehabilitation of the visually impaired due to DR**

Despite efforts, patients with diabetes mellitus are at higher risk of developing visual disabilities in later stages of their life. If they are trained in using optical and non-optical low vision devices, they can improve their visual function and continue enjoying high quality of life. Use of Close Circuit TV (CCTV) for reading and writing helps the disabled. These devices are available in black & white or colour, embedded in computer mouse or on stand. The Al Noor Association for the Blind will soon offer such devices to those in need at an affordable cost.





## Glaucoma

Dr Rajiv Zutshi

Head of Glaucoma Unit, Al Nahda Hospital, Ministry of Health

Glaucoma is a group of diseases that have as a common end point - **'A characteristic optic neuropathy' and causes irreversible vision loss.** 12% of blind in the world are due to glaucoma. An estimated 4.5 million people suffer from glaucoma. It can be congenital, juvenile, idiopathic (primary) or secondary to hyper-mature cataract, tumors in eye, following injury, surgery, pseudoexfoliation syndrome or selected uveitis.

There are two types of primary glaucoma. Primary Open Angle Glaucoma (POAG) is very common in population of African origin. Primary Angle Closure Glaucoma (PACG) is

more common in Far East Asian population. Primary open angle glaucoma is usually without symptoms and hence in absence of screening, is detected in late stages. A survey in 2005 suggested that prevalence of glaucoma was 4.75% in  $\geq 30$  years old Omani population. The risk factors for developing glaucoma include; a family history of primary glaucoma, a person of African descent, a person with diabetes, a person with glaucoma in one eye, a person using steroids to manage other systemic or eye disease and old age.

Acute glaucoma is a medical emergency. Increased eye pressure, severe pain, red eye, nausea and vomiting are presenting symptoms which should alert primary health staff of possibility of

Fig.2: Tubular Vision in Advanced Glaucoma



glaucoma and such cases should be urgently referred to ophthalmologist.

Following are the

health intervention for addressing glaucoma in Oman:

- The primary health staff should be aware of risk factors of glaucoma and guide such persons for periodic eye examination by the ophthalmologist.
- All eye patients  $\geq 40$  years of age visiting eye units must be reviewed to rule out

Fig.1: Measuring Eye Pressure



glaucoma and the findings should be documented in details.

- A patient diagnosed or suspected to suffer from glaucoma should be registered and managed in separately held **'Glaucoma Clinics' at the regional hospitals.**
- Surgery can be the first choice of management in some of the newly diagnosed cases of glaucoma.
- Eye medication to be used for controlling glaucoma should be continued life long and poor compliance will damage the eyesight.
- Awareness of the disease and its management among community and patients with glaucoma should be increased through health promotion.
- The advanced cases of glaucoma will have severe restriction of field of vision and hence will have problems of mobility and driving vehicle.

"The primary health staff should be aware of risk factors of glaucoma and guide such persons for periodic eye examination by the ophthalmologist."



“The philosophy of rehabilitation is to detect disability at early age, enhance the visual functions with Low Vision aids and integrate the affected in society without stigma.”

## Low Vision Care - A Program Approach in Oman

Dr Rajiv Khandekar

*In-charge, Eye & Ear Health Program, NCD, Ministry of Health*

### What is Low Vision?

It is a type of visual disability. It should not be confused with defective vision. (WHO has defined Low vision for the purpose of determining the magnitude of the problem as **‘visual acuity less than 6/18 and equal to or better than 3/60 in the better eye with best correction.**

However those dealing with Low Vision **Services or Care ‘Low Vision’ is defined as** a person who has impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field less than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for the planning and/or execution of a task for which vision is essential.

### Responsible eye diseases

*In Children:* Congenital cataract, congenital glaucoma, structural abnormalities of eyeball since birth, selected hereditary eye diseases and as part of central nervous system diseases affecting visual pathways and centres.

*In Adult:* Diabetic Retinopathy, Glaucoma, Age Related Macular Degeneration, corneal opacities due to complications of trachoma, high myopia with retinal degeneration and iatrogenic causes (both following surgeries or use of medicines).

### The philosophy of rehabilitation

To detect the disability at early age, enhance their visual functions with help of Low Vision aids and integrate them in society without a stigma.

### Steps in low vision rehabilitation?

- **Assess the person’s visual functions and capabilities** of other sensory organs (if required).
- **Based on visual needs and person’s potential**, improve his/her daily living skills by trials of optical and non-optical aids.
- Train the low vision disabled to use the low vision aids.

- To make/suggest environmental changes at home, work place and schools to made it conducive for low vision disabled.
- Periodically review the status of visual function and quality of life of low vision disabled.

### Searching children with disability

- In normal schools - through ongoing vision screening program by Ministry of Health
- Screening of children with special needs at school for blind, school for hearing disabled and schools for mentally challenged.
- By sensitizing paediatricians to identify high risk groups and refer them to staff at low vision subspecialty of eye units
- By preschool vision screening at PHCs for 3 years old children (To start in 2009)
- Through Non-Governmental Organizations working for visually disabled.

### Important Milestones in Low Vision Care

- Awareness campaign held by Prof Lea Hyvarinan targeting decision makers and stake holders – June 2004
- Screening of children of selected rehabilitation centres of Muscat by central team – September 2004.
- Training in basic assessment of visual function of selected teachers and volunteers giving care to the children with special needs – Feb 2005
- Provision of Low Vision assessment Kits to all Al Wafa centres – Sept 2005
- Training of 20 refractionists of Ministries in Low Vision care by international experts and distribution of Low Vision Kits and trial set of low vision aid to eye units of regional hospitals - Dec 2005.
- Inclusion of Low vision care in 7<sup>th</sup> Five Year Health Plan – 2005

Fig.1: Low-vision Devices



- Screening of children with special needs in all regions to determine low vision disabilities – Sept 2006 to April 2006
- Al Noor Association for the Blind procured Low Vision devices from Hong Kong
- Visit of Al Noor Association for the Blind's delegation to HV Desai Eye Hospital and Pune Blind Association to observe low vision care at institutions— December 2007

Fig.2: Headphone Image Magnifier



- Establishing Low Vision resource centre at Al Noor Association for the Blind – January 2008
- Training of staff of Al Noor and Ministry of Health in running low vision resource centre and training children with low vision in using low vision aids. – April 2008

- Dispensing of low vision aids free of cost— Jan 2008 ongoing

### Challenges ahead

- To establish fully functional 'Low Vision' subspecialty at Al Nahda Hospital
- Training of Omani staff in Vision therapy
- Including low vision aids as medical devices for dispensing at MOH pharmacy
- Initiating low vision care for adult in MOH institutions
- Sustaining the health staff trained in Low Vision care and

working with MoH

- Employment opportunities for low vision disabled
- Identifying children with low vision in preschool age.
- Motivating community to make environmental changes suitable for low vision disabled

### The role of Non-ophthalmic health staff in Low vision care

- Paediatricians and nursing staff related to child health should interact with parents of children with low vision disability and provide appropriate guidance.
- All Health staff – Understand limitations and encourage them to use low vision services
- Be aware & inform the community about low vision services available in Oman.

### Websites

<http://opt.pacificu.edu/ce/catalog/15911-LV/VisRehab.html>,

<http://www.lowvision.org/>,

<http://www.lea-test.fi/leaweb/index.html>

“Paediatricians and nursing staff related to child health should interact with parents of children with low vision disability and provide appropriate guidance.”



## Elimination of Blinding Trachoma: *Certification*

Dr Harith Al Harthy

Eye & Ear Health Care Program, NCD, Ministry of Health

### Introduction

Trachoma is caused by a bacterium called *Chlamydia trachomatis*. Repeated infections can cause scarring of lid tissues resulting in lid margin distortion. The misdirected eyelashes rub on the cornea. Thus complications of trachoma could cause corneal blindness. Middle East countries including Oman were in the trachoma belt since centuries.

In Oman, the prevalence of active trachoma in children was as high as 80% in the early 1970s and the Trachomatous Trichiasis (TT) was one of the major causes of blindness. With the improved socio-economic condition and health services in our beloved country, the situation of Trachoma has improved dramatically.

Visual disability due to trachoma is preventable/avoidable. Hence WHO and its partners formed Global Alliance for the Elimination of blinding Trachoma by the year 2020 (GET2020). Of the 64 member countries of this alliance, Oman is among the fast few countries that had remarkable achievements in trachoma control and now aim for elimination of blinding trachoma by 2010.

In 2006, GET2020 finalized the indicators to **declare a country/state as 'Trachoma - No more of public health magnitude' which are referred as the Ultimate Intervention Goals (UIGs)**. These will assist in ensuring uniform implementation of the SAFE strategy for the trachoma control and avoid its resurgence.

### Ultimate Intervention Goals (UIGs)

For a country to be eligible for obtaining the certificate from the Alliance, it has to achieve set targets. These targets and **Oman's status in relation to each are highlighted in Table below:**

Component of SAFE Strategy	UIGs & target population	Required UIG Smallest unit	Oman's status June 2008
'S'	TT - All ages	<1/1000 population (all ages)	<1/1000 per POP
'A'	TF (1-9 years old kids)	<5%	<1%
'F'	Clean faces of kids	> 80%	>90%
'E'	-	According to the MDG	Achieved

### UIG - *Trachoma Follicular (TF)*

Children mainly suffer from active trachoma. Repeated cycles of infection in childhood cause TT in their adulthood. The active trachoma is treated with a single doze of Azithromycin (20 mg per Kg body

Fig.1: Trachoma Follicular



weight) and is now available through school health program and for patients at all PHCs. Oman has achieved the target UIG required for 'A'. **The prevalence of TF is <1% in 1-9 years old children in all 22 Wilayat of three endemic regions of the past namely; Dakhliyah, North Sharqiyah and South Batinah.** Although this achievement is substantial, trachoma should not be forgotten and the primary health care doctors are advised to examine the lids of all cases presented with conjunctivitis and if active trachoma is clinically found should be treated. **Active Trachoma is now in Group 'B' of priority and notifiable communicable diseases and linked with appropriate public health action.**

### UIG - *Trachomatous Trichiasis (TT)*

TT is a risk factor for corneal damage and visual disability. The inverted eyelids or eyelashes could be corrected through a

(Continued on page 9)

"Visual disability due to trachoma is avoidable. Hence WHO and its partners formed the Global Alliance for the Elimination of blinding Trachoma by the year 2020 (GET2020)."



## Eye Health through School Health

Dr Sahar Abdu Helmi

Superintendent, School Health Program, DGHA

### *Why eye care is important in school children?*

- We can use 1<sup>st</sup> grade children as a window of the community to determine the size of communicable eye diseases and take public health action accordingly.
- We can examine many children in schools to detect eye diseases missed during their preschool period.
- We can address refractive error in children during their growing ages.
- Children could adopt healthy habits of using eyes and vision under supervision of teachers.
- Children could be the messengers to the families and the community to propagate eye health.

### *What are the eye health care activities through school health?*

According to International Agency for the **Prevention of Blindness (IAPB)**, Oman's eye care through school health is a model. The school health staff that are trained in eye screening, examine students of 1<sup>st</sup>, 4<sup>th</sup>, 7<sup>th</sup> and 10<sup>th</sup> grades every year. The school refractionists identify and correct refractive error among them. Low cost spectacles are provided to those in need. The compliance of wearing spectacle is checked every year. The 1<sup>st</sup> grade students with active trachoma and infective conjunctivitis are treated under supervision and followed after 6 months. The children with defective vision but without refractive error are referred and managed by regional ophthalmologists.

"Oman has achieved the Ultimate Intervention Goals (UIGs) needed for the certification for elimination of blinding trachoma."

simple surgical procedure called the '**Bilateral Tarsal Rotation**' (BTR). All regional hospitals have trained surgeons to perform this surgery and they are given required instruments for it. It is very important for the primary health care staff to identify, counsel and refer all diagnosed cases to the nearest eye doctor. The staff of PHCs of 22

ing personal hygiene and face cleanliness can reduce the risks of disease transmission. Primary health care staff should continue to counsel the families regarding the importance of ocular hygiene.

### UIG - Environmental improvement (E)

**The Ultimate Intervention Goals (UIG) for 'E'** - Environmental improvements are related to the 7<sup>th</sup> goal of Millennium Development Goal (MDGs). They are country specific. There are eight MDGs. They have different goals, like halving extreme poverty, halting the spread of HIV/AIDS and providing universal primary education. All these goals are to be achieved by 2015. The 10<sup>th</sup> target of the 7<sup>th</sup> goal of the MDG aims to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation. Oman has reached the desired MDG set for the environmental improvement and hence the **UIG for the "E" component**

### Conclusions

Oman has achieved the UIGs needed for the certification for elimination of blinding trachoma and we are in the process of obtaining it from the Global Alliance.

Fig.2: Trachomatous Trichiasis



Wilayat of three regions will continue screening of >40 population for TT while they visit PHCs and enroll new case in TT Register before referring them to eye clinic.

### UIG - Face cleanliness (F)

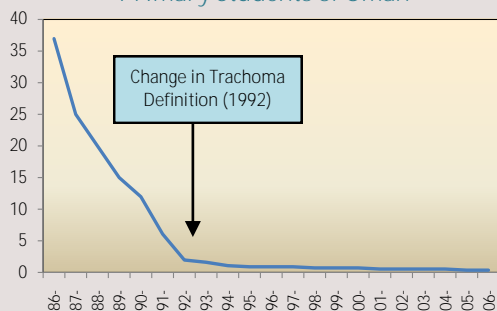
Trachoma transmission occurs through direct contact or by eye seeking flies. Improv-



“A chapter on eye health has been specifically written in a book named **‘Facts for Life’** (Part 1) which is distributed to all 9th grade students.”

The quality of screening is strengthened through periodic training and supervision of 1<sup>st</sup> level screening. Gender sensitive Health Information Management System for eye care through school health is maintained at Wilayat, regional and national levels. National and regional reports are prepared every year. To integrate eye care education into the schools, we distribute health education materials. A chapter on eye health has been specifically written in a book named ‘Facts for Life’ (Part 1) which is distributed to all 9th grade students.

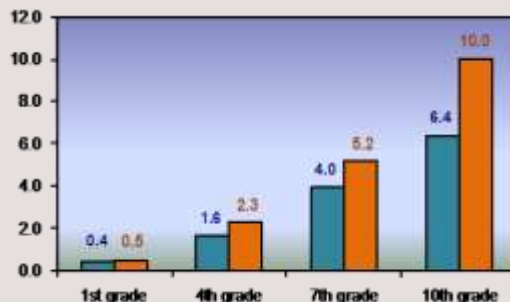
Fig.1 Incidence of active trachoma in 1st Primary Students of Oman



**Milestones**

- 1983 – 90: Annual screening of all school students by central teams with primary focus on active trachoma and refractive error
- 1991: Establishment of school health system in Oman
  - Training of school health staff in revised eye screening procedures
  - Annual eye and vision screening of 1<sup>st</sup>, 7<sup>th</sup> and 10<sup>th</sup> grade students
  - Community action for trachoma control based on 1<sup>st</sup> grade active trachoma magnitude
- 1995 – 96: Integration of school health in primary health care system in Oman
- 1996: Integration of trachoma control in the school curriculum
- 1998: Relocation of school refractionists from HQ to regions
- 1998: Integration of data on eye care through school health within national Health Information and Management System
- 2001: 4<sup>th</sup> grade vision screening introduced
- 2002: Screening of students of Muscat

Fig.2 Prevalence of myopia among boys & girls in schools of Oman: 2007



region in PHCs & no more school refractionist

- 2002: Provision of free spectacles by private donors or Ministry of Education
- 2007: In the GCC school health gathering the IAPB appreciated the eye health care component.

**Oman’s achievements of Prevention of Blindness in school children**

*Facts to remember*

- Schooling is mandatory up to 10<sup>th</sup> grade and is free of cost with scholar’s rate in primary level of >99%.
- Vision is tested of nearly 160,000 students every year all over Oman.
- Promotion of habits for keeping eyes healthy is crucial to build better future generation.
- Private schools of Oman are encouraged to follow Ministry of Health and Ministry of Education’s policies on vision screening for students.

*What is the role of Non-ophthalmic health staff?*

- Ensure compliance of spectacle ware among students prescribed spectacles
- Ensure that health records are updated as per feedback by school refractionist and ophthalmologists
- Promote vision hygiene among students to reduce eyestrain. (Posters and booklets are available in PHCs)



## Contact Lens Practice: *Integration in VISION 2020*

Mr Mohammed Al Fahdi

Eye & Ear Health Care Program, NCD, DGHA

### Background

Contact lens is a medical device made up of plastic material that is used to correct refractive error and they are placed in front of the cornea and behind eyelids. A layer of tear film between the eye and contact lens is essential for the health of cornea. Different materials are used to prepare contact lenses. They are mainly of two types; rigid and soft .

The quality of vision with contact lens is much better than by spectacles. For certain refractive errors, correction is not possible by spectacles. Hence contact lenses are prescribed in such cases . For aesthetic reasons, people especially young generation opt for contact lens. It is now also used for cosmetic purpose to change eye color.

### Associated health problems

Cornea is an avascular tissue that depends for its vitality mainly on the atmosphere oxygen reaching it through the tear film. Contact lens is a plastic mesh. Liquid and oxygen can pass through. If pores of this mesh are blocked with mucous or debris it does not permit oxygen, nutrition and antibodies to reach the cornea. Hence hygiene of contact lens is crucial. Cleaning by contact lens wearer, special care of lens by practitioner and timely replacement are essential factors otherwise keratitis develops and even vision could be compromised.

### Who is responsible for problems?

The complications due to contact lens could be either due to abuse of contact lens by clients or it could be due to faulty lens,

Fig.1: Early Contact Lens Keratitis



related products or inefficient contact lens practitioners. All efforts should be made to standardize contact lens practice, promotion of internationally acceptable lenses and proper counseling of the clients.

### Contact lens practice

The magnitude of contact lens use is not known. The prevalence of myopia in 16 to

Fig.2: Do not wait until this stage!



17 years old Omani population is as high as 9%. Thus there is high potential for con-

tact lens practice. Qualified opticians carry out majority of contact lens practice in Oman. Few ophthalmologists in private sector are prescribing contact lens. Ministry of Health dispense therapeutic contact lens in limited cases. Unfortunately cosmetic contact lenses are sold without prescription in shops, local market and during festivals.

### Milestones

- 2005: 1<sup>st</sup> contact lens conference for opticians (also planned in 2007 & 2008)
- 2006: Appointment of national supervisor for contact lens and low vision
- 2007: Cornea specialist set the minimum standards of a contact lens clinic in Oman
- 2007/2008: Annual supervisory visits to all private contact lens clinics in Muscat
- 2007: Introduction of legal document for contact lens practitioner and client to sign while dispensing contact lens
- Jun 2008: Adverse event notification and surveillance system (blinding eye complications due to contact lens)

### Role of primary health care staff

They should

- Know that contact lens is a safe & useful device for refractive error
- Educate prospective/current contact lens users to follow ocular hygiene to avoid blinding complications.
- Refer a case of corneal complication with underlying cause as contact lens to the nearby ophthalmologist as ocular emergency. The contact lens must accompany the patient when he/she is referred .



**“The primary health care staff should educate prospective and current contact lens users to abide ocular hygiene principals to avoid blinding complications.”**

“Eye health care was integrated with the Primary Health Care in 1995 in North Sharqiyah region. Since then, the regional team implements and supervises the program.”

## Eye Health Program Management: *A Region's perspective*

Dr Samir Shah

*Regional Epidemiologist & Focal point for Eye health care program, North Sharqiyah region*

### Introduction

North Sharqiyah is a region (State/Province) of Oman with a population of 156,633. There are 17 Health Institutions without eye units and three Institutions with eye units. For better eye care, patients had to rush to the capital Muscat (180 Kms away) in the past. Eye health care was integrated with the Primary Health Care in 1995 in this region. Since then, the regional team implements and supervises the program in the region. Main focus is on treating common eye diseases at PHCs, identify and refer the blinding eye diseases to ophthalmologists and increase awareness in the community for better eye care. In 2005, **‘Primary - Secondary eye complex’** was further strengthened with the commissioning of Ibra regional hospital with the state of art ophthalmology department.

### Regional Achievements

#### 1. Disease control

- Rise of cataract surgery rate from 185/ Million population in 2000 to 2367/ Million in 2007.
- Cataract conversion rate (# approaching eye unit with cataract x operated) in 2007 was 17%.
- Cataract surgery time audit performed.
- Audit of cataract surgery 2007: 49% with excellent vision after surgery (vn >6/18)
- Involving Wilayat (District) health in two Wilayat for increasing cataract surgery uptake.
- 8% of cataract surgery by using Phaco-emulsification.
- Screening campaign of people visiting health institution to detect incident diabetic cases.
- Sight Threatening Diabetic Retinopathy (STDR) register & Defaulter retrieval system for STDR
- Detailed work up of glaucoma cases in glaucoma clinics at Ibra Hospital
- Mudhaiby Wilayat reached the **Ultimate Intervention Goals (UIGs) for ‘Elimination of blinding trachoma’ in March 2008.**
- **Active trachoma included in Group ‘B’** of communicable diseases since 2005 and effective public health action for 88 cases

was taken in the region till end of 2007.

- Retinopathy of Prematurity (RoP) screening of preterm babies in Ibra hospital.
  - **‘0’ reporting of clinical Vitamin ‘A’ deficiency** in the region.
  - Screening and care for low vision for 346 children with special needs.
  - Screened 42,893 and managed refractive errors among school children in 2007-08.
- #### 2. Human resource for the region
- PHC staff trained in eye care; increase in ophthalmologists and mid level eye care personnel, training of nurses in eye units:
- Training of 58% primary health staff in eye care.
  - Ophthalmologist: population ratio in the region: 5.1:100,000
  - Refractionist: population ratio in the region: 2.5:100,000
  - Four staff attended national meets in 2007.

#### 3. Technological up-gradations in eye care

Phaco-emulsification machine for cataract surgeries, digital camera and laser for diabetic retinopathy management, modern puff tonometer and automated field analyzer for glaucoma patients are available in the Ibra hospital.

#### 4. Supporting national initiatives

- Participation in national glaucoma, blindness and trichiasis survey.
- KAP of health staff in eye care of diabetics studied and paper published.
- Members in national trachoma elimination certification team
- Presented research paper in national conferences
- Assisted in making protocol for Diabetic Retinopathy and ROP

### Challenges

1. Awareness about eye related issues and community participation for these issues
2. Retention of Human resources like Ophthalmologists
3. High prevalence of Diabetes and other chronic diseases

### Proposed Solutions

1. Awareness campaigns involving Wilayat

*(Continued on page 13)*



## Streamlining Patient Flow in Eye OPD

Saleh Al Harby

National Eye Health Care Supervisor , NCD, Ministry of Health

### Why is it important?

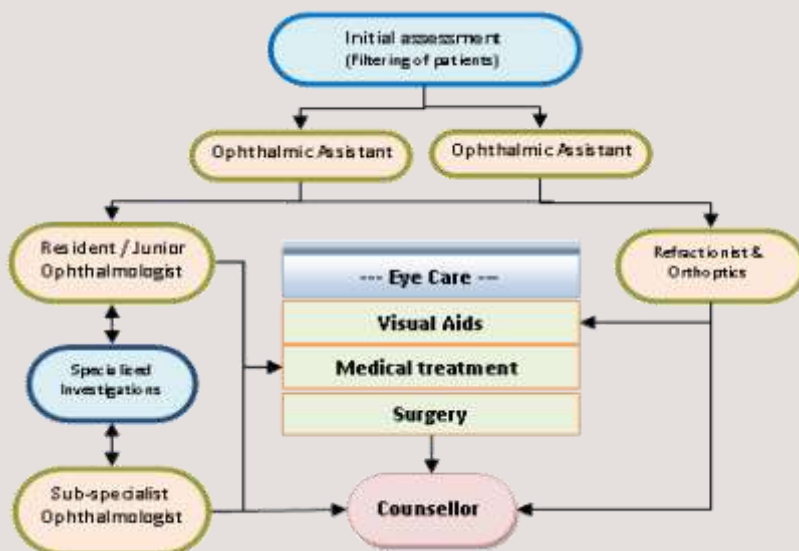
In the modern era, eye patients need high quality services at reasonable cost and fast. They seek eye services which include them in decision making. Hospitals with cost sharing model often face challenge of huge number of clients and to satisfy their needs. They therefore streamline patient's flow in their clinic. One such model is practiced in LV Prasad Eye Hospital, Hyderabad, India – WHO Collaborative centre for VI-

SION 2020 (refer to flow diagram). While applying to the need of the tertiary eye centre in Oman, we propose minor changes as described below.

### Advantages of this model

- Optimum use of manpower as per his/her skills
- More focus on blinding eye diseases by ophthalmologist

Fig.1 Model of "Patient Flow" in reputed eye institute



health services

2. Training, re-training and providing necessary incentives to ophthalmologists
3. Implementation of universal screening of elderly population for chronic diseases including diabetes

### Conclusions

The strategies of 'Eye Domain of the 6<sup>th</sup> and 7<sup>th</sup> Five Year of Health Plan though 'primary secondary eye complex' are effectively implemented in the region. The success is attributed to the sincere work of health staff and cooperation and guidance of the program administrators. These efforts will certainly enable Oman to achieve VISION 2020 goals.

- Time spent by patients in eye clinic minimized
- Involve patients in decision making after proper explanation of eye condition
- Maximize the time allotment for the suitable eye care to each patient.
- Strengthen the case record system.

- Improve the skills of eye care staff through specific focused work allotment.
- Improve patient satisfaction & thereby motivate them to bring more needy people on time.

### Recommendations

- Generation of required manpower; short term: (recruitment) Long term: Training of Omani school graduates at WHO collaborative centres.
- Rearrangement of OPD space to accommodate proposed patient's flow
- Promotion of model among eye care provider, administrators and patients

"Streamlining the patient flow in the hospitals will make eye services more efficient along with satisfying patients' needs."



## Publications: *Evidence-based Approach to Eye Care in Oman*

Dr Rajiv Khandekar

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### (A) Articles published on Eye Care

#### 1. Trachoma

- The prevalence of trachomatous trichiasis in Oman (Oman eye study 2005). *Ophth Epi.* 2007
- Prevalence and distribution of active trachoma in children of less than five years of age in trachoma endemic regions of Oman in 2005. *Ophth Epi.* 2006
- Recurrence of trachomatous trichiasis 17 years after bilamellar tarsal rotation procedure. *Am J Ophth.* 2006
- From Control to Elimination of Blinding Trachoma in Oman. *MEJO.* 2006
- Trachoma in Middle Eastern countries. Editorial in *MEJO.* 2007
- Active trachoma, face washing (F) and environmental improvement (E) in a high-risk population in Oman. *EMHJ.* 2005
- Distichiasis or Dysplastic eyelashes in cases of Trachomatous Trichiasis. *EMHJ* 2004
- Recurrence of trichiasis: a long-term follow-up study in the Sultanate of Oman. *Ophth Epi.* 2001
- Outcome of azithromycin treatment of active trachoma in Omani schoolchildren. *EMHJ* 2003

#### 2. Cataract

- Satisfaction of patients after cataract surgery in Oman A hospital based descriptive study. *Asian J of Ophth.* 2003
- Coverage of cataract surgery per person and per eye: review of a community-based blindness survey in Oman. *Ophth Epi.* 2004
- Cataract prevalence, cataract surgical coverage and its contribution to the reduction of visual disability in Oman. *Ophth Epi.* 2004

#### 3. Glaucoma

- Influence of Diabetes on the Validity Glaucoma Screening by Frequency Doubling Perimetry - A Hospital-Based Study in Oman. *Diabetes Tech & Therap.* 2008
- Glaucoma in Oman: a review. *J Glaucoma.* 2006
- Glaucoma among Omani diabetic patients: a cross-sectional descriptive study. *Eur J Ophth* 2004
- Noncompliance of glaucoma treatment in Oman a cross sectional study. *Ophth Epi J.* 2005
- Should health information of glaucoma be hospital based or community based? *SMJ.* 2008

#### 4. Diabetes

- Care of Diabetic Retinopathy Patients in Oman (Editorial). *SQUM J* 2008
- Visual disabilities among diabetics in Oman. *SMJ* 2005.
- Diabetic retinopathy in Oman: a hospital based study. *BJO* 2003
- Knowledge, attitudes and practices among physicians in Oman for retinal examination of people with diabetes – a descriptive study. *EMHJ.* 2007

#### 5. Refractive error

- Determinants of the progress of myopia among Omani school children: A historical cohort study. *Eur J Ophth.* 2007
- Magnitude and determinants of refractive error in Omani school children. *SMJ.* 2004

- Validity of vision screening by school nurses in seven regions of Oman. *EMHJ.* 2004
- Compliance of Spectacle wear and its determinants among schoolchildren of Dhakhiliya region of Oman: *SQUJ* 2002
- Determinants of Myopia among school children: A case control study. *Ophth Epi.* 2005

#### 6. Childhood Blindness

- An epidemiological and clinical study of ocular manifestations of congenital rubella syndrome in Omani children. *Arch Ophthal.* 2004
- A 12-year epidemiological review of retinoblastoma in Omani children. *Ophth Epi.* 2004

#### 7. Visual disabilities

- Magnitude and causes of unilateral absolute blindness in a region of Oman: A hospital-based study *Eur J Ophthl* 2007
- Prevalence and causes of Blindness and Low Vision before and five years after 'Vision 2020' Initiatives in Oman - A review. *Ophth Epi.* 2007
- The prevalence and causes of blindness in the Sultanate of Oman: the Oman Eye Study (OES). *BJO.* 2002
- National Register for the Blind: a tool for health programme management. *EMHJ* 2006
- Double Disability: the deaf-blind in the Sultanate of Oman. - *Int J of Audio.* 2004
- Visual functions of children with special needs at the Indian school in Muscat. *MEJO.* 2006
- Assessment and care of children with low vision disability in Oman. *SMJ* 2005

#### 8. Others

- Costs of congenital rubella syndrome (CRS) in Oman: Evidence based on long-term follow-up of 43 children. *Vaccine.* 2006
- Health Facilities for eye care in primary health institution of Oman. - A descriptive study, *SQUMJ.* 2006

### (B) Article Accepted (in press)

- Contact lens induced corneal ulcer managed in a tertiary eye unit of Oman - A case series. *SQUMJ*
- Validity of glaucoma screening in Oman. *EMHJ*
- Visual function and ocular status of children with hearing impairment in Oman. *Ind J of Ophth*

### (D) Ongoing studies

- KAP regarding eye complications and their care among patients with diabetes in Oman
- Congenital anomalies of eye in Omani newborn
- Visual function of IQ challenged Omani children
- Genetic profile of Omani families with congenital cataract
- Knowledge, hearing behavior and practice among Omani population
- Assessment of visual gain following cataract surgery in Oman

“The research helps making informed and evidence-based decisions to improve any public health program performance.”





Ministry of Health  
Sultanate of Oman



- 1.2 billion elderly people live in this world and 71 % of them are located in developing countries.
- An elderly person, adopting 'active aging' becomes less sick. Healthy eyes are essential for active aging.
- Vision is affected due to aging and age related eye diseases like cataract, Age Related Macula Degeneration (AMD), Diabetic Retinopathy (DR) and glaucoma. These diseases have higher prevalence in elderly population.
- Many causes of impaired visual function are avoidable or curable. Timely intervention delays severe disabilities.
- Visual disabilities are often responsible for injuries and mortality among old people.
- Disabilities like hearing impairment add the risk of compromising the quality of life in visually impaired geriatric population.
- The prevalence of blindness (Vision <math><6/60</math> as presented) among '60 years and more' Omani population was 12.6% in 2005. More than half of them were due to un-operated cataract.

Let us all keep our eyes on the future, work together to avoid visual impairment in the later life and make elderly people's life easy and enjoyable.

**"The wisest mind has something yet to learn."**



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Citation should be according to the following example: Ministry of Health Oman, National Response Strategy for HIV/AIDS in Oman, Comm & Dis Surv Newsletter, 2008; 17 (1): 1-6.

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