

# Health Facilities for Primary Eye Care in Sultanate of Oman

## Primary Eye Care Study 2000

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### الإمكانيات الصحية لرعاية العين الأولية في سلطنة عمان دراسة رعاية العين الأولية ٢٠٠٠

**المخلص: الهدف:** محاولة تحسين (١) رعاية العين الأولية بمساعدة برنامج رعاية صحة العين. و(٢) موارد "رعاية العين الأولية" في منشآت وزارة الصحة لسنة ٢٠٠١. **الطريقة:** في هذه الدراسة الوصفية. تم تقييم عاملين اختيروا بصورة عشوائية من ٨٤ منشأة صحية تمثل ١٣٦ مركزا صحيا أوليا عبر طرق ضمان الجودة للتأكد من أن الدراسة ذو معيار عالي. قام أطباء العيون المدربون في هذا الحقل في تقييم حالة المورد. مثل العاملين في مجال الصحة. توفير مساحة لتقديم خدمات العناية بالعين. الأجهزة. المواد المستخدمة في التثقيف الصحي. إحالة الحالات (للتعليم الطبي المستمر للعاملين في الرعاية الصحية الأولية). الأدوية المستعملة في طب العيون. الخ. في كل مؤسسة صحية. إضافة إلى توفر ذلك. فقد تم التأكد من مستوى تقديم الخدمات في رعاية العين. **النتائج:** المؤسسات الصحية في سلطنة عمان تمتلك الموارد الكافية لـ "الرعاية الأولية للعين". إضافة جهاز خاص للعين (loupe) والأدوية ستحسن أكثر "الرعاية الأولية للعين" في عمان. **الخلاصة:** نوصي أن يجرى تقييم كهذا لبرنامج الرعاية الصحية والموارد والنوعية بصورة دورية كجزء من النظام لضمان جودة الرعاية الصحية الأولية.

**ABSTRACT Objective:** Endeavor to improve (i) the quality of *Primary Eye Care* with the aid of an Eye Health Care Programme and (ii) the resourcing *Primary Eye Care* in Ministry of Health Institutions in 2001. **Method:** In this descriptive study, staff were randomly selected from 84 health institutions and representing 136 primary health institutions to carry out quality assurance procedures. Ophthalmologists trained in this evaluation were field staff who evaluated the resource status, such as health staff, space for eye care delivery, instruments, materials for health education, referring cases (for continuous medical education of the primary health staff), drugs for eye care, etc., in each health institution. In addition to availability, the standards of eye care delivery were also estimated. **Results:** The health institutes of Oman have adequate resources for *Primary Eye Care*. Additional requirement of ophthalmic loupes and medicaments would further improve *Primary Eye Care* in Oman. **Conclusion:** It is recommended that such a review of the health care programme and its resources and quality be periodically conducted as a part of a system of quality assurance in primary health care.

**Key words:** Primary Health Centers, Oman, Eye Health Care Program, Quality assurance, Quality improvement.

**P** RIMARY PREVENTION OF COMMON EYE DISEASES and early detection of sight-threatening eye diseases are possible with the existing Primary Health Care (PHC) services of our country. Periodic evaluation of available resources for *Primary Eye Care* would strengthen the endeavor of national health care programmes to attain the goal of quality primary health initiatives.<sup>1</sup>

The Sultanate of Oman is a country in the Arabian peninsula. Health services provided to the citizens of Oman are universally free. It is one of the landmark achievements in last two decades. Eye care is an impor-

tant part of the health initiatives in the Sultanate. Blindness is prevalent at a rate of 1.1%, and 80% of cases were due to preventable causes or curable diseases.<sup>2</sup> It is crucial that the existing PHC practitioners detect common and sight threatening eye diseases at early stages. The Ministry of Health (MOH) has prioritized eye problems in a '*Specific Disease Control Program*' in the next five-year plan.<sup>3</sup> Thus the commitment to strengthen the PHC will be stronger in the next ten years.

Since 1991, *Primary Eye Care* was offered to all the schools in Oman through Eye Health care programme. Trained school health staff annually screened students

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**Table 1. Human resource for Primary Eye Care (Primary Eye Care study 2000)**

HI with information on human resource related to eye care	84
Primary Eye Care doctors	167
Primary Eye Care nursing staff	725
Population of catchment area	960, 625
Doctor: Population ratio	1:5, 752
Nursing staff: population ratio	1:1, 325
Primary Eye Care staff: population ratio	1:1, 077

from the 1<sup>st</sup> Primary, 4<sup>th</sup> Primary, 1st Preparatory and 1<sup>st</sup> Secondary classes in order to detect and manage common eye diseases and provide visual assessment.<sup>4</sup> In 1995, the *Primary Eye Care* was initiated in 136 MOH institutions all over Oman with the help of a regional cadre of program managers using standard tools.<sup>5</sup>

This study was accomplished with the objective of evaluating the available resources for *Primary Eye Care* at MOH Health Institutions (HI) of Oman and recommending policies for further strengthening it.

### METHOD

Facilities for *Primary Eye Care* exist in 136 MOH HI in 10 health regions in the Sultanate. An estimated representative sample with 95% confidence intervals, 5% possible errors and 80% of primary Health Institutions (HIs), have facilities to provide standard eye care; 88 HIs were enumerated. These samples were further stratified by region. Then the regional proportion of HI (related to eye care) was used as a sample (mentioned in the “*Annual Statistical Report 1999*” of MOH)<sup>6</sup> to calculate the sub-sample. Using all listed institutions from the random number table gave the required samples for *Primary Eye Care evaluation*.

Ten selected ophthalmologists acted as Field Investigators. The details of Health Institution staff and the population of the catchment areas were obtained from the HI authorities and the references were collected by using health documents. Then the information on the availability of resources was gathered through personal observation and interviews with the health staff on duty and by recording their performance using a specifically-devised pre-tested standard data collection form. In case of non-availability of required resources for eye care, the official in-charge had to furnish de-

tails of action to procure them.

To ensure a high quality survey, various steps of randomization, the use of instruction manuals, conducting training and standardizing workshops, a pilot study and the auditing of data collection forms were carried out. During pilot stage inter-observer variations were verified.

The data collection form and computer format were matched prior to the field work. The forms were audited in the regions and then forwarded to the data manager for computing. Complete data was input in a specially-designed software termed EPI6. With the range of through checking and random variable tabulation, the process of sorting of data was carried out. The analysis was carried out using the Statistical Package for Social Studies (SPSS 9). The frequency and percentage proportions of important results were calculated.

Verbal consent of regional and local health administrators was taken for the study. The results and recommendations were given to the regional administrators for further improvement of resources and eye care delivery at primary health centers.

### RESULTS

#### SAMPLE PROFILE:

Of 88 samples enumerated, 84 HI were examined in this study. Due to logistic problems, 4 could not be examined. The coverage rate was 96%. As to the human resources for *Primary Eye Care* qualified graduate medical doctors provided eye care at these institutions. The nursing staff of the HIs were graduate nurses. These staff had limited training in eye care during their studies so additional training was given after they joined the MOH in the Sultanate. The catchment area population reported was based on mid-1999 population projections.<sup>6</sup> The number and ratio to population is specified in Table 1.

#### Space for Eye Care:

Most of the HIs have separate doctor’s examination rooms, nursing stations, waiting areas for male and female patients and a pharmacy for dispensing medications. Also, 73 HIs (87%) were with adequate space for vision assessment and other activities related to standard eye care. In eight HIs (9.5%), visual testing was performed in the corridor or waiting area if the doctor thought it essential. In three HIs (3.5%), this facility was missing.

**Table 2. Reference material for Primary Eye Care (Primary Eye Care study 2000<sup>4,5</sup>)**

Items	Yes						No		Missing	
	At HI		For each Sta		Both		#	%	#	%
	#	%	#	%	#	%				
Flowchart	45	54	-	-	-	-	14	17	29	30
Eye Health Care Manual 1 <sup>st</sup> Edition	57	68	9	11	17	20	1	1	-	-
Eye Health Care Manual 2 <sup>nd</sup> Edition	45	54	5	6	12	14	22	26	-	-

## INSTRUMENTS FOR PRIMARY EYE CARE:

*Torches:*

All 84 HIs used torches to examine eye cases. However, only 68 (81%) of them had torches with good focus; in the remaining 16 HI (19%), the torches had either poor illumination or poor focus.

*Snellen's Distant Vision Chart:*

Of 84 HIs, 76 (91%) had Snellen's distant vision "E" chart and 9% HIs did not have vision charts. Among those having these charts, 56 HIs (74%) were displayed properly, while 20 HIs (26%) did not display them as per the recommended standards.

*Ophthalmoscope:*

Although it is not an essential instrument for *Primary Eye Care*, all HIs were provided with a diagnostic set having a combined ophthalmoscope and otoscope. Out of 84 HIs, 73 (86%) had this instrument; in 11 HIs (11%) it was not available. Among 69 HIs with this instrument, 60 (95%) had them in working condition, while in 4 HIs (5%) they were not working.

*Ophthalmic loupe:*

An ophthalmic loupe is an asset to primary staff to diagnose minute details of ocular tissue, especially for accurately diagnosing trachoma. Health staff of presbyopic age would benefit if an ophthalmic loupe were available. Only 2 HIs (2%) had an ophthalmic loupe. In 82 HIs, (98%) it was not available.

*Material for Health Education on Eye Care:*

For the Eye Health Care program (EHCP), MOH had prepared and supplied four posters to all MOH Institutions in 1999. These posters are related to ocular hy-

giene, vision hygiene, cataract and "*Nutrition and Eye Health*". Health staff used the posters for promoting safe preventive practices for eye care. They are in local language and have self-explanatory pictures. Of 84 HIs, 79 (94%) had posters on eye care, while in 5 HIs (6%) these posters were not available. Among those HI having the posters, 49 HIs (58%) had all four posters, 9 HIs (11%) had three, 15 HIs (18%) had two and 11 HIs (13%) had only one poster displayed properly.

*Reference material on Eye Care for Health staff:*

For the EHCP, the MOH had prepared and supplied flow charts to guide the trained health staff in policies for eye care for common eye diseases. The standard operating procedures and policies of MOH for eye care in Oman are stipulated in the Eye Health Care (EHC) manuals – 1st and 2nd Editions. Ophthalmologists reviewed the availability of these reference materials. This information is given in Table 2.

*Drugs for Primary Eye Care:*

The MOH has stipulated for HIs a drug policy on *Primary Eye Care*. The ophthalmologists collected information on available medicines in the HIs. If medicines other than those recommended in drug policy were present in the HI, the staff provided the reason for keeping them. The profile of drugs and disposables for *Primary Eye Care* is shown in Table 3.

**DISCUSSION**

*Primary Eye Care* as an integral part of Primary Health Care, is a key strategy that is adopted by national health programs on recommendation of the World Health Organization (WHO). It includes promotion of eye health and provision of basic preventive

**Table 3. Drugs for Primary Eye Care (Primary Eye Care study 2000)**

		No. of HI	%
Chloramphenicol eye drops	Available	82	97.6
	Not Available	2	2.4
Tetracycline eye ointment	Available	84	100.0
Antihistamine eye drops	Available	74	88.0
	Not Available	10	12.0
Azithromycin suspension/tablet	Available	13	15.5
	Not Available	68	81.0
	Missing Info.	3	3.5
	Available	23	27.4
Fluoresciene strip	Not Available	59	70.2
	Missing Info.	2	2.4
	Available	57	68.0
Eye pad & dressing material	Not Available	26	31.0
	Missing Info.	1	1.0
	Available	73	87.0
Eye Wash facility	Not Available	9	11.0
	Missing Info.	2	2.0
	Available	31	37.0
Extra medication	Available	31	37.0
	Not Available	53	63.0

and/or curative treatment for common eye disorders. The Sultanate of Oman in its five-year health plans has stressed this strategy since 1990.

The national survey for blindness and common eye diseases, which was conducted in Oman in 1996-97, suggested that Oman had prevalence rates of blindness, which is less than other developing countries but more than industrialized countries. More than ¾ of the blindness was reported to be due to either curable or preventable causes. The communicable eye disease, trachoma, was prevalent at a rate of 2.2%. Further strengthening of *Primary Eye Care* would enable to further reduce blindness and communicable eye diseases.

Providing the required resources for effective *Primary Eye Care* has enabled the MOH to consolidate *Primary Eye Care* at all MOH Institutions since 1995. Our assessment on the results of five years of establishing *Primary Eye Care* should be useful for health planners to formulate future strategies for human resource development and further strengthening of *Primary Eye Care* in the Sultanate.

Our sample has an adequate unbiased representation. With the random selection procedures adopted, all HIs had an equal chance of being assessed. Thus,

the results of this assessment represent the overall situation of *Primary Eye Care* facility in the Sultanate of Oman.

Qualified medical graduates provide the eye services in Oman at primary health centers. A large proportion of the professionals is hired from other countries. Graduate nursing staff provides the nursing care to eye patients, many of whom graduated in Oman. However, the distribution of Omani nursing staff is not uniform. In small HIs, the nursing staff manage eye patients in the absence of doctors. Thus, they also are important primary care staff. The MOH has provided training to health staff in *Primary Eye Care* since 1995 with the help of mid-level managers of the eye health care program in all regions.

The WHO has recommended increasing the population of ophthalmic nurse in Asian countries from 1: 200,000 in 2000 to 1:50,000 by 2020.<sup>7</sup> The study has shown that the *Primary Eye Care* doctor to population ratio in Oman is nearly 1: 5,750, while the nursing staff to population is 1: 1,350. The ratio of *Primary Eye Care* staff to population is 1: 1,100. In view of the low proportion of skilled Omani health staff, this ratio is misleading as far as sustained health services are concerned.

The calibre of these primary health staff is of paramount importance for quality eye care. Efforts to continuously improve their calibre through training and supervision are the responsibility of the regional eye care program management.

Health centers have been established in all health regions of Oman in the last 20 years. The buildings have standard health care facilities. Required alterations to provide standard *Primary Eye Care* were made within the existing facilities in 1995. This study showed that nearly 90% had adequate space for providing standard eye care. In the remaining HIs, arrangements are made to assess the visual acuity on a need basis and provide eye care without compromising quality. Lack of space in these institutions could discourage health staff from assessing visual acuity in all eye patients. Some of the patients with visual impairment but without symptoms could be missed in such circumstances. The cases referred from these institutions on an emergency basis for further care at secondary level will also be without standard vision assessment and this may cause medico-legal problems.

Simple tools for standard eye examination are necessary to accurately diagnose eye conditions and pro-

vide quality eye care. For example, a torch with poor illumination or without good focus, can cause misdiagnosis especially of trachoma and small foreign bodies etc. The majority of HIs had good torchs. The rest should procure them as soon as possible through their regional administrators. HI staff should also ensure good maintenance and supply of spare batteries in order to keep them in good working condition.

Distant vision is tested in the Sultanate by using Snellen's Illiterate 'E' chart. They are periodically provided by the programme in the required number. Placement of the chart is of paramount importance. The regional ophthalmologists during their HI visits should demonstrate the use and positioning of the 'E' chart to obtain standard results in vision testing.

Because Oman is a trachoma endemic country, primary health staff should treat active trachoma cases frequently. To differentiate the follicles of trachoma and allergic conjunctivitis and to locate foreign bodies on the cornea etc., it is essential that eyes be examined using magnification. Ophthalmic loupes would be useful for this purpose. All HIs should be provided with ophthalmic loupes in the required quantity.

Ophthalmoscopy is a skilled procedure and primary staff would take a long time to be proficient in this procedure, hence it is not recommended as a standard operating procedure. However, the medical graduates in their curriculum are trained to use ophthalmoscopes. They could evaluate the hypertensive, diabetic and disc changes in intra-cranial lesions. In the present study, this tool was found to be underutilized in most of the HIs.

Promotion of safe preventive practices is part of *Primary Eye Care*. The Eye Health care program provided posters for public display at HIs. Only 60% of HIs had all posters. All had at least one poster displayed. The Policy of framing posters before display in HIs of some regions was responsible for not having these posters properly displayed. A large number of posters to be displayed by different programs have made it impossible for the HI to have all posters displayed at a time. Use of handouts, as done for the eye changes of diabetes, trachoma, cataract etc., could be an alternative to poster display.

The health staff had sufficient reference material for eye care. This material was used extensively in the initial part of launching the program. Periodic reading in clinical meetings or journal clubs would ensure proper utilization of these reference materials.

Medicines for *Primary Eye Care* were available in the required quantity in all HIs. In the year 2001, Azithromycin is to be supplied to all HI to treating active trachoma cases. The consumption of tetracycline will reduce in future. All HI should be provided with fluorescein strips for detecting foreign bodies and diagnosing corneal ulcers. The medicines prescribed by ophthalmologists to chronic eye patients are being collected from the parent HIs. This was the main reason for keeping extra eye medication at some HIs. Regional procurement of sulphacetamide and the provision of it to HIs should be checked. Drug policy for local antibiotics for eye care should be reviewed periodically.

#### RECOMMENDATIONS

Based on the evaluation, the following recommendations were proposed. Ophthalmic loupes should be provided to all institutions. All new HIs should have standard eye care facilities. Antihistamine eye drops, Azithromycin suspension/capsule and fluorescein strips should be supplied to all HIs. Health staff should use reference material for eye care in the journal clubs and when holding periodical clinical meetings. The national and regional health managers should review the constraints and solve them so that posters on eye care can be displayed in waiting areas. Pamphlets on common eye diseases should be distributed to interested clients at all HIs. Strict policies for vision testing should be implemented for all cases that are referred to ophthalmologists for further care.

The literature does not report the criteria of accreditation of health institutions for *Primary Eye Care*. However, the model of labeling HIs as baby friendly institutions and breast feeding health initiatives at MOH Institutions of Oman could also be applied for the accreditation for eye care. In the present study, the distribution of human resources, the availability of materials for eye care and the level of trained staff were measured. However, such point evaluation may have to be supplemented with additional indicators, which could be assessed periodically and with uniform standards. The criteria of measuring the level of HIs 'eye care delivery and patients' satisfaction should also be included as a part of system for quality assurance and quality improvement procedures.

## CONCLUSION

- The assessment suggests that most of the resources for *Primary Eye Care* are available as per the national policy in Oman and resource constraints are not a barrier for providing standard *Primary Eye Care*.
- Such a review should be carried out periodically for resources and quality, in order to improve Primary Health Care.

## ACKNOWLEDGEMENTS

We acknowledge the cooperation of Primary Health Staff, the ophthalmologists who worked as field investigators, the staff of the regional directorate and the MOH and for their constant encouragement in all steps of this study. The WHO provided financial support. We are also thankful to all the epidemiologists who assisted in the analysis part of this study.

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