

Ophthalmology Resources and Services Provided in Health Ministry Hospitals at Tabuk city, Saudi Arabia

Ashwaq Abdullah Alghamdi^{1*}, Afaf Atallah Albalawi¹, Weam Saeed Alomar¹, Najlaa Samran Almutairi¹, Yara Mohsen Albalawi¹, Hani ALBalawi²

¹Medical Intern, Ministry of Health, Kingdom of Saudi Arabia.

²Assistant Professor of Ophthalmology, Faculty of Medicine, University of Tabuk, Tabuk, Saudi Arabia.

ABSTRACT

Introduction: Health care improvement has been an ongoing high priority process in Saudi Arabia. The government current expenditures on health estimated to be around 4.7% of its GDP. These efforts resulted in remarkable development in the services provided by the government. One of the initiative taken to aid in the development was endorsing "vision 2020" a global eye health action aims to reduce avoidable visual impairment. In Tabuk city review of the current situation of ophthalmology services and disease burden is unknown. These services need to be better documented and disseminated so that we make sure that the country is on track to reach its target.

Methods: This was a situation analysis of the current personnel and equipment available provided by ophthalmology department. Claimed data will examine personnel and equipment available at the health ministry hospitals in Tabuk city.

Results: The number of ophthalmology consultants is five (Three are general ophthalmologists, one oculoplastic and a vitreoretinal), nine ophthalmology specialist, six ophthalmology residents, ten optometrist, four technicians, five nurses and there are no orthoptists and ophthalmic assistants. In our

study, we found that the ophthalmologist to population ratio is 1/63,643.

Conclusion: In conclusion, the ophthalmology services much improved in Kingdom of Saudi Arabia in general and in Tabuk city specifically. However, this improvement is still needed to increase with the availability of expert's ophthalmologist with subspecialties like retina, glaucoma, and others.

Keywords: Ophthalmologist, Eye Care, Ophthalmology Services.

*Correspondence to:

Ashwaq Abdullah Alghamdi,
Medical Intern,
Ministry of Health, Kingdom of Saudi Arabia.

Article History:

Received: 19-12-2017, Revised: 04-01-2018, Accepted: 22-01-2018

Access this article online

Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2018.4.1.071	

INTRODUCTION

Health care improvement been an ongoing high priority process in Saudi Arabia.^{1,2} The government current expenditures on health estimated to be around 4.7% of its GDP.³ These efforts resulted in remarkable development in the services provided by the government. Realizing the impending challenges and the urgency in addressing those challenges are given utmost priority.¹ One of the initiative taken to aid in the development was endorsing "vision 2020" a global eye health action aims to reduce avoidable visual impairment.⁴ To achieve this vision a situational analysis, need to be conducted to proper implement the policies and plan suggested by the draft of "vision 2020". Globally there is of all ages 284 million persons with a visual impairment⁵, the blindness and visual disabilities magnitude in Saudi Arabia is unknown.⁶ If we used the estimated data from other eastern Mediterranean countries we will find 27,000 blind individuals and 197,000 individuals with low vision disability in the Kingdom.⁶ The burden of diseases is increasing duo to congenital anomalies in children

and metabolic syndromes in the adult population in the Kingdom, hence there will be high visual disabilities related to the consequences of these condition in near future.⁶ In Tabuk city with population estimated at 2016 by the general authority of statics to be: 890,922 people (including 180,223 non-Saudis).⁷ Review of the current situation of ophthalmology services and disease burden is unknown. These services need to be better documented and disseminated so that we make sure that the country is on track to reach its target, working to its full potential, learning from them and use them while deciding on the most appropriate way to implement the policies and plans endorsed.^{8,9}

This report will assess available databases and present accurate data on the current ophthalmology workforce helping in taking appropriate corrective measures and explore potential issues so that the targets could be achieved in a timely fashion, the data gathered will may also assist in identifying the reasons behind why no hospital yet offer a residency training program in Tabuk city.

OBJECTIVES/HYPOTHESIS

The data on resources available is deficient. Providing an accurate and up to date list of ophthalmology workforce will help utilizing the available resources and determine which steps should be avoided, kept, and implemented based on the result.

MATERIALS AND METHODS

This was a situation analysis of the current personnel and equipment available provided by ophthalmology department. Claimed data will examine personnel and equipment available at the health ministry hospitals in Tabuk city.

Resources were tabulated using the databases of the ministry of health hospitals in Tabuk. Data collected and it includes:

- The Professional's Manpower and Technical Services in Ophthalmology Department.
- Medical Products and The Technical Services
- The number of OR rooms
- The OR Supplements (equipment)
- And the essential ophthalmic drugs

The provided data from our study will be compared to Guidelines for ophthalmology recommendations provided by world health organization.

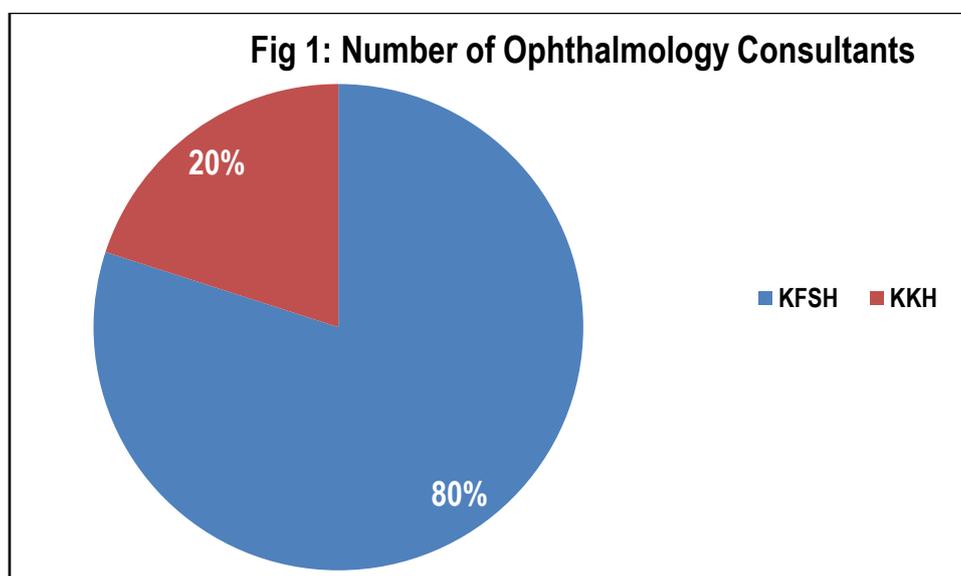


Table 1: Show the status of ophthalmic technical services.

Resources	KFSH	KKH
1 Academic and training activities. (Regularly held any workshops).	2 lectures per week	1 lecture per month
2 Plan to open residency program	After 2 years	yes
3 The Professional's Manpower and Technical Services in ophthalmology Department According to Hospital Bed Number	Shared with surgical ward-12 beds	Shared with surgical ward Mostly 80% day surgery
4 THE TECHNICAL SERVICES :		
1. Ophthalmology Service Reception Area	1	NA
2. Ophthalmology Service Patient Area/ Optometry Service Patient Area	NA	NA
- Pre-Testing/Intake Room	NA	NA
- Visual Fields Room	1	NA
- Photography Room	1	NA
- Ultrasound Room	1	1
- Tomography Room	1	NA
- Imaging Room	1	NA
- Ophthalmology Laser Rooms	1	1
- Electrodiagnostics (ED) Room	NA	NA
- Dilation Waiting room	NA	NA
- Procedure Room	1	NA
- Low Vision / Polytrauma Training Room	NA	NA
3. NO. examination rooms	4	3
4. Ophthalmology Service Staff and Administrative Area	1	NA
5. Optometry Service Reception Area	1	NA
6. Optical Fitting Area	NA	1
4. The Ophthalmology Exam/Treatment Room equipped by Slit Lamp / Biomicroscopic Slit Lamps	6	2

Slit Lamp Lenses	90D	4	90D	2
	76D	4	30D	2
	20D	6	20D	2
Portable slit lamp		2		NA
Indirect BIO Lenses		6		3
Instrument Stands		1		2
Manual Refractors		1		NA
Ophthalmic Loupes Ophthalmology Exam Chairs (Ophthalmic Examination Chair)		6		2
Retinoscopes		2		2
Scleral Depressors		3		2
Applanation Tonometers (Applanation Tonometry)		6		2
Color Vision Test		2		2
Direct Ophthalmoscope		3		2
Exophthalmometer		1		1
Gonioscopy Lenses		1		2
Eye Chart Projector, Screen & Mirrors		1		2
Stereopsis Screening		1		1

RESULTS

The current study was conducted at the two leading hospitals managed by the ministry of health in the Tabuk city, King Khalid hospital and king Fahad specialist hospital. The number of ophthalmology consultants is five (Three are general ophthalmologists, one oculoplastic and a vitreoretinal) (Figure 1), nine ophthalmology specialist, six ophthalmology residents, ten optometrist, four technicians, five nurses and there are no orthoptists and ophthalmic assistants.

Starting with academic activities, KFSH is doing two lectures weekly, while they are carried on a monthly base in KKH. Regarding examination rooms, KFSH has four well-equipped room, while KKH 3 rooms.

Both hospitals are sharing admission beds with the surgical department. The tables show the status of ophthalmic technical services, or supplements and essential ophthalmic drugs respectively.

Table 2: Show the status of OR supplements.

Operating Room	KFSH	KKH
1 The number of OR rooms:- 1 (specific or shared with other departments)	Specific-1room	Shared with Main O.R
2 The OR Supplements:		
1. Mini Auto Claves	1	1
2. Instrument trolleys	1	1
3. Cataract set	4	2
4. Operating lights, mobile one	1	1
5. Operating Microscope (with teaching attachment)	2	1
6. Operating tables	1	1
7. Operating Chairs	NA	1
• Surgical instruments as per the requirements of the sub specialties		
1- Phaco Machine	2	0
2- Vitrectomy Machine	0	0
3- Cryo Machine	1	0
4- Bipolar diathermy	1	1
5- Drill with saw and wire	1	0
6- Endoscope	1	0
7- Trabeculectomy set	2	0
8- Keratoplasty set	NA	0
9- R D Surgery Set	NA	0
10- Chalazion set	6	3
11- DCR set	4	1
12- Squint set	4	0
13- Orbital/Oculoplasty	3	0
14- Equipment required for general Anesthesia	Available	Available

Table 3: Show the status of essential ophthalmic drugs.

ESSENTIAL OPHTHALMIC DRUGS:	KFSH	KKH
• DROPS/OINMENT		
1. Tetracycline 1%	Available	NA
2. Atropine 1%	Available	Available
3. Chloramphenicol	Available	NA
4. Cyclopentalate1%	Available	Available
5. Gentamycin	Available	Available
6. Tropicamide 1%	Available	Available
7. Ciprofloxacin	Available	Available
8. Adrenalin	Available	Available
9. Gentamycin Inj	Available	Available
10. Lidocane	Available	Available
11. Xylocane	Available	Available
12. Povidone Iodine	Available	Available
13. Propacane	Available	Available
14. Pilocapine(Reverse)	Available	Available
15. Fluorescein dye	Available	Available
16. Predisolone1%	Available	Available
17. Acetazolamide	Available	Available
18. Hydrocortisone	Available	Available
19. Predisolone	Available	Available
20. Vit A	Available	Available
21. Dexamethasone	Available	Available
22. Beta blockers	Available	Available
23. Prostaglandin analogs	Available	Available
24. NSAIDs	Available	Available
25. Viscoelastics	Available	Available

DISCUSSION

Highly skilled health workers in sufficient numbers at the right place and time are critical for the development of health system.¹⁰ Healthcare improvement has been an ongoing high priority process in Saudi Arabia.^{1,2} The government current expenditures on health is estimated to be around 4.7% of its GDP.³ These efforts resulted in remarkable development in the services provided by the government. However, Despite internationally and wide national recognition of its importance, there is a lack of data on the state of human resources in eye care in Saudi Arabia in general and Tabuk region specifically.¹¹ King Khaled Hospital (KKH) and King Fahd Specialist Hospital (KFSH) are the main tertiary referral hospital for the region. The definition of ophthalmologist is: a physician who is holding a board certificate in ophthalmology. In city like Tabuk with a relatively large population (estimated at 2016 by the general authority of statistics to be: 890,922 people) and expected to reach 1 million very soon we can see that the total number of ophthalmology consultant is only five, two of them are with subspecialty (oculoplasty, and vitreoretinal) others are general ophthalmologist. This number increased by only one consultant since Motowa et al., research that was conducted 2012 in which found that the total number of an ophthalmologist in Tabuk were four.⁶ The ophthalmologist to population ratio recommended by the WHO has been achieved in Saudi Arabia⁴ in general, but there is a wide variation in the administrative zones⁶, Motowa, and his colleague found that the ophthalmologist to population ratio in Saudi Arabia 1/45,500 where in Tabuk is 1/158,900.⁶ We found that the ophthalmologist to population ratio is 1/63,643 so in Tabuk, the number of ophthalmologists is improving compared to past.(Table 4)⁶

Globally there is still a high need for a skilled ophthalmologist for both high and low-income countries⁵ and there is currently a significant shortfall of ophthalmologists in developing countries.¹² Research conducted by ICO worldwide (Serge Resnikoff et al.) stated that: The average number of ophthalmologists per million population differ according to economic development as defined by the World Bank.¹² The World Health Organization Eastern Mediterranean Region reported that at Nigeria the number of an ophthalmologist to population ratio is 1:300,000.¹³ Eye medical centers at Saudi Arabia in the Kingdom can train 30 ophthalmologists a year.⁶ This is still a small number to fill the gap for high demand ophthalmologist for coming years. At the moment the health system largely depends on ophthalmologist from outside countries.⁶ In Tabuk city, there is a plan to start ophthalmology residency program after two years, but till now a big shortage is observed in the number of trainer ophthalmologist and ophthalmologist with subspecialty like glaucoma. Even though, academic activities are still irregular and inadequate. Regarding exam rooms, investigation tools, and equipment, we can see a big difference between two big hospitals in Tabuk, where KFSH is well-equipped with visual field, ultrasound biomicroscopy, photography, and topography, KKH only has ultrasound biomicroscopy. However, both hospitals do not have Electrodiagnostics (ED) work-up like Electroretinogram (ERG) and others. Both hospitals did not have Low Vision services at all. Both hospitals good equipment with Slit Lamp / Biomicroscopic Slit Lamps, Slit Lamp Lenses, Portable slit lamp, Indirect BIO Lenses, Manual Refractors, Ophthalmic Loupes Ophthalmology Exam Chairs (Ophthalmic Examination Chair), Retinoscopes and Scleral Depressors.

In KFSH, the operating room is one and specifically designed for Ophthalmology services, where in KKH a single room is shared with main O.R. Close look inside operating room in both hospitals we will find instruments like Mini Auto Claves, Cataract set, Instrument trolleys, Operating lights mobile one, Operating Microscope and Operating tables.

Surgical instruments availability as per the requirements of the subspecialties in KFSH as following, in oculoplasty we will find Chalazion set, DCR set and Drill with saw and wire, but in vitreoretinal subspecialty only available medical retina services, with a big deficit in surgical retina services, for example, no vitrectomy machine. Although the Trabeculectomy set are ready, No surgical glaucoma services and no glaucoma expert in all

Tabuk region. Main eye operations in tabuk are emergencies like rupture globe, or general elective surgeries like cataract, however, because there is oculoplastic consultant more advances oculoplastic surgeries done. Furthermore, neuro-ophthalmology, pediatric ophthalmology, ophthalmic pathology, cornea and anterior segment are not available in Tabuk, and all patients in need are referred to high eye centers at Riyadh, Jeddah and other Saudi cities.

Ophthalmology medications are available and easy access to ophthalmologist prescription. Finally, the King Salman Armed Forces Hospital it was not included in our study because of limited eligibility and the main pediatric and maternity hospital in Tabuk do not included any ophthalmology services.

Table 4: Show the ophthalmologist to population ratio in Tabuk.

Administrative area	Population 2012	Ophthalmologists	Ratio	Population 2016	Ophthalmologists	Ratio
Tabuk	635,675	4	158,900	890,922	14	63,643

CONCLUSION

In conclusion, the ophthalmology services much improved in Kingdom of Saudi Arabia in general and in Tabuk city specifically. However, this improvement is still needed to increase with the availability of expert's ophthalmologist with subspecialties like retina, glaucoma, and others.

REFERENCES

1. Albejaidi, F. M. (2010). Healthcare system in Saudi Arabia: An analysis of structure, total quality management and future challenges. *Journal of Alternative Perspectives in the Social Sciences*, 2(2), 794-818.
2. Almalki, Mohammed, Gerard FitzGerald, and Michele Clark. "Health care system in Saudi Arabia: An overview." *Eastern Mediterranean health journal* 17.10 (2011): 784.
3. World Health Organization [website] Countries: Saudi Arabia. accessed 22 NOV 2017 (<http://www.who.int/countries/sau/en/>).
4. Zero draft of Action plan for the prevention of avoidable blindness and visual impairment for 2014-2019. [Last accessed on 2017 NOV 23]. Available from: <http://www.who.int/blindness/Zerodraftactionplan2014-19.pdf>.
5. Pascolini, D., & Mariotti, S. P. (2012). Global estimates of visual impairment: 2010. *Br J Ophthalmol*, 96(5), 614-618. doi:10.1136/bjophthalmol-2011-300539
6. Al Motowa S, Khandekar R, Al-Towerki A. Resources for eye care at secondary and tertiary level government institutions in Saudi Arabia. *Middle East Afr J Ophthalmol* 2014;21:142-6
7. General Authority of Statistics, Kingdom of Saudi Arabia, Statistical Yearbook of 2017. viewed 20 NOV 2017 (<https://www.moh.gov.sa/en/Ministry/Statistics/book/Documents/Statistical-Yearbook-1437H.pdf>).
8. Geneva: Switzerland: Published by WHO; 2007. World Health Organization. Human Resource development in VISION 2020 Global Initiative for the Elimination of Avoidable Blindness: Action Plan 2006-2011; pp. 42-5.(6)

9. Cairo: World Health Organization, Eastern Mediterranean Regional Office; 2003. Report on the conference on 'VISION 2020' Planning for the Eastern Mediterranean Region, December 2003, Cairo, Egypt .

10. WHO. Increasing Access to Health Workers in Remote and Rural Areas through Improved Retention: Global Policy Recommendations. Geneva, Switzerland: World Health Organization, 2010. http://whqlibdoc.who.int/publications/2010/9789241564014_eng.pdf (accessed 2 Jun 2011).

11. Human Resource Development Working Group. Global human resource development Assessment for Comprehensive Eye Care. 2006. (Accessed 2 Jun 2011) http://vision2020.org/mediaFiles/downloads/27686346/Global_Human_Resource_Development_Assessment_For_Comprehensive_Eye_Care_pdf.pdf

12. Resnikoff S, Felch W et al. The number of ophthalmologists in practice and training worldwide: A growing gap despite more than 200,000 practitioners. *Br J Ophthalmol* 2012;96:783-7.

Source of Support: Nil. **Conflict of Interest:** None Declared.

Copyright: © the author(s) and publisher. IJMRP is an official publication of Ibn Sina Academy of Medieval Medicine & Sciences, registered in 2001 under Indian Trusts Act, 1882.

This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Cite this article as: Ashwaq Abdullah Alghamdi, Afaf Atallah Albalawi, Weam Saeed Alomar, Najlaa Samran Almutairi, Yara Mohsen Albalawi, Hani ALBalawi. Ophthalmology Resources and Services Provided in Health Ministry Hospitals at Tabuk city, Saudi Arabia. *Int J Med Res Prof*. 2018 Jan; 4(1):335-39. DOI:10.21276/ijmrp.2018.4.1.071