ACKNOWLEDGEMENTS

The National Eye Database (NED) would like thank each and everyone who have directly or indirectly contributed to the success of the National Eye Database.

In particular we would like to thank the following:

1. Ophthalmologists, heads of MOH Ophthalmology Departments, doctors in-charge, site coordinators mainly optometrists and paramedics at all the 36 MOH hospitals with ophthalmology service and resident optometrists at district hospitals without ophthalmologists. Thank you for being the source data providers for NED. The success of NED depends on you.
2. Staff Nurse Teng Kam Yoke, NED clinical registry manager at Registry Coordinating Centre.
3. The Division of Research and Technology Support, Ministry of Health, for financial support.
4. Information Technology Personnel; Ms Lim Jie Ying and Mr Sebastian Thoo.
5. Database administrator; Ms Amy R Porle, Web application programmer; Mr Abdul Malik Bin Tanjeng and Graphics Designer; Mr Azizi Bin Abd Rahman.
6. Clinical Data Management Personnel; Ms Teo Jau Shya and Ms Huziana.
7. Statistician; Puan Tassha Hilda bt Adnan dan Cik Nadiah Sa'at.
8. Malaysian Society of Ophthalmology, Malaysia Medical Association Foundation, and Alcon Laboratories Sdn Bhd for providing financial support.

Last but not least, the Director-General of Health for the permission to publish this report.

Thank you.

NED Steering Committee Members

May 2015

NED STEERING COMMITTEE MEMBERS 2014

Advisor	Dr Nor Fariza Ngah Head of Service, Department of Ophthalmology, Hospital Selayang
Chairperson	Dr Mohamad Aziz Salowi Department of Ophthalmology, Hospital Selayang
Members	Dr Goh Pik Pin Clinical Research Centre, Ministry of Health Dr Elias Hussein Department of Ophthalmology, Hospital Selayang Dr Zuraidah Mustari Department of Ophthalmology, Hospital Sultanah Nur Zahirah Prof Dr Abdul Mutalib Othman Department of Ophthalmology, Universiti Sultan Zainal Abidin Dr Zaharidah Abd Kadir Department of Ophthalmology, Hospital Sultan Abdul Halim Puan Che Rohani Cawangan Kualiti & Penyelidikan, Bahagian Sains Kesihatan Bersekutu, Putrajaya
Secretariat	Teng Kam Yoke Ophthalmic trained staff nurse, NED Clinical Registry Manager

ABOUT NATIONAL EYE DATABASE

Introduction

The National Eye Database (NED) is an eye health information system supported by MOH. It is a clinical database consisting of six patient registries and a monthly ophthalmology service census. The patient registries are Cataract Surgery Registry, Diabetic Eye Registry, Contact Lens-Related Corneal Ulcer Surveillance, Glaucoma Registry, Retinoblastoma Registry, and Age Related Macular Degeneration Registry. The source data producers are eye care providers, currently from the public. Information collected, both clinical and epidemiological, are very useful in assisting the MOH, Non-Governmental Organizations, private healthcare providers and industry in the planning, evaluation and continuous improvement of eye care services, leading to prevention and control of blindness in the nation.

Vision

An accessible eye health information.

General Objectives of the National Eye Databases

1. To establish and maintain a web based eye health information system on natural history of visual threatening eye diseases, which are of public health importance. The information is useful in the planning and evaluation of eye care service.

2. To determine the effectiveness of treatment, both clinical outcomes and cost, and to identify factors influencing outcomes. This serves the needs of outcome assessment.

3. To provide information necessary to evaluate ophthalmology services through census and key performance indicators, as well as on safety or harm of products and services used in the treatment of a disease. This contributes to continuous quality initiative.

4. To evaluate the accessibility and equity in health care provision. This information enhances accountability.

5. To provide a mean of prompt and wide dissemination of epidemiological and clinical information through web such as real time registries reports and notification of epidemic of contact lens-related corneal ulcer. This is essential for public health advocacy.

6. To stimulate and facilitate research on eye diseases.

CATARACT SURGERY REGISTRY

The Cataract Surgery Registry (CSR) was initiated in 2002 and collects data pertaining to patients who have had cataract surgery. Data collected include demography, medical history, operative events, post-operative visual outcomes and probable causes for poor outcome. Since 2008, data on posterior capsular rupture, visual outcome and post-operative endophthalmitis were linked to online key performance indicator for monitoring centre performance while data on incidence of posterior capsular rupture and patients with poor visual outcome are linked to online cumulative sum (CUSUM) to monitor competency of individual surgeon. Annual reports for the year 2002, 2003, 2004 and 2007 are available at www.acrm.org.my/ned, under the section of publication.

Objectives

1. To determine the frequency, distribution and practice pattern of cataract surgery in Malaysia.
2. To determine the outcomes and factors influencing outcomes of cataract surgery.
3. To evaluate cataract surgery services based on rate of posterior capsular rupture, post-operative infection, post-operative visual outcome and induced astigmatism.
4. To stimulate and facilitate research on cataract and its management.

RETINOBLASTOMA REGISTRY

Retinoblastoma registry collects data on the pattern of clinical presentation, mode of treatment and outcome of patients with retinoblastoma seen at ophthalmology clinics with paediatric ophthalmology service. The main SDP is Hospital Kuala Lumpur.

Objectives

1. To determine the incidence and distribution of retinoblastoma in different states in Malaysia.
2. To determine the ethnic-specific prevalence of retinoblastoma in Malaysia.
3. To study characteristics of RB patients in terms of clinical presentation and stage of disease based on International Intraocular Retinoblastoma Classification.
4. To evaluate types of treatments and monitor treatment trends.
5. To evaluate treatment outcomes including complications related to treatment.

MONTHLY OPHTHALMOLOGY SERVICE CENSUS

Since 2002, Ophthalmology Service of MOH has been collecting annual census from all the hospitals with ophthalmology departments. Data include essential service census and key performance indicators for ophthalmology service. There are 13 sections in the census return, namely out-patients, inpatients, major eye operations, cataract service, diabetic service, glaucoma service, and optometry service, and subspecialty services which include vitreoretinal, corneal, paediatric ophthalmology, oculoplasty, medical retinal, and a public health ophthalmology, and data on training records and prevention of blindness activities. Data are entered monthly by staff at sites via on-line data entry. Heads of ophthalmology department can view their own and other hospitals' real-time reports.

Objectives

1. To evaluate service output in all ophthalmology departments.
2. To study trends in service output and service patterns.
3. To get baseline and norm from services provided by MOH ophthalmology departments.
4. To determine norm and set standards for performance indicators for centres which differ in strength of physical and human resources.

OUTREACH PROGRAMME CENSUS

Ministry of Health (MOH) is the biggest provider of ophthalmology service in the country including the outreach activities. However, data for these activities conducted by all the Ophthalmology Departments are not readily available and most are not properly documented.

Due to the increasing number of cataract surgeries performed in MOH facilities, the existence of the mobile and the satellite cataract services and the expansion in the outreach activities, these data need to be compiled and organised both at the central and departmental level. These data can possibly be analysed and be used for the improvement of ophthalmology outreach services in the country.

Data collected include details of activity, total number of individual screened by age and disease, total number of referral to ophthalmologist and optometrists, total number of cataract surgeries done and the updated number of eye trained paramedics.

Objectives

1. To compile data pertaining to outreach activities by all ophthalmology department in the country.
2. To update the number of Primary Eye Care and Ophthalmic Post Basic staff available in the country.
3. To study the patients' demography in the outreach activities
4. To study the eye disease workload in the outreach activities
5. To study the cataract surgery workload in the outreach activities

KEY PERFORMANCE INDICATOR

The Ministry of Health (MOH) launched the implementation of Key Performance Indicators (KPIs) in February 2008 with the aim to assess the overall performance of services provided by Clinical Departments in MOH. The MOH Ophthalmology Service has identified KPIs which measure clinical performance of core ophthalmology service such as out-patient service, cataract surgery and diabetic eye screening.

From 2008 to 2011, there were 7 KPIs being measured in MOH Ophthalmology Service. However, the Quality Unit of MOH revised these KPIs in January 2012 and has 3 KPIs and 4 performance indicators (PIs). Rate of infectious endophthalmitis following cataract surgery and Percentage of patients with post-operative visual acuity of 6/12 or better within 3 months are both PIs and National Indicator Approach (NIA). Rate of Posterior Capsular Rupture during Cataract Surgery has been removed both from KPI and NIA lists.

MEASUREMENT			INDICATOR	STANDARD
PI 1			Percentage of patients with waiting time of ≤ 90 minutes to see the doctor at specialist clinic	≥ 80% of the patients are seen within ninety (90) minutes
PI 2	KPI 1		Percentage of diabetic patients who were given an appointment for first consultation within 6 weeks	≥ 80% of the patients are given an appointment for First Consultation within 6 weeks
PI 3			Percentage of patients with waiting time of within 16 weeks for cataract surgery	≥ 80% of patients have appointment given for cataract surgery within 16 weeks
PI 4	KPI 2	NIA	Rate of infectious endophthalmitis following cataract surgery (2 cases per 1000 operations)	< 0.2% (2 cases per 1000 operations)
PI 5	KPI 3	NIA	Percentage of patients with post-operative visual acuity of 6/12 or better within 3 months following cataract surgery in patients without ocular co-morbidity (850 cases 1000 operations)	> 85% (900 cases per 1000 operations)
PI 6			Cancellation rate of patients listed for cataract surgery under local Anaesthesia	≤ 10% cancellation
PI 7			Number of mortality/morbidity audits/ meetings conducted in the Department (in 6 months)	At least 6 times in 6 months

Note:

PI=Performance Indicator
KPI=Key Performance Indicator
NIA=National Indicator Approach

ADVERSE INCIDENT REPORTING – INTRAOCULAR LENS DEFECT

Intraocular lens may have defect during the manufacturing process and implantation into the patients' eyes. This ranges from the production of IOL, packaging, distribution, insertion to when the IOL is already implanted into the patients' eyes.

This defect may range from manufacturing defect such as no IOL in the box or fracture of haptics or optics. It may also be in the form of deposits on the IOL or opacification detected weeks to years after surgery. All these defects will contribute directly to the patients' visual outcome. Some defects may require explantation and results in distress to both the patients and the surgeons. The cost for explantation of an opacified IOL also has to be borne by the patient and eye care providers.

It is also important to identify any common defect for example fracture of haptics or optics as this will be used as feedback to the industries to improve their IOL quality or be used for platform for further training pertaining to the IOL if required. Data collected include patient's demography, action taken, outcome and details of IOL.

Objectives

1. To identify any common defect in IOL
2. To detect cases with IOL opacification
3. To study the patients' characteristics in developing IOL opacification
4. To study the patient's outcome following treatment if any

ADVERSE INCIDENT REPORTING – SUSPECTED POST OPERATIVE INFECTIOUS ENDOPHTHALMITIS

This is a complication which can occur following any intraocular surgery. Although uncommon, once occurred, it may lead to the loss of vision and possible loss of the eye itself. It is a devastating complication both to the patient, the care provider and the health system as the treatment is costly the outcome after treatment can be uncertain. Therefore prevention of disease and surveillance of an outbreak is important. Data in CSR shows a decreasing percentage of endophthalmitis occurrences following cataract surgery among patients in the Ministry of Health (MOH) over the years. This is possibly due to the use of prophylactic antibiotics and the general improvement in technique and care in cataract surgery. However, it is imperative to monitor this complication closely due to the increasing number of cataract surgeries performed in MOH facilities, the existence of the mobile and the satellite cataract services and also the expansion in the outreach activities throughout the countries. Monitoring is also essential to prevent outbreak. Data collected include demography, possible risk factors, mode of treatment and the outcome following treatment.

Objectives

1. To detect outbreak and therefore exercise the necessary measure to control disease spread
2. To identify its risk factors or any common risk factors among cases
3. To study the patients' characteristics in developing post-operative infectious endophthalmitis
4. To study the patient's outcome following treatment

CUSUM- OPHTHALMOLOGY

Cataract surgery is the most common procedure done in ophthalmology departments. The procedure is quite consistent and outcome is measured by visual acuity. Cataract surgery outcome depends greatly on surgeons' skill. With advancement in technology and intraocular lens implantation, good visual outcome is almost certain among patients without pre-existing ocular co-morbidity. Hence, monitoring and evaluating surgeons' competency, especially trainees' performance, are essential in ensuring standard of care.

Cumulative Sum (CUSUM) software auto-mine data on occurrence of posterior capsular rupture and patients with post-operative vision worse then 6/12 from cataract surgery registry on surgery done by individual surgeon using unique surgeon ID. From 2008, by using individual unique username and password, surgeon can access his/her own CUSUM charts via eCUSUM web page. Consultant ophthalmologists can view their own as well as their trainees' charts. By doing so, monitoring on surgeons' competency in cataract surgery is made most effectively and easily.

Methods of the National Eye Database

The National Eye Database is designed as a cohort study. It is an online clinical database hosted at the Association of Clinical Registry Malaysia website at www.acrm.org.my/ned. Its protocol was approved by the Medical Research Ethical Committee of MOH on 2nd September 2008 (reference number NMRR 08-552-1707) and is accessible at the NED website.

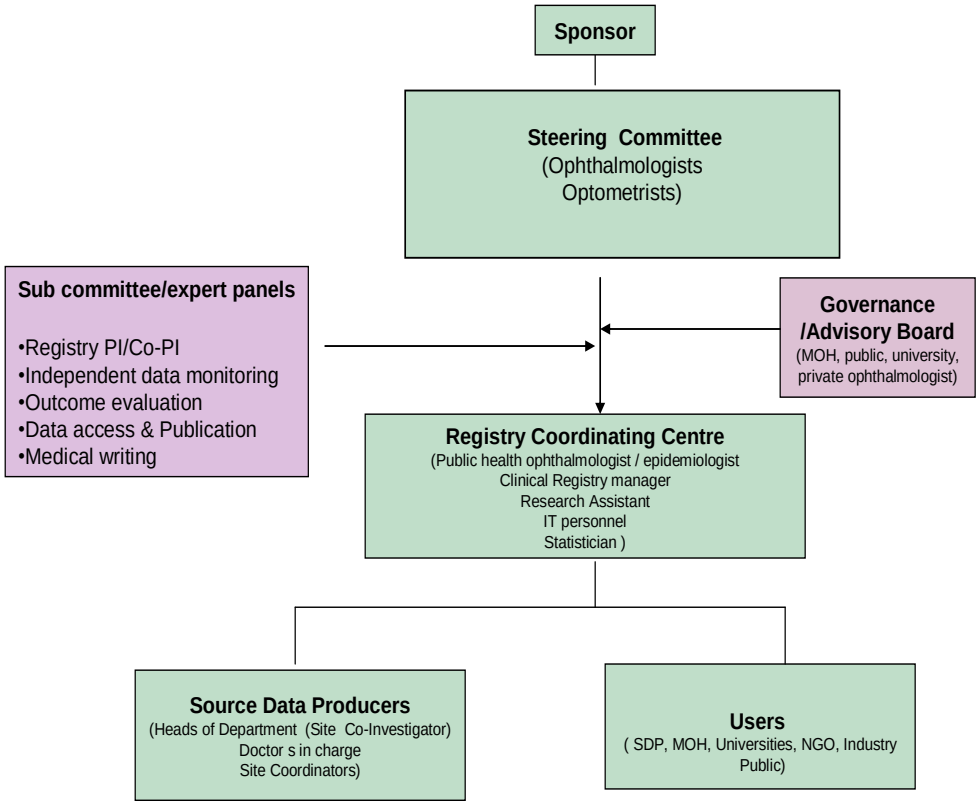
Data collection and data entry are done at SDP sites. Data are collected either using case report forms (CRF) which are later entered into the web application, or are directly entered into the web application during the course of clinical work.

Data management using data query are set in the web application to reduce inconsistency, out-of-range or missing values. Authorised staff at each SDP is given passwords to perform data entry. Individual SDP reports and aggregated reports based on cumulative data of all SDPs are available real-time at NED website. These reports are only accessible by heads of department, doctors-in-charge and site coordinators via authorised password. The web reports are descriptive analysis of data which have been entered. Annual statistical report will be produced based on data collected for a specific year. The statistical reports will be published yearly and distributed to users in MOH divisions and units, all the ophthalmology departments, universities, other relevant public agencies and non-governmental organisations.

The NED has high level of security for protection of its data. Data protection is ensured at all times through strict compliance with regulatory requirements such as authentications of users and web application owners, access control, encryption, audit trail, control of external communication links and access, as well as system backup and disaster recovery.

NED Organization

Organisation Chart



NED SOURCE DATA PROVIDERS

LIST OF SITE COORDINATOR FOR 2015

NORTHERN ZONE			
No.	**SDP**	**Verified Site Coordinator**	**Emails**
1.	Hospital Kangar	Roslinda bt Rahman	ros_lin_da@yahoo.com
2.	Hospital Sultanah Bahiyah	Arni Rehny Ahmad Rakhli	arnirehny@gmail.com
3.	Hospital Sungai Petani	Juliana Md Desa	jm_juli@yahoo.com
4.	Hospital Pulau Pinang	Fazrul Azwan Bin Jaafar Sidek Dr Lee Cheng Imm	cimmlee@yahoo.com.my
5.	Hospital Bukit Mertajam	Norehan Abdul Rani	n_rehan85@yahoo.com
6.	Hospital Ipoh	Norhazwani Azhar Dr Wong Wai Kuan	 neowwk@gmail.com
7.	Hospital Taiping	Suzzana Abdul Karim	su_mstrixneo@yahoo.com
8.	Hospital Teluk Intan	Sharifah Ayuni Ahmad Dr Nor Aqidah Kamri	-
9.	Hospital Sri Manjung	Marizah Abd Rahman	marizah.ar@moh.gov.my
10.	Hospital Kulim	Mai Rafa'ah M. Azhar Dr Kalatheran Saishoo	mairafaahazzhar@yahoo.com kalatheran10@yahoo.com
11.	Hospital Langkawi	Nurul Amirah Mahmud Zuhudi	-
EASTERN ZONE			
No.	**SDP**	**Verified Site Coordinator**	**Emails**
1.	Hospital Kuantan	Noor Azhari bin Ahmad	azharihmd@yahoo.com
2.	Hospital Temerloh	Norhanim bt Ahmad	My_5028@yahoo.com
3.	Hospital Kuala Terengganu	Azlin Azira Ahmad	azlinazira301@gmail.com
4.	Hospital Kota Bharu	Rossaidah binti Mustapa	rossaidahmustapa@yahoo.com
5.	Hospital Kuala Krai	Nurulain Mat Zin	ains_mz@yahoo.com
6.	Hospital Kemaman	Siti Shuhada Mohamad Moha	-
7.	Hospital Kuala Lipis	Syahidah Zulkifli	Syidaz1305@gmail.com
8.	Hospital Machang	Rossaidah binti Mustapa	rossaidahmustapa@yahoo.com
9.	Hospital Pasir Puteh	Rossaidah binti Mustapa	rossaidahmustapa@yahoo.com

10.	Hospital Pasir Mas	Rossaidah binti Mustapa	rossaidahmustapa@yahoo.com
11.	Hospital Setiu	Siti Noraini Ghazali	-
12.	Hospital Tanah Merah	Rossaidah binti Mustapa	rossaidahmustapa@yahoo.com

CENTRAL ZONE			
No.	**SDP**	**Verified Site Coordinator**	**Emails**
1.	Hospital Kuala Lumpur	Intan Khusiah Abd Rahman	-
2.	Hospital Putrajaya	Nur Hafizah Mat Jalil	hafizah11@yahoo.com
3.	Hospital Selayang	Nurul Aini Yusoff	-
4.	Hospital Klang	Nik Mazniah Nik Mohd Zin	nikning@yahoo.com
5.	Hospital Serdang	Fadhilah Mohd Hilmi	dilahilmi@yahoo.com
6.	Hospital Sungai Buloh	Nik Nawwar N. M. Fahmi Dr Salmah Kamal Albakri	niknawwar@yahoo.com.my
7.	Hospital Ampang	Noriah binti Abdullah	norry_abby@yahoo.com
8.	Hospital Seremban	Sharifah Suzaini Syed Kuning	-
9.	Hospital Kuala Pilah	Nazura Selamat	nouraselamat@yahoo.com
SOUTHERN ZONE			
No.	**SDP**	**Verified Site Coordinator**	**Emails**
1.	Hospital Melaka	Eryanti Md Omar	eryanti_mdomar@yahoo.com.my
2.	Hospital Johor Baru	Nora Norzareen Abdul Razak Dr Nachammai Ramasamy	lilac2109@yahoo.com
3.	Hospital Muar	Roziana Sumardi	rozianasumardi@gmail.com
4.	Hospital Batu Pahat	Noor Aida Sapiee	gal_aida@yahoo.com
5.	Hospital Sultan Ismail	Nursalinah bt Adam	Leha_adam@yahoo.com
6.	Hospital Kluang	Fatimah Zahara Abdul Rahim	ftzahara@yahoo.com
7.	Hospital Segamat	Nurfadhilah Abd Hamid	fadhilahamid@yahoo.com
SARAWAK			

No	SDP	Verified Site Coordinator	Emails
1.	Hospital Umum Sarawak	Nazirin bin Arshad	geerinzooo@yahoo.com
2.	Hospital Sibu	Nor Sabrina Sulaiman Dr Nur Reza Mohd Nohur	-
3.	Hospital Bintulu	Akmarina Rosnan	marinarosnan@yahoo.com
4.	Hospital Miri	Haizan Farah Hamzah	haizanfarah@gmail.com
5	Hospital Sarikei	Hawa Mustafa Dr Oo Kok Tian	kyleoo20@yahoo.com
6.	Hospital Mukah	Muhd. Ihsan Bin Abdul Ghani	-
7.	Hospital Sri Aman	Mohamad Akmal Azemi	-

SABAH			
No	**SDP**	**Verified Site Coordinator**	**Emails**
1.	Hospital Queen Elizabeth	Valentinus George	-
2.	Hospital Duchess Of Kent	Muhammad Iqbal Basri	-
3.	Hospital Tawau	Norhidayah Mohd Zulkifli Hashim	-
4.	Hospital Keningau	Sit Jo Anne Dr Chew Chia Chee	-
5.	Hospital Likas	Muhammed Danial A Razak	danialarazak@gmail.com

FOREWORD

Beginning 2014, all Ophthalmology Departments in the Ministry of Health (MOH) are required to appoint a dedicated Medical Officer (MO) to overview data entry for National Eye Databae (NED). The implementation is being done in stages. These MOs need to ensure completeness of ascertainment for all variables captured in various registries and department service/census and to monitor data entry and data quality particular Cataract Surgery Registry.

Although in some departments, data entry and data quality monitoring have been done by the Optometrists and Paramedics with some success, there are constraints in terms of time. While a dedicated medical officer not only can monitor accuracy and completeness of data in the NED, he/she will eventually use the data collected for improvement of service and to write article for publication.

In view of the projected surplus of MO in MOH, it is proposed that these MOs be appointed by rotation. This approach is not only appropriate and relevant but will expose all MOs to NED and in management early in their career as Ophthalmologists.

Sarawak General Hospital and Selayang Hospital which have appointed dedicated MO to do the task have shown positive outcomes where data quality and completeness of data entry of both NED and department's service census have improved.

We hope all Ophthalmology Head of Departments in MOH will eventually subscribe to this idea of NEDMOship for the betterment of data management in their departments.

ABBREVIATION

ADED	Advanced Diabetic Eye Disease	NED	National Eye Database
AMD	Age related Macular Degeneration	NPDR	Non Proliferative Diabetic Retinopathy
CAI	Carbonic Anhydrase Inhibitor	NPL	No Perception Of Light
CF	Counting Finger	OT	Operating Theatre
CLRCU	Contact Lens-Related Corneal Ulcer	PCO	Posterior Capsule Opacification
CSMO	Clinically Significant Macular Odema	PCR	Posterior Capsule Rapture
CMO	Cystoid Macular Oedema	PDR	Proliferative Diabetic Retinopathy
CSR	Cataract Surgery Registry	Phaco	Phacoemulsification
DER	Diabetic Eye Registry	PL	Perception Of Light
DM	Diabetes Mellitus	PI	Principal Investigator
DR	Diabetic Retinopathy	RB	Retinoblastoma
ECCE	Extracapsular Cataract Extraction	RCC	Registry Coordinating Centre
FU	Follow Up	SD	Standard Division
HM	Hand Movement	SDP	Source Data Producers
HPT	Hypertension	VA	Visual Acuity
ICCE	Intracapsular Cataract Extraction	VR	Vitreoretinal Surgery
IOL	Intraocular Lens	ZD	Zonular Dialysis
MOH	Ministry Of Health		

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

Throughout the years of Cataract Surgery Registry, there are similar patient related issues which have to be addressed. They include the increasing number of patients with Hypertension and Diabetes Mellitus and low percentage of patients who had fellow eye cataract surgery. While peri-operative management of blood pressure and blood sugar will ensure good visual outcome, creating patient awareness on the need for fellow eye surgery so as to achieve good binocular vision is also important.

It is encouraging to see an increasing number of patients operated as daycare, with almost 2/3 of patients. Besides, proportion of patients operated using Phaco technique has increased remarkably from 81.1% in 2012 to 85.1% in 2013

Although the number of cataract surgery performed at MOH hospitals has increased throughout the years, there is a decrease in proportion of phaco among cataract surgery done by the medical officers. As there is significant backlog of cataract blindness as seen in 2014 National Eye Survey, the MOH needs to strategize approaches to increase cataract surgery rate but also have training to enhance medical officers' skill in performing phaco so as to improve quality of care and good visual outcome for patients.

Although there was an improvement in proportion of patients with good visual outcome over the years, individual ophthalmology departments need to conduct clinical audit to investigate the causes for the large difference between target and actual refraction.

REPORT SUMMARY

CATARACT SURGERY REGISTRY

1. Stock and Flow

- The number of SDP increased from 25 SDPs in 2002 to 41 SDPs in 2013 onwards.
- The total number of cataract surgery registered to CSR increased from 12798 in 2002 to 37150 in 2013.
- The CSR ascertainment slightly reduced from 94.5% to 94.3% in 2013.

2. Characteristics of Patients

- The mean age of patients at the time of cataract surgery was 65.7 in 2013. This age was younger than data published by the Swedish cataract surgery register (74 years old).
- Up to 1/3 of patients presented within the age group of 65-74 years old (39.3% in 2013).
- The proportion of patients with systemic co-morbidity increased from 56.8% in 2002 to 74.8% in 2013.
- There was an increase in the proportion of patients presented for cataract surgery who had hypertension (from 35.4% in 2002 to 60.1% in 2013) and diabetes mellitus (from 28.9% in 2002 to 43.3% in 2013).
- Senile cataract was the commonest cause of primary cataract (99.2 % in 2013).
- Trauma was the commonest cause for secondary cataract (58.9% in 2013).
- The proportion of patients who returned for cataract surgery in the fellow eye remained the same from 2002 to 2012, i.e. only one third (35.1% in 2013).
- Majority of the eyes had no prior ocular surgery (97.4% in 2013).The commonest prior ocular surgery was vitreoretinal surgery (1.0% in 2013).
- One third of the eyes had ocular co-morbidity (40.6% in 2013). The commonest ocular co-morbidity was diabetic retinopathy in any forms (10.6% in 2013).
- About half of the eyes had unaided vision in the category of 2/60-NPL (44.3% in 2013).
- Refraction was not done in more than 2/3 of the eyes (77.3% in 2013).
- Bimodal pattern of pre-operative vision was consistently observed over the years with one peak at the range between 6/18 to 6/36 and another peak at CF-HM.
- In term of the choice of IOL power, majority of surgeons chose target refraction as emmetropia or slightly myopic. The mean target refractive power in 2013 was -0.4D (SD 0.3).

3. Cataract Surgery Practice Patterns

- The number of cataract surgery performed by SDPs varied. In 2013, out of the 41 SDPs, 13 performed less than 500 surgeries, 13 performed between 501 to 1000, and 15 performed more than 1000 cataract surgeries a year.
- Selangor (5 SDPs), Perak (4 SDPS)and Sarawak (5 SDPS), performed higher number of cataract surgeries compared to other state.
- More than 2/3 of the cataract surgery was performed by specialists (88.5% in 2013).
- The percentage of cataract surgery done by medical officers is decreasing (both phaco and ECCE)
- The median duration taken to do a cataract surgery was 25 min for phaco and 45 min for ECCE in 2013.
- Though there is an increasing trend for day care surgery, from 39.3% in 2002 to 62.4% in 2012, the percentage varied among SDPs. In 2013, 1 SDP did not perform any cataract surgery under day care, 13 SDPs performed less than 50.0%. Only 14 SDPs performed more than 90.0% of cataract surgery as day care.
- Phaco was the preferred method of cataract surgery and the proportion increased from 39.7% in 2002 to 85.1% in 2013. Percentage of ECCE decreased from 54.0% in 2002 to 11.0% in 2013.
- The preferred IOL material was acrylic and non-foldable type.
- The percentage of phaco converted to ECCE was 2.1% in 2013. It remained the same over the years.
- Among combined surgery, VR surgery was the highest, while filtering surgery and pterygium surgery showed a decreasing trend.
- Majority of cases were done under local anaesthesia (93.2% in 2013). The preferred type of local anesthesia was topical (64.2% in 2013).
- The use of topical anesthesia has increased from 11.7% in 2002 to 64.2% in 2013.
- The use of retrobulbar anesthesia has decreased from 25.9% in 2002 to 1.5% in 2012.
- There is a decrease in the use of oral sedation (33.3% in 2002 to 64.2% in 2013).
- Majority of the patient operated had IOL implantation (98.4% in 2013). Among these patients who had IOL, 96.3% had posterior chamber IOL.

4. Intra-operative Complications

- The percentage of intra-operative complication increased from 5.2% in 2012 to 5.4% in 2012
- PCR was maintained at 2.7% in 2013.
- Intra-op complication was seen among 49.8% of patients who had phaco converted to ECCE and 39.3% who had ICCE in 2013.
- In 2013, the percentage of intra-operative complication was higher in cataract surgeries performed by MO (8.9%), followed by gazetting specialists (7.3%) as compared to specialist (5.0%). For phaco surgeries, MO (5.4%), gazetting specialists (4.4%) and specialist (3.4%)

5. Cataract Surgery Outcome

- In average, more than 85.0% of patient registered to CSR had cataract surgery outcome data.
- The percentage of patients with post-operative endophthalmitis increased from 0.04% in 2012 (13 patients) to 0.08% in 2013 (27 patients).
- The percentage of patients with unplanned return to OT showed a decreasing trend, 0.30% in 2013.
- Iris prolapse showed a decreasing trend but wound dehiscence, high post- operative IOP and IOL related problem demonstrated an increasing trend. IOL related problem demonstrated otherwise
- In eyes without ocular co-morbidity, less than 50.0% of eyes had post-op unaided visual acuity 6/12 or better and the patterns were consistent over the years. With refraction, more than 80.0% achieved post-op vision 6/12 or better (81.0% in 2002, 89.0% in 2003, 90.0% in 2004, 84.0% in 2007, 88.0% in 2008, 90.9% in 2009, 92.0% in 2010, 92.4% in 2011, 92.6% in 2012 and 93.3% in 2013). This observation suggested that poor post- op unaided vision was due to refractive error and patients' vision could be improved with glasses.
- Patients who had phaco had better post-op visual outcome when compared to other type of surgeries. 94.5% of phaco patients had refracted vision of 6/12 or better in 2013 as compared to ECCE (83.0%), phaco convert to ECCE (77.9%), lens aspiration (85.4%) and ICCE (80.0%).
- Post-op visual outcome improved over the years. Refracted visual outcome of 6/12 or better among phaco patient improved from 87.0% in 2002 to 94.25% in 2013 and among ECCE patients from 78.0% in 2002 to 83.0% in 2013.
- In all type of surgeries, visual outcome became less favourable when there were intra-operative complications.
- The post-op visual outcomes within 1 week to 3 months was better in eyes with IOL implantation compared to non IOL, in eyes with foldable IOL and IOL made of acrylic.
- The main contributing factor for eyes with post-operative refracted VA worse than 6/12 was pre-existing ocular co-morbidity followed by high astigmatism and posterior capsule opacification.
- When patients with preexisting ocular co-morbidity were excluded from analysis, high astigmatism followed by preexisting ocular co-morbidity (not detected preoperatively) were the major causes of poor visual outcome.
- In 2013, the mean difference between target and actual refraction was -0.3D for all eyes, -0.6D for phaco eyes, and -0.9D for ECCE eyes. Thus, eyes which had undergone ECCE had more myopic shift than eyes which had phaco.
- In 2013, there was disparity between the targeted and the actual refraction. 30.9% of eyes had a different in target and actual refraction of between 0 and -0.5D, and 23.7% had a different of between 0 to +0.5D.
- When analysed by SDPs, the results were varied. Some SDP did not achieve the difference of actual from target refraction of within +1.0D and -1.0D in all the eyes operated in 2013.

CHAPTER 1

CATARACT SURGERY REGISTRY 2013

Contributing Editors

Mohamad Aziz Salowi

Goh Pik Pin

Nor Sharina Yusof

Adlina Abdul Rahim

Ruqqayah Ahmadshah Khan

CHAPTER 1: CATARACT SURGERY REGISTRY

1.1 STOCK AND FLOW

The number of CSR source data provider (SDP) continued to increase over the years; from 25 SDPs in 2002 to 41 SDPs in 2013. The number of cataract surgeries being registered to CSR also increased from 12798 in 2002 to 37150 in 2013.

From 2002-2004, CSR was a paper-based registry. During this period, there was a decrease in the percentage of eyes with visual outcome recorded in CSR. When the web-based registry was introduced in 2007, there was an increasing trend of this percentage.

Table 1.1(a): Stock and Flow

Year	**2002-2004***	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
No. of SDP	-	32	36	36	36	36	36	41
Total no. of cataract surgery registered to CSR	48005	18426	21496	24438	28506	30611	32473	37150
Cataract surgery with visual outcome records	**n** **%** 33423 69.2	**n** **%** 15786 85.7	**n** **%** 19063 88.7	**n** **%** 20590 84.3	**n** **%** 24521 86.0	**n** **%** 27219 88.9	**n** **%** 28589 88.0	**n** **%** 33063 89.0

**2002, 2003 and 2004 included private centre and University Hospital*

Table 1.1(b): Ascertainment for MOH Hospitals, CSR 2002-2013

Year	**2002-2004**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Total number of cataract surgery performed at MOH Hospitals (Source: MOH census returns)	49698	22051	25393	26274	29873	32099	34363	39389
Total number of cataract surgery performed at MOH hospitals and registered to CSR	46127	18426	21496	24438	28506	30611	32473	37150
Ascertainment (%)	92.8%	83.6%	84.6%	93.0%	95.4%	95.4%	94.5%	94.3%

Figure 1.1(a): Stock and flow

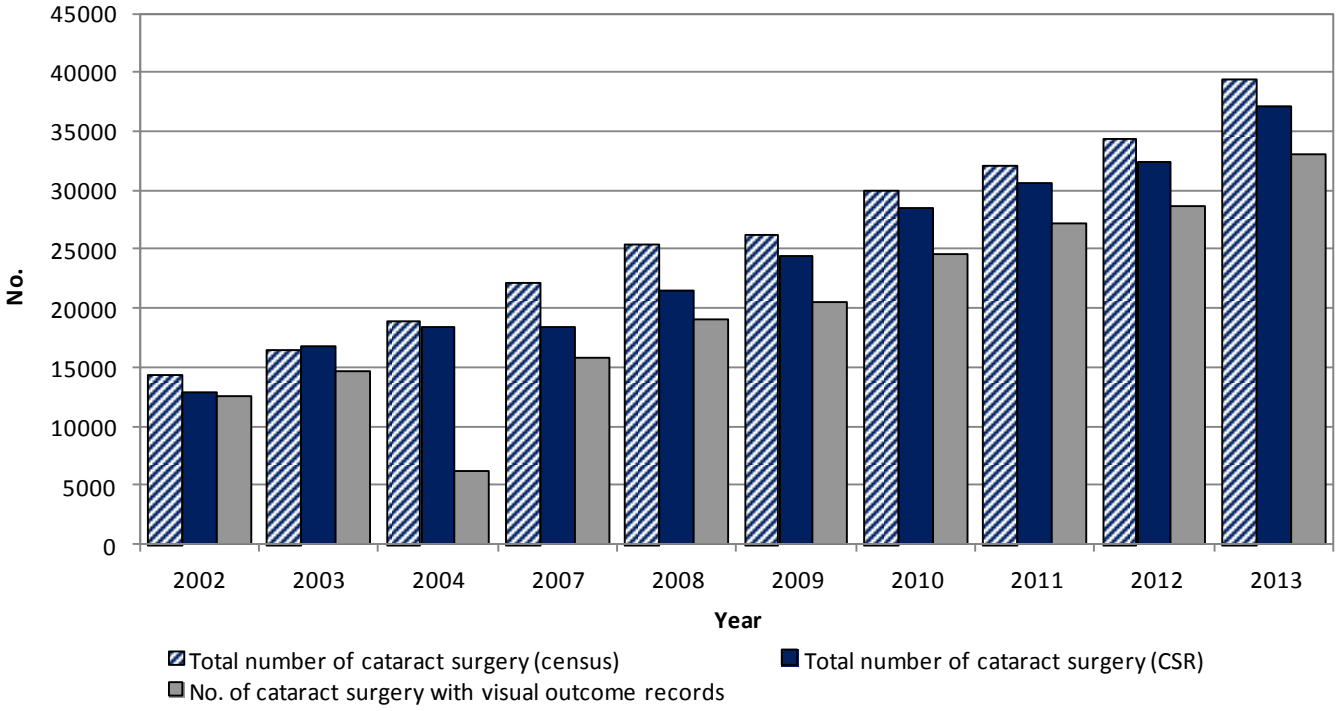


Table 1.1(c): Ascertainment for CSR by SDP in 2013

	Ascertainment								
	Total no. of cataract surgery (based on census) (a)	Total no. of cataract surgery registered to CSR (based on operative record) (b)	Total no. of outcome form submitted (c)	Total no. of outcome form with unaided vision (d)	Total no. of outcome form with refracted vision (e)	% Ascertainment for CSR (b/a*100)	% Ascertainment for Outcome form submitted (c/b*100)	% Ascertainment for Outcome with unaided vision (d/c*100)	% Ascertainment for Outcome with refracted vision (e/c*100)
All Centres	39389	37150	34668	33063	29967	94.3	93.3	95.4	86.4
Alor Setar	1767	1758	1757	1695	1492	99.5	99.9	96.5	84.9
Ampang	982	983	983	954	863	100.1	100.0	97.0	87.8
Batu Pahat	446	433	432	377	377	97.1	99.8	87.3	87.3
Bintulu	415	383	313	299	260	92.3	81.7	95.5	83.1
Bukit Mertajam	954	909	900	803	756	95.3	99.0	89.2	84.0
Sandakan	536	411	410	388	276	76.7	99.8	94.6	67.3
Ipoh	2845	3032	2461	2310	2003	106.6	81.2	93.9	81.4
Kangar	465	466	439	438	405	100.2	94.2	99.8	92.3
Keningau	31	15	15	14	14	48.4	100.0	93.3	93.3
Kota Bharu	996	682	443	439	410	68.5	65.0	99.1	92.6
Kuala Krai	483	397	382	378	314	82.2	96.2	99.0	82.2
Kuala Lumpur	1900	1150	445	445	441	60.5	38.7	100.0	99.1
Kuala Pilah	526	492	485	462	453	93.5	98.6	95.3	93.4
Kuala Terengganu	1016	1014	1013	1007	987	99.8	99.9	99.4	97.4
Melaka	1710	1719	1718	1642	1467	100.5	99.9	95.6	85.4
Miri	995	915	853	776	776	92.0	93.2	91.0	91.0

Muar	702	717	610	607	591	102.1	85.1	99.5	96.9
Pulau Pinang	1788	1696	1610	1589	1513	94.9	94.9	98.7	94.0
Putrajaya	391	391	391	386	362	100.0	100.0	98.7	92.6
Kota Kinabalu	1087	978	973	961	880	90.0	99.5	98.8	90.4
Selayang	1223	1337	1337	1317	1160	109.3	100.0	98.5	86.8
Serdang	1027	1023	1023	995	835	99.6	100.0	97.3	81.6
Sibu	888	900	895	851	789	101.4	99.4	95.1	88.2
Sri Manjung	849	832	829	799	751	98.0	99.6	96.4	90.6
Sultan Ismail	369	374	374	359	359	101.4	100.0	96.0	96.0
Johor Bahru	1449	1350	1056	993	991	93.2	78.2	94.0	93.8
Sungai Buloh	582	580	580	552	495	99.7	100.0	95.2	85.3
Sungei Petani	934	930	929	912	770	99.6	99.9	98.2	82.9
Taiping	1284	1284	1284	1265	1171	100.0	100.0	98.5	91.2
Tawau	574	503	503	470	267	87.6	100.0	93.4	53.1
Teluk Intan	1183	1102	1062	1001	932	93.2	96.4	94.3	87.8
Temerloh	901	866	865	755	759	96.1	99.9	87.3	87.7
Kuantan	538	619	618	591	539	115.1	99.8	95.6	87.2
Klang	1778	1612	1612	1484	1167	90.7	100.0	92.1	72.4
Seremban	1695	1520	1400	1391	1296	89.7	92.1	99.4	92.6
Kuching	1941	1721	1721	1486	1273	88.7	100.0	86.3	74.0
Kemaman	93	47	12	12	10	50.5	25.5	100.0	83.3
Sarikei	314	286	286	281	249	91.1	100.0	98.3	87.1
KK1M East Coast	66	64	39	37	39	97.0	60.9	94.9	100.0
KK1M Sarawak	76	76	76	61	60	100	100.0	80.3	78.9
MAIWP	1590	1583	1534	1481	1415	99.5	96.9	96.5	92.2

Figure 1.1(c): Ascertainment for CSR by SDP in 2013

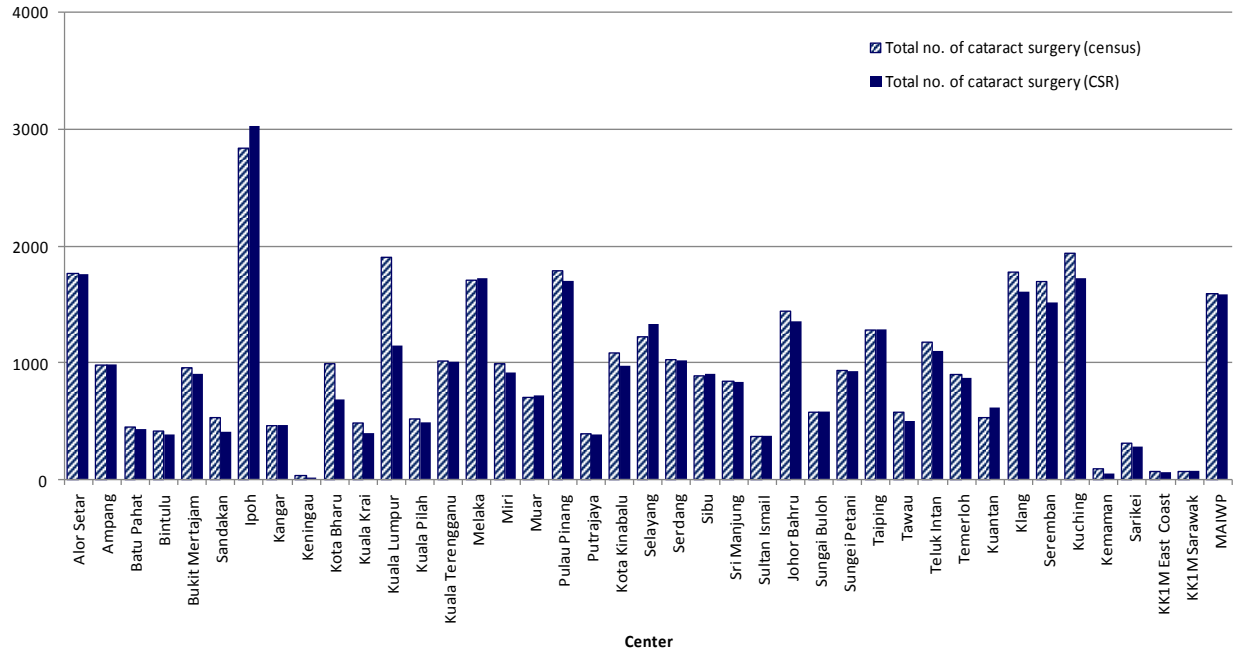
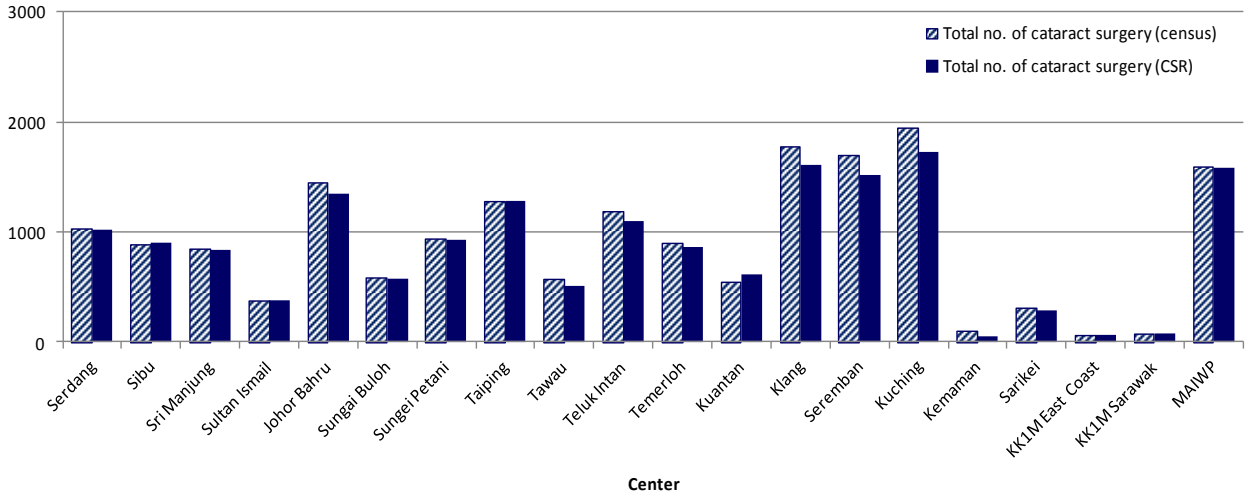
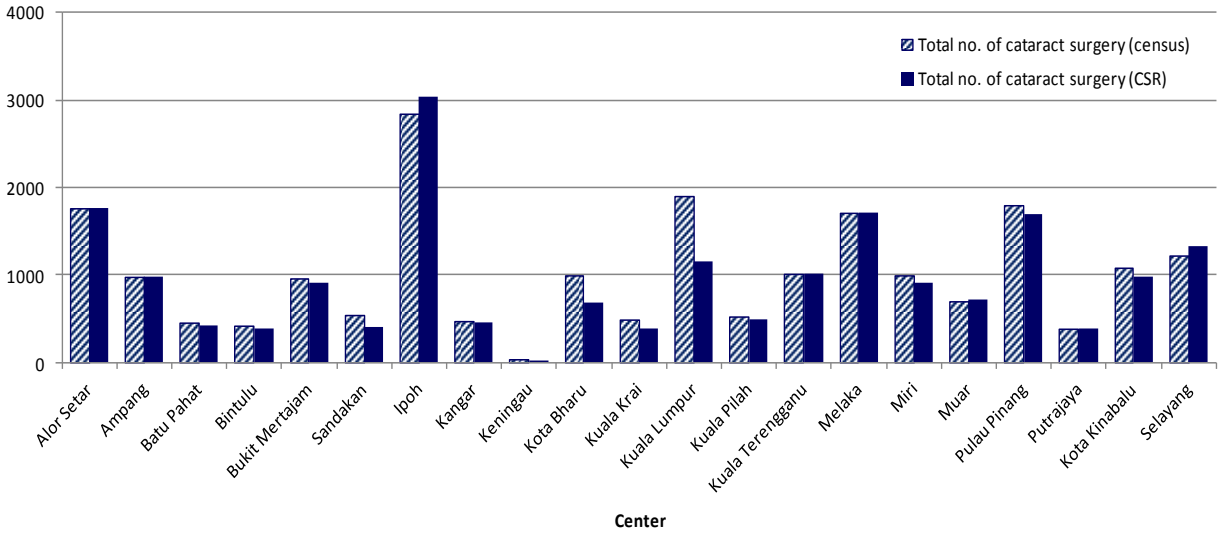


Figure 1.1(c): Ascertainment for CSR by SDP in 2013





1.2 CHARACTERISTICS OF PATIENT

1.2.1 Patient Demography

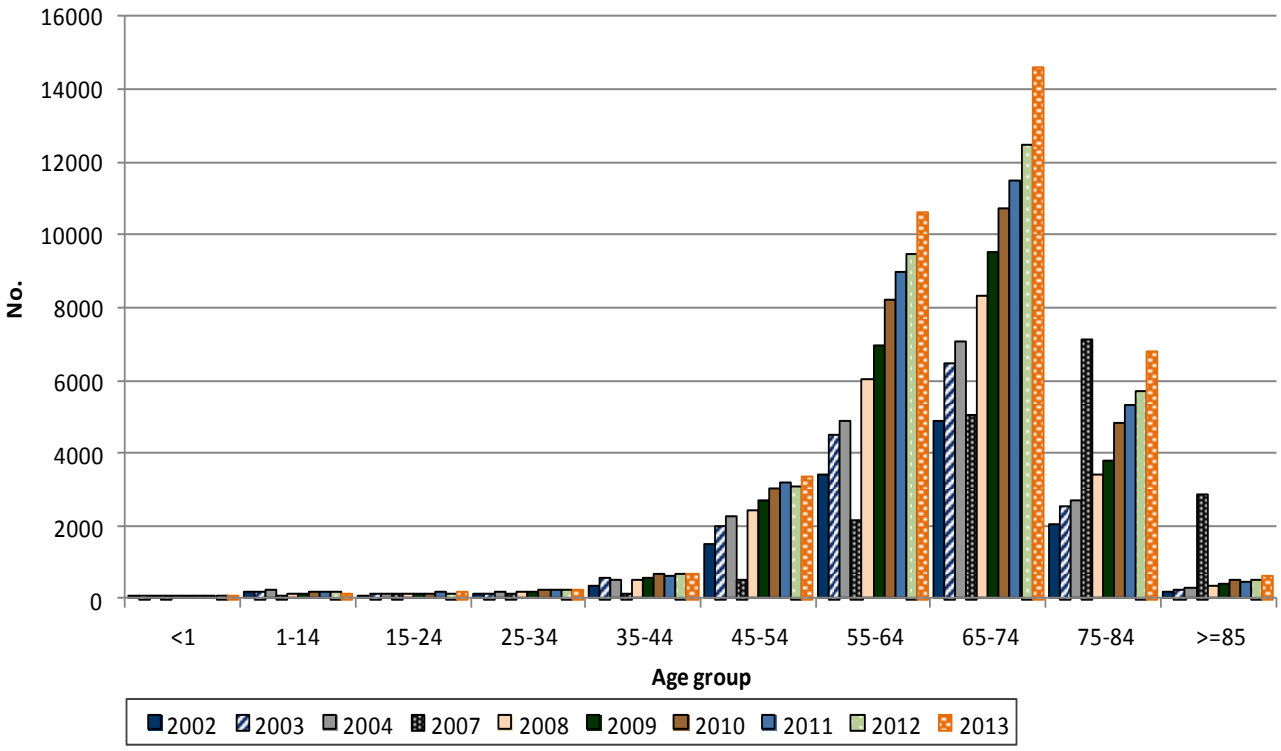
The mean age for patients presented for cataract surgery was 65. A larger percentage of patients presented within the age group of 65-74 years old except for the year 2007 (75-84 years old). There was no marked gender difference over the years.

Table 1.2.1: Age and Gender Distributions, CSR 2002-2013

Year	2002-2004*		2007		2008		2009		2010		2011		2012		2013	
Total number of cataract surgery	48005		18426		21496		24438		28506		30611		32473		37150	
Age																
Mean (years)	63.7		64.3		64.6		64.7		65		65		65		65.7	
Median (years)	66		66		66		66		66		66		66		67	
Minimum (month)	1		1		1		1.2		1.8		2.6		0.8		0.8	
Maximum (years)	100.3		97		102		99		99		104		99		105	
% Distribution																
Age group, years	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<1	94	0.2	18	0.1	34	0.2	17	0.1	7	0	11	0	14	0.0	3	0.0
1-14	639	1.3	50	0.3	116	0.5	148	0.6	170	0.6	169	0.6	192	0.6	122	0.3
15-24	374	0.8	141	0.8	133	0.6	129	0.5	143	0.5	175	0.6	139	0.4	176	0.5
25-34	469	1.0	120	0.7	167	0.8	210	0.9	227	0.8	215	0.7	242	0.8	246	0.7
35-44	1477	3.1	157	0.9	539	2.5	557	2.3	655	2.3	632	2.1	670	2.1	678	1.8
45-54	5684	11.8	499	2.7	2407	11.2	2697	11	3043	10.7	3170	10.4	3077	9.5	3330	9.0
55-64	12793	26.6	2135	11.6	6037	28.1	6956	28.5	8225	28.9	8987	29.4	9447	29.1	10601	28.5
65-74	18411	38.4	5031	27.3	8307	38.6	9534	39	10720	37.6	11479	37.5	12474	38.4	14601	39.3
75-84	7274	15.2	7103	38.6	3391	15.8	3802	15.6	4805	16.9	5294	17.3	5707	17.6	6796	18.3
>=85	786	1.6	2889	15.7	344	1.6	388	1.6	509	1.8	479	1.6	511	1.6	597	1.6
Missing	4	0.0	283	1.5	21	0.1	0	0	2	0	0	0	0	0	0	0
Gender																
Male	23739	49.5	8820	47.9	10295	47.9	11829	48.4	13631	47.8	14696	48	15506	47.8	17604	47.4
Female	24266	50.6	9606	52.1	11168	52	12609	51.6	14871	52.2	15915	52	16966	52.3	19546	52.6
Missing	0	0	0	0	33	0.2	0	0	4	0	0	0	1	0	0	0

**2002, 2003 and 2004 included private centres and university hospitals*

Figure 1.2.1: Age Distribution, CSR 2002-2013



1.2.2 Medical history

1.2.2.1 Systemic co-morbidity

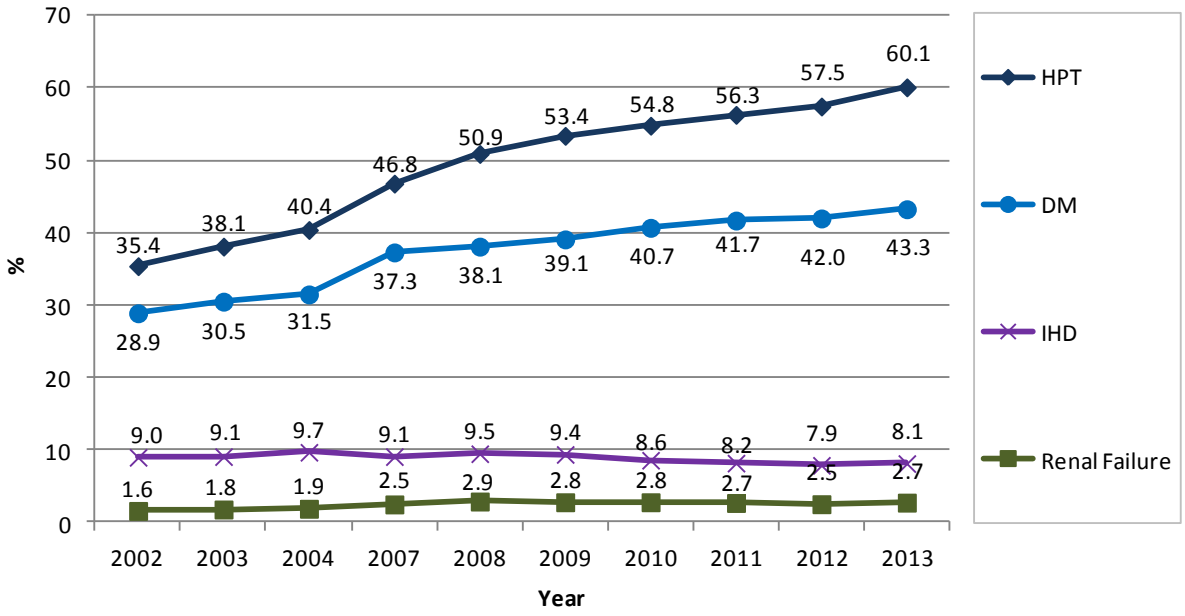
The common systemic co-morbidity encountered in patients who came for cataract surgery were hypertension, diabetes mellitus, ischemic heart disease and renal failure The overall percentage of such patients showed an increasing trend over the years. The percentages of patients with hypertension and diabetes mellitus were increasing.

Table 1.2.2.1: Distribution of Systemic Co-Morbidity, CSR 2002-2013

Year	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
Percentage of patients with any systemic co-morbidity	58.6		67.5		68.7		71		70.6		72		72.4		74.8	
Percentage of patients with specific systemic co-morbidity																
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
1. Hypertension	18362	38.3	8630	46.8	10932	50.9	13050	53.4	15630	54.8	17238	56.3	18655	57.5	22327	60.1
2. Diabetes Mellitus	14630	30.5	6869	37.3	8188	38.1	9556	39.1	11598	40.7	12778	41.7	13635	42.0	16073	43.3
3. Ischaemic Heart Disease	4468	9.3	1668	9.1	2037	9.5	2294	9.4	2441	8.6	2515	8.2	2565	7.9	3026	8.1
4. Renal Failure	865	1.8	461	2.5	624	2.9	679	2.8	804	2.8	814	2.7	822	2.5	1021	2.7
5. Cerebrovascular accident	445	0.9	0	0	29	0.1	305	1.2	302	1.1	380	1.2	352	1.1	444	1.2
6. COAD/Asthma	2531	5.3	798	4.3	955	4.4	1039	4.3	1024	3.6	1088	3.6	1104	3.4	1340	3.6
7. Others	4205	8.8	1399	7.6	1974	9.2	2460	10.1	2891	10.1	3538	11.6	3916	12.1	5766	15.5

Number or percentage may be more than total or 100% as patients might have more than one systemic co-morbidity

Figure 1.2.2.1: Percentage of Patients with Specific Ocular Co-morbidity, CSR 2002-2013



1.2.2.2 Causes of cataract

Majority of the patients presented with primary cataract. In eyes with primary cataract, senile or age-related cataract was the commonest. In eyes with secondary cataract, trauma was the commonest. This pattern remained unchanged over the years.

Table 1.2.2.2: Causes of Cataract, CSR 2002-2013

Year	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Primary cataract	46152	96.1	17410	94.4	20329	94.6	23117	94.6	26981	94.7	29050	94.9	30813	94.9	35116	94.5
Secondary cataract	1848	3.8	557	3	530	2.5	587	2.4	660	2.3	764	2.5	608	1.9	547	1.5
Missing value	-	-	460	2.5	637	3	734	3	865	3	797	2.6	1052	3.2	1487	4.0
Primary Cataract (N)	**46152**		**17410**		**20329**		**23117**		**26981**		**29050**		**30813**		**35116**	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Senile/age related	44873	97.2	17075	98.1	19995	98.4	22782	98.6	26671	98.9	28736	98.9	30299	98.3	34841	99.2
Congenital	478	1.0	129	0.7	124	0.6	124	0.5	44	0.2	34	0.1	57	0.18	11	0.0
Development	681	1.5	169	1	156	0.8	166	0.7	236	0.9	249	0.9	419	1.36	233	0.7
Others	120	0.3	37	0.2	54	0.3	45	0.2	30	0.1	31	0.1	38	0.12	31	0.1
Secondary Cataract (N)	**1848**		**557**		**530**		**587**		**660**		**764**		**608**		**547**	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Trauma	1164	63.0	355	63.7	330	62.3	330	56.2	346	52.4	383	50.1	313	51.48	322	58.9
Drug induced	218	11.8	55	9.9	76	14.3	79	13.5	64	9.7	60	7.9	46	7.57	48	8.8
Surgery induced	146	7.9	82	14.7	39	7.4	107	18.2	93	14.1	101	13.2	122	20.07	88	16.1
Others	320	17.3	65	11.7	85	16	71	12.1	157	23.8	220	28.8	127	20.89	89	16.3

1.2.2.3 First or Fellow Eye Surgery

Two third of patients were operated for the first time. Only one third of the patients returned for second surgery (for the fellow eye). This pattern remained unchanged since 2002. This was despite the declining percentage of eyes with intra-operative complications during surgery in the previous eye surgery (from 24.4% in 2002 to 2.6% in 2013).

Overall data showed that, the percentage of patients who had fellow eye surgery in the same year showed an initial increasing trend (from 4.5% in 2002 to 11.1% in 2009). But the percentage started to decline thereafter (7.5% in 2010 to 7.8% in 2012). The mean duration between the first and fellow eye showed an increasing trend, from 16 months in 2002 to 41 months in 2012.

Table 1.2.2.3: First or Fellow Eye Surgery, CSR 2002-2013

Year	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
			n	%	n	%	n	%	n	%	n	%	n	%	n	%
First eye surgery	33720	70.2	12810	69.5	14610	68.0	16446	67.3	18919	66.4	20466	66.9	21539	66.3	23986	64.6
Fellow eye surgery	14285	29.8	5559	30.2	6849	31.9	7938	32.5	9441	33.1	10088	33.0	10896	33.6	13045	35.1
Missing	NA	-	57	0.3	37	0.2	54	0.2	146	0.5	57	0.2	38	0.1	119	0.3
Patients who had second surgery in the same year	2111	4.4	759	4.1	1135	5.3	2702	11.1	2129	7.5	2246	7.3	2545	7.8	3214	8.7
Period of time between first and fellow eye surgery (months)																
N	9711		4860		5953		7353		9378		10009		10784		12922	
Mean	16.6		23.4		22		24.4		36.1		39.2		40.9		42.3	
SD	18.0		24.3		22.8		31.5		43.6		49.3		52.4		58.4	
Median	10.3		13.3		13.1		12.1		15.1		15.4		14.7		14.3	
Patients who had cataract surgery before	14285		5559		6849		7938		9441		10088		10896		13045	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Eyes with intra-operative complications during surgery in the first eye	3353	23.5	313	5.6	298	4.4	346	4.4	324	3.4	302	3.0	281	2.6	341	2.6

1.2.2.4 Past Ocular Surgery of the Operated Eye

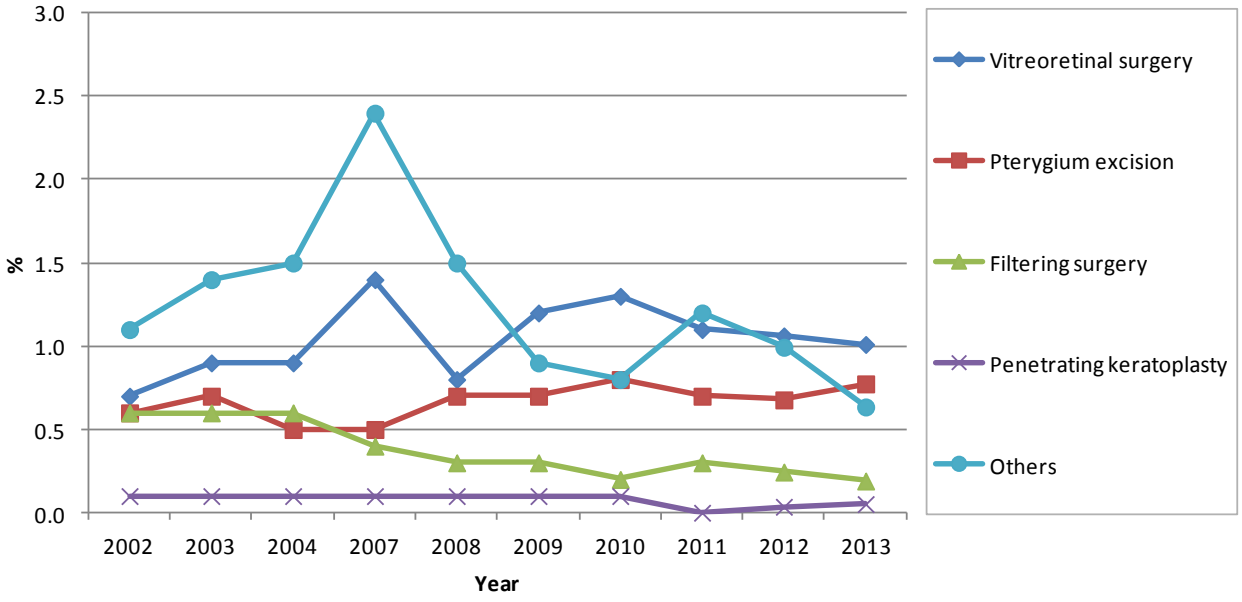
Most eyes to be operated had no prior ocular surgery. The commonest past ocular surgery was vitreoretinal (VR) surgery and pterygium surgery. The percentage of eye with past history of filtering surgery and penetrating keratoplasty remained low.

Table 1.2.2.4: Past Ocular Surgery of the Operated Eye, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No. of patients	48005		18426		21496		24438		28506		30611		32473		37150	
No. of eyes with past ocular surgery record (N)	47952		17379		20674		23109		26711		28349		30687		34625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Patients with no past ocular surgery	46303	96.6	16545	95.2	20010	96.8	22387	96.9	25870	96.9	27400	96.7	29770	97.0	33721	97.4
Vitreoretinal surgery	12122	25.3	261	1.4	161	0.8	267	1.2	352	1.3	325	1.1	326	1.1	350	1.0
Pterygium excision	1346	2.8	869	0.5	140	0.7	164	0.7	212	0.8	207	0.7	208	0.7	268	0.8
Filtering surgery	2186	4.6	1043	0.4	57	0.3	69	0.3	65	0.2	80	0.3	75	0.2	66	0.2
Penetrating keratoplasty	365	0.8	1738	0.1	14	0.1	18	0.1	21	0.1	11	0	11	0.0	18	0.1
Others	1919	4.0	417	2.4	304	1.5	216	0.9	203	0.8	332	1.2	305	1.0	220	0.6

Number or percentage may be more than total or 100% as patients might have more than one past ocular surgery

Figure 1.2.2.4 Percent Distribution of Past Ocular Surgery of the Operated Eye, CSR 2002-2013



1.2.2.5 Preexisting Ocular Co-morbidity

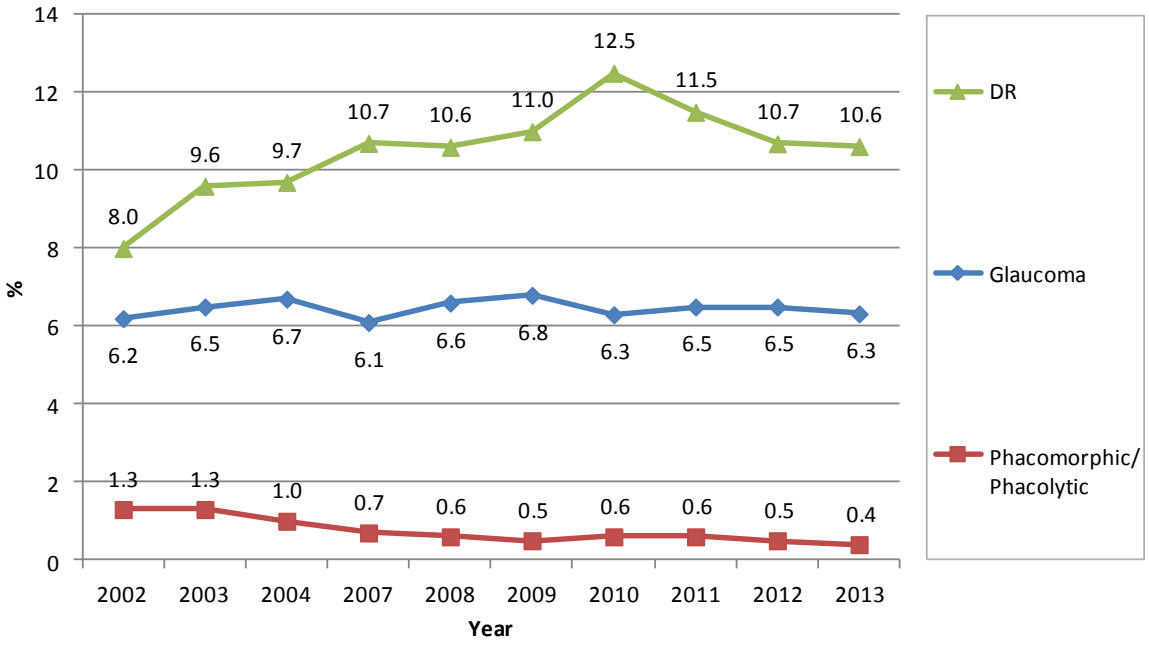
One third of the eyes to be operated had ocular co-morbidities. The commonest was diabetic retinopathy (DR) in any forms then followed by glaucoma. The percentage of eyes with DR appeared to be decreasing from 2010 onwards. The percentage of eyes presented with lens related complications (phacolytic and phacomorphic) appeared to be decreasing.

Table 1.2.2.5: Distribution of Pre-existing Ocular Co-Morbidity, CSR 2002-2013

Year	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Patients with any ocular co-morbidity	16752	34.9	5973	32.4	7269	33.8	9442	38.6	11977	42	12756	41.7	13024	40.1	15088	40.6
Patients with specific ocular co-morbidity																
Anterior segment																
1. Glaucoma	3129	6.5	1126	6.1	1408	6.6	1655	6.8	1799	6.3	1976	6.5	2095	6.5	2349	6.3
2. Pterygium involving the cornea	1084	2.3	288	1.6	319	1.5	345	1.4	387	1.4	405	1.3	405	1.3	477	1.3
3. Pseudoexfoliation	647	1.3	221	1.2	253	1.2	318	1.3	289	1	312	1	365	1.1	381	1.0
4. Corneal opacity	567	1.2	176	1	194	0.9	231	0.9	251	0.9	299	1	311	1	338	0.9
5. Chronic uveitis	182	0.4	81	0.4	63	0.3	80	0.3	89	0.3	98	0.3	70	0.2	96	0.3
Len related complication																
1. Phacomorphic	376	0.8	89	0.5	85	0.4	83	0.3	120	0.4	114	0.4	138	0.42	90	0.2
2. Phacolytic	203	0.4	44	0.2	45	0.2	47	0.2	59	0.2	69	0.2	41	0.13	56	0.2
3. Subluxated/Disclosed	283	0.6	101	0.5	89	0.4	83	0.3	95	0.3	119	0.4	120	0.37	112	0.3
Posterior segment																
1. Diabetic Retinopathy: Non Proliferative	2563	5.3	1125	6.1	1273	5.9	916	3.7	996	3.5	1783	5.8	1915	5.9	2214	6.0
2. Diabetic Retinopathy: Proliferative	1094	2.3	465	2.5	614	2.9	1307	5.3	1973	6.9	1031	3.4	933	2.87	1021	2.7
3. Diabetic Retinopathy: CSME*	436	0.9	198	1.1	221	1	278	1.1	346	1.2	384	1.3	368	1.13	473	1.3
4. Diabetic Retinopathy: Vitreous haemorrhage	310	0.6	176	1	165	0.8	230	0.9	250	0.9	296	1	258	0.79	237	0.6
5. ARMD	668	1.4	231	1.3	259	1.2	387	1.6	462	1.6	494	1.6	521	1.6	609	1.6
6. Other macular disease (includes hole or scar)	323	0.7	118	0.6	148	0.7	188	0.8	277	1	251	0.8	308	0.95	309	0.8
7. Optic nerve disease, any type	197	0.4	71	0.4	69	0.3	118	0.5	149	0.5	123	0.4	182	0.56	191	0.5
8. Retinal detachment	494	1.0	218	1.2	204	0.9	294	1.2	308	1.1	432	1.4	341	1.05	295	0.8
9. Cannot be assessed	5136	10.7	1357	7.4	2092	9.7	3139	12.8	4457	15.6	5053	16.5	4914	15.1	5881	15.8
Miscellaneous																
1. Amblyopia	203	0.4	71	0.4	65	0.3	62	0.3	75	0.3	99	0.3	98	0.3	97	0.3
2. Significant previous eye trauma	228	0.5	41	0.2	39	0.2	39	0.2	51	0.2	45	0.2	49	0.15	48	0.1
3. Pre-existing non glaucoma field defect	9	0	4	0	2	0	6	0	3	0	4	0	6	0.02	4	0.0
4. Others	2360	4.9	668	3.6	755	3.5	1053	4.3	1321	4.6	1505	4.9	1729	5.32	2119	5.7

*CSME=Clinically Significant Macular Oedema
Number or percentage may be more than total or 100% as patients might have more than one ocular co-morbidity

Figure 1.2.2.5: Percent Distribution of Eyes with Diabetic Retinopathy, Glaucoma or Lens-induced Glaucoma, CSR 2002-2013



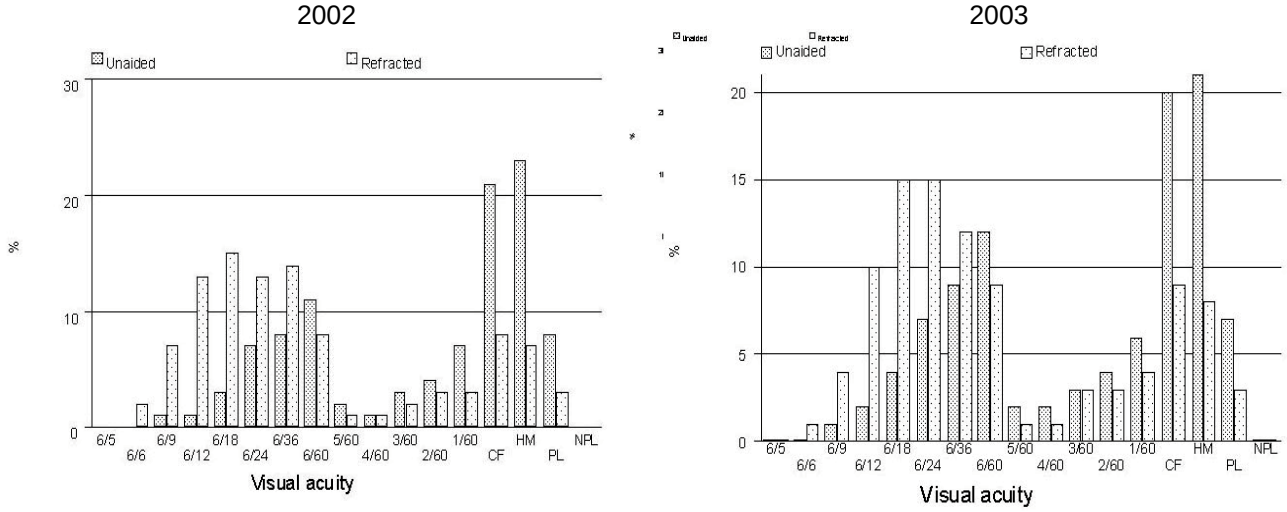
1.2.2.6 Pre-operative Vision

In each year, more than 70% of all patients did not have refraction pre-operatively. The proportion of eyes operated (with unaided vision) in the category of 2/60-NPL appeared to be decreasing but the percentages were still high. The bimodal pattern of pre-operative vision remained the same over the years. The first peak was at 6/18 and the second peak was at CF/HM. There was a low proportion of patients between 5/60 to1/60.

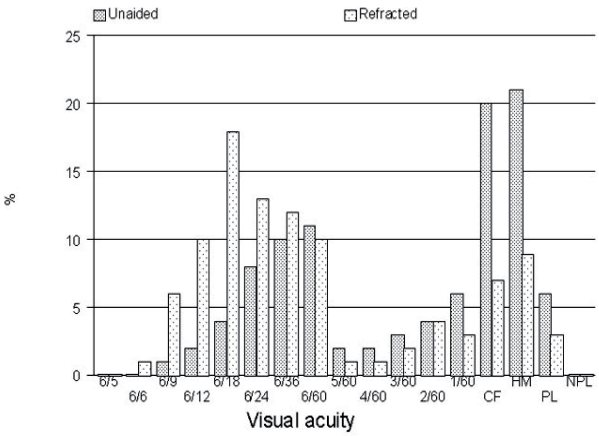
Table 1.2.2.6: Distribution of Pre-Operative Vision, CSR 2002-2013

Year		**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No. of patients (N)		48005		18426		21496		24438		28506		30611		32473		37150	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Patients with unaided VA		47636	99.2	18356	99.6	21212	98.7	23796	97.4	27977	98.1	30018	98.1	31833	98.0	35988	96.9
Patients with refracted VA		5123	10.7	5071	27.8	5683	26.4	5150	21.1	7895	27.7	7932	25.9	7315	22.5	8418	22.7
Patients with no refraction		42882	89.3	13355	72.5	15813	73.6	19288	78.9	20611	72.3	22679	74.1	25158	77.5	28732	77.3
6/5- 6/12	Unaided	1200	2.5	602	3.3	646	3.0	788	3.3	1016	3.6	1133	3.8	1397	4.4	1865	5.2
	Refracted	878	1.8	678	13.3	935	16.4	944	18.3	1474	18.7	1712	21.6	1840	25.2	2297	27.3
6/18- 3/60	Unaided	18140	37.8	7734	42.4	9375	44.2	10849	45.6	13073	46.7	14569	48.5	15923	50.0	18174	50.5
	Refracted	2887	6.0	2375	46.9	2892	50.9	2796	54.3	4324	54.8	4536	57.2	4262	58.3	4713	56.0
2/60- NPL	Unaided	28296	58.9	9920	54.3	11180	52.7	12159	51.1	13888	49.6	14316	47.7	14513	45.6	15949	44.3
	Refracted	1358	2.8	2018	39.8	1845	32.5	1410	27.4	2097	26.6	1684	21.2	1213	16.6	1408	16.7
Unaided VA for patient with no refraction																	
n				13355		15813		19288		20611		22679		25158		28732	
6/5 – 6/12				396	3	414	2.6	553	2.9	651	3.2	702	3.1	887	3.5	1210	4.2
6/18 – 3/60				5133	38.4	6149	38.9	7828	40.6	8239	40	9350	41.2	10948	43.5	12402	43.2
2/60 – NPL				7666	57.4	9004	56.9	10412	54	11302	54.8	12134	53.5	12777	50.8	14091	49.0

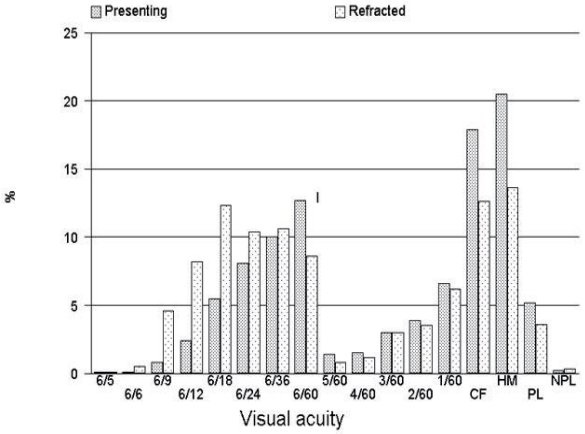
Figure 1.2.2.6(a): Distribution of Pre-Operative Vision (Unaided/presenting and refracted), CSR 2002-2013



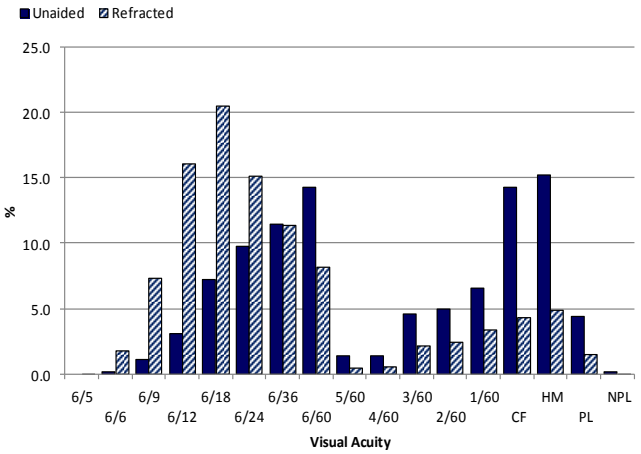
2004



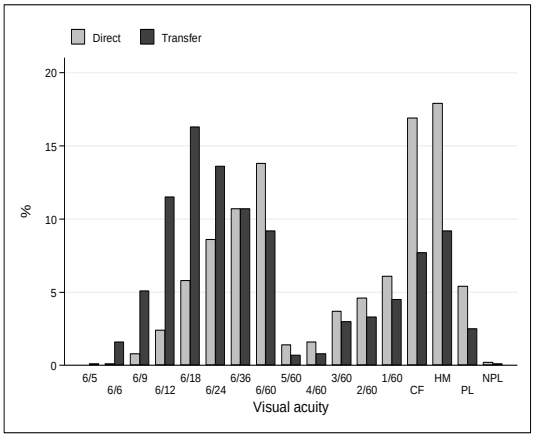
2005



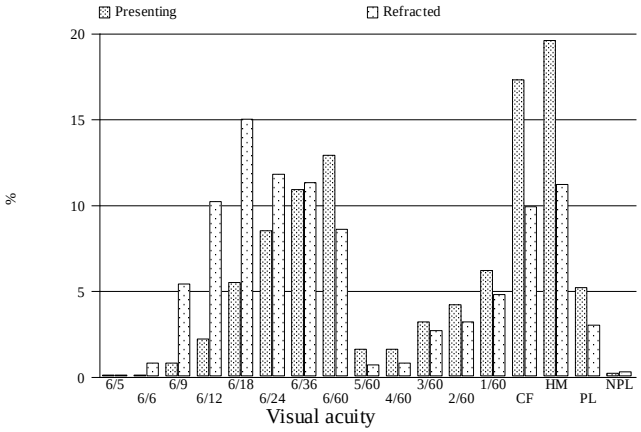
2007



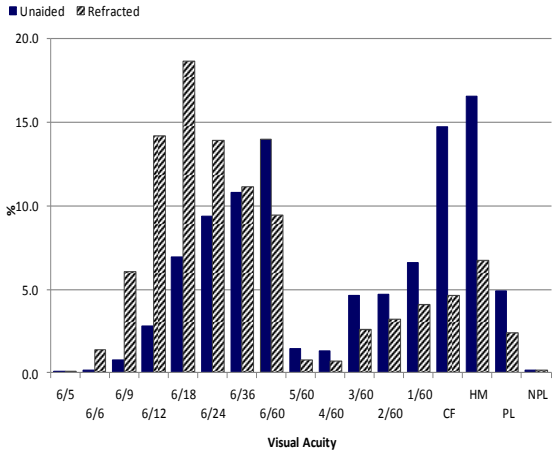
2008



2009



2010



2011 2012

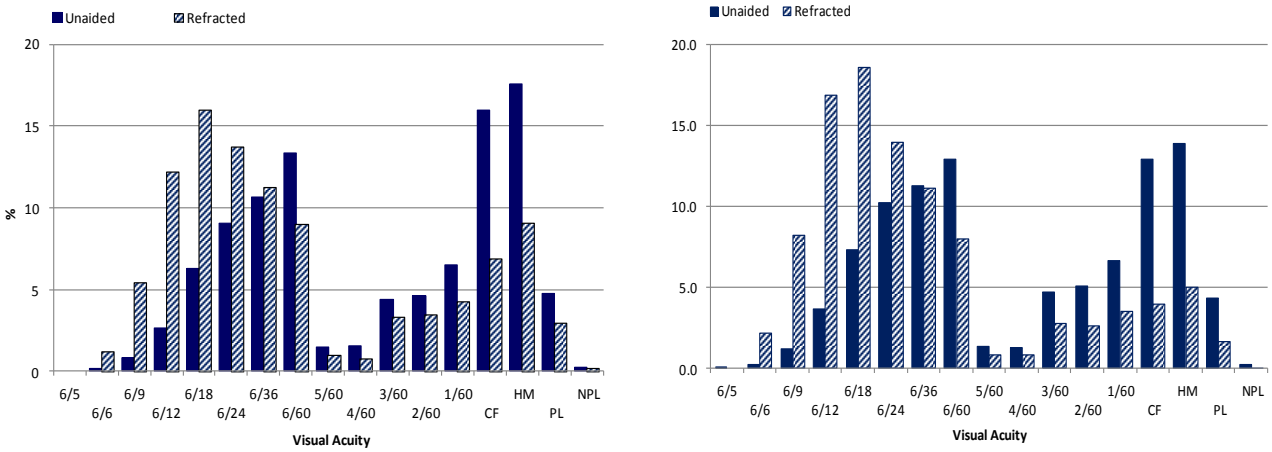


Figure 1.2.2.6(b): Distribution of Pre-Operative Vision (Unaided), CSR 2002-2013

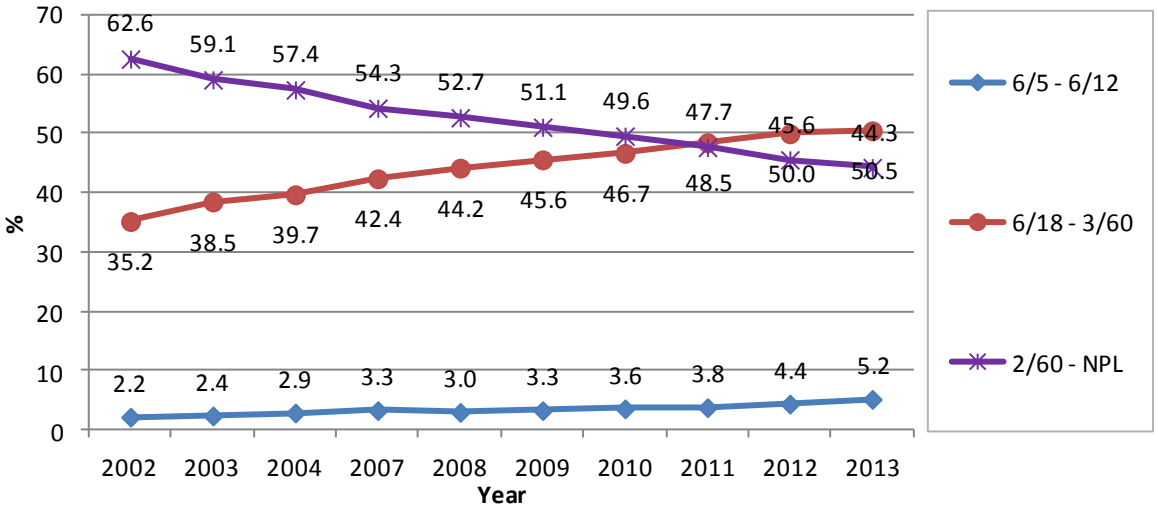
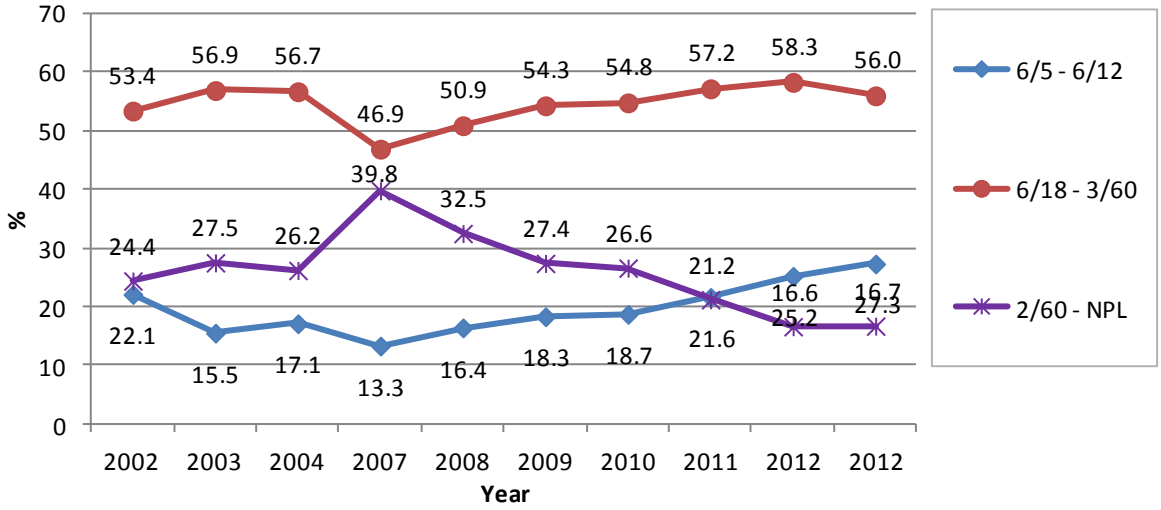


Figure 1.2.2.6(c): Distribution of Pre-Operative Vision (Refracted), CSR 2002-2013



1.2.2.7 Target Refractive Power

The mean target refractive power in 2013 was -0.4D (SD 0.3), with minimum at -8.5D and maximum at +9.0D. The percentage of eyes aimed to have target refraction within (-0.5 to 0 D) increased to 73.7% in 2013. Overall data demonstrated that most surgeons participated in CSR aimed to give patient either emmetropic or slightly myopic refraction post- operatively.

Table 1.2.2.7(a): Distribution of Target Refractive Power, CSR 2007-2013

Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Operated eye (N)	11876	15083	20279	24524	25885	26059	28685
Mean	-0.5	-0.1	-0.4	-0.4	-0.4	-0.4	-0.4
SD	0.4	0.4	0.4	0.4	0.3	0.4	0.3
Median	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4
Minimum	-9	-9.9	-9.9	-9.1	-9.1	-8	-8.5
Maximum	5	9.5	5.9	6	4.8	9	9

Table 1.2.2.7(b): Distribution of Target Refractive Power, CSR 2007-2013 (exclude age 0-5 yrs)

Year	**2009**	**2010**	**2011**	**2012**	**2013**
Operated eye (N)	20236	24490	25848	26017	28678
Mean	-0.4	-0.4	-0.4	-0.4	-0.4
SD	0.4	0.4	0.3	0.4	0.3
Median	-0.5	-0.4	-0.4	-0.4	-0.4
Minimum	-9.9	-9.1	-9.1	-8	-8.5
Maximum	4.9	6	4.8	9	9

Table 1.2.2.7(c): Distribution of Target Refractive Power, CSR 2007-2013

Year	2007		2008		2009		2010		2011		2012		2013	
Target refractive power (Dioptres)	Operated eye N=11876		Operated eye N=15083		Operated eye N=20279		Operated eye N=24524		Operated eye N=25885		Operated eye N=26059		Operated eye N=28685	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
-10-<(-9.5)	0	0	1	0	2	0	0	0	0	0	0	0	0	0
-9.5-<(-9)	2	0	1	0	1	0	2	0	1	0	0	0	0	0
-9-<(-8.5)	0	0	1	0	0	0	0	0	0	0	0	0	1	0
-8.5-<(-8)	1	0	1	0	0	0	0	0	0	0	0	0	1	0
-8-<(-7.5)	2	0	3	0	1	0	1	0	0	0	1	0	0	0
-7.5-<(-7)	1	0	0	0	1	0	1	0	0	0	2	0	0	0
-7-<(-6.5)	3	0	1	0	0	0	1	0	1	0	1	0	1	0
-6.5-<(-5)	1	0	2	0	7	0	4	0	10	0	10	0	9	0
-5-<(-4.5)	3	0	4	0	7	0	3	0	3	0	5	0	5	0
-4.5-<(-4)	1	0	3	0	5	0	10	0	3	0	5	0	3	0
-4-<(-3.5)	7	0.1	8	0.1	11	0.1	5	0	11	0	5	0	1	0
-3.5-<(-3)	6	0.1	7	0	11	0.1	15	0.1	12	0.1	6	0	8	0
-3-<(-2.5)	12	0.1	22	0.1	18	0.1	29	0.1	15	0.1	15	0.1	15	0.1
-2.5-<(-2)	26	0.2	21	0.1	29	0.1	33	0.1	26	0.1	38	0.2	35	0.1
-2-<(-1.5)	77	0.6	48	0.3	58	0.3	46	0.2	54	0.2	67	0.3	55	0.2
-1.5-<(-1)	414	3.5	373	2.5	260	1.3	292	1.2	201	0.8	226	0.9	174	0.6
-1-<(-0.5)	4299	36.2	6151	40.8	7972	39.3	7590	31	7507	29	7190	27.6	6241	21.8
-0.5-<0	6077	51.2	7480	49.6	10604	52.3	15218	62.1	16913	65.3	17421	66.9	21135	73.7
0-<0.5	821	6.9	731	4.8	977	4.8	920	3.8	849	3.3	629	2.4	697	2.4
0.5-<1	91	0.8	158	1	182	0.9	237	1	234	0.9	216	0.8	187	0.7
1-<1.5	8	0.1	31	0.2	17	0.1	23	0.1	20	0.1	32	0.1	8	0
1.5-<2	5	0	14	0.1	22	0.1	19	0.1	9	0	52	0.2	28	0.1
2-<2.5	13	0.1	10	0.1	85	0.4	69	0.3	12	0.1	123	0.5	69	0.2
2.5-<3	1	0	6	0	4	0	3	0	2	0	10	0	11	0
3-<3.5	1	0	2	0	2	0	0	0	1	0	1	0	0	0
3.5-<4	0	0	2	0	0	0	0	0	0	0	0	0	0	0
4-<4.5	2	0	0	0	0	0	0	0	0	0	1	0	0	0
4.5-<5	1	0	1	0	1	0	1	0	1	0	0	0	0	0
5-<5.5	1	0	0	0	0	0	1	0	0	0	0	0	0	0
5.5-<6	0	0	0	0	2	0	0	0	0	0	0	0	0	0
6-<6.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0
6.5-<7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-<7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.5-<8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-<8.5	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8.5-<9	0	0	0	0	0	0	0	0	0	0	1	0	0	0
9-<9.5	0	0	0	0	0	0	0	0	0	0	1	0	1	0
9.5-10	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Values outside the +10D and -10D were excluded from analysis as they would skew the mean.

Table 1.2.2.7(d): Distribution of Target Refractive Power, CSR 2007-2013 (exclude age 0-5 yrs)

Year	2009		2010		2011		2012		2013	
Target refractive power (Dioptres)	Operated eye N=20236		Operated eye N=24490		Operated eye N=25848		Operated eye N=26017		Operated eye N=28678	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**		
-10-<(-9.5)	2	0.0	0	0	0	0	0	0	0	0
-9.5-<(-9)	1	0.0	2	0	1	0	0	0	0	0
-9-<(-8.5)	0	0.0	0	0	0	0	0	0	1	0
-8.5-<(-8)	0	0.0	0	0	0	0	0	0	1	0
-8-<(-7.5)	1	0.0	1	0	0	0.0	1	0.0	0	0
-7.5-<(-7)	1	0.0	1	0	0	0.0	2	0.0	0	0
-7-<(-6.5)	0	0.0	1	0.0	1	0.0	1	0.0	1	0
-6.5-<(-5)	6	0.0	4	0.0	10	0.0	10	0.0	9	0
-5-<(-4.5)	7	0.0	3	0.0	3	0.0	5	0.0	5	0
-4.5-<(-4)	5	0.0	10	0.0	3	0.0	5	0.0	3	0
-4-<(-3.5)	9	0.0	5	0.0	11	0.0	5	0.0	1	0
-3.5-<(-3)	10	0.1	15	0.1	12	0.1	6	0.0	8	0
-3-<(-2.5)	18	0.1	29	0.1	15	0.1	15	0.1	15	0.1
-2.5-<(-2)	29	0.1	33	0.1	26	0.1	37	0.1	33	0.1
-2-<(-1.5)	58	0.3	46	0.2	53	0.2	67	0.3	55	0.2
-1.5-<(-1)	259	1.3	291	1.2	199	0.8	226	0.9	174	0.6
-1-<(-0.5)	7968	39.4	7587	31.0	7503	29.0	7186	27.6	6240	21.8
-0.5-<0	10587	52.3	15210	62.1	16903	65.4	17406	66.9	21132	73.7
0-<0.5	970	4.8	910	3.7	836	3.2	623	2.4	696	2.4
0.5-<1	177	0.9	235	1.0	232	0.9	215	0.8	187	0.7
1-<1.5	17	0.1	19	0.1	16	0.1	25	0.1	8	0
1.5-<2	20	0.1	16	0.1	8	0.0	49	0.2	28	0.1
2-<2.5	85	0.4	68	0.3	12	0.1	121	0.5	69	0.2
2.5-<3	4	0.0	3	0.0	2	0.0	8	0.0	11	0
3-<3.5	1	0.0	0	0.0	1	0.0	1	0.0	0	0
3.5-<4	0	0.0	0	0.0	0	0.0	0	0.0	0	0
4-<4.5	0	0.0	0	0.0	0	0.0	1	0.0	0	0
4.5-<5	1	0.0	1	0.0	1	0.0	0	0.0	0	0
5-<5.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0
5.5-<6	0	0.0	0	0.0	0	0.0	0	0.0	0	0
6-<6.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0
6.5-<7	0	0.0	0	0.0	0	0.0	0	0	0	0
7-<7.5	0	0.0	0	0.0	0	0.0	0	0	0	0
7.5-<8	0	0.0	0	0	0	0	0	0	0	0
8-<8.5	0	0.0	0	0	0	0	1	0	0	0
8.5-<9	0	0.0	0	0	0	0	1	0	0	0
9-<9.5	0	0.0	0	0	0	0	1	0	1	0
9.5-10	0	0.0	0	0	0	0	0	0	0	0

1.3 CATARACT SURGICAL PRACTICES

1.3.1 Number of Cataract Surgery by SDP

SDPs performed between >1000 cataract surgeries per year increased to 16 SDPs

Table 1.3.1: Range of Cataract Surgery Registered by SDP per year, Census versus CSR 2002-2013

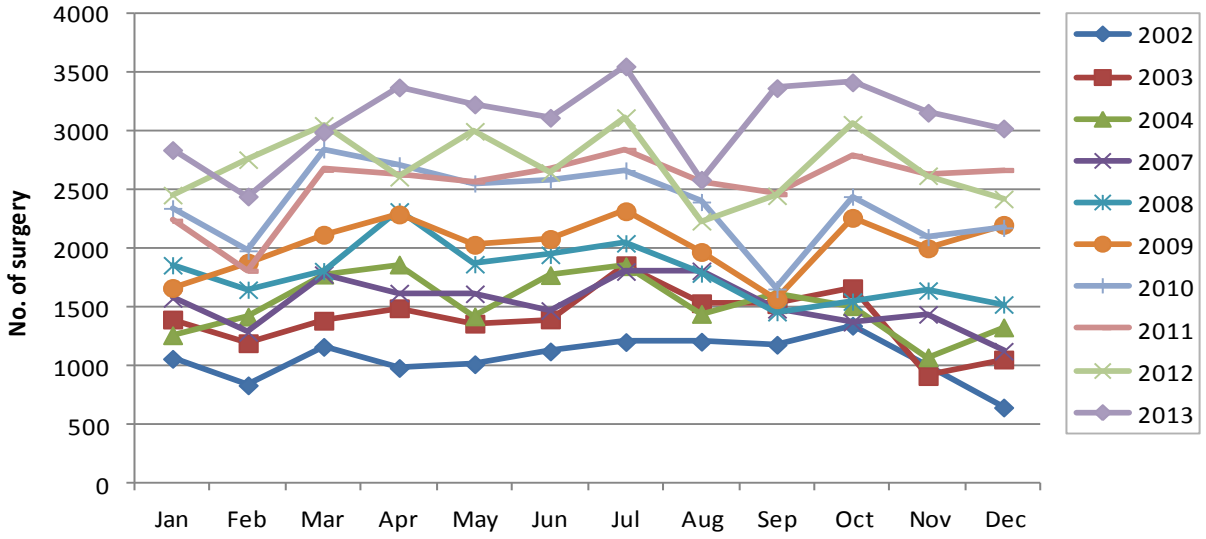
Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR
No. of SDP	92	90	33	36	36	36	36	36	36	36	36	36	36	36	41	41
	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR
<100	7	10	1	1	1	1	1	1	1	1	1	1	1	1	4	4
100-500	38	40	15	10	10	15	12	15	10	13	9	9	8	8	7	9
501-1000	30	28	8	14	14	11	14	12	14	12	16	16	15	16	14	13
>1000	17	12	9	11	11	9	9	8	11	10	10	10	12	11	16	15

1.3.2 Number of Cataract Surgery by Month

Table 1.3.2: Number of Cataract Surgery by Month, CSR 2002-2013

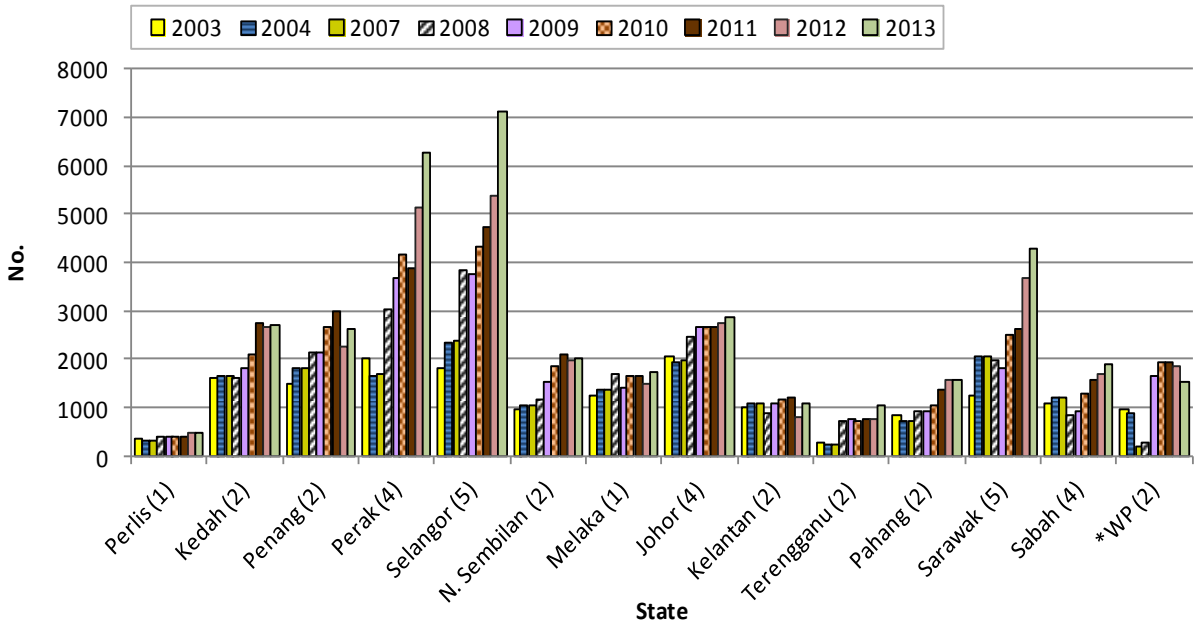
Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No. of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
Month	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
January	3728	7.8	1579	8.6	1862	8.7	1668	6.8	2347	8.2	2241	7.3	2460	7.6	2844	7.7
February	3459	7.2	1290	7.0	1653	7.7	1884	7.7	1985	7.0	1815	5.9	2762	8.5	2448	6.6
March	4337	9.0	1782	9.7	1812	8.4	2122	8.7	2850	10.0	2676	8.7	3055	9.4	2997	8.1
April	4349	9.1	1625	8.8	2321	10.8	2295	9.4	2714	9.5	2634	8.6	2612	8.0	3378	9.1
May	3808	7.9	1618	8.8	1871	8.7	2036	8.3	2559	9.0	2576	8.4	3004	9.3	3233	8.7
June	4305	9.0	1476	8.0	1950	9.1	2086	8.5	2591	9.1	2686	8.8	2652	8.2	3119	8.4
July	4923	10.3	1808	9.8	2049	9.5	2322	9.5	2670	9.4	2845	9.3	3121	9.6	3557	9.6
August	4195	8.7	1814	9.8	1791	8.3	1975	8.1	2401	8.4	2570	8.4	2237	6.9	2591	7.0
September	4340	9.0	1486	8.1	1462	6.8	1572	6.4	1659	5.8	2468	8.1	2454	7.6	3372	9.1
October	4525	9.4	1376	7.5	1552	7.2	2266	9.3	2447	8.6	2794	9.1	3064	9.4	3421	9.2
November	2997	6.2	1443	7.8	1646	7.7	2006	8.2	2102	7.4	2632	8.6	2625	8.1	3162	8.5
December	3039	6.3	1129	6.1	1527	7.1	2206	9.0	2181	7.6	2674	8.7	2427	7.5	3028	8.2

Figure 1.3.2: Number of Cataract Surgeries by Month, CSR 2002-2012



1.3.3 Number of Cataract Surgery Registered to CSR by State

Figure 1.3.3: Number of Cataract Surgery Registered to CSR by State, CSR 2002-2012



**Wilayah Persekutuan in 2007 and 2008 for Putrajaya Hospital only*

1.3.4 Surgeon Status

Specialists performed the highest number of cataract surgery followed by the medical officers (MO) and the gazetting specialists. This trend remained unchanged throughout the years. The percentage of eyes operated by the specialists appeared to be increasing corresponding to the decrease in the percentage operated by the MOs.

Table 1.3.4: Surgeon Status, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No. of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Specialist	34000	70.8	14327	77.8	16846	78.4	19400	79.4	24216	84.9	25590	83.6	27684	85.3	32861	88.5
Gazetting Specialist	5029	10.5	1276	6.9	1399	6.5	2053	8.4	1405	4.9	2487	8.1	2411	7.4	2014	5.42
Medical Officer	8976	18.7	2690	14.6	2697	12.5	2750	11.3	2871	10.1	2478	8.1	2354	7.3	2244	6.04
Missing/NA	0	0.0	133	1.0	554	2.6	235	1.0	14	0.1	56	0.2	24	0.1	31	0.08

Table 1.3.4.1: Surgeon Status for Phacoemulsification surgery, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No. of patients (N)	22041		11960		14781		17717		21810		23872		26345		31625	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Specialist	19494	88.4	10294	86.1	12458	84.3	15206	85.8	19797	90.8	20963	87.8	23291	88.4	28774	91.0
Gazetting Specialist	1586	7.2	805	6.7	882	6.0	1422	8.0	929	4.3	1845	7.7	1850	7.0	1694	5.4
Medical Officer	961	4.4	780	8.5	1064	7.2	923	5.2	1078	4.9	1050	4.4	1182	4.5	1132	3.6
Missing/NA	0	0.0	81	0.7	377	2.6	166	0.9	6	0.0	14	0.1	22	0.1	25	0.1

Table 1.3.4.2: Surgeon Status for ECCE, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No. of patients (N)	22756		5524		5627		5457		5363		5291		4784		4086	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Specialist	11914	52.4	3240	58.7	3528	62.7	3133	57.4	3237	60.4	3406	64.4	3231	67.5	2794	68.4
Gazetting Specialist	3059	13.4	391	7.1	403	7.2	516	9.5	405	7.6	513	9.7	435	9.1	218	5.3
Medical Officer	7783	34.2	1848	33.5	1555	27.6	1754	32.1	1718	32.0	1369	25.9	1116	23.3	1072	26.2
Missing/NA	0	0.0	45	0.8	141	2.5	54	1.0	3	0.0	3	0.1	2	0.0	2	0.1

Table 1.3.4(a): Specialist by SDP 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	34000	70.6	14327	77.8	16846	78.4	19400	79.4	24216	85.0	25590	83.6	27684	85.3	32,861	88.5
Alor Setar	2011	63.1	334	81.3	765	77.6	846	76.2	1376	90.1	1742	89.8	1,595	86.9	1,429	81.3
Ampang	-	-	4	100.0	200	96.2	421	97.2	491	78.3	620	87.6	809	90.3	813	82.7
Batu Pahat	1107	93.1	511	91.9	500	87.3	336	55.8	290	70.6	410	74.0	262	43.1	405	93.5
Bintulu	-	-	-	-	25	83.3	101	81.5	219	84.9	330	99.4	389	99.5	375	97.9
Bukit Mertajam	1156	95.1	620	91.0	434	89.1	715	96.2	782	97.3	744	92.7	879	94.7	853	93.8
Sandakan	359	93.7			100	73.0	72	45.6	123	59.1	98	36.2	128	48.3	404	98.3
Ipoh	1067	55.5	1068	68.2	1392	80.8	1460	68.3	1859	84.5	1479	81.0	2,459	83.9	2,741	90.4
Kangar	1288	84.5	317	97.8	390	97.5	395	99.0	395	98.8	402	99.8	445	98.0	386	82.8
Keningau	-	-	-	-	34	100.0	31	100.0	16	21.1	32	61.5	5	29.4	6	40.0
Kota Bharu	904	70.6	680	83.5	583	78.9	804	88.3	858	89.4	862	91.1	485	89.0	625	91.6
Kuala Krai	-	-	99	79.2	168	98.8	169	96.6	211	97.2	230	95.8	226	91.5	397	100.0
Kuala Lumpur	1597	81.3	-	-	28	70.0	871	62.0	1359	82.5	1265	78.0	1,387	91.5	1,090	94.8
Kuala Pilah	227	73.1	180	84.1	225	79.8	257	88.6	310	96.3	465	96.3	424	98.8	425	86.4
Kuala Terengganu	977	81.6	371	70.4	611	84.2	665	89.5	612	85.7	629	81.7	700	91.5	890	87.8
Melaka	1876	69.7	1112	72.8	1119	66.6	1098	79.2	1342	80.9	1367	83.3	1,392	93.5	1,550	90.2
Miri	214	95.1	12	75.0	356	89.9	404	100.0	576	99.8	501	76.3	513	56.9	904	98.8
Muar	1505	76.6	332	94.3	237	70.1	388	71.6	606	98.2	405	58.5	493	74.1	699	97.5
Pulau Pinang	1653	70.2	754	68.2	1142	84.2	1024	74.5	1516	80.8	1816	83.1	1,079	81.1	1,320	77.8
Putrajaya	397	93.8	196	96.6	254	99.2	251	100.0	282	100.0	329	100.0	349	98.3	386	98.7
Kota Kinabalu	1624	67.4	423	79.4	265	75.5	344	79.4	552	88.5	540	78.7	551	72.2	658	67.3
Selayang	1680	73.3	1221	86.2	1190	83.3	1164	82.1	1414	83.2	1523	81.9	1,465	80.1	1,088	81.4
Serdang	-	-	532	87.9	620	89.1	567	94.8	506	97.3	610	91.6	677	95.5	957	93.5
Sibu	1076	61.2	337	88.0	254	96.6	130	33.6	345	75.8	230	45.5	675	90.6	759	84.3
Sri Manjung	-	-	121	79.6	285	81.4	318	97.2	375	96.9	417	99.3	464	99.6	820	98.6
Sultan Ismail	-	-	101	94.4	180	100.0	183	98.9	203	78.7	283	100.0	279	100.0	353	94.4
Johor Bahru	1665	76.3	1031	66.8	825	60.0	1079	81.9	1097	79.7	770	68.3	1,079	90.3	1,177	87.2
Sungai Buloh	-	-	144	98.6	273	85.6	361	93.3	467	99.8	450	100.0	514	100.0	579	99.8
Sungei Petani	1323	86.0	488	98.2	626	98.9	683	99.9	546	97.8	731	90.1	740	87.6	859	92.4
Taiping	912	97.6	279	100.0	378	99.7	610	99.7	683	76.8	853	89.5	899	80.4	1,195	93.1
Tawau	675	84.2	184	91.5	312	98.4	296	99.3	399	99.5	574	99.8	648	100.0	503	100.0
Teluk Intan	1072	68.7	504	75.1	511	86.9	539	88.1	642	93.0	397	59.9	439	71.3	677	61.4
Temerloh	-	-	244	55.0	405	76.3	382	59.7	290	64.4	651	95.6	827	95.3	837	96.7
Kuantan	1102	65.8	21	87.5	306	77.5	235	80.2	553	89.9	614	90.3	607	88.7	490	79.2
Klang	1274	63.4	841	80.8	841	69.1	690	76.3	833	82.7	966	91.0	1,317	93.3	1,523	94.5
Seremban	1191	62.4	547	57.2	249	27.7	812	66.1	1147	75.5	1262	78.6	1,109	71.1	1,167	76.8
Kuching	1547	58.4	719	71.8	763	75.5	698	78.2	941	78.0	993	87.8	1,375	83.0	1,490	86.6
Kemaman															47	100.0
Sarikei															285	99.7
KK1M East Coast															59	92.2
KK1M Sarawak															76	100.0
MAIWP															1564	98.8

Table 1.3.4(b): Gazetting Specialist by SDP 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	5029	10.8	1276	6.9	1399	6.5	2053	8.4	1405	4.9	2487	8.1	2411	7.4	2,014	5.4
Alor Setar	251	8.1	0	0.0	74	7.5	30	2.7	7	0.5	3	0.2	131	7.1	165	9.4
Ampang	-	-	0	0.0	0	0.0	0	0.0	4	0.6	6	0.8	18	2.0	7	0.7
Batu Pahat	12	1.0	0	0.0	60	10.5	197	32.7	75	18.2	135	24.4	329	54.1	26	6.0
Bintulu	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	2.1
Bukit Mertajam	17	1.3	0	0.0	0	0.0	2	0.3	0	0.0	40	5.0	33	3.6	13	1.4
Sandakan	0	0.0	-	-	1	0.7	1	0.6	0	0.0	55	20.3	17	6.4	0	0.0
Ipoh	193	10.9	10	0.6	0	0.0	118	5.5	0	0.0	63	3.5	230	7.8	156	5.1
Kangar	254	8.8	0	0.0	0	0.0	1	0.3	0	0.0	1	0.2	0	0.0	66	14.2
Keningau	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	162	8.9	41	5.0	42	5.7	2	0.2	2	0.2	4	0.4	6	1.1	5	0.7
Kuala Krai	-	-	0	0.0	0	0.0	0	0.0	0	0.0	10	4.2	21	8.5	0	0.0
Kuala Lumpur	225	9.6	-	-	8	20.0	368	26.2	15	0.9	86	5.3	20	1.3	15	1.3
Kuala Pilah	13	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53	10.8
Kuala Terengganu	154	9.5	97	18.4	35	4.8	9	1.2	28	3.9	93	12.1	8	1.0	50	4.9
Melaka	578	20.5	216	14.1	267	15.9	44	3.2	66	4.0	147	9.0	14	0.9	2	0.1
Miri	0	0.0	0	0.0	4	1.0	0	0.0	0	0.0	148	22.5	383	42.5	11	1.2
Muar	187	8.3	0	0.0	93	27.5	149	27.5	6	1.0	287	41.5	172	25.9	13	1.8
Pulau Pinang	312	9.9	141	12.8	26	1.9	226	16.4	220	11.7	186	8.5	30	2.3	63	3.7
Putrajaya	27	3.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Kinabalu	151	6.1	0	0.0	9	2.6	44	10.2	42	6.7	92	13.4	152	19.9	173	17.7
Selayang	151	6.4	47	3.3	34	2.4	118	8.3	24	1.4	3	0.2	60	3.3	40	3.0
Serdang	-	-	35	5.8	58	8.3	29	4.8	6	1.2	33	5.0	16	2.3	31	3.0
Sibu	133	4.5	1	0.3	0	0.0	194	50.1	92	20.2	254	50.3	68	9.1	138	15.3
Sri Manjung	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4	7	0.8
Sultan Ismail	-	-	0	0.0	0	0.0	2	1.1	55	21.3	0	0.0	0	0.0	21	5.6
Johor Bahru	200	6.9	273	17.7	232	16.9	136	10.3	202	14.7	320	28.4	82	6.9	158	11.7
Sungai Buloh	-	-	0	0.0	46	14.4	9	2.3	0	0.0	0	0.0	0	0.0	0	0.0
Sungei Petani	164	12.7	6	1.2	0	0.0	0	0.0	0	0.0	47	5.8	3	0.4	0	0.0
Taiping	21	2.1	0	0.0	1	0.3	2	0.3	206	23.2	100	10.5	219	19.6	89	6.9
Tawau	135	11.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Teluk Intan	162	12.4	0	0.0	0	0.0	0	0.0	4	0.6	221	33.3	133	21.6	362	32.8
Temerloh	-	-	115	25.9	64	12.1	139	21.7	99	22.0	0	0.0	25	2.9	16	1.8
Kuantan	391	20.2	0	0.0	27	6.8	17	5.8	1	0.2	1	0.1	0	0.0	38	6.1
Klang	95	5.0	104	10.0	194	15.9	142	15.7	109	10.8	92	8.7	94	6.7	68	4.2
Seremban	96	3.8	43	4.5	28	3.1	18	1.5	46	3.0	6	0.4	4	0.3	32	2.1
Kuching	819	33.6	147	14.7	96	9.5	56	6.3	96	8.0	54	4.8	141	8.5	175	10.2
Kemaman															0	0.0
Sarikei															1	0.3
KK1M East Coast															5	7.8
KK1M Sarawak															0	0.0
MAIWP															7	0.4

Table 1.3.4(c): Medical Officer by SDP 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	8976	18.6	2690	14.6	2697	12.5	2750	11.3	2871	10.1	2478	8.1	2354	7.2	2,244	6.0
Alor Setar	894	28.8	76	18.5	146	14.8	234	21.1	144	9.4	194	10.0	109	5.9	164	9.3
Ampang	-	-	0	0.0	2	1.0	12	2.8	132	21.1	82	11.6	69	7.7	163	16.6
Batu Pahat	68	5.9	45	8.1	13	2.3	69	11.5	46	11.2	9	1.6	17	2.8	2	0.5
Bintulu	-	-	-	-	5	16.7	23	18.5	39	15.1	2	0.6	2	0.5	0	0.0
Bukit Mertajam	44	3.6	59	8.7	53	10.9	26	3.5	22	2.7	19	2.4	16	1.7	43	4.7
Sandakan	23	6.3			35	25.5	85	53.8	85	40.9	118	43.5	120	45.3	7	1.7
Ipoh	907	33.6	441	28.2	291	16.9	335	15.7	330	15.0	230	12.6	220	7.5	114	3.8
Kangar	215	6.7	5	1.5	6	1.5	3	0.8	5	1.3	0	0.0	9	2.0	14	3.0
Keningau	-	-	-	-	0	0.0	0	0.0	60	78.9	20	38.5	12	70.6	9	60.0
Kota Bharu	376	20.5	91	11.2	114	15.4	105	11.5	100	10.4	80	8.5	54	9.9	52	7.6
Kuala Krai	-	-	26	20.8	2	1.2	6	3.4	6	2.8	0	0.0	0	0.0	0	0.0
Kuala Lumpur	211	9.1	-	-	3	7.5	166	11.8	274	16.6	271	16.7	108	7.1	44	3.8
Kuala Pilah	72	22.9	31	14.5	57	20.2	33	11.4	12	3.7	18	3.7	5	1.2	14	2.8
Kuala Terengganu	114	8.9	59	11.2	78	10.7	69	9.3	74	10.4	48	6.2	57	7.5	74	7.3
Melaka	309	9.8	198	13.0	285	17.0	244	17.6	250	15.1	128	7.8	82	5.5	167	9.7
Miri	11	4.9	4	25.0	36	9.1	0	0.0	1	0.2	8	1.2	5	0.6	0	0.0
Muar	419	15.1	17	4.8	8	2.4	5	0.9	5	0.8	0	0.0	0	0.0	5	0.7
Pulau Pinang	583	19.8	208	18.8	188	13.9	124	9.0	140	7.5	184	8.4	221	16.6	312	18.4
Putrajaya	16	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	1.7	5	1.3
Kota Kinabalu	646	26.4	104	19.5	76	21.7	45	10.4	30	4.8	54	7.9	60	7.9	147	15.0
Selayang	460	20.2	139	9.8	199	13.9	136	9.6	261	15.4	333	17.9	304	16.6	209	15.6
Serdang	-	-	38	6.3	18	2.6	2	0.3	8	1.5	23	3.5	16	2.3	35	3.4
Sibu	410	34.3	44	11.5	9	3.4	63	16.3	18	4.0	21	4.2	2	0.3	3	0.3
Sri Manjung	-	-	24	15.8	64	18.3	9	2.8	12	3.1	3	0.7	0	0.0	0	0.0
Sultan Ismail	-	-	5	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Johor Bahru	422	16.8	234	15.2	313	22.7	102	7.7	77	5.6	37	3.3	34	2.8	15	1.1
Sungai Buloh	-	-	0	0.0	0	0.0	17	4.4	1	0.2	0	0.0	0	0.0	1	0.2
Sungei Petani	20	1.2	2	0.4	0	0.0	1	0.1	12	2.2	33	4.1	102	12.1	71	7.6
Taiping	3	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	50	4.3	16	8.0	5	1.6	2	0.7	2	0.5	1	0.2	0	0.0	0	0.0
Teluk Intan	264	18.8	166	24.7	77	13.1	73	11.9	44	6.4	45	6.8	44	7.1	62	5.6
Temerloh	-	-	81	18.2	60	11.3	119	18.6	61	13.6	30	4.4	16	1.8	13	1.5
Kuantan	223	14.0	3	12.5	62	15.7	41	14.0	61	9.9	65	9.6	77	11.3	90	14.5
Klang	412	31.6	89	8.5	179	14.7	70	7.7	63	6.3	1	0.1	0	0.0	20	1.2
Seremban	673	33.8	351	36.7	163	18.2	392	31.9	326	21.5	337	21.0	446	28.6	321	21.1
Kuching	218	8.1	134	13.4	150	14.8	139	15.6	170	14.1	84	7.4	141	8.5	56	3.3
Kemaman															0	0.0
Sarikei															0	0.0
KK1M East Coast															0	0.0
KK1M Sarawak															0	0.0
MAIWP															12	0.8

1.3.5 Duration of Surgery

Table 1.3.5(a): Duration of Surgery by Types of Cataract Surgery in minutes, CSR 2007-2013

Year	2007		2008		2009*		2010*		2011*		2012*		2013*	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Median	IQR	Median	IQR	Median	IQR
All eyes	40.2	20.6	38.2	19.6	38.2	20.4	35.5	19.3	30	20-40	30	20-40	27	20-38
Phaco	36.8	19.7	34.1	17.7	33.6	17.7	31.3	16.4	26	20-35	25	19-33	25	20-33
ECCE	45.3	19.7	45.8	19.5	49.1	20.9	47.4	20.2	43	31-60	40	30-55	45	33-60
Phaco → ECCE	57.8	20.6	44.8	24	59.7	24.2	56.1	21.7	55	40-70	55	40-70	55	41-67
ICCE	57.6	23.7	57.5	23.7	58.1	24.4	57.6	28.3	55	45-71	55	40-71	52	35-69.5
Lens Aspiration	47.8	27.2	60.0	25.6	46.1	25.9	45.4	28.9	40	30-60	35	25-56	31	23-50

Data entered with extreme values i.e. more than 3 hours and less than 15 minutes were not analyzed as it would skew the data

Table 1.3.5(b): Duration of Surgery by Surgeon Status, CSR 2007-2013

Year		2007		2008		2009		2010		2011		2012		2013	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Median	IQR	Median	IQR	Median	IQR
Phaco	Specialist	36	19.8	35.4	17.9	32.6	17.3	30.7	16.3	25	20-35	25	20-34	25	20-31
	Gazetting Specialist	40.2	18	47.5	20.8	39.8	19.9	36.2	15.8	30	24-40	28	21-37	30	23-40
	Medical Officers	42.2	18.2	49.2	22.8	41.5	17.7	38.2	16.6	30	25-43.5	34	25-45	32	25-44
ECCE	Specialist	40.2	17.6	43.9	69.5	42.6	18	42	17.3	36	30-50	35	30-48	40	30-53
	Gazetting Specialist	45.9	17.8	54	71.5	48.4	19.1	48.6	16.1	46	39-60	45	35-55	50	40-60
	Medical Officers	53.9	20.2	63	89.8	60.5	21.4	57.4	22	55	45-70	57	45-66	60	50-72

1.3.6 Distribution of Cataract Surgery Performed Under Day Care Setting

The day care cataract surgery percentages were calculated by excluding eyes of children and combined surgeries because surgeries done in these eyes might require general anaesthesia therefore hospital admission.

The total number of eyes (excluding children and combined surgeries) and the total number of eyes operated as day care were increasing corresponding to the increasing numbers of cataract surgery registered to CSR. Although the percentage appeared to be increasing over the years, it varied between SDPs.

Table 1.3.6(a): Distribution of Cataract Surgery Performed Under Day Care Setting, CSR 2002-2013

Year	2002-2004*		2007		2008		2009		2010		2011		2012		2013	
Number of SDPs	90		32		36		36		36		36		36		41	
Total number of cataract surgery registered to CSR	48005		18426		21496		24438		28506		30611		32473		37150	
Number of surgery excluding children and combined surgery	45762		17402		19835		22517		26514		28398		30144		32833	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Number and % of day care surgery excluding children and combined surgery	17910	39.1	7297	41.9	8449	42.6	10633	47.2	13657	51.5	14842	52.3	17827	59.1	20495	62.4

***SDP in 2002, 2003 and 2004 included private centres and university hospitals*

Table 1.3.6(b): Distribution of Cataract Surgery (Excluding Children and Combined Surgery) Performed as Day Care by SDP, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	17910	39.1	7297	41.9	8449	42.6	10633	47.2	13657	51.5	14842	52.3	17827	59.1	20495	62.4
Alor Setar	510	40.0	91	27.6	74	8.0	3	0.3	186	13.8	206	11.9	265	16.1	330	21.4
Ampang	-	-	3	100.0	181	99.5	412	97.4	574	93.6	685	98.8	832	96.4	886	92.3
Batu Pahat	811	66.0	317	62.2	311	56.9	303	52.0	246	61.3	353	65.2	367	61.2	248	58.6
Bintulu	-	-	0	0.0	2	7.7	1	0.9	9	3.8	18	6.1	206	60.4	225	71.0
Bukit Mertajam	183	39.3	82	12.4	25	5.5	650	88.8	714	90.8	719	93.5	846	94.3	840	96.2
Sandakan	2	32.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	92	35.7	343	88.2
Ipoh	31	34.7	672	48.2	896	58.1	1267	66.0	1487	75.4	1104	71.5	1894	78.5	2284	92.2
Kangar	17	34.7	1	0.3	2	0.5	3	0.8	3	0.8	5	1.3	7	1.6	3	0.7
Keningau	-	-	0	0.0	1	3.5	3	10.7	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	48	34.0	8	1.1	17	2.5	124	14.8	294	33.5	220	24.9	102	20.5	70	11.4
Kuala Krai	-	-	0	0.0	0	0.0	0	0.0	2	1.0	75	33.3	133	61.6	295	79.1
Kuala Lumpur	1703	68.7	0	0.0	35	92.1	725	53.3	684	42.4	486	30.3	351	24.8	46	4.5
Kuala Pilah	47	20.0	61	29.0	49	19.0	10	5.1	14	4.6	17	4.0	87	22.1	252	54.4
Kuala Terengganu	344	52.3	142	29.5	194	28.0	168	24.3	222	34.2	334	47.0	356	50.6	488	51.0
Melaka	1851	63.3	1420	98.2	1483	95.9	1121	89.3	1425	90.2	1530	95.7	1384	95.5	1504	91.9
Miri	92	8.0	15	100.0	385	99.7	397	99.7	568	99.3	640	100.0	868	99.9	910	100.0
Muar	14	32.7	2	0.6	0	0.0	1	0.2	0	0.0	1	0.1	22	3.3	4	0.6
Pulau Pinang	1600	56.3	960	93.5	1193	91.9	1232	92.0	1682	94.8	1946	97.1	1262	96.8	1606	97.7
Putrajaya	185	50.3	182	95.3	201	81.7	191	76.7	254	90.7	299	92.3	335	96.3	367	94.1
Kota Kinabalu	137	29.3	326	67.2	212	64.8	384	97.0	500	98.4	640	97.3	703	97.4	918	96.0
Selayang	821	48.0	1011	90.7	995	78.8	1026	86.8	1219	87.0	1305	91.1	1388	90.4	1088	93.5
Serdang	-	-	313	55.0	382	57.4	388	67.2	310	60.5	291	46.5	434	62.7	415	42.7
Sibu	0	33.3	0	0.0	1	0.4	1	0.3	2	0.4	3	0.6	394	59.7	630	76.1
Sri Manjung	-	-	10	7.0	45	13.1	83	25.9	194	51.2	224	53.8	304	66.7	556	70.7
Sultan Ismail	-	-	1	1.0	8	4.6	1	0.5	1	0.4	2	0.7	1	0.4	0	0.0
Johor Bahru	151	37.3	48	3.2	44	3.3	42	3.5	45	3.7	14	1.4	26	2.5	75	6.0
Sungai Buloh	-	-	99	78.0	230	74.4	312	81.0	392	85.4	377	85.9	422	82.9	376	65.7
Sungei Petani	181	44.3	5	1.0	2	0.4	3	0.5	59	11.0	377	47.3	291	35.7	366	41.2
Taiping	241	42.7	54	20.5	46	12.7	95	16.4	117	13.9	130	14.3	516	48.5	621	50.1
Tawau	2	33.1	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4
Teluk Intan	384	57.0	2	0.3	66	11.5	1	0.2	1	0.1	5	0.8	3	0.5	6	0.9
Temerloh	-	-	1	0.2	5	1.0	2	0.3	1	0.2	151	22.3	438	52.4	456	53.3
Kuantan	289	52.3	7	30.4	50	14.8	20	7.9	28	5.1	38	5.9	168	26.5	280	48.6
Klang	31	34.0	11	1.1	22	1.9	65	7.5	87	9.6	159	17.9	373	28.2	631	41.1
Seremban	792	46.7	589	70.3	399	69.3	789	85.3	1241	89.4	1433	93.7	1410	96.4	1405	96.8
Kuching	1209	61.3	863	91.0	893	93.6	809	95.2	1096	95.0	1055	97.1	1547	97.7	1575	97.9
Kemaman															44	100.0
Sarikei															274	96.1
KK1M East Coast															2	3.2
KK1M Sarawak															74	98.7
MAIWP															0	0.0

Figure 1.3.6(a): Distribution of Cataract Surgery Performed as Day Care by SDP, CSR 2013

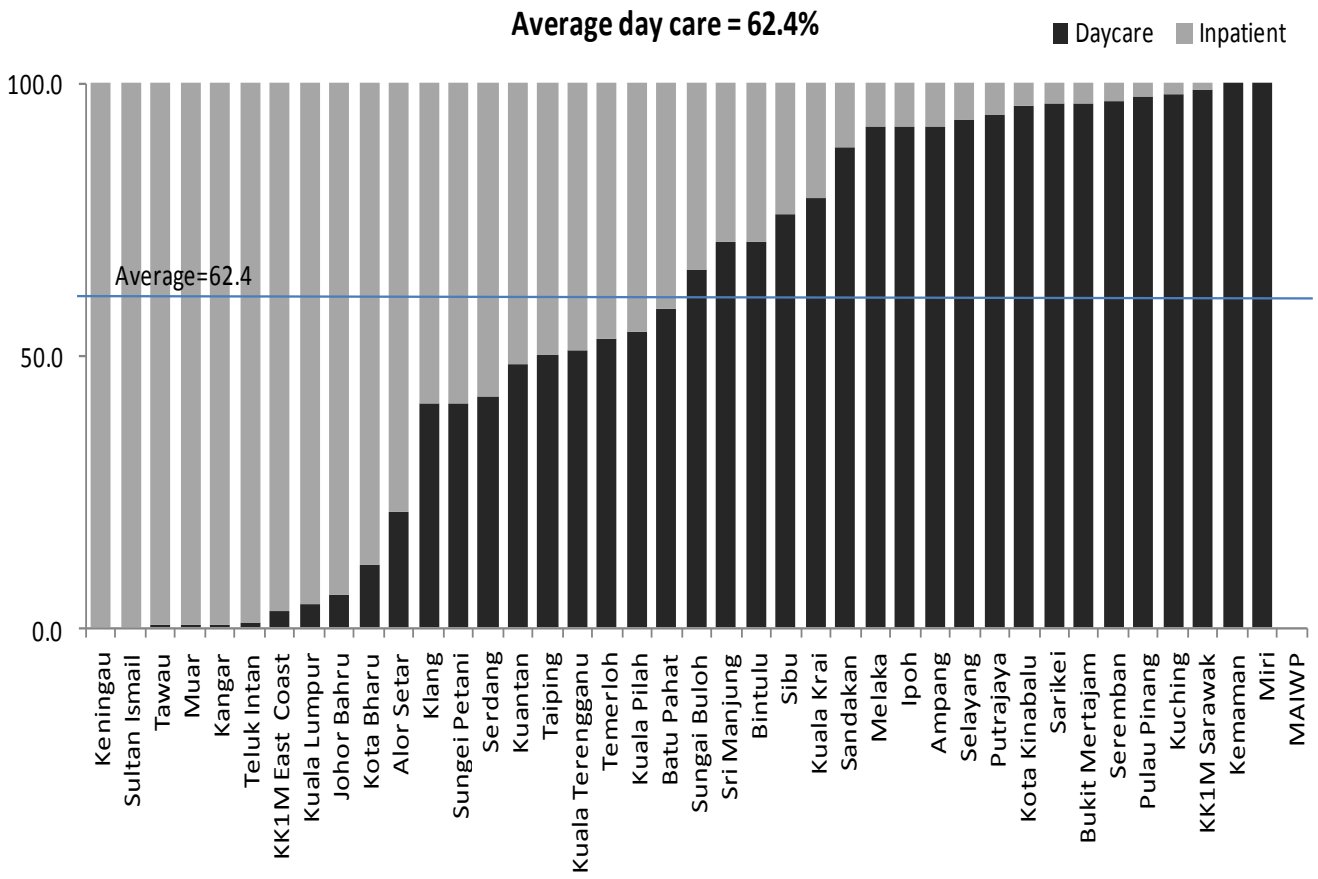


Figure 1.3.6(b): Distribution of Cataract Surgery Performed as Day Care and In-patient by SDP (Excluding Surgery Done in Children and Combined Surgery), CSR 2013

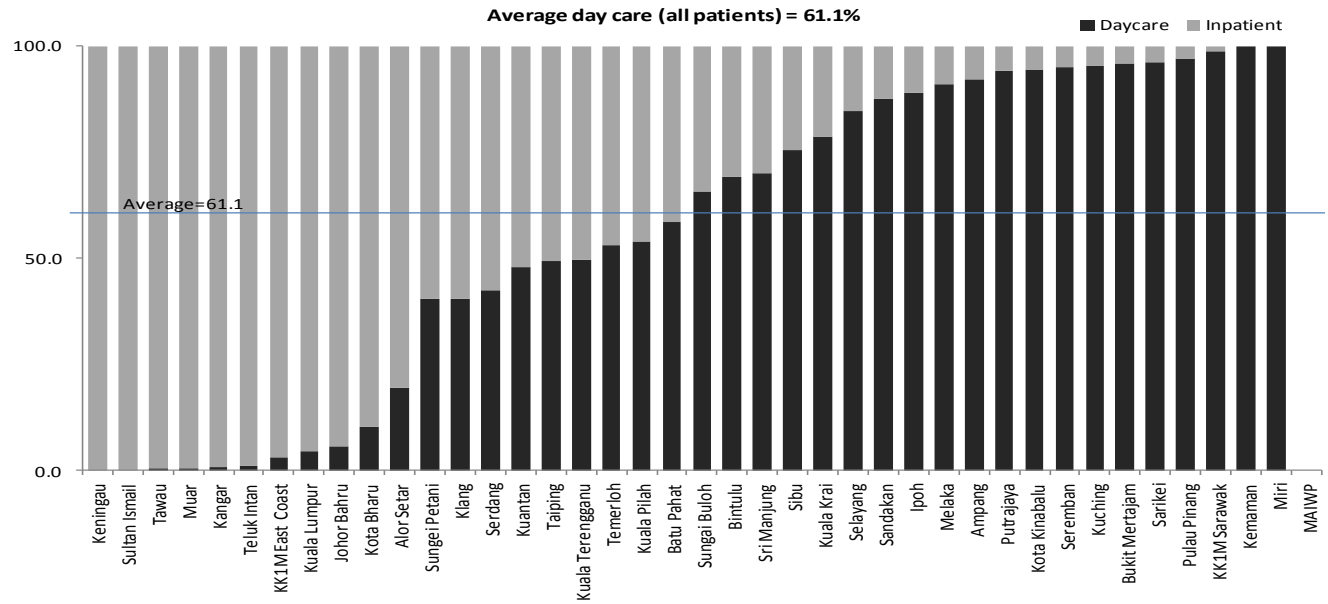
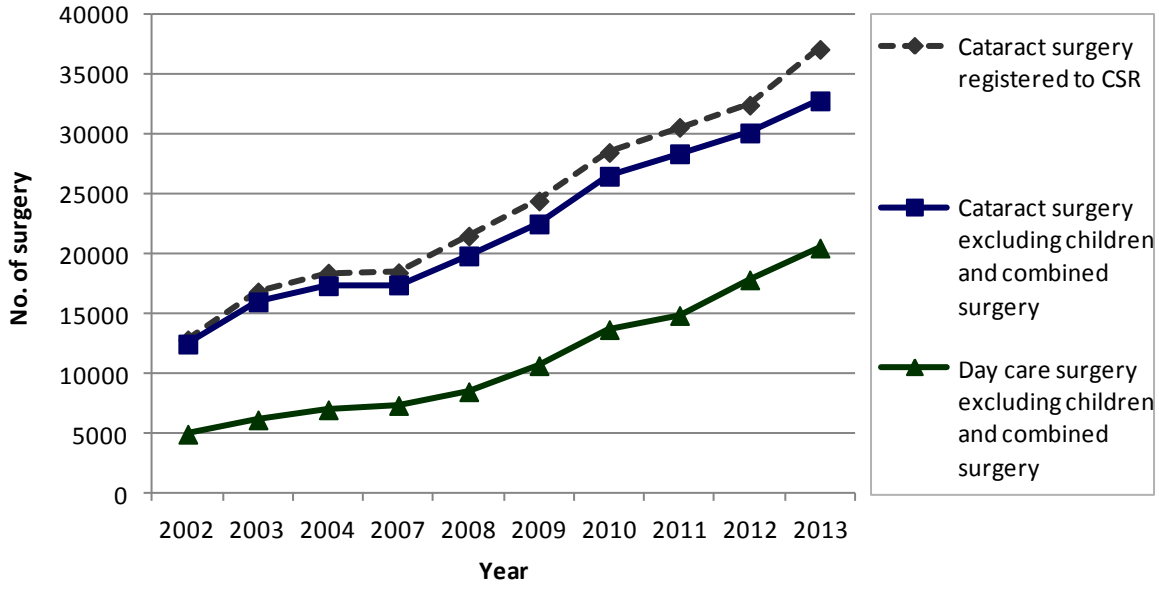


Figure 1.3.6(c): Distribution of Cataract Surgeries Performed as Day Care all SDPs (Excluding Surgery Done in Children and Combined Surgery), CSR 2002-2013



1.3.7 Distribution of Types of Cataract Surgery

There is a shift from ECCE to phaco as the preferred method of performing cataract surgery. The percentage of phaco converted to ECCE, the proxy indicator for competency in performing phaco surgery, remained the same over the years.

Table 1.3.7(a): Distribution of Types of Cataract Surgery, CSR 2002-2013

Year	2002-2004		2007		2008*		2009		2010		2011		2012		2013	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Phaco	22041	45.9	11960	65.1	14781	69.1	17717	72.5	21810	76.5	23872	78.0	26345	81.1	31625	85.1
ECCE	22756	47.4	5524	30.1	5627	26.3	5457	22.3	5363	18.8	5291	17.3	4784	14.7	4086	11.0
Lens Aspiration	1357	2.8	323	1.8	340	1.6	400	1.6	451	1.6	460	1.5	444	1.4	364	1.0
Phaco converted to ECCE	1234	2.6	432	2.4	524	2.4	573	2.3	586	2.1	652	2.1	621	1.9	769	2.1
ICCE	278	0.6	141	0.8	129	0.6	134	0.5	143	0.5	123	0.4	136	0.4	173	0.5

Figure 1.3.7: Distribution of Phacoemulsification, ECCE and Phaco Converted to ECCE, CSR 2002-2012

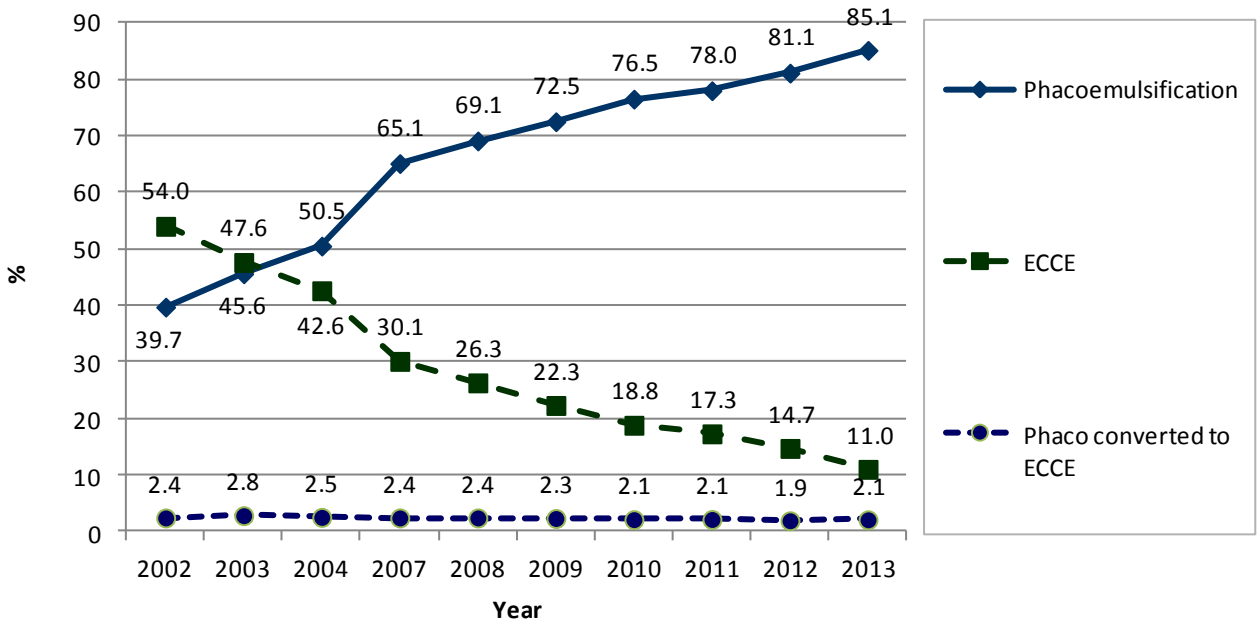


Table 1.3.7(b): Distribution of Types of Cataract Surgery by SDP, CSR 2013

	Type of Cataract Surgery											
	All Surgeries		Phaco		ECCE		Lens Aspiration		Phaco Converted to ECCE		ICCE	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	37150	100.0	31625	85.1	4086	11.0	364	1.0	769	2.1	173	0.5
Alor Setar	1,758	100.0	1,358	77.2	338	19.2	30	1.7	21	1.2	5	0.3
Ampang	983	100.0	822	83.6	118	12.0	14	1.4	24	2.4	4	0.4
Batu Pahat	433	100.0	332	76.7	81	18.7	5	1.2	14	3.2	1	0.2
Bintulu	383	100.0	357	93.2	14	3.7	2	0.5	7	1.8	1	0.3
Bukit Mertajam	909	100.0	620	68.2	277	30.5	4	0.4	3	0.3	3	0.3
Sandakan	411	100.0	354	86.1	45	10.9	5	1.2	6	1.5	0	0.0
Ipoh	3,032	100.0	2,801	92.4	146	4.8	8	0.3	27	0.9	10	0.3
Kangar	466	100.0	421	90.3	34	7.3	1	0.2	6	1.3	3	0.6
Keningau	15	100.0	6	40.0	9	60.0	0	0.0	0	0.0	0	0.0
Kota Bharu	682	100.0	386	56.6	246	36.1	19	2.8	24	3.5	7	1.0
Kuala Krai	397	100.0	350	88.2	24	6.0	5	1.3	13	3.3	4	1.0
Kuala Lumpur	1,150	100.0	956	83.1	163	14.2	7	0.6	16	1.4	2	0.2
Kuala Pilah	492	100.0	416	84.6	44	8.9	9	1.8	18	3.7	2	0.4
Kuala Terengganu	1014	100.0	778	76.7	185	18.2	31	3.1	9	0.9	11	1.1
Melaka	1,719	100.0	1,395	81.2	279	16.2	19	1.1	10	0.6	9	0.5
Miri	915	100.0	892	97.5	11	1.2	7	0.8	1	0.1	3	0.3
Muar	717	100.0	647	90.2	41	5.7	14	2.0	12	1.7	1	0.1
Pulau Pinang	1,696	100.0	1,589	93.7	47	2.8	6	0.4	43	2.5	4	0.2
Putrajaya	391	100.0	303	77.5	48	12.3	9	2.3	30	7.7	1	0.3
Kota Kinabalu	978	100.0	694	71.0	223	22.8	25	2.6	29	3.0	6	0.6
Selayang	1,337	100.0	1,233	92.2	43	3.2	16	1.2	31	2.3	10	0.7
Serdang	1023	100.0	836	81.7	128	12.5	15	1.5	40	3.9	4	0.4
Sibu	900	100.0	835	92.8	34	3.8	2	0.2	20	2.2	8	0.9
Sri Manjung	832	100.0	799	96.0	14	1.7	2	0.2	4	0.5	4	0.5
Sultan Ismail	374	100.0	276	73.8	63	16.8	8	2.1	26	7.0	1	0.3
Johor Bahru	1,350	100.0	1,261	93.4	44	3.3	12	0.9	20	1.5	10	0.7
Sungai Buloh	580	100.0	450	77.6	89	15.3	15	2.6	23	4.0	3	0.5
Sungei Petani	930	100.0	704	75.7	167	18.0	11	1.2	30	3.2	15	1.6
Taiping	1,284	100.0	1060	82.6	206	16.0	4	0.3	14	1.1	0	0.0
Tawau	503	100.0	133	26.4	308	61.2	4	0.8	54	10.7	3	0.6
Teluk Intan	1102	100.0	963	87.4	109	9.9	8	0.7	15	1.4	6	0.5
Temerloh	866	100.0	718	82.9	81	9.4	7	0.8	53	6.1	6	0.7
Kuantan	619	100.0	450	72.7	140	22.6	6	1.0	17	2.7	2	0.3
Klang	1,612	100.0	1,476	91.6	64	4.0	18	1.1	32	2.0	12	0.7
Seremban	1,520	100.0	1,363	89.7	128	8.4	4	0.3	17	1.1	4	0.3
Kuching	1,721	100.0	1,648	95.8	33	1.9	8	0.5	24	1.4	5	0.3
Kemaman	47	100.0	37	78.7	9	19.1	0	0.0	1	2.1	0	0.0
Sarikei	286	100.0	281	98.3	2	0.7	0	0.0	2	0.7	0	0.0
KK1M East Coast	64	100.0	47	73.4	11	17.2	0	0.0	5	7.8	1	1.6
KK1M Sarawak	76	100.0	74	97.4	1	1.3	0	0.0	1	1.3	0	0.0
MAIWP	1,583	100.0	1,504	95.0	39	2.5	4	0.3	27	1.7	2	0.1

Table 1.3.7(c): Distribution of Phacoemulsification by SDP, CSR 2002-2013

Years	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	22041	45.3	11960	65.1	14781	69.1	17717	72.5	21810	76.5	23872	78.0	26345	81.1	31625	85.1
Alor Setar	1081	34.0	240	58.4	715	72.9	702	63.2	1147	75.1	1510	77.9	1451	79.1	1358	77.2
Ampang	-	-	3	75.0	75	36.1	308	71.1	558	89.0	661	93.4	779	86.9	822	83.6
Batu Pahat	516	44.0	453	81.6	451	79.1	443	73.6	307	74.7	425	76.7	447	73.5	332	76.7
Bintulu	-	-	-	-	9	31.0	75	60.5	183	70.9	241	72.6	245	62.7	357	93.2
Bukit Mertajam	879	71.5	403	59.2	163	33.5	462	62.2	503	62.6	427	53.2	564	60.8	620	68.2
Sandakan	0	0.0	NA	NA	0	0.0	0	0.0	4	1.9	21	7.7	104	39.2	354	86.1
Ipoh	654	25.0	1117	71.4	1434	83.6	1801	84.3	1913	87.0	1496	81.9	2596	88.5	2801	92.4
Kangar	547	20.3	91	28.1	303	75.9	367	92.0	342	85.5	375	93.1	412	90.7	421	90.3
Keningau	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	40.0
Kota Bharu	511	32.0	406	49.9	383	51.8	538	59.1	604	62.9	580	61.3	367	67.3	386	56.6
Kuala Krai	-	-	0	0.0	78	45.9	85	48.6	168	77.4	211	87.9	222	89.9	350	88.2
Kuala Lumpur	984	46.3	NA	NA	25	62.5	925	65.8	1141	69.2	1091	67.3	1208	79.7	956	83.1
Kuala Pilah	3	0.7	24	11.4	58	20.6	73	25.2	149	46.3	376	77.8	361	84.1	416	84.6
Kuala Terengganu	632	41.0	242	46.5	429	59.4	473	63.7	453	63.4	517	67.1	537	70.2	778	76.7
Melaka	1627	57.0	1152	75.9	1335	80.3	1111	80.1	1295	78.1	1315	80.1	1203	80.8	1395	81.2
Miri	-	-	7	46.7	296	74.7	392	97.0	556	96.4	593	90.3	849	94.2	892	97.5
Muar	1184	62.3	281	80.1	236	70.7	452	83.4	526	85.3	616	89.0	608	91.4	647	90.2
Pulau Pinang	1282	51.3	751	68.1	1116	82.3	1208	87.9	1707	91.0	2077	95.0	1260	94.7	1589	93.7
Putrajaya	118	20.7	93	45.8	166	64.8	186	74.1	200	70.9	263	79.9	271	76.3	303	77.5
Kota Kinabalu	1205	49.7	346	65.4	260	74.3	331	76.4	481	77.1	534	77.8	529	69.3	694	71.0
Selayang	1702	73.5	1305	92.4	1291	91.0	1255	88.5	1542	90.8	1619	87.1	1625	88.8	1233	92.2
Serdang	-	-	412	68.1	521	75.0	483	80.8	371	71.3	466	70.0	564	79.5	836	81.7
Sibu	526	17.7	0	0.0	0	0.0	126	32.6	386	84.8	376	74.5	683	91.7	835	92.8
Sri Manjung	-	-	14	9.3	111	31.7	203	62.1	314	81.1	344	81.9	412	88.4	799	96.0
Sultan Ismail	-	-	64	63.4	114	63.7	131	70.8	172	66.7	189	66.8	208	74.6	276	73.8
Johor Bahru	1196	48.3	1418	91.9	1293	94.0	1166	88.5	1274	92.5	986	87.5	1069	89.5	1261	93.4
Sungai Buloh	-	-	121	82.9	271	85.2	272	70.3	346	73.9	371	82.4	419	81.5	450	77.6
Sungei Petani	855	55.3	410	82.5	483	76.4	580	84.8	455	81.5	662	81.6	604	71.5	704	75.7
Taiping	293	26.3	100	35.8	169	44.6	440	71.9	552	62.1	618	64.8	885	79.2	1060	82.6
Tawau	220	19.7	0	0.0	3	1.0	0	0.0	0	0.0	0	0.0	1	0.2	133	26.4
Teluk Intan	875	56.0	435	64.8	358	60.9	465	76.0	564	81.7	571	86.1	505	82.0	963	87.4
Temerloh	-	-	210	47.3	354	67.0	393	61.4	317	70.4	537	78.9	717	82.6	718	82.9
Kuantan	854	52.7	22	91.7	314	80.9	218	74.4	448	72.8	533	78.4	555	81.1	450	72.7
Klang	804	36.7	570	55.0	655	53.8	486	53.8	617	61.3	907	85.5	1224	86.7	1476	91.6
Seremban	623	24.0	589	61.9	610	68.9	912	74.2	1249	82.2	1368	85.2	1315	84.3	1363	89.7
Kuching	1359	52.7	680	68.0	702	69.4	654	73.2	966	80.0	996	88.1	1546	93.3	1648	95.8
Kemaman															37	78.7
Sarikei															281	98.3
KK1M East Coast															47	73.4
KK1M Sarawak															74	97.4
MAIWP															1504	95.0

Table 1.3.7(d): Distribution of ECCE by SDP, CSR 2002-2013

Years	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	22756	48.3	5524	30.1	5627	26.3	5457	22.3	5363	18.8	5291	17.3	4784	14.7	4086	11.0
Alor Setar	1916	61.0	160	38.9	247	25.2	349	31.4	310	20.3	349	18.0	294	16.0	338	19.2
Ampang	-	-	1	25.0	106	51.0	102	23.6	38	6.1	28	4.0	72	8.0	118	12.0
Batu Pahat	600	50.5	83	15.0	95	16.7	130	21.6	78	19.0	104	18.8	111	18.3	81	18.7
Bintulu	-	-	-	-	19	65.5	38	30.6	70	27.1	83	25.0	136	34.8	14	3.7
Bukit Mertajam	235	20.0	265	38.9	315	64.7	265	35.7	284	35.3	350	43.6	338	36.4	277	30.5
Sandakan	372	97.3	NA	NA	130	99.2	154	97.5	191	91.8	231	85.2	148	55.8		0.0
Ipoh	1409	70.3	396	25.3	240	14.0	238	11.1	208	9.5	193	10.6	250	8.5	146	4.8
Kangar	1110	74.3	223	68.8	86	21.6	18	4.5	46	11.5	19	4.7	27	5.9	34	7.3
Keningau	-	-	-	-	33	97.1	28	90.3	72	94.7	51	98.1	17	100.0	9	60.0
Kota Bharu	789	59.3	337	41.4	302	40.9	302	33.2	280	29.2	287	30.3	141	25.9	246	36.1
Kuala Krai	-	-	119	95.2	81	47.6	82	46.9	33	15.2	15	6.3	16	6.5	24	6.0
Kuala Lumpur	859	43.7	NA	NA	12	30.0	403	28.7	447	27.1	454	28.0	263	17.3	163	14.2
Kuala Pilah	300	64.0	164	77.7	190	67.6	175	60.3	137	42.5	81	16.8	52	12.1	44	8.9
Kuala Terengganu	492	46.3	243	46.7	238	33.0	226	30.4	207	29.0	201	26.1	177	23.1	185	18.2
Melaka	967	36.7	307	20.2	271	16.3	205	14.8	283	17.1	274	16.7	248	16.7	279	16.2
Miri	-	-	7	46.7	95	24.0	10	2.5	15	2.6	48	7.3	28	3.1	11	1.2
Muar	803	32.3	49	14.0	81	24.3	52	9.6	44	7.1	38	5.5	19	2.9	41	5.7
Pulau Pinang	1113	42.0	270	24.5	177	13.1	124	9.0	127	6.8	68	3.1	34	2.6	47	2.8
Putrajaya	301	75.0	104	51.2	79	30.9	57	22.7	65	23.0	42	12.8	48	13.5	48	12.3
Kota Kinabalu	1016	42.0	155	29.3	74	21.1	62	14.3	117	18.8	96	14.0	163	21.4	223	22.8
Selayang	445	20.0	44	3.1	70	4.9	106	7.5	80	4.7	116	6.2	75	4.1	43	3.2
Serdang	-	-	151	25.0	133	19.1	79	13.2	113	21.7	156	23.4	109	15.4	128	12.5
Sibu	1009	76.0	372	97.1	257	97.7	258	66.7	48	10.5	96	19.0	43	5.8	34	3.8
Sri Manjung	-	-	134	88.7	233	66.6	122	37.3	71	18.3	65	15.5	40	8.6	14	1.7
Sultan Ismail	-	-	32	31.7	61	34.1	49	26.5	72	27.9	83	29.3	55	19.7	63	16.8
Johor Bahru	955	45.0	53	3.4	30	2.2	55	4.2	27	2.0	72	6.4	69	5.8	44	3.3
Sungai Buloh	-	-	8	5.5	25	7.9	88	22.7	89	19.0	54	12.0	63	12.3	89	15.3
Sungei Petani	528	36.3	57	11.5	99	15.7	58	8.5	70	12.5	101	12.5	204	24.1	167	18.0
Taiping	574	67.7	159	57.0	194	51.2	154	25.2	303	34.1	315	33.1	208	18.6	206	16.0
Tawau	604	75.7	196	97.5	305	97.1	292	98.0	380	94.8	557	96.9	634	97.8	308	61.2
Teluk Intan	558	39.3	222	33.1	193	32.8	111	18.1	92	13.3	72	10.9	86	14.0	109	9.9
Temerloh	-	-	210	47.3	138	26.1	204	31.9	104	23.1	79	11.6	87	10.0	81	9.4
Kuantan	741	40.7	1	4.2	37	9.5	46	15.7	114	18.5	98	14.4	89	13.0	140	22.6
Klang	834	54.7	403	38.9	499	41.0	368	40.7	341	33.9	120	11.3	146	10.3	64	4.0
Seremban	1208	70.3	319	33.5	219	24.7	261	21.2	226	14.9	194	12.1	207	13.3	128	8.4
Kuching	988	38.0	276	27.6	263	26.0	186	20.8	181	15.0	101	8.9	87	5.3	33	1.9
Kemaman															9	19.1
Sarikei															2	0.7
KK1M East Coast															11	17.2
KK1M Sarawak															1	1.3
MAIWP															39	2.5

1.3.8 Distribution of Combined Surgery

Table 1.3.8(a): Distribution of Combined Surgery all SDP, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any types of combined surgeries	1689	3.5	891	4.8	664	3.1	871	3.6	1082	3.8	1194	3.9	1221	3.8	1026	3.8
Specific types of combined surgery																
Pterygium Surgery	353	0.7	135	0.7	94	0.4	100	0.4	99	0.3	133	0.4	111	0.3	83	0.2
Filtering Glaucoma Surgery	593	1.2	131	0.7	142	0.7	132	0.5	121	0.4	64	0.2	71	0.2	114	0.3
Vitreoretinal Surgery	312	0.6	435	2.4	237	1.1	402	1.6	601	2.1	672	2.2	585	1.8	536	1.4
Penetrating Keratoplasty	4	0.0	0	0.0	3	0.0	6	0.0	2	0.0	1	0.0	3	0.0	2	0.0
Others	443	0.9	190	1.0	188	0.9	259	1.1	272	1.0	344	1.1	477	1.5	311	0.8

Figure 1.3.8(a): Distribution of Specific Combined Surgery, CSR 2002-2013

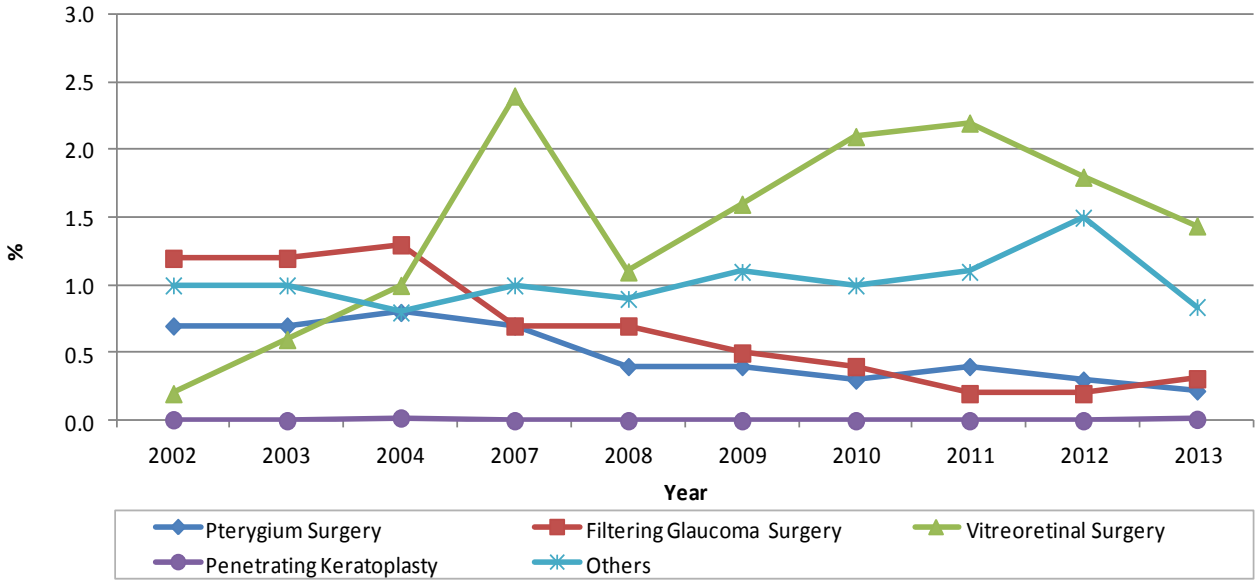


Table 1.3.8(b): Distribution of Combined Surgery by SDP, CSR 2013

	Combined Surgery												
	All Surgeries	Any Combined Surgery		Pterygium Surgery		Filtering Surgery		Vitreo-Retinal Surgery		Penetrating Keratoplasty		Others	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	37150	1026	2.8	83	0.2	114	0.3	536	1.4	2	0.0	311	0.8
Alor Setar	1758	145	8.2	5	0.3	7	0.4	108	6.1	0	0.0	38	2.2
Ampang	983	15	1.5	1	0.1	14	1.4	0	0.0	0	0.0	0	0.0
Batu Pahat	433	6	1.4	0	0.0	2	0.5	1	0.2	0	0.0	4	0.9
Bintulu	383	30	7.8	14	3.7	0	0.0	0	0.0	0	0.0	17	4.4
Bukit Mertajam	909	13	1.4	0	0.0	3	0.3	0	0.0	0	0.0	10	1.1
Sandakan	411	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ipoh	3032	164	5.4	4	0.1	36	1.2	108	3.6	1	0.0	15	0.5
Kangar	466	3	0.6	2	0.4	1	0.2	0	0.0	0	0.0	0	0.0
Keningau	15	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	682	50	7.3	0	0.0	3	0.4	39	5.7	0	0.0	8	1.2
Kuala Krai	397	18	4.5	0	0.0	1	0.3	1	0.3	0	0.0	16	4.0
Kuala Lumpur	1150	8	0.7	3	0.3	0	0.0	4	0.3	0	0.0	1	0.1
Kuala Pilah	492	3	0.6	0	0.0	0	0.0	0	0.0	0	0.0	3	0.6
Kuala Terengganu	1014	44	4.3	14	1.4	3	0.3	6	0.6	0	0.0	23	2.3
Melaka	1719	32	1.9	2	0.1	18	1.0	7	0.4	0	0.0	5	0.3
Miri	915	2	0.2	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1
Muar	717	14	2.0	2	0.3	4	0.6	0	0.0	0	0.0	8	1.1
Pulau Pinang	1696	19	1.1	2	0.1	2	0.1	9	0.5	0	0.0	6	0.4
Putrajaya	391	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Kinabalu	978	5	0.5	1	0.1	0	0.0	3	0.3	0	0.0	1	0.1
Selayang	1337	153	11.4	0	0.0	5	0.4	100	7.5	0	0.0	48	3.6
Serdang	1023	4	0.4	0	0.0	0	0.0	0	0.0	0	0.0	4	0.4
Sibu	900	6	0.7	0	0.0	0	0.0	1	0.1	0	0.0	5	0.6
Sri Manjung	832	11	1.3	5	0.6	4	0.5	0	0.0	0	0.0	2	0.2
Sultan Ismail	374	1	0.3	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
Johor Bahru	1350	64	4.7	1	0.1	1	0.1	47	3.5	0	0.0	15	1.1
Sungai Buloh	580	3	0.5	0	0.0	0	0.0	0	0.0	1	0.2	2	0.3
Sungei Petani	930	11	1.2	2	0.2	0	0.0	0	0.0	0	0.0	9	1.0
Taiping	1284	42	3.3	5	0.4	8	0.6	0	0.0	0	0.0	29	2.3
Tawau	503	14	2.8	11	2.2	0	0.0	0	0.0	0	0.0	4	0.8
Teluk Intan	1102	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Temerloh	866	2	0.2	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1
Kuantan	619	12	1.9	0	0.0	0	0.0	11	1.8	0	0.0	1	0.2
Klang	1612	13	0.8	0	0.0	1	0.1	0	0.0	0	0.0	12	0.7
Seremban	1520	51	3.4	1	0.1	0	0.0	34	2.2	0	0.0	18	1.2
Kuching	1721	64	3.7	2	0.1	1	0.1	56	3.3	0	0.0	5	0.3
Kemaman	47	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sarikei	286	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M East Coast	64	2	3.1	1	1.6	0	0.0	1	1.6	0	0.0	0	0.0
KK1M Sarawak	76	1	1.3	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0
MAIWP	1583	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

1.3.9 Anaesthesia in Cataract Surgery

Majority of cataract surgeries were done under local anaesthesia (LA). There was a shift from subtenon to topical anaesthesia as the preferred method of LA. By excluding combined surgeries, even though subtenon or topical anaesthesia were preferred in most centers, retrobulbar or peribulbar were still used in a large percentage of eyes in certain hospitals.

Table 1.3.9.1(a): Types of Anaesthesia all SDPs, CSR 2002-2013

Year	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
General Anesthesia	3333	6.9	1207	6.6	1223	5.7	1578	6.5	1884	6.6	1845	6.0	2117	6.5	2229	6.0
Local Anesthesia	44672	93.1	17143	93.4	20188	94.3	22776	93.2	26440	92.8	28634	93.5	30215	93.1	34622	93.2
Type of local anasthesia																
Subtenon	22983	51.4	9990	58.3	11014	54.6	11525	50.6	10952	41.4	10512	36.7	9849	32.6	9913	28.6
Topical	8203	18.4	4853	28.3	6680	33.1	8382	36.8	13112	49.6	16825	58.8	18461	61.1	22220	64.2
Peribulbar	8116	18.2	1282	7.5	1227	6.1	1244	5.5	881	3.3	440	1.5	279	0.9	308	0.9
Retrobulbar	8238	18.4	1031	6.0	1182	5.9	1037	4.6	864	3.3	808	2.8	667	2.2	503	1.5
Intracameral	NA	NA	249	1.5	710	3.5	1596	7.0	2587	9.8	2933	10.2	3419	11.3	4733	13.7
Subconjunctival	308	0.7	232	1.4	251	1.2	437	1.9	898	3.4	771	2.7	1266	4.2	1338	3.9
Facial block	2439	5.5	20	0.1	143	0.7	95	0.4	40	0.2	43	0.2	21	0.1	24	0.1
Others	13	0.0	0	0.0	NA	NA	0	0.0	NA	NA	NA	NA	NA	NA	NA	NA
Combined local anaesthesia	5346	12.0	720	4.2	1274	6.3	1918	8.4	3182	12.0	4038	14.1	4375	14.5	4868	14.1
Types of sedation for patients under local anaesthesia																
No sedation	33559	75.1	9668	56.4*	11234	55.6	12809	56.2	15970	60.4	18646	65.1	19379	64.1	18685	54.0
Oral sedation alone	10078	22.6	2387	13.9	2923	14.5	3532	15.5	3171	12.0	2852	10.0	1810	6.0	1391	4.0
Intravenous alone	343	0.8	72	0.4	37	0.2	35	0.2	22	0.1	27	0.1	36	0.1	31	0.1
ntravenous plus oral	151	0.3	0	0.0	NA	NA	NA	NA	2	0.0	6	0.0	6	0.0	1	0.0
ntramuscular alone	791	1.8	3	0.0	121	0.6	52	0.2	0	0.0	3	0.0	2	0.0	18	0.1

**There was a significant percentage of missing values in sedation for 2007; these missing values may be in 'no sedation' category where data were not entered.*

Table 1.3.9.2(a): Types of Anaesthesia all SDPs and more 50yrs, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No of patients (N)	42901		16715		19709		22496		26336		28425		30228		34815	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
General Anesthesia	1506	3.5	628	3.8	681	3.5	950	6.5	1184	4.5	1173	4.1	1412	4.7	1545	4.4
Local Anesthesia	41395	96.5	16018	95.8	18946	96.1	21468	93.2	24981	94.9	27131	95.5	28689	94.9	32985	94.7
Type of local anasthesia																
Subtenon	21365	51.6	9397	58.7	10354	54.7	10861	50.6	10338	41.4	9979	36.8	9340	32.6	9435	28.6
Topical	7544	18.2	4510	28.2	6274	33.1	7952	37.0	12473	49.9	16003	59.0	17557	61.2	21203	64.3
Peribulbar	7449	18.0	1224	7.6	1159	6.1	1173	5.5	842	3.4	415	1.5	257	0.9	287	0.9
Retrobulbar	7658	18.5	905	5.6	1084	5.7	921	4.3	749	3.0	665	2.5	573	2.0	430	1.3
Intracameral	NA	NA	231	1.4	685	3.6	1527	7.1	2447	9.8	2818	10.4	3287	11.5	4539	13.8
Subconjunctival	286	0.7	218	1.4	233	1.2	412	1.9	847	3.4	721	2.7	1200	4.2	1272	3.9
Facial block	2278	5.5	20	0.1	134	0.7	86	0.4	39	0.2	40	0.1	20	0.1	24	0.1
Others	2	0.0	0	0.0	NA	NA	0	0.0	NA	NA	NA	NA	NA	NA	NA	NA
Combined local anaesthesia	4939	11.9	672	4.2	1219	6.4	1815	8.5	3030	12.1	3830	14.1	4135	14.4	4645	14.1
Types of sedation for patients under local anaesthesia																
No sedation	32243	77.9	9027	56.4	10524	55.5	12056	56.2	15019	60.1	17616	64.9	18386	64.1	17810	54.0
Oral sedation alone	9388	22.7	2264	14.1	2798	14.8	3355	15.6	3055	12.2	2731	10.1	1748	6.1	1339	4.1
Intravenous alone	310	0.7	55	0.3	37	0.2	29	0.1	18	0.1	23	0.1	34	0.1	28	0.1
Intravenous plus oral	134	0.3	0	0.0	NA	NA	NA	NA	2	0.0	5	0.0	6	0.0	1	0.0
Intramuscular alone	738	1.8	3	0.0	114	0.6	47	0.2	0	0.0	2	0.0	2	0.0	17	0.1

Figure 1.3.9: Types of Anaesthesia all SDPs, CSR 2002-2013

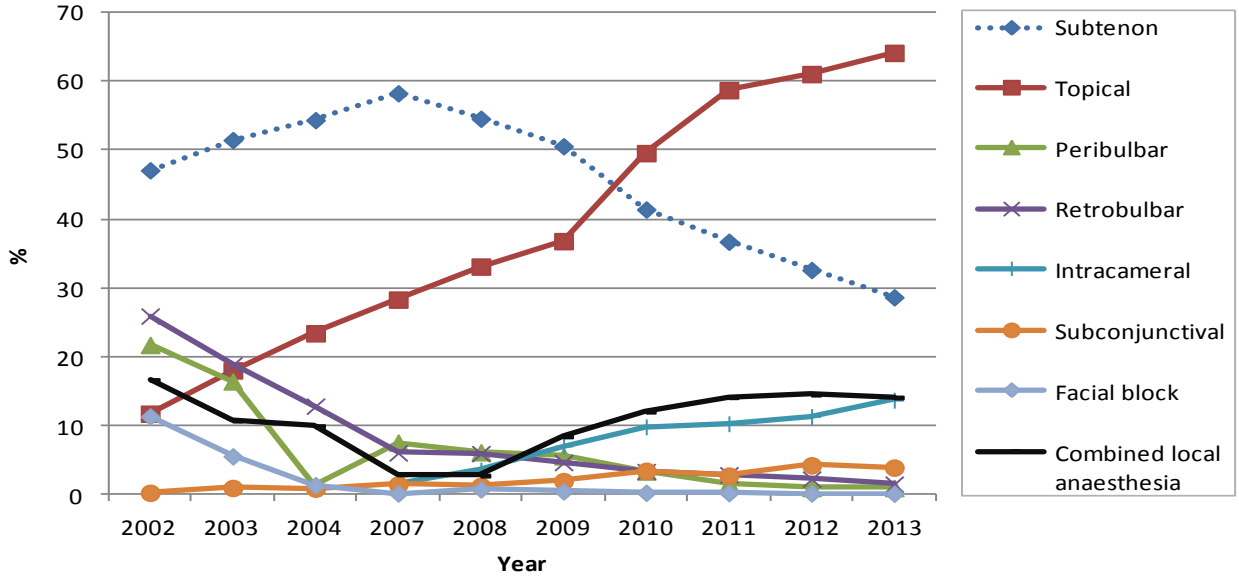


Table 1.3.9.1(b): Types of Anaesthesia by SDPs, CSR 2013

Types of Anaesthesia					
		General		Local	
	N	n	%	n	%
All Centres	37150	2229	6.0	34622	93.2
Alor Setar	1758	286	16.3	1470	83.6
Ampang	983	36	3.7	943	95.9
Batu Pahat	433	15	3.5	417	96.3
Bintulu	383	2	0.5	378	98.7
Bukit Mertajam	909	21	2.3	888	97.7
Sandakan	411	8	1.9	401	97.6
Ipoh	3,032	285	9.4	2,662	87.8
Kangar	466	0	0.0	464	99.6
Keningau	15	0	0.0	14	93.3
Kota Bharu	682	42	6.2	638	93.5
Kuala Krai	397	5	1.3	388	97.7
Kuala Lumpur	1,150	147	12.8	1,000	87.0
Kuala Pilah	492	19	3.9	472	95.9
Kuala Terengganu	1,014	61	6.0	949	93.6
Melaka	1,719	91	5.3	1,625	94.5
Miri	915	8	0.9	905	98.9
Muar	717	33	4.6	684	95.4
Pulau Pinang	1,696	42	2.5	1,647	97.1
Putrajaya	391	18	4.6	371	94.9
Kota Kinabalu	978	54	5.5	923	94.4
Selayang	1,337	18	1.3	1,308	97.8
Serdang	1,023	64	6.3	938	91.7
Sibu	900	6	0.7	893	99.2
Sri Manjung	832	33	4.0	790	95.0
Sultan Ismail	374	93	24.9	281	75.1
Johor Bahru	1,350	58	4.3	1,291	95.6
Sungai Buloh	580	101	17.4	479	82.6
Sungei Petani	930	44	4.7	877	94.3
Taiping	1,284	137	10.7	1,147	89.3
Tawau	503	4	0.8	482	95.8
Teluk Intan	1,102	21	1.9	1,075	97.5
Temerloh	866	16	1.8	848	97.9
Kuantan	619	134	21.6	480	77.5
Klang	1,612	200	12.4	1,369	84.9
Seremban	1,520	71	4.7	1,445	95.1
Kuching	1,721	55	3.2	1,628	94.6
Kemaman	47	0	0.0	46	97.9
Sarikei	286	1	0.3	284	99.3
KK1M East Coast	64	0	0.0	64	100.0
KK1M Sarawak	76	0	0.0	75	98.7
MAIWP	1,583	0	0.0	1,583	100.0

Table 1.3.9.2(b): Types of Anaesthesia by SDPs and 50yr above, CSR 2013

Types of Anaesthesia					
		General		Local	
	N	n	%	n	%
All Centres	34,815	1,545	4.4	32,985	94.7
Alor Setar	1,624	201	12.4	1,421	87.5
Ampang	922	17	1.8	901	97.7
Batu Pahat	413	7	1.7	405	98.1
Bintulu	347	0	0.0	344	99.1
Bukit Mertajam	849	9	1.1	840	98.9
Sandakan	374	2	0.5	370	98.9
Ipoh	2,871	227	7.9	2,562	89.2
Kangar	455	0	0.0	453	99.6
Keningau	14	0	0.0	14	100.0
Kota Bharu	616	16	2.6	599	97.2
Kuala Krai	374	1	0.3	369	98.7
Kuala Lumpur	1,090	127	11.7	960	88.1
Kuala Pilah	462	9	1.9	452	97.8
Kuala Terengganu	927	22	2.4	901	97.2
Melaka	1,610	62	3.9	1,545	96.0
Miri	867	2	0.2	863	99.5
Muar	663	19	2.9	644	97.1
Pulau Pinang	1,627	34	2.1	1,586	97.5
Putrajaya	367	7	1.9	358	97.5
Kota Kinabalu	889	20	2.2	868	97.6
Selayang	1,226	8	0.7	1,209	98.6
Serdang	956	48	5.0	888	92.9
Sibu	839	2	0.2	836	99.6
Sri Manjung	806	27	3.3	770	95.5
Sultan Ismail	355	81	22.8	274	77.2
Johor Bahru	1,230	39	3.2	1,190	96.7
Sungai Buloh	530	73	13.8	457	86.2
Sungei Petani	866	18	2.1	839	96.9
Taiping	1,217	108	8.9	1,109	91.1
Tawau	449	1	0.2	433	96.4
Teluk Intan	1,055	6	0.6	1,043	98.9
Temerloh	818	6	0.7	810	99.0
Kuantan	579	108	18.7	467	80.7
Klang	1,492	151	10.1	1,300	87.1
Seremban	1,448	49	3.4	1,395	96.3
Kuching	1,616	37	2.3	1,542	95.4
Kemaman	45	0	0.0	44	97.8
Sarikei	272	1	0.4	270	99.3
KK1M East Coast	60	0	0.0	60	100.0
KK1M Sarawak	75	0	0.0	74	98.7
MAIWP	1,520	0	0.0	1,520	100.0

Table 1.3.9.1(c): Types of Local Anaesthesia by SDPs, CSR 2013

	Local Anaesthesia																
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	34,622	503	1.5	308	0.9	9,913	28.6	1,338	3.9	24	0.1	22,220	64.2	4,733	13.7	4,868	14.1
Alor Setar	1,470	59	4.0	4	0.3	600	40.8	3	0.2	0	0.0	547	37.2	502	34.1	266	18.1
Ampang	943	0	0.0	0	0.0	117	12.4	2	0.2	1	0.1	908	96.3	836	88.7	905	96.0
Batu Pahat	417	2	0.5	2	0.5	166	39.8	232	55.6	0	0.0	15	3.6	0	0.0	0	0.0
Bintulu	378	0	0.0	0	0.0	374	98.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	888	2	0.2	0	0.0	275	31.0	2	0.2	0	0.0	0	0.0	611	68.8	5	0.6
Sandakan	401		0.0	1	0.2	24	6.0	1	0.2	0	0.0	367	91.5	0	0.0	7	1.7
Ipoh	2,662	61	2.3	4	0.2	448	16.8	161	6.0	7	0.3	2,417	90.8	985	37.0	1,331	50.0
Kangar	464	7	1.5	0	0.0	457	98.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	14	0	0.0	13	92.9	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	638	6	0.9	0	0.0	629	98.6	3	0.5	0	0.0	0	0.0	0	0.0	1	0.2
Kuala Krai	388	0	0.0	0	0.0	388	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	1,000	16	1.6	246	24.6	310	31.0	19	1.9	5	0.5	352	35.2	124	12.4	79	7.9
Kuala Pilah	472	0	0.0	0	0.0	208	44.1	4	0.8	0	0.0	236	50.0	1	0.2	12	2.5
Kuala Terengganu	949	1	0.1	0	0.0	215	22.7	5	0.5	2	0.2	765	80.6	17	1.8	57	6.0
Melaka	1,625	1	0.1	0	0.0	223	13.7	2	0.1	0	0.0	1,541	94.8	0	0.0	149	9.2
Miri	905	1	0.1	0	0.0	24	2.7	0	0.0	0	0.0	882	97.5	0	0.0	2	0.2
Muar	684	0	0.0	0	0.0	37	5.4	4	0.6	3	0.4	580	84.8	160	23.4	104	15.2
Pulau Pinang	1,647	9	0.5	2	0.1	165	10.0	1	0.1	0	0.0	1,525	92.6	5	0.3	81	4.9
Putrajaya	371	0	0.0	0	0.0	100	27.0	0	0.0	0	0.0	4	1.1	279	75.2	13	3.5
Kota Kinabalu	923	14	1.5	6	0.7	206	22.3	4	0.4	1	0.1	791	85.7	0	0.0	100	10.8
Selayang	1,308	140	10.7	4	0.3	260	19.9	7	0.5	0	0.0	969	74.1	129	9.9	232	17.7
Serdang	938	0	0.0	0	0.0	339	36.1	3	0.3	0	0.0	533	56.8	273	29.1	207	22.1
Sibu	893	3	0.3	0	0.0	11	1.2	0	0.0	0	0.0	889	99.6	0	0.0	10	1.1
Sri Manjung	790	0	0.0	0	0.0	9	1.1	0	0.0	0	0.0	781	98.9	0	0.0	1	0.1
Sultan Ismail	281	0	0.0	0	0.0	15	5.3	254	90.4	0	0.0	212	75.4	0	0.0	199	70.8
Johor Bahru	1,291	29	2.2	3	0.2	521	40.4	377	29.2	2	0.2	289	22.4	276	21.4	209	16.2
Sungai Buloh	479	0	0.0	0	0.0	373	77.9	12	2.5	0	0.0	62	12.9	7	1.5	9	1.9
Sungei Petani	877	1	0.1	0	0.0	229	26.1	1	0.1	0	0.0	711	81.1	1	0.1	74	8.4
Taiping	1,147	0	0.0	0	0.0	373	32.5	1	0.1	0	0.0	776	67.7	0	0.0	3	0.3
Tawau	482	0	0.0	2	0.4	380	78.8	1	0.2	0	0.0	94	19.5	0	0.0	2	0.4
Teluk Intan	1,075	1	0.1	1	0.1	1,063	98.9	0	0.0	0	0.0	17	1.6	0	0.0	16	1.5
Temerloh	848	1	0.1	1	0.1	403	47.5	1	0.1	1	0.1	337	39.7	78	9.2	206	24.3
Kuantan	480	111	23.1	0	0.0	366	76.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	1,369	6	0.4	1	0.1	45	3.3	2	0.1	1	0.1	1,298	94.8	0	0.0	29	2.1
Seremban	1,445	4	0.3	2	0.1	270	18.7	207	14.3	0	0.0	980	67.8	140	9.7	161	11.1
Kuching	1,628	16	1.0	16	1.0	56	3.4	3	0.2	1	0.1	1,592	97.8	12	0.7	69	4.2
Kemaman	46	6	13.0	0	0.0	8	17.4	1	2.2	0	0.0	29	63.0	1	2.2	1	2.2
Sarikei	284	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	280	98.6	0	0.0	0	0.0
KK1M East Coast	64	3	4.7	0	0.0	51	79.7	0	0.0	0	0.0	16	25.0	2	3.1	12	18.8
KK1M Sarawak	75	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	74	98.7	1	1.3	1	1.3
MAIWP	1,583	0	0.0	0	0.0	171	10.8	25	1.6	0	0.0	1,351	85.3	293	18.5	315	19.9

Table 1.3.9.2(c): Types of Local Anaesthesia by SDPs and 50yrs above, CSR 2013

	Local Anaesthesia															
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	32,985	430	1.3	287	0.9	9,435	28.6	1,272	3.9	24	0.1	21,203	64.3	4,539	13.8	4,645	14.1
Alor Setar	1,421	51	3.6	3	0.2	586	41.2	3	0.2	0	0.0	523	36.8	494	34.8	260	18.3
Ampang	901	0	0.0	0	0.0	114	12.7	1	0.1	1	0.1	867	96.2	798	88.6	864	95.9
Batu Pahat	405	2	0.5	2	0.5	163	40.2	224	55.3	0	0.0	14	3.5	0	0.0	0	0.0
Bintulu	344	0	0.0	0	0.0	342	99.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	840	2	0.2	0	0.0	265	31.5	2	0.2	0	0.0	0	0.0	573	68.2	5	0.6
Sandakan	370	2	0.5	1	0.3	23	6.2	1	0.3	0	0.0	339	91.6	0	0.0	7	1.9
Ipoh	2,562	47	1.8	4	0.2	430	16.8	152	5.9	7	0.3	2,333	91.1	956	37.3	1,282	50.0
Kangar	453	7	1.5	0	0.0	446	98.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	14	0	0.0	13	92.9	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	599	5	0.8	0	0.0	591	98.7	3	0.5	0	0.0	0	0.0	0	0.0	1	0.2
Kuala Krai	369	0	0.0	0	0.0	369	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	960	16	1.7	233	24.3	298	31.0	18	1.9	5	0.5	338	35.2	118	12.3	72	7.5
Kuala Pilah	452	0	0.0	0	0.0	195	43.1	4	0.9	0	0.0	229	50.7	1	0.2	11	2.4
Kuala Terengganu	901	1	0.1	0	0.0	198	22.0	5	0.6	2	0.2	732	81.2	17	1.9	54	6.0
Melaka	1,545	1	0.1	0	0.0	216	14.0	2	0.1	0	0.0	1,464	94.8	0	0.0	145	9.4
Miri	863	1	0.1	0	0.0	22	2.5	0	0.0	0	0.0	842	97.6	0	0.0	2	0.2
Muar	644	0	0.0	0	0.0	36	5.6	4	0.6	3	0.5	543	84.3	154	23.9	100	15.5
Pulau Pinang	1,586	7	0.4	2	0.1	153	9.6	1	0.1	0	0.0	1,473	92.9	5	0.3	76	4.8
Putrajaya	358	0	0.0	0	0.0	95	26.5	0	0.0	0	0.0	4	1.1	271	75.7	13	3.6
Kota Kinabalu	868	14	1.6	5	0.6	193	22.2	4	0.5	1	0.1	745	85.8	0	0.0	95	10.9
Selayang	1,209	108	8.9	4	0.3	244	20.2	6	0.5	0	0.0	907	75.0	119	9.8	209	17.3
Serdang	888	0	0.0	0	0.0	324	36.5	3	0.3	0	0.0	504	56.8	260	29.3	200	22.5
Sibu	836	3	0.4	0	0.0	10	1.2	0	0.0	0	0.0	833	99.6	0	0.0	10	1.2
Sri Manjung	770	0	0.0	0	0.0	9	1.2	0	0.0	0	0.0	761	98.8	0	0.0	1	0.1
Sultan Ismail	274	0	0.0	0	0.0	15	5.5	247	90.1	0	0.0	207	75.5	0	0.0	194	70.8
Johor Bahru	1,190	21	1.8	2	0.2	478	40.2	349	29.3	2	0.2	271	22.8	263	22.1	198	16.6
Sungai Buloh	457	0	0.0	0	0.0	356	77.9	12	2.6	0	0.0	59	12.9	7	1.5	9	2.0
Sungei Petani	839	1	0.1	0	0.0	221	26.3	1	0.1	0	0.0	678	80.8	1	0.1	71	8.5
Taiping	1,109	0	0.0	0	0.0	367	33.1	1	0.1	0	0.0	744	67.1	0	0.0	3	0.3
Tawau	433	0	0.0	1	0.2	338	78.1	1	0.2	0	0.0	88	20.3	0	0.0	2	0.5
Teluk Intan	1,043	1	0.1	1	0.1	1,031	98.8	0	0.0	0	0.0	16	1.5	0	0.0	15	1.4
Temerloh	810	1	0.1	1	0.1	382	47.2	1	0.1	1	0.1	314	38.8	73	9.0	191	23.6
Kuantan	467	108	23.1	0	0.0	356	76.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	1,300	6	0.5	1	0.1	43	3.3	1	0.1	1	0.1	1,230	94.6	0	0.0	27	2.1
Seremban	1,395	4	0.3	2	0.1	258	18.5	200	14.3	0	0.0	947	67.9	133	9.5	152	10.9
Kuching	1,542	13	0.8	12	0.8	49	3.2	2	0.1	1	0.1	1,514	98.2	10	0.6	61	4.0
Kemaman	44	6	13.6	0	0.0	8	18.2	1	2.3	0	0.0	27	61.4	1	2.3	1	2.3
Sarikei	270	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	267	98.9	0	0.0	0	0.0
KK1M East Coast	60	2	3.3	0	0.0	48	80.0	0	0.0	0	0.0	16	26.7	2	3.3	12	20.0
KK1M Sarawak	74	0	0.0	0	0.0	1	1.4	0	0.0	0	0.0	73	98.6	1	1.4	1	1.4
MAIWP	1,520	0	0.0	0	0.0	159	10.5	23	1.5	0	0.0	1,301	85.6	282	18.6	301	19.8

Table 1.3.9.1(d): Types of Local Anaesthesia by SDPs Excluding Combined Surgery, CSR 2013

	Local Anesthesia																
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	33,913	249	0.7	281	0.8	9,618	28.4	1,306	3.9	24	0.1	21,961	64.8	4,703	13.9	4,685	13.8
Alor Setar	1,395	5	0.4	0	0.0	591	42.4	2	0.1	0	0.0	532	38.1	499	35.8	256	18.4
Ampang	928	0	0.0	0	0.0	105	11.3	1	0.1	1	0.1	894	96.3	830	89.4	891	96.0
Batu Pahat	412	2	0.5	2	0.5	164	39.8	229	55.6	0	0.0	15	3.6	0	0.0	0	0.0
Bintulu	348	0	0.0	0	0.0	344	98.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	875	2	0.2	0	0.0	270	30.9	1	0.1	0	0.0	0	0.0	604	69.0	4	0.5
Sandakan	401	3	0.7	1	0.2	24	6.0	1	0.2	0	0.0	367	91.5	0	0.0	7	1.7
Ipoh	2,584	20	0.8	2	0.1	431	16.7	160	6.2	7	0.3	2,365	91.5	972	37.6	1,286	49.8
Kangar	461	7	1.5	0	0.0	454	98.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	14	0	0.0	13	92.9	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	608	5	0.8	0	0.0	600	98.7	3	0.5	0	0.0	0	0.0	0	0.0	1	0.2
Kuala Krai	373	0	0.0	0	0.0	373	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	998	16	1.6	246	24.6	308	30.9	19	1.9	5	0.5	352	35.3	124	12.4	79	7.9
Kuala Pilah	471	0	0.0	0	0.0	208	44.2	4	0.8	0	0.0	236	50.1	1	0.2	12	2.5
Kuala Terengganu	923	1	0.1	0	0.0	197	21.3	2	0.2	2	0.2	751	81.4	17	1.8	49	5.3
Melaka	1,602	1	0.1	0	0.0	208	13.0	2	0.1	0	0.0	1,520	94.9	0	0.0	136	8.5
Miri	904	1	0.1	0	0.0	24	2.7	0	0.0	0	0.0	881	97.5	0	0.0	2	0.2
Muar	674	0	0.0	0	0.0	32	4.7	4	0.6	3	0.4	572	84.9	160	23.7	101	15.0
Pulau Pinang	1,630	2	0.1	2	0.1	157	9.6	1	0.1	0	0.0	1,522	93.4	5	0.3	80	4.9
Putrajaya	371	0	0.0	0	0.0	100	27.0	0	0.0	0	0.0	4	1.1	279	75.2	13	3.5
Kota Kinabalu	921	14	1.5	6	0.7	205	22.3	4	0.4	1	0.1	789	85.7	0	0.0	99	10.7
Selayang	1,157	23	2.0	1	0.1	239	20.7	7	0.6	0	0.0	918	79.3	128	11.1	190	16.4
Serdang	935	0	0.0	0	0.0	336	35.9	3	0.3	0	0.0	532	56.9	273	29.2	206	22.0
Sibu	887	3	0.3	0	0.0	9	1.0	0	0.0	0	0.0	883	99.5	0	0.0	8	0.9
Sri Manjung	782	0	0.0	0	0.0	8	1.0	0	0.0	0	0.0	774	99.0	0	0.0	1	0.1
Sultan Ismail	280	0	0.0	0	0.0	15	5.4	254	90.7	0	0.0	211	75.4	0	0.0	199	71.1
Johor Bahru	1,230	12	1.0	2	0.2	485	39.4	360	29.3	2	0.2	285	23.2	276	22.4	195	15.9

Local Anesthesia																	
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Sungai Buloh	478	0	0.0	0	0.0	373	78.0	12	2.5	0	0.0	62	13.0	7	1.5	9	1.9
Sungei Petani	870	1	0.1	0	0.0	222	25.5	1	0.1	0	0.0	709	81.5	1	0.1	72	8.3
Taiping	1,110	0	0.0	0	0.0	350	31.5	0	0.0	0	0.0	761	68.6	0	0.0	1	0.1
Tawau	468	0	0.0	2	0.4	366	78.2	1	0.2	0	0.0	94	20.1	0	0.0	2	0.4
Teluk Intan	1,074	1	0.1	1	0.1	1,062	98.9	0	0.0	0	0.0	17	1.6	0	0.0	16	1.5
Temerloh	846	1	0.1	1	0.1	401	47.4	1	0.1	1	0.1	335	39.6	78	9.2	204	24.1
Kuantan	478	111	23.2	0	0.0	364	76.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	1,362	5	0.4	0	0.0	44	3.2	2	0.1	1	0.1	1,294	95.0	0	0.0	29	2.1
Seremban	1,429	4	0.3	2	0.1	264	18.5	204	14.3	0	0.0	969	67.8	140	9.8	157	11.0
Kuching	1,585	0	0.0	0	0.0	53	3.3	2	0.1	1	0.1	1,568	98.9	12	0.8	51	3.2
Kemaman	46	6	13.0	0	0.0	8	17.4	1	2.2	0	0.0	29	63.0	1	2.2	1	2.2
Sarikei	284	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	280	98.6	0	0.0	0	0.0
KK1M East Coast	62	3	4.8	0	0.0	49	79.0	0	0.0	0	0.0	16	25.8	2	3.2	12	19.4
KK1M Sarawak	74	0	0.0	0	0.0	1	1.4	0	0.0	0	0.0	73	98.6	1	1.4	1	1.4
MAIWP	1,583	0	0.0	0	0.0	171	10.8	25	1.6	0	0.0	1,351	85.3	293	18.5	315	19.9

Table 1.3.9.2(d): Types of Local Anaesthesia by SDPs 50yrs above and Excluding Combined Surgery, CSR 2013

	Local Anesthesia																
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	32,384	233	0.7	265	0.8	9,172	28.3	1,244	3.8	24	0.1	20,979	64.8	4,512	13.9	4,490	13.9
Alor Setar	1,357	5	0.4	0	0.0	577	42.5	2	0.1	0	0.0	511	37.7	491	36.2	251	18.5
Ampang	886	0	0.0	0	0.0	102	11.5	0	0.0	1	0.1	853	96.3	792	89.4	850	95.9
Batu Pahat	400	2	0.5	2	0.5	161	40.3	221	55.3	0	0.0	14	3.5	0	0.0	0	0.0
Bintulu	316	0	0.0	0	0.0	314	99.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	828	2	0.2	0	0.0	261	31.5	1	0.1	0	0.0	0	0.0	566	68.4	4	0.5
Sandakan	370	2	0.5	1	0.3	23	6.2	1	0.3	0	0.0	339	91.6	0	0.0	7	1.9
Ipoh	2,498	17	0.7	2	0.1	413	16.5	151	6.0	7	0.3	2,292	91.8	945	37.8	1,247	49.9
Kangar	450	7	1.6	0	0.0	443	98.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	14	0	0.0	13	92.9	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kota Bharu	573	4	0.7	0	0.0	566	98.8	3	0.5	0	0.0	0	0.0	0	0.0	1	0.2
Kuala Krai	356	0	0.0	0	0.0	356	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	958	16	1.7	233	24.3	296	30.9	18	1.9	5	0.5	338	35.3	118	12.3	72	7.5
Kuala Pilah	451	0	0.0	0	0.0	195	43.2	4	0.9	0	0.0	229	50.8	1	0.2	11	2.4
Kuala Terengganu	879	1	0.1	0	0.0	184	20.9	2	0.2	2	0.2	718	81.7	17	1.9	46	5.2
Melaka	1,524	1	0.1	0	0.0	201	13.2	2	0.1	0	0.0	1,445	94.8	0	0.0	132	8.7
Miri	862	1	0.1	0	0.0	22	2.6	0	0.0	0	0.0	841	97.6	0	0.0	2	0.2
Muar	635	0	0.0	0	0.0	31	4.9	4	0.6	3	0.5	536	84.4	154	24.3	97	15.3
Pulau Pinang	1,571	2	0.1	2	0.1	145	9.2	1	0.1	0	0.0	1,470	93.6	5	0.3	75	4.8
Putrajaya	358	0	0.0	0	0.0	95	26.5	0	0.0	0	0.0	4	1.1	271	75.7	13	3.6
Kota Kinabalu	866	14	1.6	5	0.6	192	22.2	4	0.5	1	0.1	743	85.8	0	0.0	94	10.9
Selayang	1,093	20	1.8	1	0.1	227	20.8	6	0.5	0	0.0	868	79.4	119	10.9	178	16.3
Serdang	886	0	0.0	0	0.0	322	36.3	3	0.3	0	0.0	503	56.8	260	29.3	199	22.5
Sibu	831	3	0.4	0	0.0	8	1.0	0	0.0	0	0.0	828	99.6	0	0.0	8	1.0
Sri Manjung	762	0	0.0	0	0.0	8	1.0	0	0.0	0	0.0	754	99.0	0	0.0	1	0.1
Sultan Ismail	273	0	0.0	0	0.0	15	5.5	247	90.5	0	0.0	206	75.5	0	0.0	194	71.1
Johor Bahru	1,147	8	0.7	1	0.1	454	39.6	336	29.3	2	0.2	268	23.4	263	22.9	187	16.3
Sungai Buloh	456	0	0.0	0	0.0	356	78.1	12	2.6	0	0.0	59	12.9	7	1.5	9	2.0
Sungei Petani	832	1	0.1	0	0.0	214	25.7	1	0.1	0	0.0	676	81.3	1	0.1	69	8.3
Taiping	1,073	0	0.0	0	0.0	344	32.1	0	0.0	0	0.0	730	68.0	0	0.0	1	0.1
Tawau	421	0	0.0	1	0.2	326	77.4	1	0.2	0	0.0	88	20.9	0	0.0	2	0.5
Teluk Intan	1,042	1	0.1	1	0.1	1,030	98.8	0	0.0	0	0.0	16	1.5	0	0.0	15	1.4
Temerloh	808	1	0.1	1	0.1	380	47.0	1	0.1	1	0.1	312	38.6	73	9.0	189	23.4
Kuantan	465	108	23.2	0	0.0	354	76.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	1,293	5	0.4	0	0.0	42	3.2	1	0.1	1	0.1	1,226	94.8	0	0.0	27	2.1
Seremban	1,379	4	0.3	2	0.1	252	18.3	197	14.3	0	0.0	936	67.9	133	9.6	148	10.7
Kuching	1,506	0	0.0	0	0.0	46	3.1	1	0.1	1	0.1	1,493	99.1	10	0.7	46	3.1
Kemaman	44	6	13.6	0	0.0	8	18.2	1	2.3	0	0.0	27	61.4	1	2.3	1	2.3
Sarikei	270	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	267	98.9	0	0.0	0	0.0
KK1M East Coast	58	2	3.4	0	0.0	46	79.3	0	0.0	0	0.0	16	27.6	2	3.4	12	20.7
KK1M Sarawak	73	0	0.0	0	0.0	1	1.4	0	0.0	0	0.0	72	98.6	1	1.4	1	1.4
MAIWP	1,520	0	0.0	0	0.0	159	10.5	23	1.5	0	0.0	1,301	85.6	282	18.6	301	19.8

Table 1.3.9.1(e): Subtenon Anaesthesia by SDPs, CSR 2002-2013

Years	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	22983	51.0	9990	58.3	11014	54.6	11525	50.6	10952	41.4	10512	36.7	9849	32.6	9,913	28.6
Alor Setar	581	18.7	35	9.5	109	12.1	239	25.3	274	20.7	323	18.8	426	26.5	600	40.8
Ampang	-	-	3	75.0	162	78.3	110	27.1	70	11.5	27	3.8	58	6.7	117	12.4
Batu Pahat	1155	99.0	545	99.6	567	99.5	562	94.8	280	69.5	156	29.1	161	27.4	166	39.8
Bintulu	-	-	-	-	24	0.0	118	99.2	255	99.6	328	100.0	382	100.0	374	98.9
Bukit Mertajam	776	69.5	422	69.5	294	64.1	239	32.7	399	50.8	423	54.3	384	42.7	275	31.0
Sandakan	0	0.0	NA	NA	0	0.0	86	57.7	116	61.4	140	55.6	113	45.0	24	6.0
Ipoh	1373	77.0	702	47.1	921	56.2	872	43.5	567	27.3	387	23.5	517	19.6	448	16.8
Kangar	1242	86.3	313	98.4	389	98.5	383	98.5	383	98.7	397	100.0	442	99.1	457	98.5
Keningau	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1
Kota Bharu	1347	99.3	726	99.2	672	99.3	837	98.0	885	97.6	884	99.0	495	97.6	629	98.6
Kuala Krai	-	-	115	100.0	142	86.6	169	98.8	203	95.8	222	94.9	243	99.6	388	100.0
Kuala Lumpur	1169	64.0	NA	NA	27	73.0	620	50.7	800	56.7	829	60.7	601	46.8	310	31.0
Kuala Pilah	79	27.0	208	99.5	270	97.8	252	89.7	237	79.5	371	79.6	304	72.6	208	44.1
Kuala Terengganu	358	45.3	419	85.2	590	84.8	417	59.7	267	39.8	274	38.1	291	40.6	215	22.7
Melaka	1438	62.3	443	30.1	463	28.9	376	28.5	310	19.5	211	13.4	128	9.0	223	13.7
Miri	2	1.0	1	6.3	352	90.0	187	46.9	90	15.7	161	24.9	60	6.8	24	2.7
Muar	1939	98.0	166	49.7	326	98.5	528	99.2	460	77.7	104	15.8	54	8.3	37	5.4
Pulau Pinang	1921	66.0	967	97.6	687	54.5	474	37.3	328	18.5	76	3.5	56	4.4	165	10.0
Putrajaya	187	65.3	188	98.9	236	99.6	240	99.2	260	100.0	240	80.3	125	37.4	100	27.0
Kota Kinabalu	379	17.3	195	39.2	81	24.1	82	20.3	115	22.0	91	14.0	142	19.9	206	22.3
Selayang	817	38.5	152	11.1	174	12.7	190	13.9	249	15.1	211	11.8	323	18.4	260	19.9
Serdang	-	-	522	91.7	375	56.9	396	70.7	375	80.5	432	70.7	414	60.6	339	36.1
Sibu	124	8.3	33	9.6	96	38.9	155	40.4	26	5.8	37	7.4	10	1.3	11	1.2
Sri Manjung	-	-	136	92.5	133	38.7	28	8.6	35	9.2	47	11.4	32	7.2	9	1.1
Sultan Ismail	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5	15	5.3
Johor Bahru	240	9.0	1103	74.0	801	60.1	942	74.8	464	35.3	436	41.1	501	43.9	521	40.4
Sungai Buloh	-	-	98	80.3	221	90.2	325	99.4	374	91.2	319	79.4	292	67.4	373	77.9
Sungei Petani	538	40.7	472	99.0	591	98.2	646	99.2	235	44.9	180	23.3	236	29.3	229	26.1
Taiping	456	44.0	156	71.2	166	54.2	121	22.4	328	41.4	402	48.4	356	36.4	373	32.5
Tawau	270	29.7	195	100.0	303	98.4	287	99.7	382	99.5	553	100.0	615	99.2	380	78.8
Teluk Intan	480	34.0	190	28.6	406	72.0	397	66.4	386	58.2	472	73.2	586	99.2	1,063	98.9
Temerloh	-	-	390	94.4	429	83.1	425	67.8	410	96.7	611	94.0	586	69.9	403	47.5
Kuantan	892	51.7	9	47.4	162	54.9	143	63.8	358	78.9	456	77.2	345	63.3	366	76.3
Klang	1335	88.3	468	57.1	297	27.3	178	24.1	326	38.5	67	7.2	62	5.0	45	3.3
Seremban	390	17.0	210	24.1	294	35.4	356	30.7	563	38.3	591	38.5	422	29.1	270	18.7
Kuching	1418	57.3	404	42.7	254	26.3	145	17.1	142	12.5	54	4.9	86	5.4	56	3.4
Kemaman															8	17.4
Sarikei															2	0.7
KK1M East Coast															51	79.7
KK1M Sarawak															1	1.3
MAIWP															171	10.8

Table 1.3.9.2(e): Subtenon Anaesthesia by SDPs and 50yrs, CSR 2002-2013

Years	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	21365	49.4	9397	56.2	10354	54.7	10861	50.6	10338	41.4	9979	36.8	9340	32.6	9,435	28.6
Alor Setar	551	18.5	33	8.8	103	11.9	228	25.8	263	21.0	309	19.0	418	27.0	586	41.2
Ampang	-	-	2	66.7	150	77.7	103	26.8	66	11.3	27	4.0	56	6.7	114	12.7
Batu Pahat	1070	98.2	511	99.2	534	99.4	537	94.5	269	70.6	152	29.4	157	27.8	163	40.2
Bintulu	-	-	-	-	22	88.0	106	99.1	230	100.0	303	100.0	356	100.0	342	99.4
Bukit Mertajam	724	65.7	402	65.2	279	64.1	224	32.4	372	50.7	408	54.9	358	42.2	265	31.5
Sandakan	0	0.0	-	-	0	0.0	80	58.8	110	61.5	134	55.8	107	46.1	23	6.2
Ipoh	1297	72.9	663	46.0	881	55.9	838	43.4	550	27.6	378	23.6	500	19.7	430	16.8
Kangar	1158	84.8	298	97.1	363	98.6	365	98.4	365	98.6	383	100.0	418	99.1	446	98.5
Keningau	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1
Kota Bharu	1231	98.3	683	95.5	628	99.2	760	98.1	818	97.4	828	99.0	459	97.7	591	98.7
Kuala Krai	-	-	111	96.5	132	86.8	163	98.8	188	95.4	208	94.5	231	99.6	369	100.0
Kuala Lumpur	1098	60.5	-	-	27	77.1	594	50.8	759	56.6	796	61.3	581	47.4	298	31.0
Kuala Pilah	74	26.5	197	98.5	251	98.0	240	89.6	228	79.7	355	79.2	292	72.5	195	43.1
Kuala Terengganu	326	42.6	390	82.5	557	84.7	392	59.7	251	40.1	261	38.1	273	40.6	198	22.0
Melaka	1345	61.6	428	30.6	455	30.0	363	29.2	303	20.0	210	14.0	125	9.2	216	14.0
Miri	2	0.9	1	6.3	330	89.7	176	46.2	85	15.7	151	24.5	56	6.6	22	2.5
Muar	1806	96.2	158	48.2	308	98.4	507	99.2	429	77.7	100	15.9	51	8.0	36	5.6
Pulau Pinang	1843	63.9	929	91.5	668	54.6	462	37.4	320	18.7	74	3.6	53	4.2	153	9.6
Putrajaya	173	61.7	178	95.2	226	99.6	231	99.1	255	100.0	224	80.3	116	36.4	95	26.5
Kota Kinabalu	334	16.4	181	39.2	73	23.7	74	20.2	108	22.3	85	13.9	132	19.9	193	22.2
Selayang	751	39.5	132	10.6	165	13.5	178	14.4	227	15.1	191	11.8	300	18.5	244	20.2
Serdang	-	-	485	89.2	358	57.0	380	70.5	354	80.6	407	71.3	389	61.1	324	36.5
Sibu	108	7.7	32	9.3	89	39.0	145	40.6	23	5.5	33	7.1	10	1.4	10	1.2
Sri Manjung	-	-	128	90.1	123	38.9	27	8.7	34	9.2	44	11.2	31	7.2	9	1.2
Sultan Ismail	-	-	4	4.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	15	5.5
Johor Bahru	215	8.4	1025	72.9	724	59.5	846	74.7	427	35.1	403	41.3	468	45.1	478	40.2
Sungai Buloh	-	-	91	70.5	207	90.4	306	99.4	346	91.1	294	78.8	280	67.1	356	77.9
Sungei Petani	506	40.3	444	96.3	551	98.2	612	99.2	225	45.5	172	23.4	231	30.1	221	26.3
Taiping	427	42.0	148	58.3	158	53.6	117	22.5	313	41.3	385	48.7	349	36.8	367	33.1
Tawau	254	28.5	169	100.0	275	98.2	258	99.6	334	99.7	500	100.0	561	99.1	338	78.1
Teluk Intan	454	32.4	176	28.2	386	72.0	375	65.6	371	58.2	458	73.0	570	99.3	1,031	98.8
Temerloh	-	-	371	90.5	410	83.5	402	68.4	401	96.6	587	94.1	555	69.7	382	47.2
Kuantan	807	46.7	7	33.3	151	54.5	138	63.3	338	78.6	444	77.5	330	62.9	356	76.2
Klang	1223	81.2	442	47.4	271	26.7	169	24.1	312	39.2	63	7.3	58	5.0	43	3.3
Seremban	362	15.8	199	22.7	272	34.6	336	30.7	529	37.9	562	38.2	392	28.4	258	18.5
Kuching	1301	56.3	379	42.6	227	25.6	129	16.2	135	12.6	50	4.9	76	5.1	49	3.2
Kemaman															8	18.2
Sarikei															2	0.7
KK1M East Coast															48	80.0
KK1M Sarawak															1	1.4
MAIWP															159	10.5

Table 1.3.9.1(f): Topical Anaesthesia by SDPs, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	8203	17.7	4853	28.3	6680	33.1	8382	36.8	13112	49.6	16825	58.8	18461	61.1	22,220	64.2
Alor Setar	80	2.7	1	0.3	95	10.6	124	13.1	676	51.2	876	51.0	922	57.4	547	37.2
Ampang	-	-	3	75.0	64	30.9	248	61.1	500	81.8	674	95.9	807	92.7	908	96.3
Batu Pahat	0	0.0	1	0.2	0	0.0	25	4.2	85	21.1	355	66.2	184	31.3	15	3.6
Bintulu	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	1	0.0	0	0.0	2	0.4	62	8.5	0	0.0	1	0.1	8	0.9	0	0.0
Sandakan	1	0.3	NA	NA	12	9.2	34	22.8	86	45.5	83	32.9	92	36.7	367	91.5
Ipoh	339	13.7	573	38.5	594	36.2	1137	56.7	1521	73.3	1348	81.7	2167	82.1	2,417	90.8
Kangar	33	3.0	0	0.0	0	0.0	3	0.8	3	0.8	0	0.0	0	0.0	0	0.0
Keningau	-	-	-	-	28	93.3	21	91.3	2	2.8	0	0.0	0	0.0	0	0.0
Kota Bharu	1	0.0	0	0.0	1	0.1	12	1.4	22	2.4	7	0.8	8	1.6	0	0.0
Kuala Krai	-	-	0	0.0	9	5.5	1	0.6	14	6.6	93	39.7	0	0.0	0	0.0
Kuala Lumpur	464	28.3	NA	NA	2	5.4	208	17.0	237	16.8	202	14.8	163	12.7	352	35.2
Kuala Pilah	0	0.0	0	0.0	1	0.4	0	0.0	9	3.0	38	8.2	51	12.2	236	50.0
Kuala Terengganu	545	43.7	75	15.2	99	14.2	274	39.3	402	59.9	445	61.8	434	60.5	765	80.6
Melaka	1168	37.0	1075	73.1	1233	76.9	1014	76.9	1572	98.7	1549	98.6	1415	99.3	1,541	94.8
Miri	80	36.0	0	0.0	12	3.1	211	52.9	483	84.3	478	73.9	823	92.9	882	97.5
Muar	11	0.3	160	47.9	4	1.2	1	0.2	130	22.0	547	83.1	584	89.3	580	84.8
Pulau Pinang	96	10.0	8	0.8	560	44.4	814	64.1	1387	78.4	2002	92.4	1185	92.2	1,525	92.6
Putrajaya	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	1.0	1	0.3	4	1.1
Kota Kinabalu	653	28.7	242	48.7	221	65.8	265	65.8	416	79.7	582	89.4	624	87.4	791	85.7
Selayang	858	37.0	983	71.5	981	71.7	989	72.2	1142	69.4	1255	70.1	1262	71.9	969	74.1
Serdang	-	-	33	5.8	247	37.5	151	27.0	88	18.9	164	26.8	264	38.7	533	56.8
Sibu	55	6.0	0	0.0	0	0.0	173	45.1	347	77.1	450	89.6	736	99.3	889	99.6
Sri Manjung	-	-	11	7.5	201	58.4	298	92.0	353	92.9	365	88.8	418	93.9	781	98.9
Sultan Ismail	-	-	0	0.0	0	0.0	1	0.8	10	5.7	58	32.0	87	46.8	212	75.4
Johor Bahru	206	7.3	359	24.1	501	37.6	159	12.6	488	37.1	1034	97.5	1114	97.7	289	22.4
Sungai Buloh	-	-	27	22.1	15	6.1	6	1.8	33	8.0	76	18.9	105	24.2	62	12.9
Sungei Petani	267	17.7	0	0.0	0	0.0	0	0.0	240	45.9	640	82.9	633	78.6	711	81.1
Taiping	242	23.0	63	28.8	102	33.3	213	39.4	466	58.8	431	51.9	626	64.1	776	67.7
Tawau	149	13.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	94	19.5
Teluk Intan	609	40.0	469	70.6	152	27.0	287	48.0	258	38.9	152	23.6	12	2.0	17	1.6
Temerloh	-	-	27	6.5	103	20.0	234	37.3	21	5.0	39	6.0	226	27.0	337	39.7
Kuantan	45	3.7	4	21.1	40	13.6	2	0.9	9	2.0	7	1.2	0	0.0	0	0.0
Klang	0	0.0	210	25.6	566	52.1	427	57.7	480	56.7	751	81.0	981	79.4	1,298	94.8
Seremban	4	0.0	1	0.1	102	12.3	273	23.5	632	43.0	1059	69.0	999	68.9	980	67.8
Kuching	1722	72.0	528	55.8	733	75.9	714	84.0	1000	88.3	1061	96.5	1530	95.6	1,592	97.8
Kemaman															29	63.0
Sarikei															280	98.6
KK1M East Coast															16	25.0
KK1M Sarawak															74	98.7
MAIWP															1,351	85.3

Table 1.3.9.2(f): Topical Anaesthesia by SDPs and 50yr, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	7544	16.9	4510	27.0	6274	33.1	7952	37.0	12473	49.9	16003	59.0	17557	61.2	21,203	64.3
Alor Setar	78	2.6	1	0.3	88	10.1	115	13.0	652	52.0	839	51.5	888	57.4	523	36.8
Ampang	-	-	2	66.7	62	32.1	236	61.3	475	81.6	653	96.3	777	92.5	867	96.2
Batu Pahat	0	0.0	1	0.2	0	0.0	25	4.4	80	21.0	340	65.8	172	30.5	14	3.5
Bintulu	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	1	0.2	0	0.0	2	0.5	62	9.0	0	0.0	1	0.1	8	0.9	0	0.0
Sandakan	1	0.3	-	-	11	8.9	31	22.8	83	46.4	79	32.9	84	36.2	339	91.6
Ipoh	318	12.5	534	37.1	575	36.5	1090	56.5	1455	73.0	1309	81.8	2090	82.3	2,333	91.1
Kangar	30	1.0	0	0.0	0	0.0	3	0.8	3	0.8	0	0.0	0	0.0	0	0.0
Keningau	-	-	-	-	23	92.0	19	90.5	2	3.0	0	0.0	0	0.0	0	0.0
Kota Bharu	1	0.1	0	0.0	1	0.2	10	1.3	22	2.6	6	0.7	8	1.7	0	0.0
Kuala Krai	-	-	0	0.0	9	5.9	1	0.6	14	7.1	86	39.1	0	0.0	0	0.0
Kuala Lumpur	423	26.0	-	-	1	2.9	198	16.9	223	16.6	189	14.6	157	12.8	338	35.2
Kuala Pilah	0	0.0	0	0.0	0	0.0	0	0.0	9	3.1	38	8.5	49	12.2	229	50.7
Kuala Terengganu	498	41.6	68	14.4	94	14.3	259	39.4	373	59.6	423	61.8	408	60.6	732	81.2
Melaka	1087	36.0	991	70.8	1151	75.9	951	76.5	1495	98.7	1483	98.5	1350	99.3	1,464	94.8
Miri	75	35.2	0	0.0	12	3.3	204	53.5	457	84.3	457	74.2	791	93.1	842	97.6
Muar	10	0.4	155	47.3	4	1.3	1	0.2	121	21.9	521	83.0	568	89.4	543	84.3
Pulau Pinang	91	7.0	7	0.7	543	44.4	789	63.9	1346	78.6	1931	92.8	1153	92.4	1,473	92.9
Putrajaya	3	1.3	0	0.0	0	0.0	0	0.0	0	0.0	2	0.7	1	0.3	4	1.1
Kota Kinabalu	593	28.2	210	45.5	204	66.2	241	65.8	390	80.4	546	89.5	583	87.8	745	85.8
Selayang	764	36.9	927	74.5	906	73.9	921	74.3	1080	71.7	1192	73.4	1185	72.9	907	75.0
Serdang	-	-	26	4.8	235	37.4	149	27.6	82	18.7	149	26.1	243	38.1	504	56.8
Sibu	54	2.1	0	0.0	0	0.0	163	45.7	328	77.9	419	89.5	695	99.3	833	99.6
Sri Manjung	-	-	10	7.0	184	58.2	284	91.6	341	92.7	350	89.1	406	94.0	761	98.8
Sultan Ismail	-	-	0	0.0	0	0.0	1	0.9	10	5.8	58	32.2	82	45.3	207	75.5
Johor Bahru	190	7.1	339	24.1	464	38.2	151	13.3	458	37.6	951	97.5	1016	98.0	271	22.8
Sungai Buloh	-	-	24	18.6	14	6.1	6	1.9	31	8.2	73	19.6	102	24.5	59	12.9
Sungei Petani	243	17.5	0	0.0	0	0.0	0	0.0	225	45.5	607	82.7	596	77.7	678	80.8
Taiping	230	22.3	61	24.0	102	34.6	205	39.3	447	59.0	409	51.7	605	63.8	744	67.1
Tawau	137	12.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	88	20.3
Teluk Intan	564	37.2	440	70.5	146	27.2	279	48.8	248	38.9	148	23.6	11	1.9	16	1.5
Temerloh	-	-	24	5.9	97	19.8	217	36.9	21	5.1	37	5.9	216	27.1	314	38.8
Kuantan	42	3.6	4	19.0	37	13.4	2	0.9	9	2.1	5	0.9	0	0.0	0	0.0
Klang	0	0.0	196	21.0	531	52.3	408	58.2	446	56.0	695	81.0	922	79.3	1,230	94.6
Seremban	3	0.2	1	0.1	97	12.3	255	23.3	602	43.1	1015	69.0	962	69.7	947	67.9
Kuching	1579	71.2	489	55.0	681	76.8	675	84.7	945	88.2	992	96.4	1429	95.6	1,514	98.2
Kemaman															27	61.4
Sarikei															267	98.9
KK1M East Coast															16	26.7
KK1M Sarawak															73	98.6
MAIWP															1,301	85.6

Table 1.3.9.1(g): Types of Sedation in Eyes Given Local Anaesthesia by SDPs, CSR 2013

	Types of sedation								
	All Local Anaesthesia	No Sedation		Oral Alone		Intravenous Alone		Intramuscular Alone	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	34,622	18,685	54.0	1,391	4.0	31	0.1	18	0.1
Alor Setar	1,470	1,067	72.6	1	0.1	1	0.1	0	0.0
Ampang	943	191	20.3	2	0.2	0	0.0	0	0.0
Batu Pahat	417	411	98.6	4	1.0	0	0.0	0	0.0
Bintulu	378	360	95.2	1	0.3	0	0.0	0	0.0
Bukit Mertajam	888	487	54.8	66	7.4	3	0.3	0	0.0
Sandakan	401	54	13.5	0	0.0	0	0.0	0	0.0
Ipoh	2,662	519	19.5	7	0.3	2	0.1	0	0.0
Kangar	464	13	2.8	0	0.0	0	0.0	0	0.0
Keningau	14	12	85.7	0	0.0	0	0.0	0	0.0
Kota Bharu	638	612	95.9	0	0.0	1	0.2	0	0.0
Kuala Krai	388	345	88.9	0	0.0	0	0.0	0	0.0
Kuala Lumpur	1,000	204	20.4	32	3.2	1	0.1	0	0.0
Kuala Pilah	472	165	35.0	22	4.7	0	0.0	0	0.0
Kuala Terengganu	949	931	98.1	2	0.2	7	0.7	1	0.1
Melaka	1,625	1,517	93.4	1	0.1	0	0.0	0	0.0
Miri	905	110	12.2	0	0.0	0	0.0	0	0.0
Muar	684	655	95.8	0	0.0	0	0.0	0	0.0
Pulau Pinang	1,647	564	34.2	818	49.7	1	0.1	0	0.0
Putrajaya	371	356	96.0	6	1.6	1	0.3	0	0.0
Kota Kinabalu	923	878	95.1	1	0.1	0	0.0	0	0.0
Selayang	1,308	734	56.1	3	0.2	0	0.0	0	0.0
Serdang	938	818	87.2	5	0.5	2	0.2	0	0.0
Sibu	893	6	0.7	0	0.0	0	0.0	0	0.0
Sri Manjung	790	467	59.1	1	0.1	0	0.0	0	0.0
Sultan Ismail	281	269	95.7	0	0.0	0	0.0	0	0.0
Johor Bahru	1,291	116	9.0	0	0.0	0	0.0	0	0.0
Sungai Buloh	479	426	88.9	0	0.0	0	0.0	0	0.0
Sungei Petani	877	653	74.5	4	0.5	0	0.0	0	0.0
Taiping	1,147	1,143	99.7	0	0.0	0	0.0	0	0.0
Tawau	482	316	65.6	3	0.6	0	0.0	0	0.0
Teluk Intan	1,075	28	2.6	247	23.0	0	0.0	0	0.0
Temerloh	848	144	17.0	153	18.0	7	0.8	0	0.0
Kuantan	480	373	77.7	1	0.2	0	0.0	0	0.0
Klang	1,369	442	32.3	1	0.1	0	0.0	0	0.0
Seremban	1,445	834	57.7	1	0.1	0	0.0	0	0.0
Kuching	1,628	943	57.9	0	0.0	0	0.0	0	0.0
Kemaman	46	4	8.7	0	0.0	1	2.2	0	0.0
Sarikei	284	103	36.3	0	0.0	2	0.7	0	0.0
KK1M East Coast	64	3	4.7	9	14.1	1	1.6	17	26.6
KK1M Sarawak	75	36	48.0	0	0.0	0	0.0	0	0.0
MAIWP	1,583	1,376	86.9	0	0.0	1	0.1	0	0.0

Number or percentage may be more than total or 100% as patient might have more than one type of local Anaesthesia

Table 1.3.9.2(g): Types of Sedation in Eyes Given Local Anaesthesia and age 50yrs above by SDPs, CSR 2013

	Types of sedation								
	All Local Anaesthesia	No Sedation		Oral Alone		Intravenous Alone		Intramuscular Alone	
	N	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	32,985	17,810	54.0	1,339	4.1	28	0.1	17	0.1
Alor Setar	1,421	1,030	72.5	1	0.1	1	0.1	0	0.0
Ampang	901	184	20.4	2	0.2	0	0.0	0	0.0
Batu Pahat	405	400	98.8	4	1.0	0	0.0	0	0.0
Bintulu	344	328	95.3	1	0.3	0	0.0	0	0.0
Bukit Mertajam	840	453	53.9	63	7.5	3	0.4	0	0.0
Sandakan	370	52	14.1	0	0.0	0	0.0	0	0.0
Ipoh	2,562	502	19.6	6	0.2	2	0.1	0	0.0
Kangar	453	13	2.9	0	0.0	0	0.0	0	0.0
Keningau	14	12	85.7	0	0.0	0	0.0	0	0.0
Kota Bharu	599	574	95.8	0	0.0	0	0.0	0	0.0
Kuala Krai	369	328	88.9	0	0.0	0	0.0	0	0.0
Kuala Lumpur	960	196	20.4	31	3.2	0	0.0	0	0.0
Kuala Pilah	452	158	35.0	21	4.6	0	0.0	0	0.0
Kuala Terengganu	901	885	98.2	2	0.2	6	0.7	1	0.1
Melaka	1,545	1,446	93.6	1	0.1	0	0.0	0	0.0
Miri	863	105	12.2	0	0.0	0	0.0	0	0.0
Muar	644	615	95.5	0	0.0	0	0.0	0	0.0
Pulau Pinang	1,586	549	34.6	789	49.7	1	0.1	0	0.0
Putrajaya	358	345	96.4	4	1.1	1	0.3	0	0.0
Kota Kinabalu	868	825	95.0	1	0.1	0	0.0	0	0.0
Selayang	1,209	683	56.5	2	0.2	0	0.0	0	0.0
Serdang	888	776	87.4	5	0.6	2	0.2	0	0.0
Sibu	836	6	0.7	0	0.0	0	0.0	0	0.0
Sri Manjung	770	457	59.4	1	0.1	0	0.0	0	0.0
Sultan Ismail	274	262	95.6	0	0.0	0	0.0	0	0.0
Johor Bahru	1,190	108	9.1	0	0.0	0	0.0	0	0.0
Sungai Buloh	457	406	88.8	0	0.0	0	0.0	0	0.0
Sungei Petani	839	626	74.6	3	0.4	0	0.0	0	0.0
Taiping	1,109	1,105	99.6	0	0.0	0	0.0	0	0.0
Tawau	433	281	64.9	3	0.7	0	0.0	0	0.0
Teluk Intan	1,043	27	2.6	242	23.2	0	0.0	0	0.0
Temerloh	810	132	16.3	145	17.9	7	0.9	0	0.0
Kuantan	467	362	77.5	1	0.2	0	0.0	0	0.0
Klang	1,300	419	32.2	1	0.1	0	0.0	0	0.0
Seremban	1,395	800	57.3	1	0.1	0	0.0	0	0.0
Kuching	1,542	898	58.2	0	0.0	0	0.0	0	0.0
Kemaman	44	4	9.1	0	0.0	1	2.3	0	0.0
Sarikei	270	98	36.3	0	0.0	2	0.7	0	0.0
KK1M East Coast	60	3	5.0	9	15.0	1	1.7	16	26.7
KK1M Sarawak	74	35	47.3	0	0.0	0	0.0	0	0.0
MAIWP	1,520	1,322	87.0	0	0.0	1	0.1	0	0.0

Table 1.3.9.1(h): Oral Sedation Alone by SDPs, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	10078	23.3	2387	13.9	2923	14.5	3532	15.5	3171	12.0	2852	10.0	1810	6.0	1391	4.0
Alor Setar	1157	40.3	4	1.1	9	1.0	23	2.4	4	0.3	0	0.0	1	0.1	1	0.1
Ampang	-	-	0	0.0	0	0.0	1	0.2	3	0.5	0	0.0	3	0.3	2	0.2
Batu Pahat	6	0.5	0	0.0	1	0.2	3	0.5	1	0.2	1	0.2	1	0.2	4	1.0
Bintulu	-	-	-	-	7	24.1	29	24.4	32	12.5	4	1.2	0	0.0	1	0.3
Bukit Mertajam	2	0.0	204	33.6	356	77.6	466	63.8	308	39.2	185	23.7	107	12.0	66	7.4
Sandakan	0	0.0	-	-	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0
Ipoh	335	22.7	7	0.5	6	0.4	9	0.4	13	0.6	11	0.7	2	0.1	7	0.3
Kangar	598	48.7	4	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	-	-	-	-	1	3.3	0	0.0	1	1.4	2	4.5	0	0.0	0	0.0
Kota Bharu	39	2.3	5	0.7	5	0.7	15	1.8	5	0.6	1	0.1	0	0.0	0	0.0
Kuala Krai	-	-	3	2.6	11	6.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	46	2.3	NA	NA	0	0.0	1	0.1	1	0.1	2	0.1	15	1.2	32	3.2
Kuala Pilah	29	10.0	99	47.4	97	35.1	205	73.0	77	25.8	211	45.3	96	23.0	22	4.7
Kuala Terengganu	11	2.0	16	3.3	2	0.3	72	10.3	104	15.5	15	2.1	23	3.3	2	0.2
Melaka	12	0.7	0	0.0	2	0.1	7	0.5	0	0.0	0	0.0	0	0.0	1	0.1
Miri	14	6.0	0	0.0	0	0.0	0	0.0	1	0.2	3	0.5	0	0.0	0	0.0
Muar	661	21.0	4	1.2	0	0.0	0	0.0	4	0.7	0	0.0	0	0.0	0	0.0
Pulau Pinang	1197	41.3	847	85.5	1124	89.2	1018	80.2	1339	75.6	1382	63.8	662	51.6	818	49.7
Putrajaya	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	4	1.2	6	1.6
Kota Kinabalu	623	26.3	0	0.0	0	0.0	0	0.0	0	0.0	5	0.8	0	0.0	1	0.1
Selayang	29	1.5	13	0.9	2	0.1	10	0.7	13	0.8	6	0.3	1	0.1	3	0.2
Serdang	-	-	2	0.4	0	0.0	0	0.0	3	0.6	0	0.0	0	0.0	5	0.5
Sibu	1022	47.3	323	94.2	57	23.1	141	36.7	39	8.7	24	4.8	1	0.1	0	0.0
Sri Manjung	-	-	3	2.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1
Sultan Ismail	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Johor Bahru	1568	78.0	188	12.6	212	15.9	57	4.5	4	0.3	0	0.0	0	0.0	0	0.0
Sungai Buloh	-	-	1	0.8	1	0.4	4	1.2	0	0.0	1	0.2	0	0.0	0	0.0
Sungei Petani	517	32.0	253	53.0	487	80.9	578	88.8	443	84.7	281	36.4	11	1.4	4	0.5
Taiping	175	32.3	7	3.2	20	6.5	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Tawau	51	7.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.6
Teluk Intan	7	2.0	0	0.0	158	28.0	366	61.2	356	53.7	95	14.7	353	59.7	247	23.0
Temerloh	-	-	400	96.9	357	69.2	511	81.5	414	97.6	613	94.3	526	63.1	153	18.0
Kuantan	209	10.3	0	0.0	0	0.0	0	0.0	2	0.4	5	0.8	0	0.0	1	0.2
Klang	97	13.3	1	0.1	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Seremban	1101	69.7	3	0.3	5	0.6	14	1.2	2	0.1	4	0.3	2	0.1	1	0.1
Kuching	8	0.3	0	0.0	0	0.0	2	0.2	1	0.1	0	0.0	1	0.1	0	0.0
Kemaman															0	0.0
Sarikei															0	0.0
KK1M East Coast															9	14.1
KK1M Sarawak															0	0.0
MAIWP															0	0.0

Table 1.3.9.2(h): Oral Sedation Alone and Age 50yr Above by SDPs, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	9388	22.9	2264	13.5	2798	14.8	3355	15.6	3055	12.2	2731	10.1	1748	6.1	1339	4.1
Alor Setar	1094	38.8	4	1.1	9	1.0	23	2.6	4	0.3	0	0.0	1	0.1	1	0.1
Ampang	-	-	0	0.0	0	0.0	1	0.3	3	0.5	0	0.0	3	0.4	2	0.2
Batu Pahat	6	0.6	0	0.0	0	0.0	2	0.4	1	0.3	1	0.2	0	0.0	4	1.0
Bintulu	-	-	-	-	7	28.0	25	23.4	31	13.5	4	1.3	0	0.0	1	0.3
Bukit Mertajam	1	0.1	198	32.1	340	78.2	437	63.2	284	38.7	174	23.4	102	12.0	63	7.5
Sandakan	0	0.0	-	-	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0
Ipoh	318	22.4	6	0.4	6	0.4	9	0.5	13	0.7	9	0.6	2	0.1	6	0.2
Kangar	563	48.1	3	1.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	-	-	-	-	1	4.0	0	0.0	1	1.5	2	4.9	0	0.0	0	0.0
Kota Bharu	29	2.0	5	0.7	4	0.6	14	1.8	5	0.6	1	0.1	0	0.0	0	0.0
Kuala Krai	-	-	3	2.6	11	7.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	39	1.9	-	-	0	0.0	1	0.1	1	0.1	2	0.2	14	1.1	31	3.2
Kuala Pilah	28	10.2	95	47.5	92	35.9	194	72.4	75	26.2	200	44.6	92	22.8	21	4.6
Kuala Terengganu	11	1.4	16	3.4	2	0.3	65	9.9	98	15.7	14	2.0	21	3.1	2	0.2
Melaka	10	0.4	0	0.0	2	0.1	7	0.6	0	0.0	0	0.0	0	0.0	1	0.1
Miri	13	6.1	0	0.0	0	0.0	0	0.0	1	0.2	3	0.5	0	0.0	0	0.0
Muar	622	20.8	4	1.2	0	0.0	0	0.0	4	0.7	0	0.0	0	0.0	0	0.0
Pulau Pinang	1148	40.0	809	79.7	1092	89.2	992	80.4	1300	75.9	1331	64.0	648	51.9	789	49.7
Putrajaya	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	3	0.9	4	1.1
Kota Kinabalu	589	25.7	0	0.0	0	0.0	0	0.0	0	0.0	5	0.8	0	0.0	1	0.1
Selayang	25	1.3	9	0.7	2	0.2	9	0.7	12	0.8	5	0.3	1	0.1	2	0.2
Serdang	-	-	2	0.4	0	0.0	0	0.0	3	0.7	0	0.0	0	0.0	5	0.6
Sibu	952	46.4	307	89.0	53	23.2	131	36.7	36	8.6	23	4.9	1	0.1	0	0.0
Sri Manjung	-	-	3	2.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1
Sultan Ismail	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Johor Bahru	1449	76.6	173	12.3	200	16.4	52	4.6	4	0.3	0	0.0	0	0.0	0	0.0
Sungai Buloh	-	-	1	0.8	1	0.4	4	1.3	0	0.0	1	0.3	0	0.0	0	0.0
Sungei Petani	467	31.6	237	51.4	456	81.3	546	88.5	421	85.1	265	36.1	11	1.4	3	0.4
Taiping	155	31.7	7	2.8	19	6.4	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Tawau	38	6.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.7
Teluk Intan	6	0.5	0	0.0	153	28.5	346	60.5	347	54.5	92	14.7	342	59.6	242	23.2
Temerloh	-	-	379	92.4	340	69.2	482	82.0	405	97.6	590	94.6	503	63.2	145	17.9
Kuantan	189	9.7	0	0.0	0	0.0	0	0.0	2	0.5	5	0.9	0	0.0	1	0.2
Klang	88	12.8	1	0.1	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Seremban	1021	66.0	2	0.2	5	0.6	13	1.2	2	0.1	3	0.2	2	0.1	1	0.1
Kuching	8	0.4	0	0.0	0	0.0	2	0.3	1	0.1	0	0.0	1	0.1	0	0.0
Kemaman															0	0.0
Sarikei															0	0.0
KK1M East Coast															9	15.0
KK1M Sarawak															0	0.0
MAIWP															0	0.0

Table 1.3.9.1(i): Intravenous Sedation Alone by SDPs, CSR 2002-2013

Year	2003-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	343	1.0	72	0.4	37	0.2	35	0.2	22	0.1	27	0.1	36	0.1	31	0.1
Alor Setar	72	2.3	1	0.3	1	0.1	0	0.0	1	0.1	0	0.0	5	0.3	1	0.1
Ampang	-	-	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Batu Pahat	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bintulu	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	0	0.0	2	0.3	0	0.0	2	0.3	3	0.4	0	0.0	10	1.3	3	0.3
Sandakan	56	24.0	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ipoh	65	2.7	6	0.4	8	0.5	6	0.3	1	0.0	4	0.2	3	0.1	2	0.1
Kangar	12	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	-	-	-	-	0	0.0	0	0.0	3	4.2	6	13.6	0	0.0	0	0.0
Kota Bharu	0	0.0	5	0.7	2	0.3	6	0.7	2	0.2	0	0.0	0	0.0	1	0.2
Kuala Krai	-	-	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0
Kuala Lumpur	4	0.0	NA	NA	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	1	0.1
Kuala Pilah	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0
Kuala Terengganu	15	2.3	7	1.4	14	2.0	7	1.0	5	0.7	13	1.8	12	1.7	7	0.7
Melaka	1	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Miri	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Muar	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Pulau Pinang	11	0.3	3	0.3	4	0.3	0	0.0	0	0.0	0	0.0	2	0.3	1	0.1
Putrajaya	1	0.0	0	0.0	0	0.0	2	0.8	0	0.0	0	0.0	0	0.0	1	0.3
Kota Kinabalu	4	0.5	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Selayang	41	2.0	33	2.4	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	0	0.0
Serdang	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2
Sibu	6	0.7	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sri Manjung	-	-	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0
Sultan Ismail	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Johor Bahru	1	0.0	0	0.0	0	0.0	4	0.3	0	0.0	0	0.0	0	0.0	0	0.0
Sungai Buloh	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sungei Petani	2	0.0	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Taiping	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	1	0.0	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Teluk Intan	2	0.0	0	0.0	1	0.2	0	0.0	2	0.3	0	0.0	0	0.0	0	0.0
Temerloh	-	-	0	0.0	2	0.4	1	0.2	0	0.0	1	0.2	2	0.6	7	0.8
Kuantan	1	0.0	0	0.0	0	0.0	0	0.0	2	0.4	0	0.0	0	0.0	0	0.0
Klang	10	0.7	11	1.3	3	0.3	2	0.3	0	0.0	0	0.0	1	0.1	0	0.0
Seremban	7	0.3	1	0.1	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Kuching	7	0.3	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
Kemaman															1	2.2
Sarikei															2	0.7
KK1M East Coast															1	1.6
KK1M Sarawak															0	0.0
MAIWP															1	0.1

Table 1.3.9.2(i): Intravenous Sedation Alone and Age 50yr above by SDPs, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	310	0.7	55	0.3	37	0.2	29	0.1	18	0.1	23	0.1	34	0.1	28	0.1
Alor Setar	70	2.4	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	4	0.3	1	0.1
Ampang	-	-	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Batu Pahat	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bintulu	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	0	0.0	2	0.3	0	0.0	2	0.3	2	0.3	0	0.0	10	1.2	3	0.4
Sandakan	53	15.2	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ipoh	64	2.4	4	0.3	8	0.5	6	0.3	1	0.1	3	0.2	3	0.1	2	0.1
Kangar	11	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	-	-	-	-	0	0.0	0	0.0	3	4.5	5	12.2	0	0.0	0	0.0
Kota Bharu	0	0.0	5	0.7	2	0.3	5	0.6	1	0.1	0	0.0	0	0.0	0	0.0
Kuala Krai	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	4	0.2	-	-	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	0	0.0
Kuala Pilah	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
Kuala Terengganu	15	2.2	5	1.1	14	2.1	4	0.6	5	0.8	12	1.8	11	1.6	6	0.7
Melaka	1	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Miri	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Muar	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Pulau Pinang	11	0.4	3	0.3	4	0.3	0	0.0	0	0.0	0	0.0	2	0.2	1	0.1
Putrajaya	1	0.2	0	0.0	0	0.0	2	0.9	0	0.0	0	0.0	0	0.0	1	0.3
Kota Kinabalu	4	0.2	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Selayang	31	1.5	23	1.8	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	0	0.0
Serdang	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2
Sibu	3	0.2	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sri Manjung	-	-	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0
Sultan Ismail	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Johor Bahru	0	0.0	0	0.0	0	0.0	3	0.3	0	0.0	0	0.0	0	0.0	0	0.0
Sungai Buloh	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sungei Petani	2	0.1	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Taiping	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	1	0.1	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Teluk Intan	1	0.1	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Temerloh	-	-	0	0.0	2	0.4	0	0.0	0	0.0	1	0.2	2	0.3	7	0.9
Kuantan	1	0.0	0	0.0	0	0.0	0	0.0	2	0.5	0	0.0	0	0.0	0	0.0
Klang	9	0.7	9	1.0	3	0.3	2	0.3	0	0.0	0	0.0	1	0.1	0	0.0
Seremban	5	0.2	1	0.1	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Kuching	5	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kemaman															1	2.3
Sarikei															2	0.7
KK1M East Coast															1	1.7
KK1M Sarawak															0	0.0
MAIWP															1	0.1

1.3.10 Intraocular Lens Implantation

In 2012 the percentage of eyes with IOL implantation was 98.5%. Out of this proportion, 95.9% had posterior chamber IOL.

The material and type of IOL used demonstrated a shift from PMMA to Acrylic and from non-foldable to foldable. This pattern was consistent with the shift from ECCE to Phaco as the preferred method of cataract surgery.

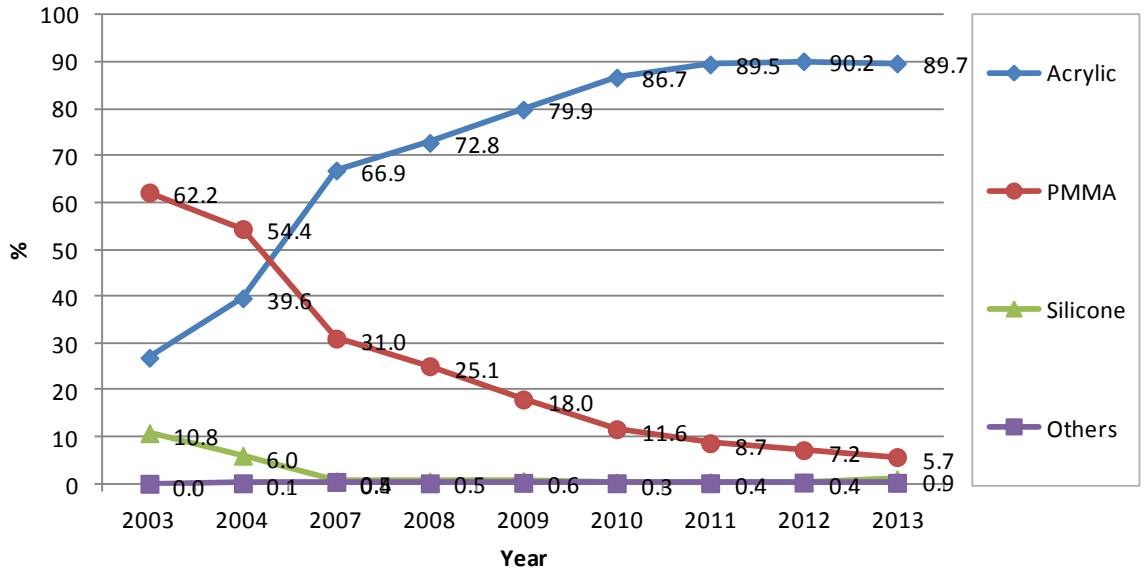
Table 1.3.10(a): Intraocular Lens Implantation, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
No of patients (N)	48005		18426		21496		24438		28506		30611		32473		37150	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
With IOL	46812	97.5	17873	97.0	21115	98.2	23982	98.1	27980	98.1	30061	98.2	31991	98.5	36545	98.4
Without IOL	1193	2.5	553	3.0	375	1.7	423	1.7	502	1.8	487	1.6	419	1.3	431	1.2
Not Available			-		6	0.0	33	0.1	24	0.1	63	0.2	63	0.2	174	0.5
IOL Placement																
No of IOL	46812		17873		21115		23982		27980		30061		31991		36545	
PCIOL	45441	97.1	17350	97.1	20342	96.3	23032	96	26932	96.3	28963	96.3	30683	95.9	35194	96.3
ACIOL	1287	2.7	482	2.7	454	2.2	570	2.4	543	1.9	573	1.9	575	1.8	595	1.6
Scleral Fixated IOL	79	0.2	35	0.2	36	0.2	21	0.1	20	0.1	21	0.1	15	0.0	25	0.1
Others	2	0.0	6	0.0	14	0.1	22	0.1	21	0.1	44	0.1	53	0.2	59	0.2
Not Available /missing	3	0.0	-		269	1.3	337	1.4	464	1.7	460	1.5	665	2.1	672	1.8
Materials of IOL																
No of IOL	46812		17873		21115		23982		27980		30061		31991		36545	
1. Acrylic	13164	28.1	11955	66.9	15382	72.8	19160	79.9	24270	86.7	26917	89.5	28861	90.2	32798	89.7
2. PMMA	29122	62.2	5547	31.0	5300	25.1	4313	18.0	3259	11.6	2603	8.7	2295	7.2	2083	5.7
3. Silicone	4524	9.7	97	0.5	113	0.5	137	0.6	75	0.3	110	0.4	117	0.4	347	0.9
4. Others	16	0.0	74	0.4	19	0.1	58	0.2	32	0.1	37	0.1	84	0.3	75	0.2
Not Available/ missing	1	0.0	200	1.1	301	1.4	314	1.3	344	1.2	394	1.3	634	2.0	1242	3.4
Types of IOL																
No of IOL	46812		17873		21115		23982		27980		30061		31991		36545	
1. Foldable	17692	37.8	11972	67.0	15320	72.6	19093	79.6	24036	85.9	26553	88.3	29107	91.0	33987	93.0
2. Non-foldable	29119	62.2	5590	31.3	5316	25.2	4280	17.8	3231	11.5	2694	9.0	2345	7.3	1929	5.3
Not Available/ missing	1	0.0	311	1.7	479	2.3	609	2.5	713	2.5	814	2.7	539	1.7	629	1.7

Table 1.3.10(b): Distribution of IOL Placement by SDP, CSR 2013

Cataract Surgery With IOL							
		Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL	
	N	**n**	**%**	**n**	**%**	**n**	**%**
All Centres	36545	35194	96.3	595	1.6	25	0.1
Alor Setar	1704	1619	95.0	24	1.4	0	0.0
Ampang	977	943	96.5	19	1.9	0	0.0
Batu Pahat	433	417	96.3	12	2.8	0	0.0
Bintulu	381	366	96.1	6	1.6	0	0.0
Bukit Mertajam	905	880	97.2	8	0.9	0	0.0
Sandakan	403	383	95.0	5	1.2	0	0.0
Ipoh	2921	2797	95.8	30	1.0	2	0.1
Kangar	461	431	93.5	21	4.6	0	0.0
Keningau	15	15	100.0	0	0.0	0	0.0
Kota Bharu	671	651	97.0	8	1.2	7	1.0
Kuala Krai	386	366	94.8	7	1.8	0	0.0
Kuala Lumpur	1137	1125	98.9	3	0.3	0	0.0
Kuala Pilah	492	480	97.6	8	1.6	0	0.0
Kuala Terengganu	960	943	98.2	16	1.7	0	0.0
Melaka	1696	1645	97.0	31	1.8	4	0.2
Miri	911	904	99.2	3	0.3	0	0.0
Muar	705	685	97.2	15	2.1	1	0.1
Pulau Pinang	1667	1619	97.1	16	1.0	1	0.1
Putrajaya	389	376	96.7	11	2.8	0	0.0
Kota Kinabalu	963	936	97.2	24	2.5	0	0.0
Selayang	1318	1243	94.3	37	2.8	0	0.0
Serdang	1010	956	94.7	29	2.9	0	0.0
Sibu	894	871	97.4	18	2.0	0	0.0
Sri Manjung	816	799	97.9	4	0.5	0	0.0
Sultan Ismail	370	364	98.4	2	0.5	0	0.0
Johor Bahru	1348	1316	97.6	18	1.3	1	0.1
Sungai Buloh	575	548	95.3	10	1.7	0	0.0
Sungei Petani	904	859	95.0	30	3.3	0	0.0
Taiping	1280	1262	98.6	17	1.3	0	0.0
Tawau	498	468	94.0	19	3.8	0	0.0
Teluk Intan	1096	1060	96.7	11	1.0	1	0.1
Temerloh	852	824	96.7	21	2.5	0	0.0
Kuantan	563	529	94.0	3	0.5	0	0.0
Klang	1594	1449	90.9	27	1.7	2	0.1
Seremban	1512	1453	96.1	28	1.9	1	0.1
Kuching	1691	1611	95.3	19	1.1	5	0.3
Kemaman	47	44	93.6	1	2.1	0	0.0
Sarikei	285	279	97.9	4	1.4	0	0.0
KK1M East Coast	64	58	90.6	3	4.7	0	0.0
KK1M Sarawak	75	73	97.3	1	1.3	0	0.0
MAIWP	1576	1547	98.2	26	1.6	0	0.0

Figure 1.3.10: Intraocular Lens Implantation, CSR 2002-2012



1.4 INTRA-OPERATIVE COMPLICATIONS

1.4.1 Intra-operative Complications by Years

The percentage of intra-operative complications increased slightly to 5.4% in 2013. The rate of occurrence of PCR was maintained at 2.7%; similar to the 2012 rate. The more serious complications such as nucleus drop (or dropped nucleus) and suprachoroidal haemorrhage were not frequent and the trend remained unchanged.

Table 1.4.1(a): Distribution of Type of Intra-operative Complications, CSR 2002-2013

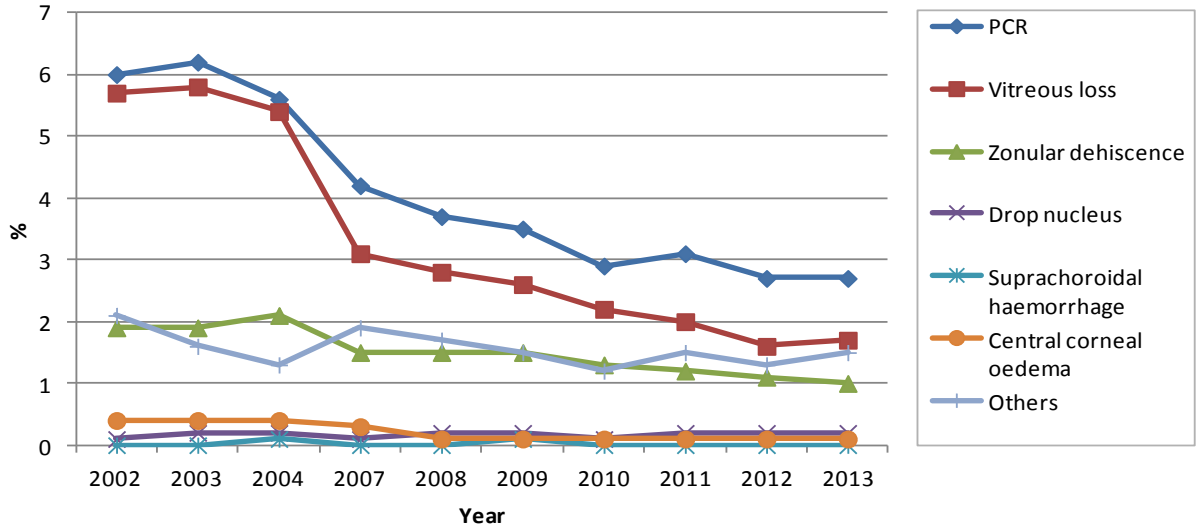
Year	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
No. of patients (N)	48004		18380		21496		24438		28506		30611		32473		37150	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Patient with intra-op complication	4731	9.9	1999	10.9	1636	7.6	1645	6.7	1610	5.6	1787	5.8	1702	5.2	1998	5.4
Types of complications																
PCR	2834	5.9	764	4.2	798	3.7	858	3.5	840	2.9	936	3.1	870	2.7	1017	2.7
Vitreous loss	2707	5.6	569	3.1	608	2.8	642	2.6	639	2.2	611	2.0	529	1.6	644	1.7
Zonular dehiscence	953	2.0	275	1.5	322	1.5	372	1.5	377	1.3	362	1.2	359	1.1	391	1.0
Drop nucleus	74	0.2	21	0.1	33	0.2	40	0.2	38	0.1	58	0.2	56	0.2	63	0.2
Suprachoroidal haemorrhage	23	0.0	9	0.0	10	0.0	13	0.1	9	0.0	8	0.0	8	0.0	8	0.0
Central corneal oedema	207	0.4	58	0.3	27	0.1	22	0.1	26	0.1	36	0.1	30	0.1	23	0.1
Others	775	1.6	350	1.9	361	1.7	373	1.5	338	1.2	449	1.5	439	1.3	572	1.5

Table 1.4.1(b): Distribution of Type of Intra-operative Complications – Posterior Capsule Rupture, CSR 2002-2013

Year	2002-2004*		2007*		2008		2009		2010		2011		2012		2013	
No. of patients (N)	48004		18380		21496		24438		28506		30611		32473		37150	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Patient with intra-op complication	4731	9.9	1999	10.9	1636	7.6	1645	6.7	1610	5.6	1787	5.8	1702	5.2	1998	5.4
Types of complications																
PCR and Others	2834	5.9	764	4.2	798	3.7	858	3.5	840	2.9	936	3.1	870	2.7	1017	2.7
PCR Only					347	1.6	403	1.6	402	1.4	485	1.6	481	1.5	547	1.5

**Data from 2002-2007 could not be analyzed due to improperly organized old data.*

Figure 1.4.1: Distribution of Specific Type of Intra-operative Complications, CSR 2002-2013



1.4.2 Intra-operative Complication by Type of Surgery

Similar to previous years, phacoemulsification demonstrated the lowest rate of intra-operative complications in 2013. It was followed by lens aspiration and ECCE. The percentage of intra-operative complications in phacoemulsification remained the same, whereas the percentage of complications was higher in 2013 in ECCE and lens aspiration compared to the previous 3 years.

Table 1.4.2(a): Intra-operative Complications by Types of Cataract Surgery, CSR 2002-2013

Year	2002		2003		2004		2007		2008	
	n	%	n	%	n	%	n	%	n	%
Phaco	438	8.6	667	8.7	747	8.0	969	8.1	753	5.1
ECCE	684	9.9	697	8.7	680	8.7	691	12.5	532	9.5
Lens Aspiration	51	13.7	50	11.5	58	10.5	51	15.8	31	9.1
ICCE	27	33.3	39	41.5	50	48.5	63	44.7	60	46.5
Phaco → ECCE	128	41.2	206	43.9	177	39.0	225	52.1	240	45.8
Others	-	-	14	10.7	18	10.5	-	-	16	25.8
Missing	-	-	-	-	-	-	9	20.0	4	12.1

Year	2009			2010			2011			2012			2013		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	17717	787	4.4	21810	798	3.7	23872	927	3.9	26345	930	3.5	31625	1112	3.5
ECCE	5457	460	8.4	5363	442	8.2	5291	404	7.6	4784	359	7.5	4086	373	9.1
Lens Aspiration	400	38	9.5	451	34	7.5	460	29	6.3	444	26	5.9	364	31	8.5
ICCE	134	64	47.8	143	64	44.8	123	53	43.1	136	58	42.6	173	68	39.3
Phaco → ECCE	573	276	48.2	586	249	42.5	652	316	48.5	621	300	48.3	769	383	49.8
Others	74	8	10.8	104	20	19.2	132	21	15.9	110	27	24.5	84	20	23.8
Missing	83	12	14.5	49	3	6.1	81	37	45.7	33	2	6.1	49	11	22.4

Figure1.4.2: Intra-operative Complications by Types of Cataract Surgery, CSR 2002-2013

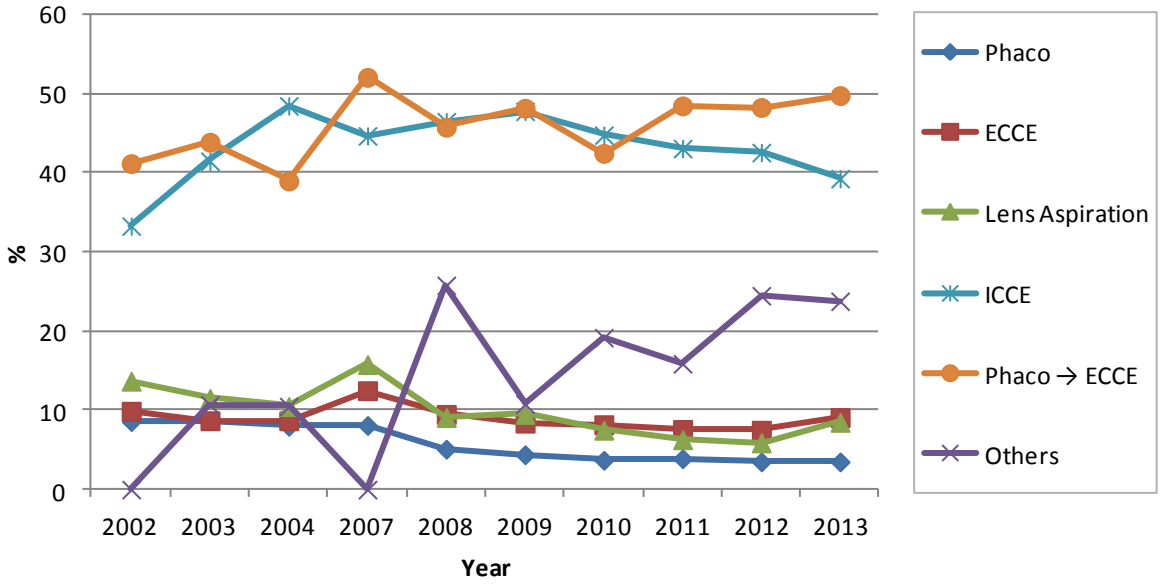


Table 1.4.2(b): Distribution of Types of Intra-operative Complications by Specific Types of Cataract Surgery, CSR 2013

	All Surgeries		Phaco		ECCE		Lens Aspiration		ICCE		Phaco converted to ECCE		Others	
Number of patients (N)	37150		31625		4086		364		173		769		84	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-op complication	1998	5.4	1112	3.5	373	9.1	31	8.5	68	39.3	383	49.8	20	23.8
Posterior capsule rupture	1017	2.7	633	2.0	160	3.9	12	3.3	8	4.6	196	25.5	4	4.8
Vitreous loss	644	1.7	279	0.9	122	3.0	11	3.0	43	24.9	182	23.7	7	8.3
Zonular dehiscence	391	1.1	173	0.5	90	2.2	4	1.1	16	9.2	102	13.3	6	7.1
Nucleus drop (or dropped nucleus)	63	0.2	51	0.2	1	0.0	0	0.0	0	0.0	10	1.3	1	1.2
Suprachoroidal haemorrhage	8	0.0	2	0.0	1	0.0	1	0.3	1	0.6	3	0.4	0	0.0
Central corneal oedema	23	0.1	9	0.0	6	0.1	0	0.0	0	0.0	6	0.8	1	1.2
Others	572	1.5	305	1.0	121	3.0	14	3.8	18	10.4	101	13.1	7	8.3

Table 1.4.2(c): Distribution of Types of Intra-operative Complications by SDP, CSR 2013

Hospital	No. of patients (N)	Any intra-op complication		PCR		Vitreous loss		Zonular Dehiscence		Nucleus drop (or dropped nucleus)		Suprachoroidal Haemorrhage		Central Corneal Edema		Others	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centre	37150	1998	5.4	1017	2.7	644	1.7	391	1.1	63	0.2	8	0.0	23	0.1	572	1.5
Alor Setar	1758	77	4.4	48	2.7	23	1.3	13	0.7	3	0.2	0	0.0	0	0.0	21	1.2
Ampang	983	61	6.2	31	3.2	23	2.3	17	1.7	2	0.2	0	0.0	1	0.1	10	1.0
Batu Pahat	433	30	6.9	22	5.1	19	4.4	4	0.9	0	0.0	0	0.0	0	0.0	3	0.7
Bintulu	383	3	0.8	1	0.3	3	0.8	3	0.8	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	909	39	4.3	21	2.3	6	0.7	9	1.0	0	0.0	0	0.0	0	0.0	12	1.3
Ipoh	3032	126	4.2	88	2.9	23	0.8	23	0.8	2	0.1	0	0.0	1	0.0	13	0.4
Johor Bahru	1350	62	4.6	42	3.1	24	1.8	14	1.0	5	0.4	0	0.0	1	0.1	5	0.4
Kangar	466	27	5.8	22	4.7	1	0.2	4	0.9	2	0.4	0	0.0	0	0.0	0	0.0
Kemaman	47	1	2.1	0	0.0	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	15	1	6.7	1	6.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	1612	56	3.5	12	0.7	3	0.2	12	0.7	0	0.0	1	0.1	0	0.0	31	1.9
Kota Bharu	682	30	4.4	16	2.3	5	0.7	4	0.6	2	0.3	1	0.1	3	0.4	4	0.6
Kota Kinabalu	978	109	11.1	66	6.7	25	2.6	13	1.3	3	0.3	0	0.0	0	0.0	29	3.0
Kuala Krai	397	32	8.1	14	3.5	11	2.8	11	2.8	1	0.3	0	0.0	0	0.0	2	0.5
Kuala Lumpur	1150	21	1.8	15	1.3	9	0.8	2	0.2	1	0.1	0	0.0	1	0.1	0	0.0
Kuala Pilah	492	11	2.2	6	1.2	6	1.2	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
Kuala Terengganu	1014	113	11.1	39	3.8	18	1.8	15	1.5	1	0.1	0	0.0	1	0.1	71	7.0
Kuantan	619	26	4.2	11	1.8	7	1.1	6	1.0	0	0.0	0	0.0	4	0.6	6	1.0
Kuching	1721	51	3.0	32	1.9	17	1.0	8	0.5	4	0.2	2	0.1	0	0.0	5	0.3
Melaka	1719	119	6.9	83	4.8	58	3.4	19	1.1	0	0.0	0	0.0	0	0.0	9	0.5
Miri	915	9	1.0	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	8	0.9
Muar	717	50	7.0	42	5.9	24	3.3	5	0.7	2	0.3	0	0.0	0	0.0	0	0.0
Pulau Pinang	1696	91	5.4	46	2.7	48	2.8	22	1.3	8	0.5	1	0.1	2	0.1	23	1.4
Putrajaya	391	17	4.3	10	2.6	15	3.8	6	1.5	1	0.3	0	0.0	0	0.0	0	0.0
Sandakan	411	29	7.1	15	3.6	4	1.0	8	1.9	0	0.0	1	0.2	3	0.7	2	0.5
Sarikei	286	9	3.1	7	2.4	1	0.3	0	0.0	3	1.0	0	0.0	0	0.0	0	0.0
Selayang	1337	92	6.9	51	3.8	43	3.2	30	2.2	6	0.4	0	0.0	0	0.0	12	0.9
Serdang	1023	79	7.7	43	4.2	36	3.5	25	2.4	2	0.2	0	0.0	0	0.0	13	1.3
Seremban	1520	78	5.1	46	3.0	34	2.2	19	1.3	3	0.2	1	0.1	0	0.0	14	0.9
Sibu	900	37	4.1	17	1.9	7	0.8	9	1.0	1	0.1	0	0.0	1	0.1	16	1.8
Sri Manjung	832	40	4.8	17	2.0	6	0.7	10	1.2	0	0.0	0	0.0	1	0.1	11	1.3
Sultan Ismail	374	7	1.9	5	1.3	2	0.5	1	0.3	0	0.0	0	0.0	0	0.0	3	0.8
Sungai Buloh	580	28	4.8	22	3.8	16	2.8	2	0.3	1	0.2	1	0.2	0	0.0	2	0.3
Sungei Petani	930	76	8.2	23	2.5	27	2.9	22	2.4	0	0.0	0	0.0	1	0.1	29	3.1
Taiping	1284	34	2.6	18	1.4	19	1.5	20	1.6	2	0.2	0	0.0	0	0.0	2	0.2
Tawau	503	48	9.5	45	8.9	33	6.6	1	0.2	0	0.0	0	0.0	0	0.0	1	0.2
Teluk Intan	1102	40	3.6	20	1.8	8	0.7	9	0.8	0	0.0	0	0.0	0	0.0	9	0.8
Temerloh	866	174	20.1	15	1.7	13	1.5	10	1.2	1	0.1	0	0.0	1	0.1	158	18.2
KK1M East Coast	64	10	15.6	2	3.1	3	4.7	2	3.1	0	0.0	0	0.0	0	0.0	6	9.4
KK1M Sarawak	76	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MAIWP	1583	55	3.5	2	0.1	23	1.5	12	0.8	7	0.4	0	0.0	1	0.1	42	2.7

Table 1.4.2(d): Distribution of Types of Intra-operative Complications in "Phaco Converted to ECCE" by SDP, CSR 2013

Hospital	No. of patients (N)	Any intra-op complication		PCR		Vitreous loss		Zonular Dehiscence		Nucleus drop (or dropped nucleus)		Suprachoroidal Haemorrhage		Central Corneal Edema		Others	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centre	769	383	49.8	196	25.5	182	23.7	102	13.3	10	1.3	3	0.4	6	0.8	101	13.1
Alor Setar	21	9	42.9	5	23.8	4	19.0	4	19.0	0	0.0	0	0.0	0	0.0	1	4.8
Ampang	24	11	45.8	5	20.8	5	20.8	5	20.8	0	0.0	0	0.0	1	4.2	2	8.3
Batu Pahat	14	7	50.0	6	42.9	5	35.7	2	14.3	0	0.0	0	0.0	0	0.0	0	0.0
Bintulu	7	1	14.3	1	14.3	1	14.3	1	14.3	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	3	2	66.7	1	33.3	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ipoh	27	6	22.2	4	14.8	1	3.7	1	3.7	0	0.0	0	0.0	0	0.0	1	3.7
Johor Bahru	20	11	55.0	8	40.0	8	40.0	4	20.0	1	5.0	0	0.0	1	5.0	0	0.0
Kangar	6	3	50.0	2	33.3	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0
Kemaman	1	1	100.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	32	12	37.5	2	6.3	0	0.0	6	18.8	0	0.0	0	0.0	0	0.0	5	15.6
Kota Bharu	24	4	16.7	1	4.2	2	8.3	1	4.2	0	0.0	0	0.0	1	4.2	0	0.0
Kota Kinabalu	29	23	79.3	12	41.4	9	31.0	7	24.1	2	6.9	0	0.0	0	0.0	2	6.9
Kuala Krai	13	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	16	3	18.8	2	12.5	2	12.5	1	6.3	1	6.3	0	0.0	0	0.0	0	0.0
Kuala Pilah	18	3	16.7	1	5.6	2	11.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Terengganu	9	6	66.7	1	11.1	2	22.2	2	22.2	0	0.0	0	0.0	0	0.0	5	55.6
Kuantan	17	5	29.4	2	11.8	2	11.8	2	11.8	0	0.0	0	0.0	1	5.9	0	0.0
Kuching	24	12	50.0	7	29.2	6	25.0	3	12.5	0	0.0	1	4.2	0	0.0	2	8.3
Melaka	10	7	70.0	5	50.0	6	60.0	1	10.0	0	0.0	0	0.0	0	0.0	0	0.0
Miri	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Muar	12	10	83.3	9	75.0	6	50.0	2	16.7	0	0.0	0	0.0	0	0.0	0	0.0
Pulau Pinang	43	24	55.8	12	27.9	12	27.9	5	11.6	0	0.0	1	2.3	0	0.0	8	18.6
Putrajaya	30	11	36.7	5	16.7	11	36.7	6	20.0	1	3.3	0	0.0	0	0.0	0	0.0
Sandakan	6	4	66.7	3	50.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	16.7
Sarikei	2	2	100.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Selayang	31	21	67.7	10	32.3	16	51.6	9	29.0	1	3.2	0	0.0	0	0.0	4	12.9
Serdang	40	20	50.0	12	30.0	7	17.5	3	7.5	1	2.5	0	0.0	0	0.0	5	12.5
Seremban	17	11	64.7	9	52.9	8	47.1	4	23.5	0	0.0	1	5.9	0	0.0	0	0.0
Sibu	20	14	70.0	6	30.0	1	5.0	3	15.0	0	0.0	0	0.0	0	0.0	7	35.0
Sri Manjung	4	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	25.0
Sultan Ismail	26	4	15.4	3	11.5	1	3.8	1	3.8	0	0.0	0	0.0	0	0.0	2	7.7
Sungai Buloh	23	10	43.5	7	30.4	9	39.1	1	4.3	0	0.0	0	0.0	0	0.0	0	0.0
Sungei Petani	30	19	63.3	7	23.3	8	26.7	7	23.3	0	0.0	0	0.0	1	3.3	5	16.7
Taiping	14	8	57.1	5	35.7	7	50.0	4	28.6	2	14.3	0	0.0	0	0.0	0	0.0
Tawau	54	30	55.6	28	51.9	25	46.3	0	0.0	0	0.0	0	0.0	0	0.0	1	1.9
Teluk Intan	15	9	60.0	5	33.3	1	6.7	3	20.0	0	0.0	0	0.0	0	0.0	1	6.7
Temerloh	53	42	79.2	7	13.2	4	7.5	5	9.4	0	0.0	0	0.0	1	1.9	38	71.7
KK1M East Coast	5	4	80.0	1	20.0	2	40.0	2	40.0	0	0.0	0	0.0	0	0.0	2	40.0
KK1M Sarawak	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MAIWP	27	13	48.1	0	0.0	6	22.2	5	18.5	1	3.7	0	0.0	0	0.0	8	29.6

1.4.3 Intra-operative Complications by Combined Surgery

The percentage of intra-operative complications was higher in combined surgery when compared to cataract surgery performed alone. PCR and vitreous loss remained the commonest complications encountered.

Table 1.4.3(a): Distribution of Intra-operative Complications by Any Combined Surgery, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
Number of combined surgery (N)	1689		891		664		871		1082		1194		1221		1026	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	289	17.1	131	14.7	89	10.0	113	13.0	121	11.2	222	18.6	240	19.7	149	14.5
Types of complications																
PCR	172	10.2	56	6.3	54	6.1	62	7.1	61	5.6	140	11.7	146	12.0	85	8.3
Vitreous loss	184	10.9	41	4.6	40	4.5	51	5.9	53	4.9	101	8.5	123	10.1	75	7.3
Zonular dehiscence	63	3.7	21	2.4	15	1.7	21	2.4	28	2.6	49	4.1	61	5.0	37	3.6
Nucleus drop (or dropped nucleus)	13	0.8	4	0.4	3	0.3	8	0.9	10	0.9	20	1.7	16	1.3	12	1.2
Suprachoroidal haemorrhage	4	0.2	0	0.0	0.0	0.0	4	0.5	1	0.1	2	0.2	2	0.2	0	0.0
Central corneal oedema	15	0.9	7	0.8	3	0.3	1	0.1	2	0.2	0	0.0	2	0.2	1	0.1
Others	46	2.7	30	3.4	14	1.6	21	2.4	24	2.2	29	2.4	38	3.1	25	2.4

Table 1.4.3(b): Distribution of Intra-operative Complications by Specific Combined Surgery, CSR 2013

	All Surgeries		Any Combined Surgery		Pterygium Surgery		Filtering Surgery		Vitreo-Retinal Surgery		Penetrating Keratoplasty		Others	
No. of patients (N)	37150		1026		83		114		536		2		311	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-op complication	1998	5.4	149	14.5	6	7.2	8	7.0	32	6.0	0	0.0	106	34.1
PCR	1017	2.7	85	8.3	4	4.8	3	2.6	16	3.0	0	0.0	63	20.3
Vitreous loss	644	1.7	75	7.3	2	2.4	1	0.9	9	1.7	0	0.0	65	20.9
Zonular dehiscene	391	1.1	37	3.6	1	1.2	5	4.4	4	0.7	0	0.0	27	8.7
Nucleus drop (or dropped nucleus)	63	0.2	12	1.2	0	0.0	0	0.0	6	1.1	0	0.0	6	1.9
Suprachoroidal haemorrhage	8	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal oedema	23	0.1	1	0.1	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0
Others	572	1.5	25	2.4	1	1.2	1	0.9	5	0.9	0	0.0	20	6.4

Table 1.4.3(c): Distribution of Intra-operative Complications when Combined with Filtering Surgery, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
N	593		131		142		132		121		64		71		114	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-op complication	62	10.5	24	18.3	9	6.3	16	12.1	8	6.6	5	7.8	3	4.2	8	7.0
Posterior capsule rupture	8	1.3	9	6.9	3	2.1	4	3.0	3	2.5	1	1.6	2	2.8	3	2.6
Vitreous loss	32	5.4	7	5.3	5	3.5	7	5.3	2	1.7	3	4.7	1	1.4	1	0.9
Zonular dehiscence	5	0.8	4	3.1	3	2.1	5	3.8	1	0.8	3	4.7	0	0.0	5	4.4
Nucleus drop (or dropped nucleus)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Suprachoroidal haemorrhage	1	0.2	0	0.0	0	0.0	2	1.5	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal oedema	4	0.7	3	2.3	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	14	2.4	5	3.8	1	0.7	3	2.3	3	2.5	0	0.0	0	0.0	1	0.9

Table 1.4.3(d): Distribution of Intra-operative Complications when Combined with VR Surgery, CSR 2002-2013

Year	2002-2004		2007		2008		2009		2010		2011		2012		2013	
N	312		435		237		402		601		672		585		536	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-op complication	58	18.6	45	10.3	21	8.9	32	8.0	35	5.8	69	10.3	45	7.7	32	6.0
Posterior capsule rupture	15	4.8	18	4.1	17	7.2	18	4.5	22	3.7	41	6.1	23	3.9	16	3.0
Vitreous loss	25	8.0	11	2.5	6	2.5	5	1.2	9	1.5	10	1.5	8	1.4	9	1.7
Zonular dehiscence	5	1.6	6	1.4	1	0.4	2	0.5	5	0.8	13	1.9	6	1.0	4	0.7
Nucleus drop (or dropped nucleus)	6	1.9	3	0.7	2	0.8	6	1.5	6	1.0	15	2.2	7	1.2	6	1.1
Suprachoroidal haemorrhage	0	0.0	0	0.0	0	0.0	2	0.5	0	0.0	2	0.3	1	0.2	0	0.0
Central corneal oedema	3	1.0	3	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2
Others	9	2.9	12	2.8	3	1.3	5	1.2	4	0.7	10	1.5	15	2.6	5	0.9

1.4.4 Intra-operative Complications by Types of Local Anaesthesia

Table 1.4.4: Intra-operative Complications by Types of Local Anaesthesia, CSR 2013

	All Local Anaesthesia		Retrobulbar		Peribulbar		Subtenon		Sub-Conjunctival		Facial Block		Topical		Intracameral	
N	34622		503		308		9913		1338		24		22220		4733	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-op complication	1842	5.3	20	4.0	11	3.6	837	8.4	66	4.9	3	12.5	1038	4.7	201	4.2
Posterior capsule rupture	954	2.8	11	2.2	6	1.9	417	4.2	45	3.4	2	8.3	546	2.5	114	2.4
Vitreous loss	599	1.7	1	0.2	5	1.6	316	3.2	28	2.1	1	4.2	318	1.4	72	1.5
Zonular dehiscene	357	1.0	4	0.8	2	0.6	170	1.7	8	0.6	0	0.0	198	0.9	45	1.0
Nucleus drop (or dropped nucleus)	61	0.2	0	0.0	2	0.6	22	0.2	3	0.2	0	0.0	37	0.2	8	0.2
Suprachoroidal haemorrhage	8	0.0	1	0.2	0	0.0	3	0.0	1	0.1	0	0.0	4	0.0	1	0.0
Central corneal oedema	19	0.1	1	0.2	0	0.0	12	0.1	0	0.0	0	0.0	7	0.0	1	0.0
Other	515	1.5	5	1.0	1	0.3	230	2.3	11	0.8	1	4.2	296	1.3	44	0.9

Number or percentage may be more than total or 100% as patient might have more than one intra-operative complication

1.4.5 Intra-operative Complications by Surgeon Status

Intra-operative complications were highest in surgeries performed by the MOs. The complications were mainly PCR and vitreous loss.

Table 1.4.5(a)(i): Percentage of Intra-operative Complications by Surgeon Status, CSR 2003-2013

(1) Specialist

Year	2003-2004		2007		2008*		2009		2010		2011		2012		2013	
N	25237		14327		16846		19400		24216		25590		27684		32861	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	2314	9.2	1485	10.4	1144	6.8	1218	6.3	1248	5.2	1368	5.3	1323	4.8	1649	5.0
PCR	379	1.5	546	3.8	538	3.2	610	3.1	649	2.7	706	2.8	642	2.3	803	2.4
Vitreous loss	1035	4.1	405	2.8	417	2.5	474	2.4	473	2.0	438	1.7	382	1.4	513	1.6
Zonular dehiscense	314	1.2	204	1.4	232	1.4	293	1.5	300	1.2	285	1.1	282	1.0	337	1.0
Nucleus drop (or dropped nucleus)	50	0.2	20	0.1	24	0.1	30	0.2	33	0.1	49	0.2	43	0.2	52	0.2
Suprachoroidal hemorrhage	14	0.1	5	0.0	3	0.0	10	0.1	6	0.0	7	0.0	7	0.0	6	0.0
Central corneal edema	82	0.3	50	0.4	19	0.1	13	0.1	19	0.1	33	0.1	23	0.1	20	0.1
Others	329	1.3	261	1.8	279	1.7	289	1.5	254	1.0	347	1.4	371	1.3	499	1.5

(2) Gazetting Specialist

Year	2003-2004		2007		2008*		2009		2010		2011		2012		2013	
N	3267		1276		1399		2053		1405		2487		2411		2014	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	407	12.5	175	13.7	167	11.9	171	8.3	98	7.0	182	7.3	190	7.9	147	7.3
PCR	59	1.8	85	6.7	91	6.5	96	4.7	44	3.1	113	4.5	125	5.2	90	4.5
Vitreous loss	196	6.0	54	4.2	76	5.4	73	3.6	35	2.5	84	3.4	72	3.0	45	2.2
Zonular dehiscense	43	1.3	24	1.9	32	2.3	33	1.6	30	2.1	33	1.3	34	1.4	24	1.2
Nucleus drop (or dropped nucleus)	6	0.2	0	0.0	3	0.2	3	0.1	2	0.1	4	0.2	8	0.3	6	0.3
Suprachoroidal hemorrhage	3	0.1	1	0.1	1	0.1	2	0.1	1	0.1	0	0.0	0	0.0	1	0.0
Central corneal edema	23	0.7	5	0.4	5	0.4	7	0.3	3	0.2	0	0.0	2	0.1	2	0.1
Others	52	1.6	37	2.9	37	2.9	28	1.4	27	1.9	27	1.1	31	1.3	32	1.6

(3) Medical Officer

Year	2003-2004		2007		2008*		2009		2010		2011		2012		2013	
N	6703		2690		2697		2750		2871		2478		2354		2244	
	n	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	682	10.2	330	12.3	264	9.8	242	8.8	263	9.2	202	8.2	189	8.0	199	8.9
PCR	87	1.3	126	4.7	148	5.5	139	5.1	147	5.1	116	4.7	103	4.4	124	5.5
Vitreous loss	305	4.6	105	3.9	105	3.9	92	3.3	131	4.6	89	3.6	75	3.2	86	3.8
Zonular dehiscense	80	1.2	43	1.6	46	1.7	45	1.6	47	1.6	43	1.7	43	1.8	30	1.3
Nucleus drop (or dropped nucleus)	5	0.1	1	0.0	4	0.2	7	0.3	3	0.1	5	0.2	5	0.2	5	0.2
Suprachoroidal hemorrhage	1	0.0	3	0.1	4	0.2	1	0.0	2	0.1	1	0.0	1	0.0	1	0.0
Central corneal edema	46	0.7	2	0.1	3	0.1	2	0.1	4	0.1	3	0.1	5	0.2	1	0.0
Others	120	1.8	51	1.9	51	1.9	56	2.0	56	2.0	42	1.7	37	1.6	38	1.7

Figure 1.4.5 (i): Percentage Distribution of Intra-operative Complications (All Surgery) by Surgeon Status, CSR 2003-2013

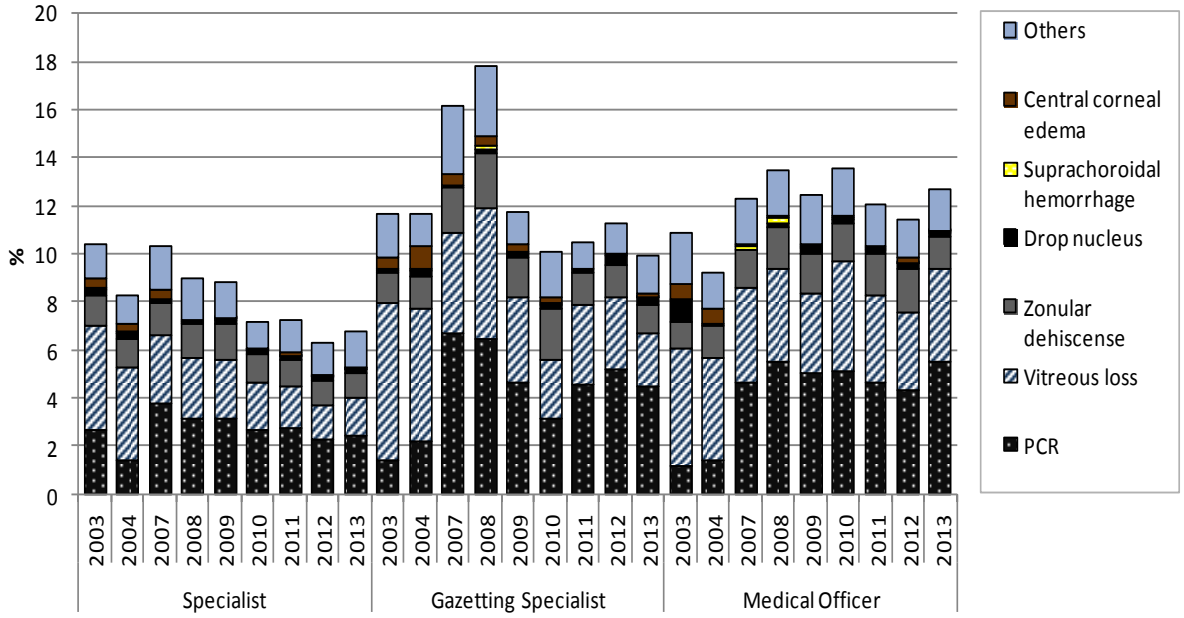


Table 1.4.5(a)(ii): Percentage of Intra-operative Complications by Surgeon Status for Phacoemulsification, CSR 2009-2013

(1) Specialist

Year	**2009**		**2010**		**2011**		**2012**		**2013**	
N	15206		19797		20963		23291		28774	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	627	4.1	680	3.4	780	3.7	755	3.2	977	3.4
PCR	354	2.3	408	2.1	453	2.2	413	1.8	534	1.9
Vitreous loss	201	1.3	211	1.1	202	1.0	168	0.7	230	0.8
Zonular dehiscense	118	0.8	113	0.6	116	0.6	121	0.5	160	0.6
Nucleus drop (or dropped nucleus)	24	0.2	26	0.1	37	0.2	29	0.1	42	0.1
Suprachoroidal hemorrhage	3	0.0	3	0.0	1	0.0	4	0.0	2	0.0
Central corneal edema	10	0.1	13	0.1	24	0.1	14	0.1	8	0.0
Others	153	1.0	136	0.7	195	0.9	201	0.9	284	1.0

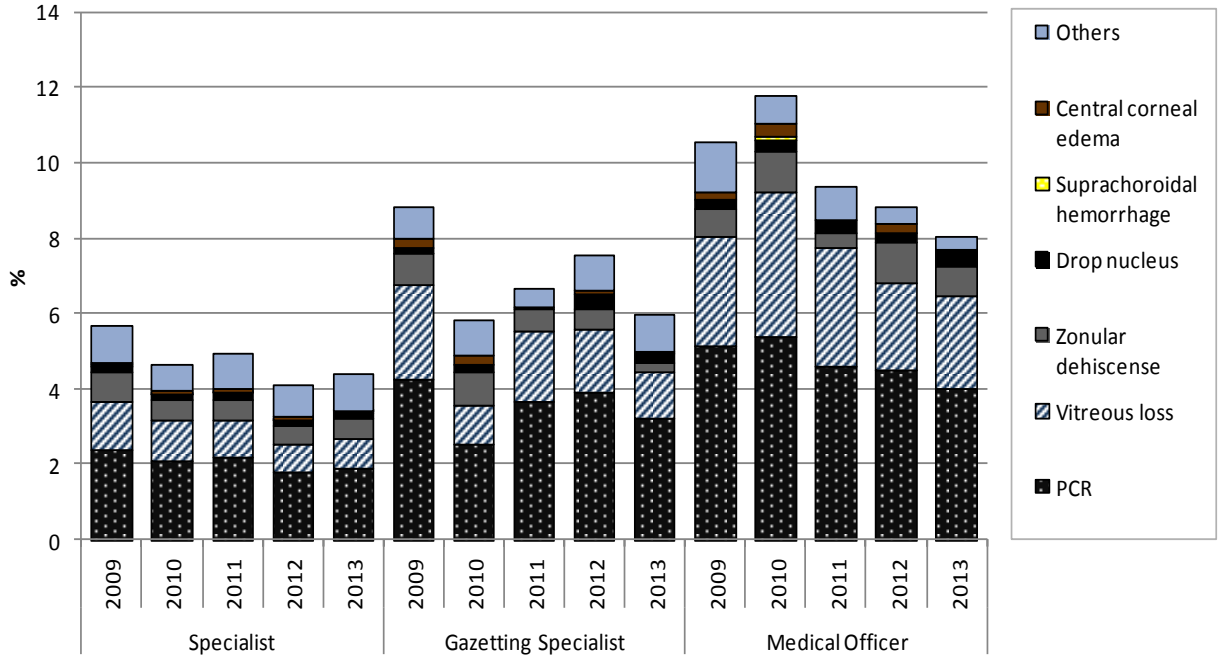
(2) Gazetting Specialist

Year	**2009**		**2010**		**2011**		**2012**		**2013**	
N	1422		929		1845		1850		1694	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	86	6.0	39	4.2	86	4.7	102	5.5	74	4.4
PCR	60	4.2	23	2.5	67	3.6	72	3.9	54	3.2
Vitreous loss	36	2.5	10	1.1	35	1.9	31	1.7	21	1.2
Zonular dehiscense	12	0.8	8	0.9	10	0.5	10	0.5	4	0.2
Nucleus drop (or dropped nucleus)	2	0.1	2	0.2	1	0.1	7	0.4	4	0.2
Suprachoroidal hemorrhage	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal edema	3	0.2	2	0.2	0	0.0	2	0.1	1	0.1
Others	12	0.8	9	1.0	9	0.5	17	0.9	17	1.0

(3) Medical Officer

Year	2009		2010		2011		2012		2013	
N	923		1078		1050		1182		1132	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Any intra-operative complication	64	6.9	79	7.3	61	5.8	73	6.2	61	5.4
PCR	47	5.1	58	5.4	48	4.6	53	4.5	45	4.0
Vitreous loss	27	2.9	41	3.8	33	3.1	27	2.3	28	2.5
Zonular dehiscense	7	0.8	12	1.1	4	0.4	13	1.1	9	0.8
Nucleus drop (or dropped nucleus)	2	0.2	3	0.3	4	0.4	3	0.3	5	0.4
Suprachoroidal hemorrhage	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
Central corneal edema	2	0.2	4	0.4	0	0.0	3	0.3	0	0.0
Others	12	1.3	8	0.7	9	0.9	5	0.4	4	0.4

Figure 1.4.5 (ii): Percentage Distribution of Intra-operative Complications (in Phacoemulsification) by Surgeon Status, CSR 2009-2013



1.4.6 PCR

PCR among SDPs varied. Hospital Tawau had the highest percentage of PCR among all the SDPs in 2013

Table 1.4.6 (i): PCR by SDP, CSR 2007-2013

Hospital	2007			2008			2009			2010			2011			2012			2013		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Alor Setar	652	10	1.5	986	29	3	1110	22	2.0	1527	25	1.6	1939	46	2.4	1835	46	2.5	1758	48	2.7
Ampang	33	0	0	208	3	1	433	14	3.2	627	32	5.1	708	27	3.8	896	40	4.5	983	31	3.2
Batu Pahat	550	20	3.6	573	14	2	602	26	4.3	411	15	3.6	554	30	5.4	608	42	6.9	433	22	5.1
Bintulu	0	0	0	30	1	3	124	10	8.1	258	7	2.7	332	8	2.4	391	7	1.8	383	1	0.3
Bukit Mertajam	697	18	2.6	487	8	2	743	16	2.2	804	22	2.7	803	26	3.2	928	31	3.3	909	21	2.3
Ipoh	1556	77	4.9	1723	59	3	2137	48	2.2	2199	32	1.5	1826	56	3.1	2932	65	2.2	3032	88	2.9
Johor Bahru	1520	28	1.8	1376	28	2	1318	57	4.3	1377	30	2.2	1127	29	2.6	1195	32	2.7	1350	42	3.1
Kangar	318	8	2.5	400	3	1	399	11	2.8	400	13	3.3	403	15	3.7	454	13	2.9	466	22	4.7
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	0	0.0
Keningau	0	0	0	34	1	3	31	1	3.2	76	1	1.3	52	0	0.0	17	0	0.0	15	1	6.7
Klang	1040	40	3.8	1217	34	3	904	27	3.0	1007	26	2.6	1061	20	1.9	1411	6	0.4	1612	12	0.7
Kota Bharu	807	38	4.7	739	33	5	911	33	3.6	960	31	3.2	946	40	4.2	545	13	2.4	682	16	2.3
Kota Kinabalu	565	20	3.5	351	3	1	433	16	3.7	624	24	3.8	686	46	6.7	763	38	5.0	978	66	6.7
Kuala Krai	125	2	1.6	170	7	4	175	4	2.3	217	3	1.4	240	11	4.6	247	12	4.9	397	14	3.5
Kuala Lumpur	0	0	0	40	3	8	1405	35	2.5	1648	46	2.8	1622	19	1.2	1516	24	1.6	1150	15	1.3
Kuala Pilah	201	4	2	282	11	4	290	7	2.4	322	8	2.5	483	10	2.1	429	8	1.9	492	6	1.2
Kuala Terengganu	525	34	6.5	726	35	5	743	35	4.7	714	28	3.9	770	34	4.4	765	20	2.6	1014	39	3.8
Kuantan	25	1	4	395	20	5	293	5	1.7	615	5	0.8	680	20	2.9	684	7	1.0	619	11	1.8
Kuching	998	33	3.3	1011	38	4	893	38	4.3	1207	45	3.7	1131	35	3.1	1657	45	2.7	1721	32	1.9
Melaka	1518	87	5.7	1681	106	6	1387	84	6.1	1659	76	4.6	1642	61	3.7	1488	52	3.5	1719	83	4.8
Miri	18	2	11	396	7	2	404	5	1.2	577	8	1.4	657	4	0.6	901	1	0.1	915	1	0.1
Muar	349	4	1.1	338	14	4	542	29	5.4	617	15	2.4	692	20	2.9	665	26	3.9	717	42	5.9
Pulau Pinang	1102	92	8.3	1357	77	6	1374	46	3.3	1876	62	3.3	2186	42	1.9	1330	26	2.0	1696	46	2.7
Putrajaya	199	8	4	256	8	3	251	9	3.6	282	8	2.8	329	11	3.3	355	4	1.1	391	10	2.6
Sandakan	0	0	0	137	3	2	158	3	1.9	208	13	6.3	271	8	3.0	265	4	1.5	411	15	3.6
Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	286	7	2.4
Selayang	1400	47	3.4	1429	56	4	1418	42	3.0	1699	71	4.2	1859	100	5.4	1829	83	4.5	1337	51	3.8
Serdang	697	43	6.2	696	36	5	598	32	5.4	520	17	3.3	666	28	4.2	709	20	2.8	1023	43	4.2
Seremban	954	40	4.2	898	40	5	1229	79	6.4	1519	48	3.2	1605	34	2.1	1559	67	4.3	1520	46	3.0
Sibu	380	10	2.6	263	9	3	387	6	1.6	455	12	2.6	505	10	2.0	745	11	1.5	900	17	1.9
Sri Manjung	152	10	6.6	350	11	3	327	7	2.1	387	6	1.6	420	10	2.4	466	9	1.9	832	17	2.0
Sultan Ismail	100	3	3	180	9	5	185	2	1.1	258	10	3.9	283	7	2.5	279	8	2.9	374	5	1.3
Sungai Buloh	165	9	5.5	319	14	4	387	19	4.9	468	22	4.7	450	13	2.9	514	14	2.7	580	22	3.8
Sungei Petani	497	23	4.6	633	14	2	684	9	1.3	558	8	1.4	811	35	4.3	845	19	2.2	930	23	2.5
Taiping	278	7	2.5	379	10	3	612	22	3.6	889	19	2.1	953	24	2.5	1118	32	2.9	1284	18	1.4
Tawau	189	5	2.6	317	10	3	298	9	3.0	401	15	3.7	575	16	2.8	648	9	1.4	503	45	8.9
Teluk Intan	668	19	2.8	588	16	3	612	22	3.6	690	27	3.9	663	10	1.5	616	15	2.4	1102	20	1.8
Temerloh	443	27	6.1	531	28	5	640	28	4.4	450	10	2.2	681	31	4.6	868	21	2.4	866	15	1.7
KK1M East Coast	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	2	3.1
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1583	2	0.1

Table 1.4.6 (ii): PCR in Phacoemulsification in general and by surgeon status, CSR 2013
(N=total no. of cases of phaco; n=no. of cases of PCR in phaco)

Hospital	2012 Phaco			By surgeon status:									2013 Phaco			By surgeon status:								
				Specialist			Gazetting Specialist			Medical Officer						Specialist			Gazetting Specialist			Medical Officer		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Alor Setar	1451	29	2.0	1346	24	1.8	97	5	5.2	8	0	0.0	1358	28	2.1	1233	19	1.5	124	9	7.3	1	0	0.0
Ampang	779	28	3.6	704	20	2.8	17	2	11.8	58	6	10.3	822	26	3.2	692	17	2.5	6	1	16.7	124	8	6.5
Batu Pahat	447	26	5.8	220	4	1.8	227	22	9.7	0	0	0.0	332	10	3.0	310	9	2.9	22	1	4.5	0	0	0.0
Bintulu	245	3	1.2	245	3	1.2	0	0	0.0	0	0	0.0	357	0	0.0	349	0	0.0	8	0	0.0	0	0	0.0
Bukit Mertajam	564	13	2.3	535	10	1.9	29	3	10.3	0	0	0.0	620	10	1.6	606	10	1.7	13	0	0.0	1	0	0.0
Ipoh	2596	57	2.2	2243	53	2.4	207	4	1.9	125	0	0.0	2801	75	2.7	2594	69	2.7	133	2	1.5	54	4	7.4
Johor Bahru	1069	12	1.1	995	11	1.1	57	0	0.0	17	1	5.9	1261	32	2.5	1107	27	2.4	142	5	3.5	12	0	0.0
Kangar	412	10	2.4	412	10	2.4	0	0	0.0	0	0	0.0	421	13	3.1	358	10	2.8	59	3	5.1	4	0	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	37	0	0.0	37	0	0.0	0	0	0.0	0	0	0.0
Keningau	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	6	1	16.7	2	0	0.0	0	0	0.0	4	1	25.0
Klang	1224	1	0.1	1176	0	0.0	48	1	2.1	0	0	0.0	1476	7	0.5	1419	7	0.5	56	0	0.0	0	0	0.0
Kota Bharu	367	12	3.3	357	11	3.1	1	0	0.0	9	1	11.1	386	11	2.8	378	11	2.9	1	0	0.0	7	0	0.0
Kota Kinabalu	529	27	5.1	402	16	4.0	118	9	7.6	9	2	22.2	694	38	5.5	540	26	4.8	152	12	7.9	2	0	0.0
Kuala Krai	222	9	4.1	208	7	3.4	14	2	14.3	0	0	0.0	350	13	3.7	350	13	3.7	0	0	0.0	0	0	0.0
Kuala Lumpur	1208	17	1.4	1163	17	1.5	15	0	0.0	29	0	0.0	956	12	1.3	923	10	1.1	12	1	8.3	20	1	5.0
Kuala Pilah	361	3	0.8	361	3	0.8	0	0	0.0	0	0	0.0	416	4	1.0	377	4	1.1	39	0	0.0	0	0	0.0
Kuala Terengganu	537	9	1.7	528	9	1.7	5	0	0.0	4	0	0.0	778	26	3.3	737	24	3.3	29	1	3.4	12	1	8.3
Kuantan	555	3	0.5	517	3	0.6	0	0	0.0	38	0	0.0	450	6	1.3	382	4	1.0	25	1	4.0	43	1	2.3
Kuching	1546	41	2.7	1310	29	2.2	134	5	3.7	102	7	6.9	1648	23	1.4	1428	14	1.0	172	6	3.5	48	3	6.3
Melaka	1203	40	3.3	1164	35	3.0	10	1	10.0	29	4	13.8	1395	61	4.4	1339	53	4.0	2	1	50.0	54	7	13.0
Miri	849	1	0.1	487	1	0.2	360	0	0.0	2	0	0.0	892	1	0.1	882	1	0.1	10	0	0.0	0	0	0.0
Muar	608	10	1.6	460	5	1.1	148	5	3.4	0	0	0.0	647	29	4.5	635	29	4.6	12	0	0.0	0	0	0.0
Pulau Pinang	1260	13	1.0	1029	7	0.7	29	0	0.0	202	6	3.0	1589	28	1.8	1242	23	1.9	56	0	0.0	290	5	1.7
Putrajaya	271	2	0.7	271	2	0.7	0	0	0.0	0	0	0.0	303	4	1.3	303	4	1.3	0	0	0.0	0	0	0.0

Hospital	2012 Phaco			By surgeon status:									2013 Phaco			By surgeon status:								
	Specialist			Gazetting Specialist			Medical Officer						Specialist			Gazetting Specialist			Medical Officer					
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Seremban	1315	37	2.8	1008	23	2.3	1	0	0.0	306	14	4.6	1363	24	1.8	1071	19	1.8	24	3	12.5	268	2	0.7
Sibu	683	6	0.9	621	5	0.8	62	1	1.6	0	0	0.0	835	9	1.1	710	9	1.3	125	0	0.0	0	0	0.0
Sri Manjung	412	7	1.7	410	7	1.7	2	0	0.0	0	0	0.0	799	15	1.9	791	15	1.9	6	0	0.0	0	0	0.0
Sultan Ismail	208	4	1.9	208	4	1.9	0	0	0.0	0	0	0.0	276	2	0.7	261	2	0.8	15	0	0.0	0	0	0.0
Sandakan	104	0	0.0	103	0	0.0	0	0	0.0	1	0	0.0	354	11	3.1	352	11	3.1	0	0	0.0	2	0	0.0
Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	281	5	1.8	281	5	1.8	0	0	0.0	0	0	0.0
Selayang	1625	66	4.1	1333	53	4.0	52	1	1.9	240	12	5.0	1233	36	2.9	1024	24	2.3	38	0	0.0	171	12	7.0
Serdang	564	12	2.1	549	9	1.6	14	3	21.4	1	0	0.0	836	25	3.0	814	22	2.7	21	3	14.3	1	0	0.0
Bukit Mertajam	564	13	2.3	535	10	1.9	29	3	10.3	0	0	0.0	620	10	1.6	606	10	1.7	13	0	0.0	1	0	0.0
Ipoh	2596	57	2.2	2243	53	2.4	207	4	1.9	125	0	0.0	2801	75	2.7	2594	69	2.7	133	2	1.5	54	4	7.4
Sungai Buloh	419	8	1.9	419	8	1.9	0	0	0.0	0	0	0.0	450	14	3.1	450	14	3.1	0	0	0.0	0	0	0.0
Sungei Petani	604	6	1.0	602	6	1.0	1	0	0.0	1	0	0.0	704	8	1.1	704	8	1.1	0	0	0.0	0	0	0.0
Taiping	885	12	1.4	812	10	1.2	73	2	2.7	0	0	0.0	1060	6	0.6	1006	6	0.6	54	0	0.0	0	0	0.0
Tawau	1	1	100.0	1	1	100.0	0	0	0.0	0	0	0.0	133	8	6.0	133	8	6.0	0	0	0.0	0	0	0.0
Teluk Intan	505	10	2.0	396	4	1.0	108	6	5.6	1	0	0.0	963	7	0.7	641	3	0.5	320	4	1.3	2	0	0.0
Temerloh	717	3	0.4	696	3	0.4	21	0	0.0	0	0	0.0	718	3	0.4	709	**3**	0.4	9	0	0.0	0	0	0.0
KK1M East Coast	-	-	-	-	-	-	-	-	-	-	-	-	47	1	2.1	43	0	0.0	4	1	25.0	0	0	0.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	74	0	0.0	74	0	0.0	0	0	0.0	0	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	1504	1	0.1	1487	1	0.1	5	0	0.0	12	0	0.0

**No. of total phaco (N) and total no. of phaco by surgeon status does not tally as surgeon status is missing in some CSR entries.*

Figure 1.4.6 (a) (i): PCR by SDP (all surgeries), CSR 2013-Bar Chart (National standard set at <3.0%)

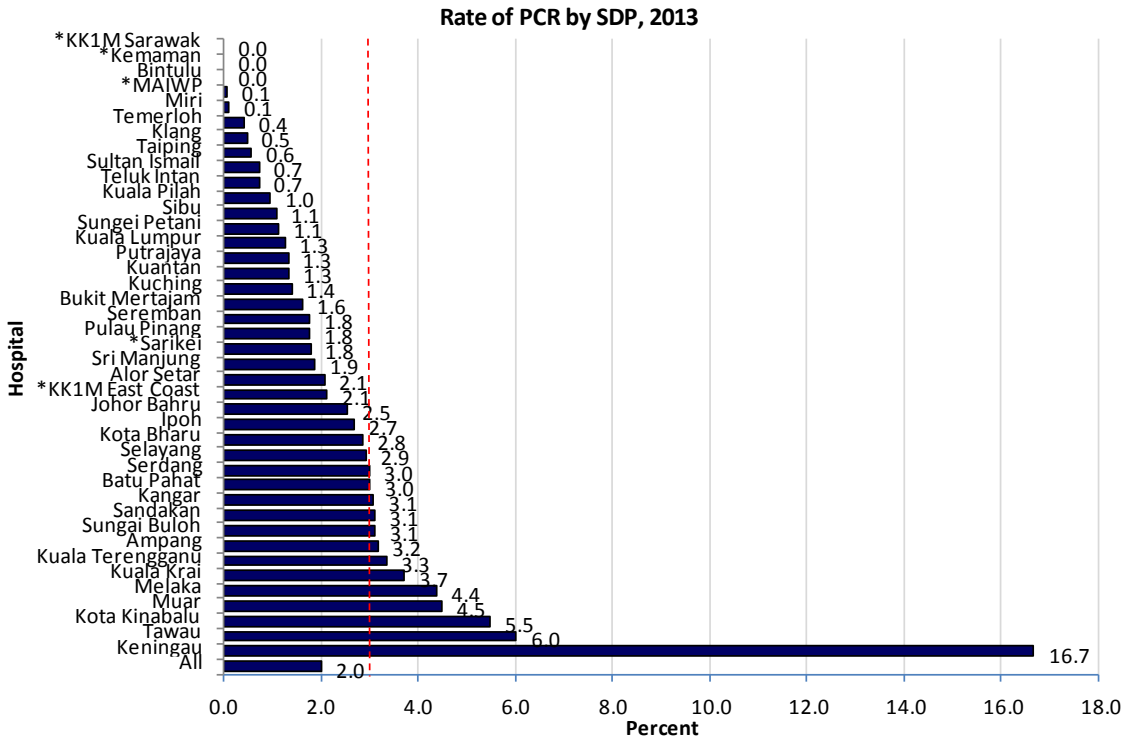


Figure 1.4.6 (b) (ii): PCR by SDP (Phaco only), CSR 2013-Bar Chart (National standard set at <3.0%)

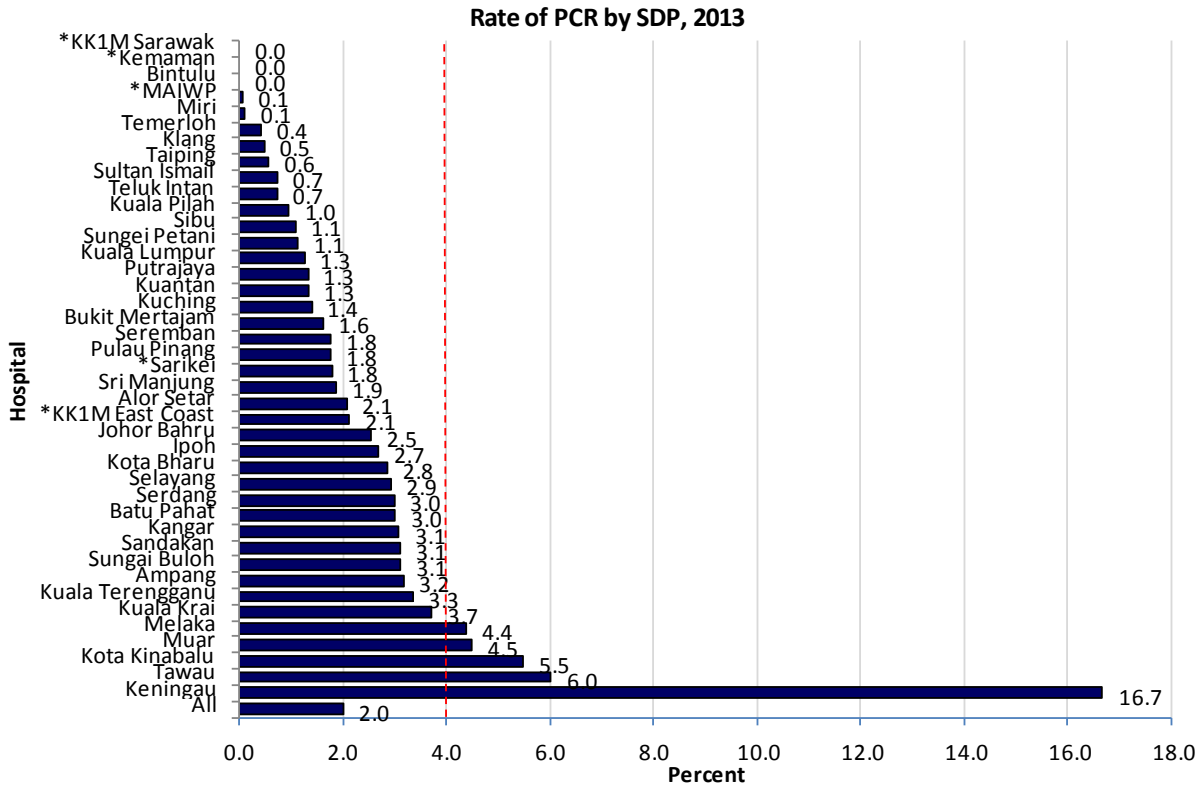


Figure 1.4.6(c) (i) : PCR by SDP (all surgeries), CSR 2013-Radar Chart (National standard set at <3.0%)

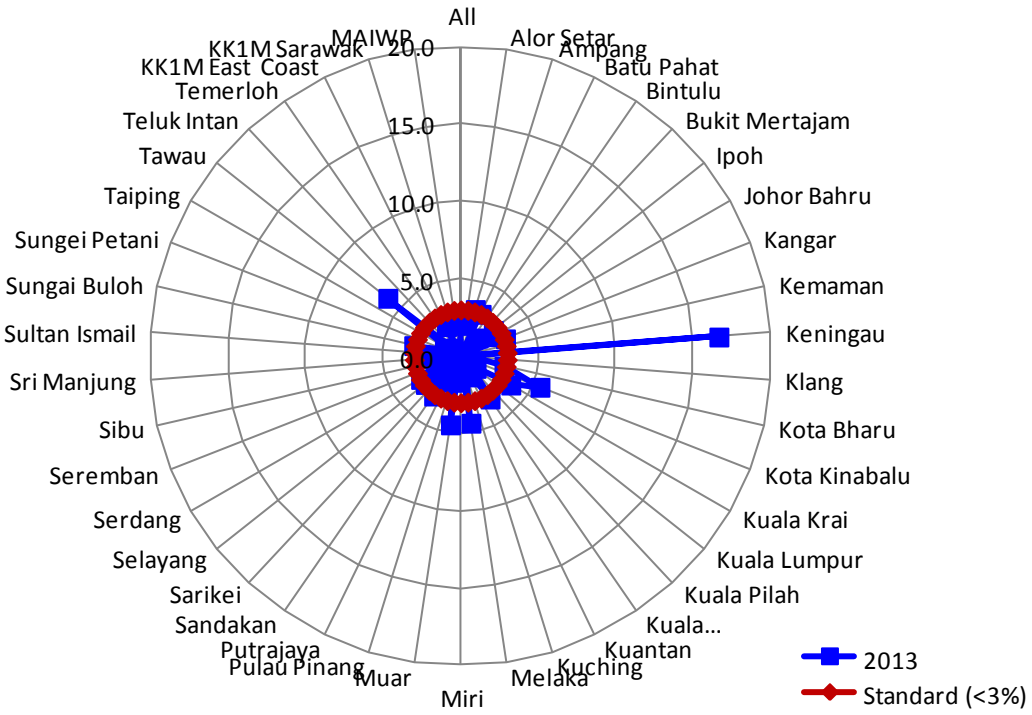
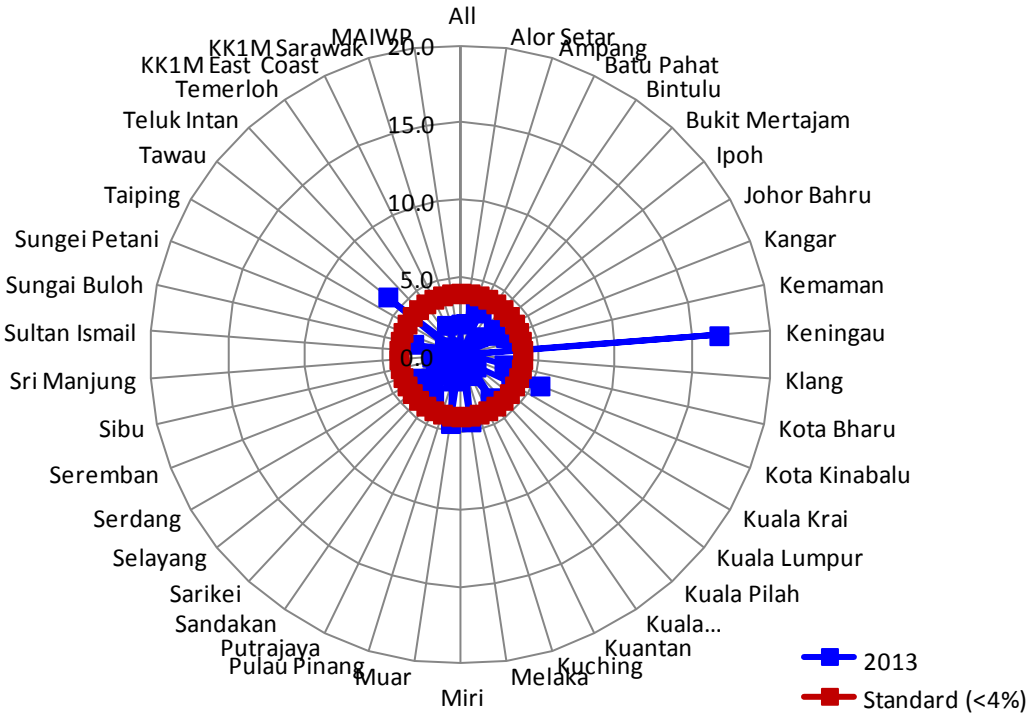


Figure 1.4.6(d) (ii): PCR by SDP (Phaco only), CSR 2013-Radar Chart (National standard set at <3.0%)



1.4.7 PCR by Type of Cataract Surgery

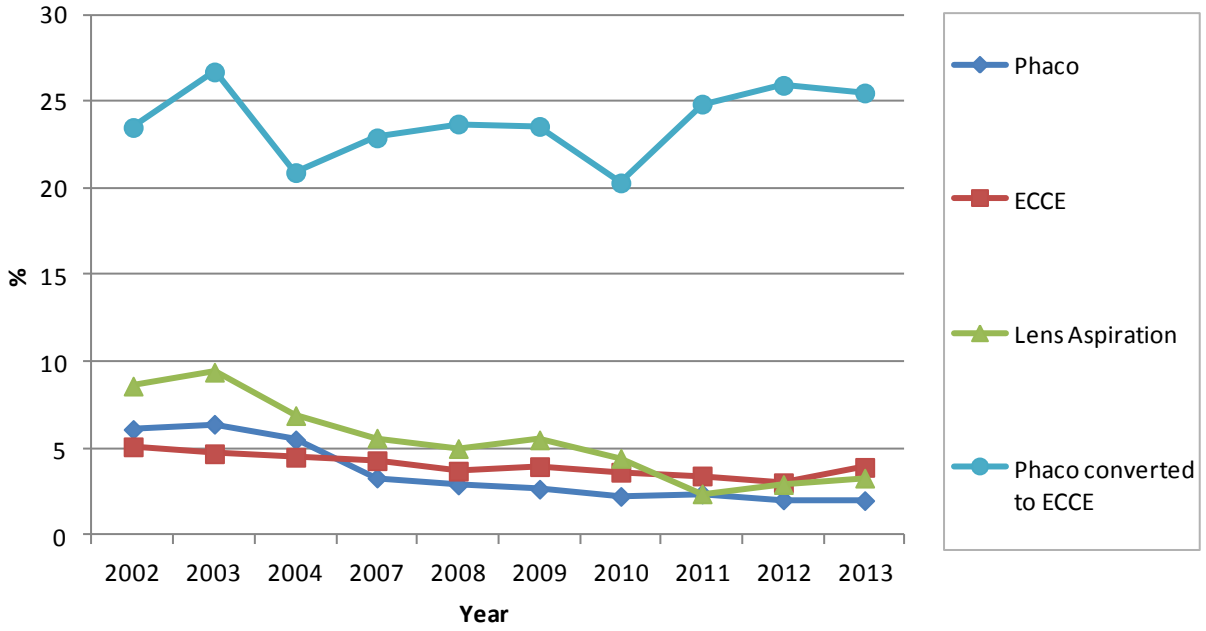
From the year 2002-2004, the percentage of PCR for phaco was higher than ECCE. From 2007 onwards, the figures were reversed with ECCE having a higher percentage of PCR than phaco. The percentage for phaco demonstrated a downward trend over the years however; there was an increase in the percentage of PCR for ECCE in 2013.

Table 1.4.7: PCR by Type of Cataract Surgery, CSR 2002-2013

Year	2002-2004			2007			2008			2009		
No. of patients	48004			18380			21496			24438		
Total PCR	2822			764			790			858		
	N	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**
Phaco	22041	1311	5.9	11960	393	3.3	14781	432	2.9	17717	471	2.7
ECCE	22756	1086	4.8	5524	239	4.3	5627	210	3.7	5457	216	4.0
Lens Aspiration	1357	111	8.2	323	18	5.6	340	17	5.0	400	22	5.5
ICCE	278	19	6.8	141	15	10.6	129	7	5.4	134	8	6.0
Phaco converted to ECCE	1234	293	23.7	432	99	22.9	524	124	23.7	573	135	23.6

Year	2010			2011			2012			2013		
No. of patients	28506			30611			32473			37150		
Total PCR	840			936			870			1017		
	N	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**
Phaco	21810	489	2.2	23872	568	2.4	26345	538	2.0	31625	633	2.0
ECCE	5363	195	3.6	5291	181	3.4	4784	145	3.0	4086	160	3.9
Lens Aspiration	451	20	4.4	460	11	2.4	444	13	2.9	364	12	3.3
ICCE	143	9	6.3	123	6	4.9	136	6	4.4	173	8	4.6
Phaco converted to ECCE	586	119	20.3	652	162	24.8	621	161	25.9	769	196	25.5

Figure 1.4.7: PCR by Type of Cataract Surgery, CSR 2002-2013



1.5 CATARACT SURGERY OUTCOME

1.5.1 Post-operative Complications

The ascertainment for visual outcome increased to 92.4% in 2013. In general, the ascertainment was above 80.0%.

Table 1.5.1: Distribution of Cataract Surgery with Post-operative Complication Record, CSR 2002-2013

Year	2002-2004	2007	2008	2009	2010	2011	2012	2013
Total number of cataract surgery registered to CSR	48005	18426	21496	24438	28506	30611	32473	37150
Cataract surgery with post-operative complication record	45609	17604	20521	21851	26014	28834	30011	34662
Ascertainment on post-operative complication (%)	95.0	95.5	95.5	89.4	91.3	94.2	92.4	93.3
Cataract surgery with visual outcome record	33423	15786	19063	20590	24522	27219	28589	34318
Ascertainment on visual outcome (%)	69.6	85.7	88.7	84.3	86.0	88.9	88.0	92.4

1.5.1.1 Post-operative Infectious Endophthalmitis

The occurrence of post-operative infectious endophthalmitis increased to 0.08 in 2013. The mean duration from the time of surgery to diagnosis of infection for eyes operated in 2007 onwards was 3 weeks.

Table 1.5.1.1(a): Post-operative Infectious Endophthalmitis, CSR 2002-2013

Year	2002-2004	2007	2008	2009	2010	2011	2012	2013
Eyes with post-operative complication records (N)	45609	17604	20521	21851	26014	28834	30011	34662
Eyes with post-operative infectious endophthalmitis (n)	91	37	22	19	24	11	13	27
Percentage of eyes with post-operative endophthalmitis (%)	0.20	0.21	0.11	0.09	0.09	0.04	0.04	0.08

Figure 1.5.1.1(a): Rate of Post-operative Infectious Endophthalmitis, CSR 2002-2013

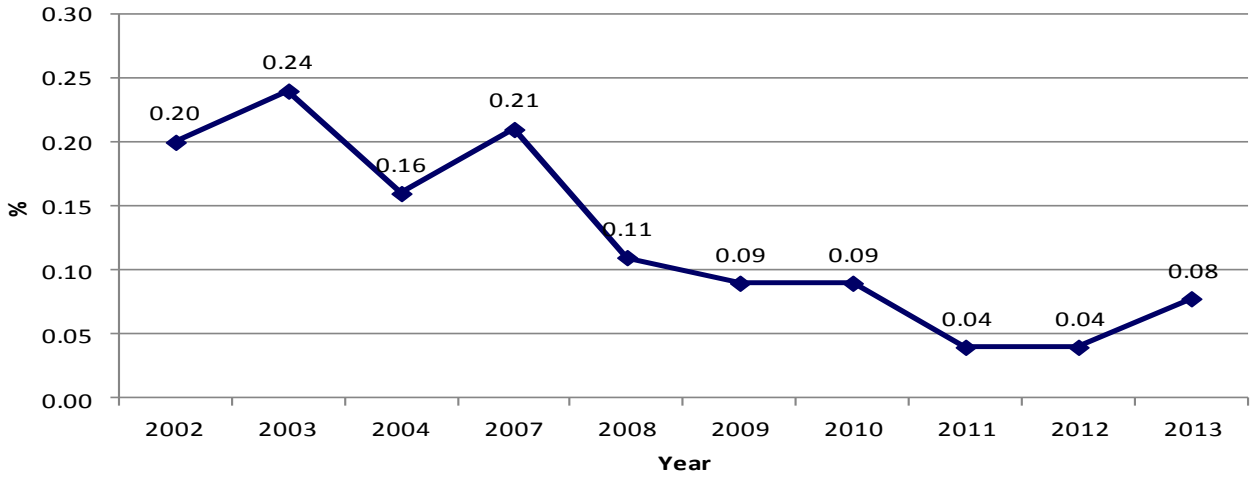


Figure 1.5.1.1(b-i): Post-operative Infectious Endophthalmitis, by SDP CSR 2007

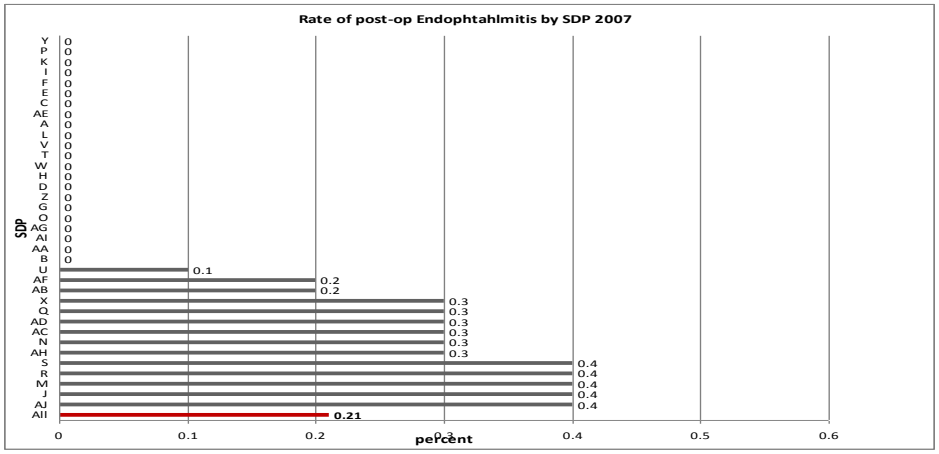


Figure 1.5.1.1(b-ii): Post-operative Infectious Endophthalmitis, by SDP CSR 2008

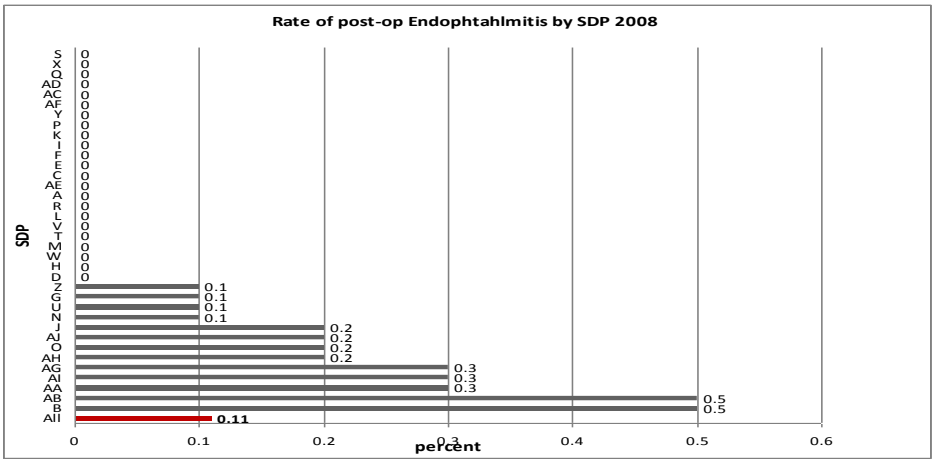


Figure 1.5.1.1(b-iii): Post-operative Infectious Endophthalmitis, by SDP CSR 2009

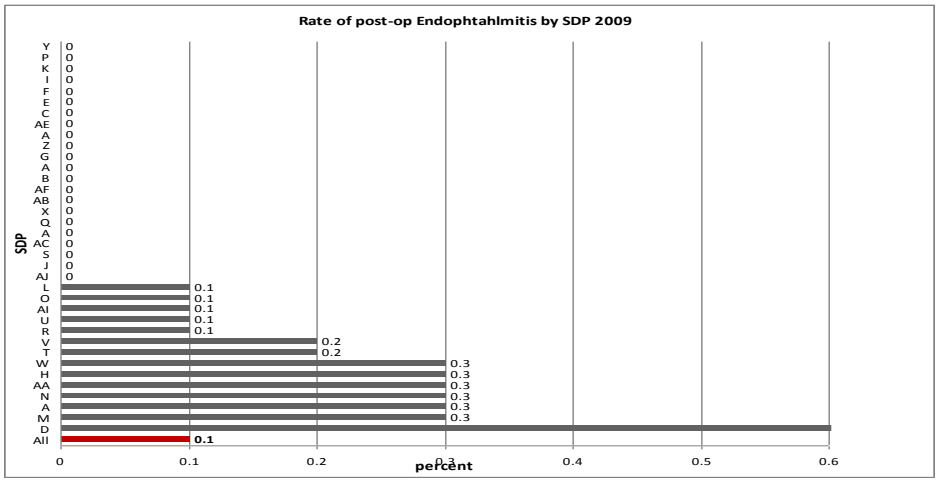


Figure 1.5.1.1(b-iv): Post-operative Infectious Endophthalmitis, by SDP CSR 2010

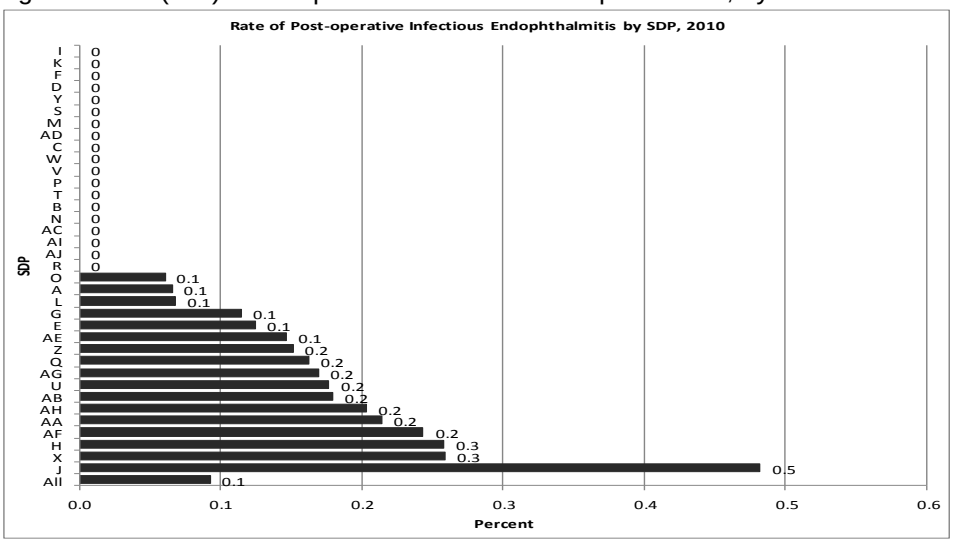


Figure 1.5.1.1(b-v): Post-operative Infectious Endophthalmitis, by SDP CSR 2011

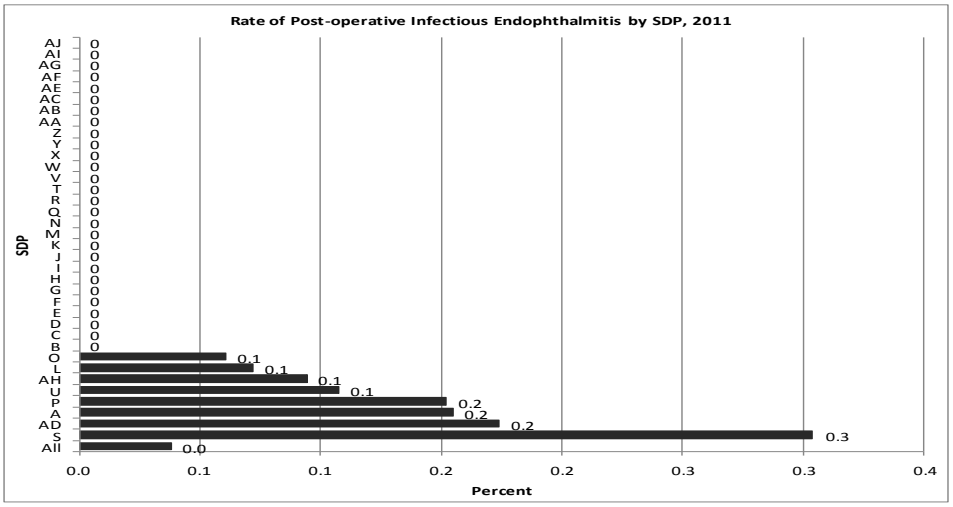


Figure 1.5.1.1(b-vi): Post-operative Infectious Endophthalmitis, by SDP CSR 2012

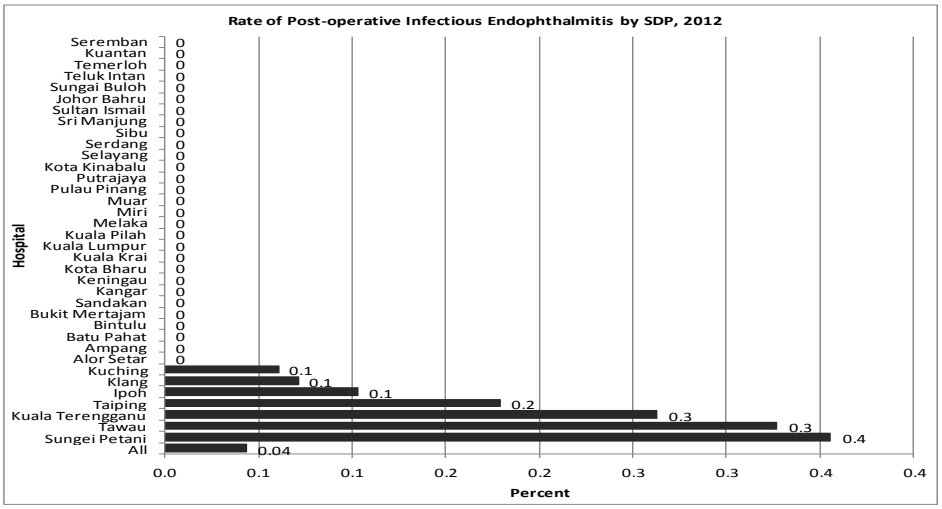


Figure 1.5.1.1(b-vii): Post-operative Infectious Endophthalmitis, by SDP CSR 2013

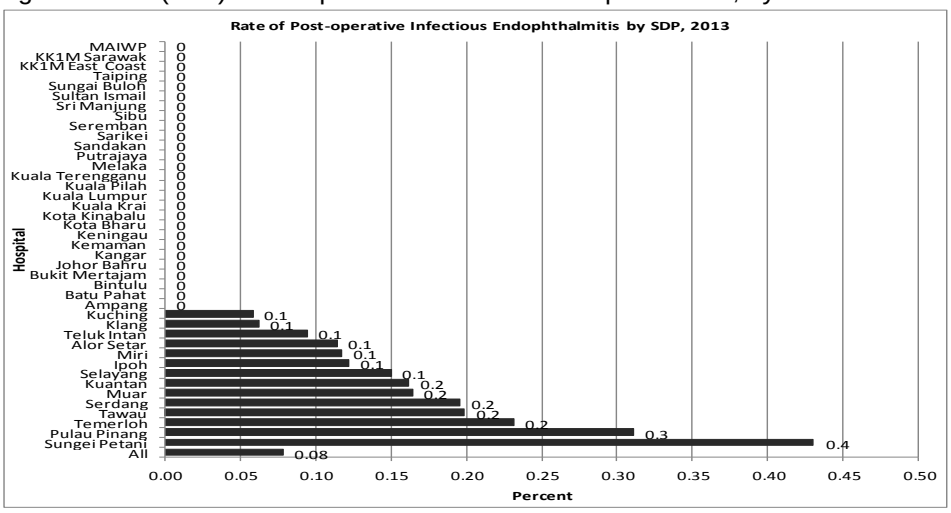


Figure 1.5.1.1(c-i): Post-operative Infectious Endophthalmitis, by SDP CSR 2007

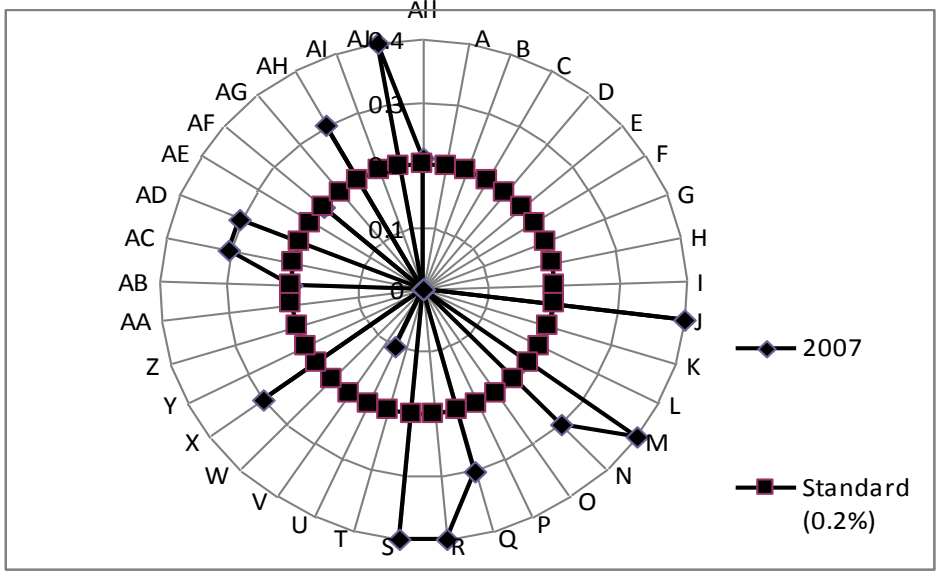


Figure 1.5.1.1(c-ii): Post-operative Infectious Endophthalmitis, by SDP CSR 2008

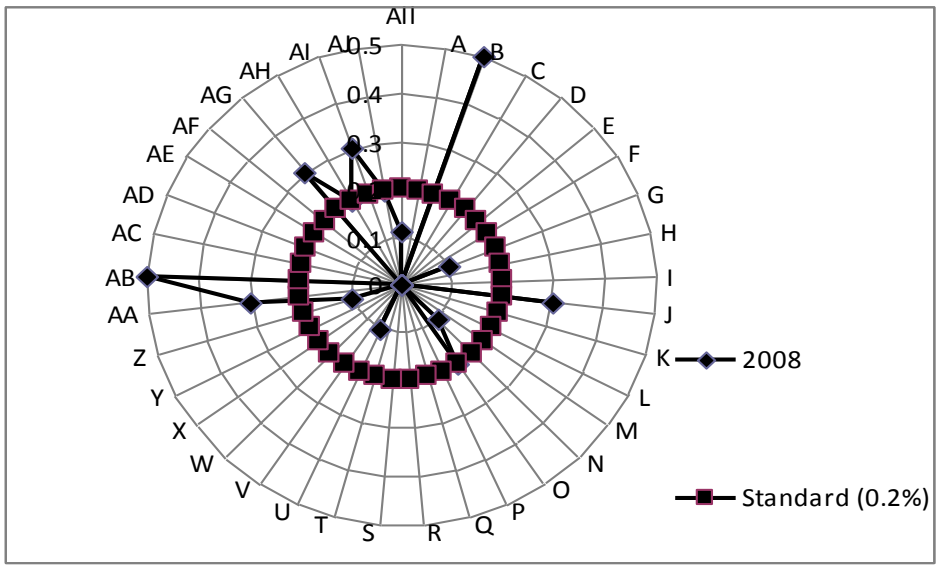


Figure 1.5.1.1(c-iii): Post-operative Infectious Endophthalmitis, by SDP CSR 2009

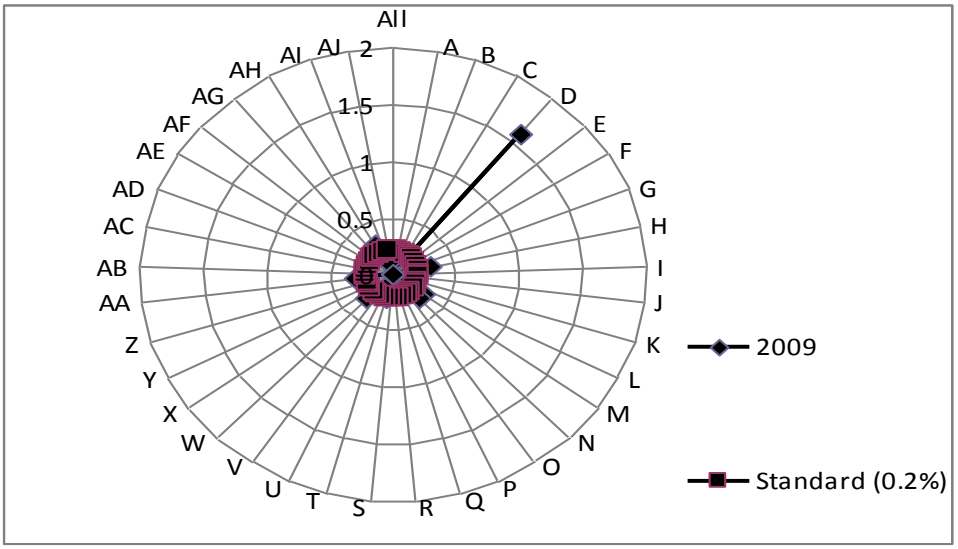


Figure 1.5.1.1(c-iv): Post-operative Infectious Endophthalmitis, by SDP CSR 2010

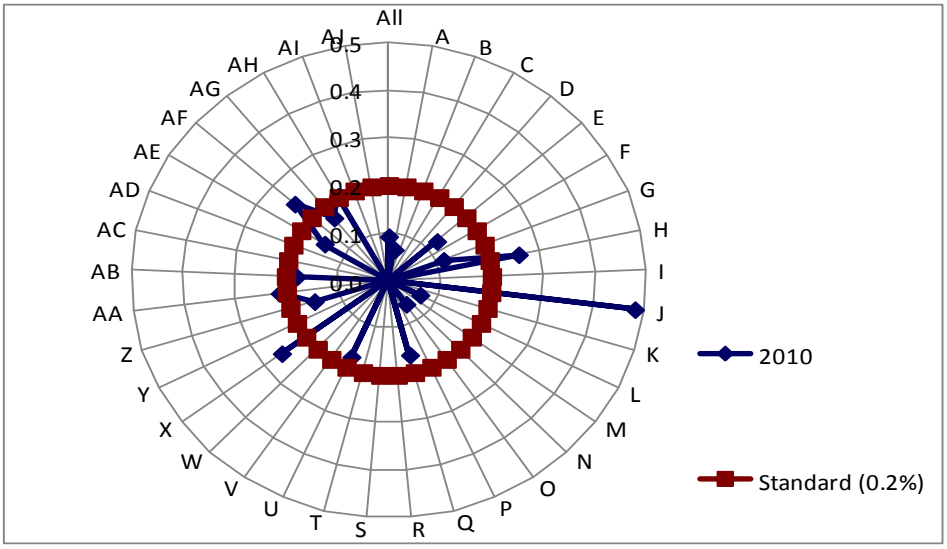


Figure 1.5.1.1(c-v): Post-operative Infectious Endophthalmitis, by SDP CSR 2011

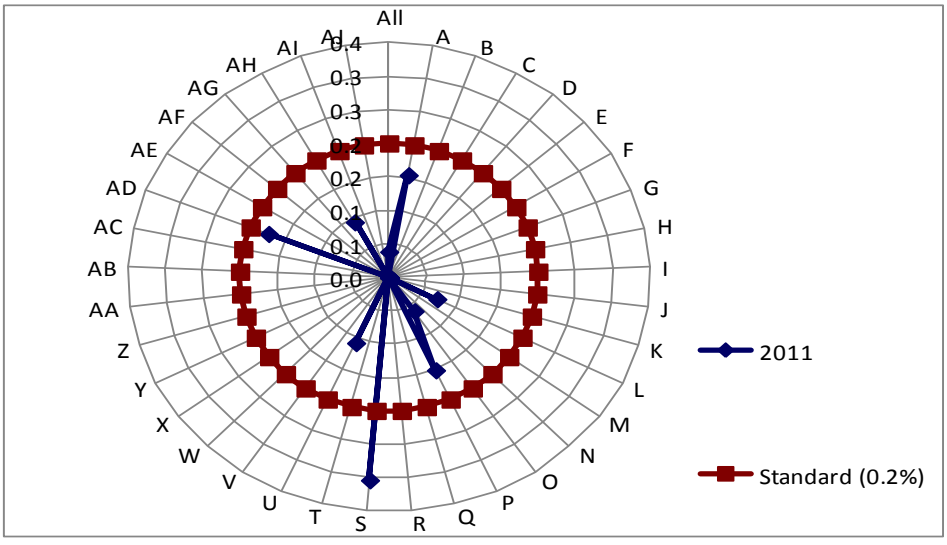


Figure 1.5.1.1(c-vi): Post-operative Infectious Endophthalmitis, by SDP CSR 2012

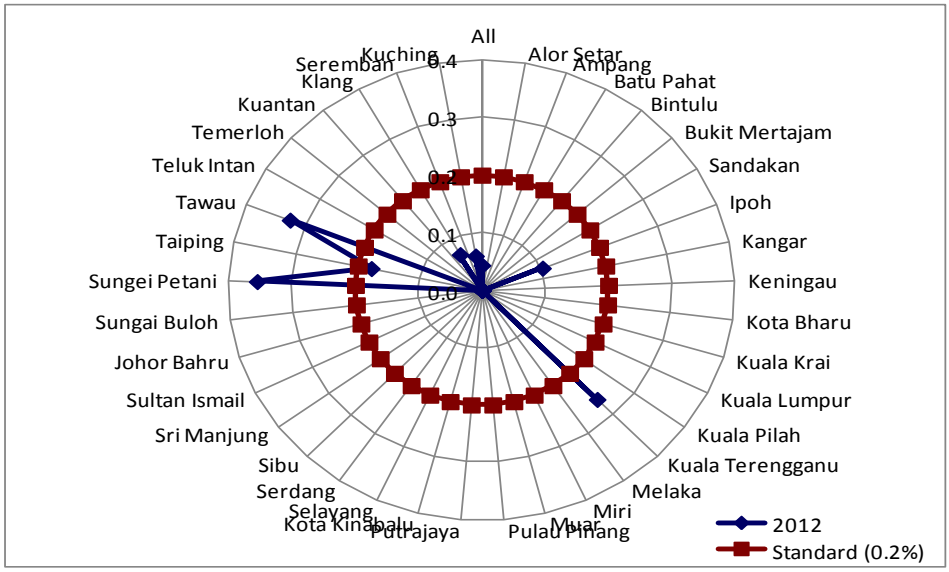


Figure 1.5.1.1(c-vii): Post-operative Infectious Endophthalmitis, by SDP CSR 2013

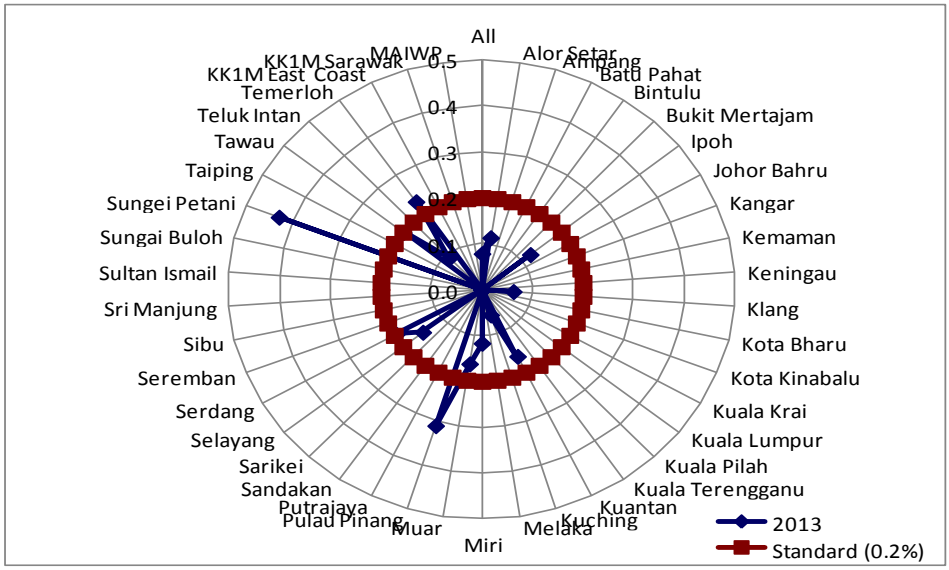


Table 1.5.1.1(b): Time from Surgery to Diagnosis of Post-operative Infectious Endophthalmitis, CSR 2007-2013

Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Number of patients with post-operative infective endophthalmitis	37	22	19	24	11	13	27
Time from surgery to diagnosis of infection (day)				Days			
Min	1	1	1	0	0	2	1
Max	92	76	103	141	391	59	162
Mean	21.6	20.6	20.4	22.7	43.7	19.9	24.0
Median					6	13	7
Distribution of patients				Number of Patients			
Less than 3 days	2	5	5	4	2	1	6
3-5 days	4	1	1	5	3	2	4
6-14 days	8	5	5	4	4	4	8
More than 14 days	12	9	7	10	2	5	8
Missing	11	2	1	1	0	1	1

1.5.1.2 Unplanned Return to Operating Theatre (OT)

Data for unplanned return to OT were available for June to December 2004 and the whole year of 2007 onwards. The average percentage was 0.42% or 4.2 cases per 1000 cataract surgeries.

Iris prolapse, wound dehiscence and high post- operative IOP showed an initial decreasing trend but appeared to increase in 2009. IOL related problem demonstrated otherwise. The average time from surgery to return to OT was in the second week post-operatively.

Table 1.5.1.2(a): Unplanned Return to OT, CSR 2004-2013

Year	***2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Patients with outcome records (N)	9039		17604		20521		21851		26014		28834		30011		34662	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
	31	0.34	87	0.50	88	0.43	116	0.53	123	0.47	122	0.42	103	0.34	105	0.30

**Data in 2004 available only from June-December*

Table 1.5.1.2(b): Reasons for Unplanned Return to OT, CSR 2004-2013

Year	***2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Patients with unplanned return to OT	31		87		88		116		123		122		103		105	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Iris prolapse	10	32.3	20	23.0	12	13.6	18	15.5	20	16.3	24	19.7	11	10.7	10	9.5
Wound dehiscence	7	22.6	13	14.9	7	8.0	22	19.0	20	16.3	18	14.8	19	18.4	20	19.0
High IOP	4	12.9	5	5.7	2	2.3	9	7.8	3	2.4	4	3.3	6	5.8	2	1.9
IOL related	2	6.5	10	11.5	14	15.9	15	12.9	22	17.9	18	14.8	18	17.5	16	15.2
Infective endophthalmitis	7	22.6	12	13.8	6	6.8	6	5.2	9	7.3	2	1.6	5	4.8	7	6.7
Others	9	29.0	38	43.7	48	54.5	53	45.7	56	45.5	68	55.7	52	50.5	55	52.4

**Data in 2004 available only for June-December*
Total percentage may be more than 100% as patient might have multiple reasons for unplanned return to OT.

Figure 1.5.1.2: Reasons for Unplanned Return to OT, CSR 2004-2013

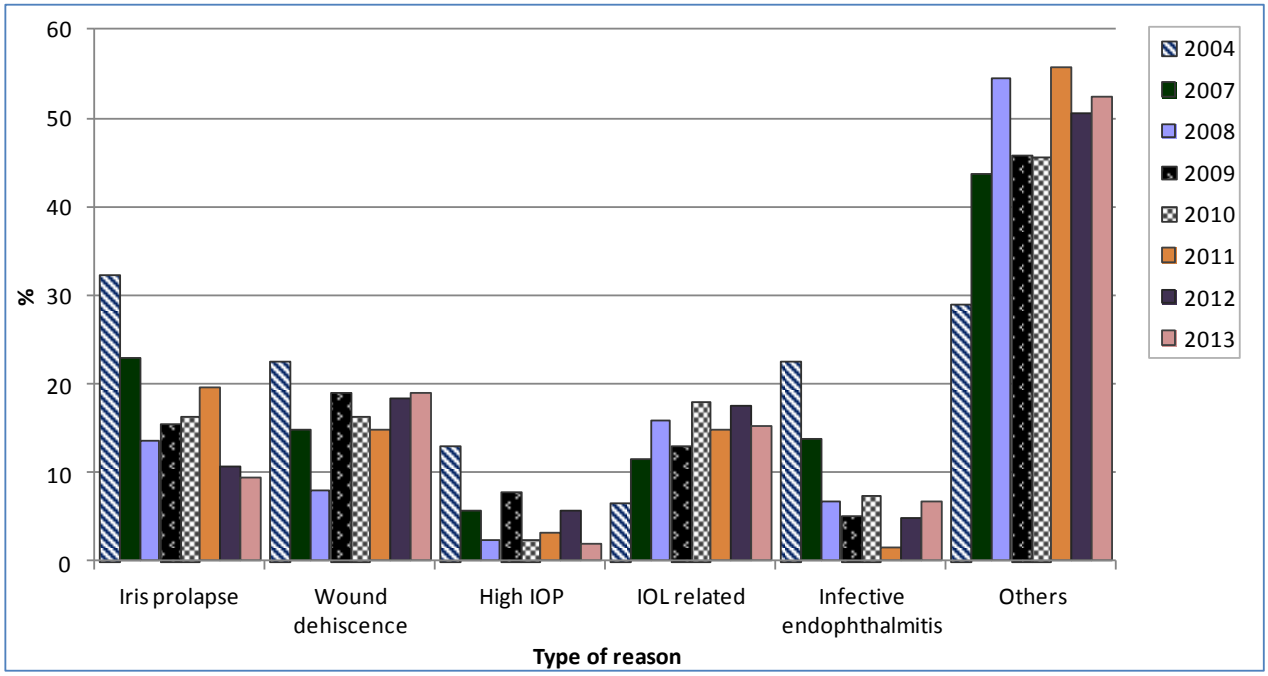


Table 1.5.1.2(c): Time from Surgery to Unplanned Return to OT, CSR 2013

Post-operative period (day)	N	n	Median	Min	Max	Mean
Iris prolapse	10	10	8.0	0	43	16.3
Wound dehiscence	20	19	7.0	1	68	13.9
High IOP	2	2	22.5	2	43	22.5
IOL related	16	15	7.0	1	109	21.9
Infective endophthalmitis	7	7	14.0	1	23	11.0
Others	55	50	7.0	0	86	14.5

n = No. of available information

1.5.1.3 Post-operative Follow-up Period

Most patients were followed up until 7 weeks post-operatively. Patients who had undergone 'phaco converted to ECCE' were followed up longer.

Table 1.5.1.3(a): Median Follow-up Period for Eyes with Unaided Vision (in weeks) by Types of Surgery, 2013

Types of surgery	N	n	Median	25th percentile	75th percentile
All surgeries	33067	32822	7	5	9
Phaco	28308	28093	7	5	8
ECCE	3541	3532	8	6	11
Phaco → ECCE	670	668	8	6	11
ICCE	142	142	8	6	11
Lens aspiration	302	301	7	5	9

n = No. of available information

Table 1.5.1.3(b): Median Follow-up Period for Eyes with Refracted Vision (in weeks) by Types of Surgery, 2013

Types of surgery	N	n	Median	25th percentile	75th percentile
All surgeries	29968	29800	7	6	9
Phaco	25778	25633	7	6	8
ECCE	3117	3113	8	6	11
Phaco → ECCE	601	600	8	6	11
ICCE	121	121	8	6	11
Lens aspiration	265	264	7	6	9

n = No. of available information

1.5.2 Post-operative Visual Acuity

1.5.2.1 Post-operative Visual Acuity (All Eyes)

Only approximately 40.0 – 50.0% of eyes had vision unaided VA 6/12 or better i.e. good VA outcome. This percentage increased double folds following refraction. This trend remained unchanged throughout the years.

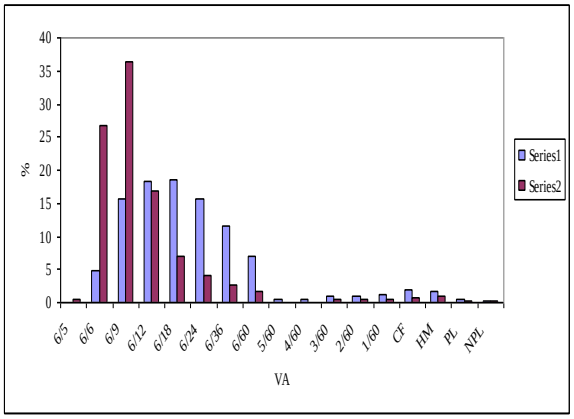
Table 1.5.2.1: Post-operative Visual Acuity, All Eyes, CSR 2002-2013

Year	**2002-2004**				**2007**				**2008**				**2009**			
	Unaided		**Refracted**		**Unaided**		**Refracted**		**Unaided**		**Refracted**		**Unaided**		**Refracted**	
VA	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
6/5	27	0.1	168	0.6	3	0.0	35	0.2	9	0	51	0.3	10	0	46	0.2
6/6	1564	4.5	8238	27.6	878	5.6	4409	30.5	1126	5.9	6072	35.2	1100	5.3	6555	34.7
6/9	5265	15.0	10800	36.2	2806	17.8	4961	34.3	3040	15.9	5714	33.1	3649	17.7	6550	34.7
6/12	6382	18.2	4982	16.7	2717	17.2	2100	14.6	3351	17.6	2577	14.9	3837	18.6	2762	14.6
6/5-6/12	**13238**	**37.8**	**24188**	**81.1**	**6404**	**40.6**	**11505**	**79.6**	**7526**	**39.4**	**14414**	**83.5**	**8596**	**41.7**	**15913**	**84.3**
6/18	6598	18.9	2119	7.1	2893	18.3	1055	7.3	3792	19.9	1012	5.9	4052	19.7	1050	5.6
6/24	5568	15.9	1155	3.9	2315	14.7	573	4	2978	15.6	607	3.5	2958	14.4	616	3.3
6/36	4148	11.9	807	2.7	1687	10.7	444	3.1	2018	10.6	421	2.4	2095	10.2	416	2.2
6/60	2454	7.0	483	1.6	1126	7.1	266	1.9	1300	6.8	261	1.5	1323	6.4	276	1.5
5/60	257	0.7	35	0.1	92	0.6	23	0.2	116	0.6	37	0.2	93	0.5	27	0.1
4/60	218	0.6	48	0.2	87	0.6	35	0.2	97	0.5	30	0.2	103	0.5	31	0.2
3/60	373	1.1	126	0.4	207	1.3	80	0.6	266	1.4	112	0.6	331	1.6	118	0.6
6/18-3/60	**19616**	**56.1**	**4773**	**16.0**	**8407**	**53.3**	**2476**	**17.3**	**10567**	**55.4**	**2480**	**14.3**	**10955**	**53.2**	**2534**	**13.4**
2/60	332	0.9	128	0.4	158	1.0	73	0.5	186	1	70	0.4	199	1	77	0.4
1/60	338	1.0	122	0.4	155	1.0	76	0.5	159	0.8	60	0.3	168	0.8	66	0.3
CF	708	2.0	255	0.9	300	1.9	121	0.8	295	1.5	85	0.5	315	1.5	127	0.7
HM	509	1.5	260	0.9	253	1.6	149	1	230	1.2	84	0.5	269	1.3	126	0.7
PL	156	0.4	66	0.2	75	0.5	46	0.3	53	0.3	22	0.1	58	0.3	31	0.2
NPL	95	0.3	45	0.2	34	0.2	0	0	32	0.2	0	0	30	0.1	12	0.1
2/60-NPL	**2138**	**6.1**	**876**	**2.9**	**975**	**6.2**	**465**	**3.1**	**955**	**5**	**321**	**1.8**	**1039**	**5**	**439**	**2.3**
Total	**34992**		**29837**		**15786**		**14446**		**19048**		**17215**		**20590**	**100**	**18886**	**100**

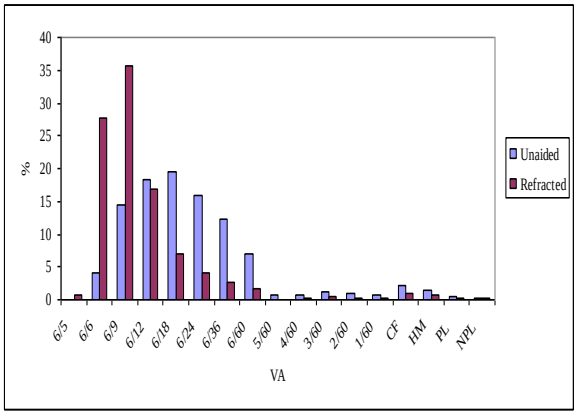
Year	2010				2011				2012				2013			
	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
VA	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	12	0.0	119	0.5	15	0.1	124	0.5	14	0.0	102	0.4	20	0.1	104	0.3
6/6	1568	6.4	8362	37.0	1776	6.5	9239	37.4	2011	7.0	9732	38.2	2664	8.1	11743	39.2
6/9	4523	18.4	7369	32.6	5040	18.5	8162	33.0	5498	19.2	8254	32.4	7101	21.5	9901	33.0
6/12	5054	20.6	3332	14.8	5499	20.2	3585	14.5	5925	20.7	3723	14.6	7122	21.5	4272	14.3
6/5-6/12	**11157**	**45.5**	**19182**	**85.0**	**12330**	**45.3**	**21110**	**85.4**	**13448**	**47.0**	**21811**	**85.5**	**16907**	**51.1**	**26020**	**86.8**
6/18	4727	19.3	1131	5.0	5209	19.1	1218	4.9	5285	18.5	1327	5.2	5923	17.9	1381	4.6
6/24	3232	13.2	666	2.9	3689	13.6	738	3.0	3728	13.0	746	2.9	4062	12.3	820	2.7
6/36	2211	9.0	497	2.2	2528	9.3	503	2.0	2713	9.5	531	2.1	2592	7.8	552	1.8
6/60	1456	5.9	350	1.6	1558	5.7	388	1.6	1468	5.1	361	1.4	1606	4.9	390	1.3
5/60	119	0.5	37	0.2	111	0.4	28	0.1	130	0.5	38	0.1	135	0.4	33	0.1
4/60	112	0.5	31	0.1	109	0.4	32	0.1	119	0.4	26	0.1	103	0.3	43	0.1
3/60	378	1.5	151	0.7	435	1.6	155	0.6	469	1.6	168	0.7	479	1.4	167	0.6
6/18-3/60	**12235**	**49.9**	**2863**	**12.7**	**13639**	**50.1**	**3062**	**12.4**	**13912**	**48.7**	**3197**	**12.5**	**14900**	**45.1**	**3386**	**11.3**
2/60	227	0.9	97	0.4	249	0.9	113	0.5	257	0.9	94	0.4	291	0.9	124	0.4
1/60	196	0.8	93	0.4	213	0.8	99	0.4	211	0.7	79	0.3	239	0.7	111	0.4
CF	345	1.4	147	0.7	400	1.5	135	0.5	371	1.3	125	0.5	352	1.1	138	0.5
HM	280	1.1	155	0.7	294	1.1	150	0.6	291	1.0	154	0.6	279	0.8	138	0.5
PL	47	0.2	24	0.1	52	0.2	20	0.1	61	0.2	28	0.1	64	0.2	34	0.1
NPL	35	0.1	18	0.1	42	0.2	18	0.1	38	0.1	17	0.1	35	0.1	17	0.1
2/60-NPL	**1130**	**4.6**	**534**	**2.4**	**1250**	**4.6**	**535**	**2.2**	**1229**	**4.3**	**497**	**1.9**	**1260**	**3.8**	**562**	**1.9**
Total	**24522**	**100**	**22579**	**100**	**27219**	**100**	**24707**	**100**	**28589**	**100**	**25505**	**100**	**33067**	**100**	**29968**	**100**

Figure 1.5.2.1(a): Percent Distribution of Post-operative Unaided and Refracted Visual Acuity, CSR 2002-2012

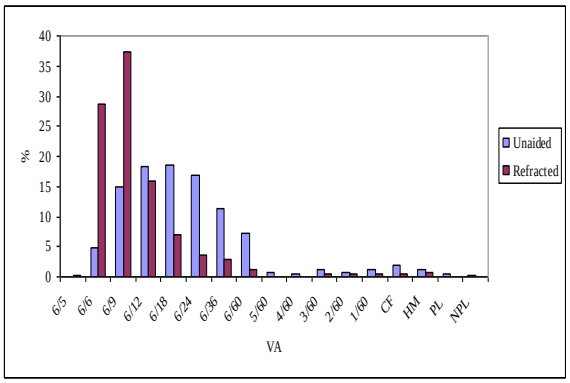
2002



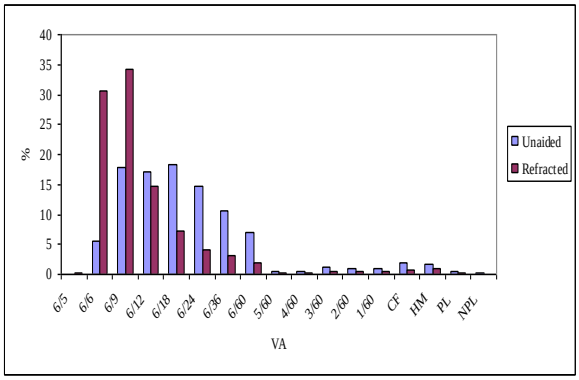
2003



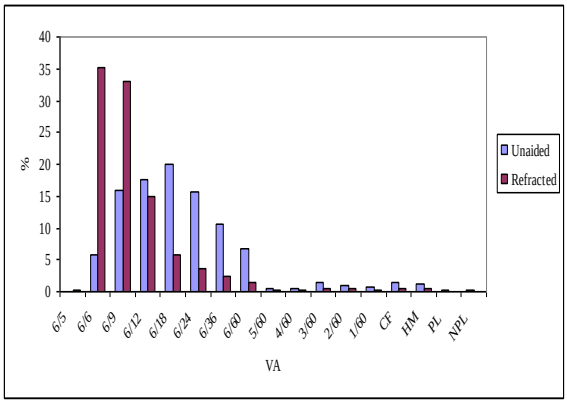
2004



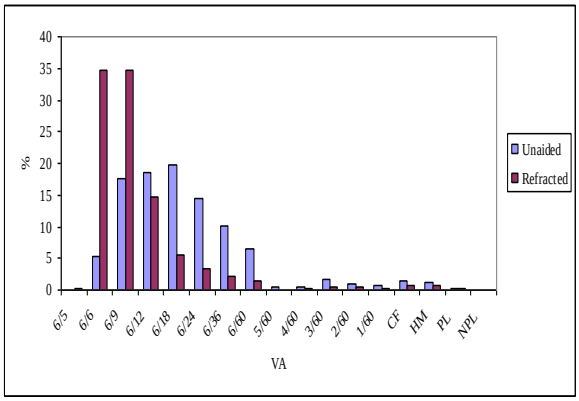
2007



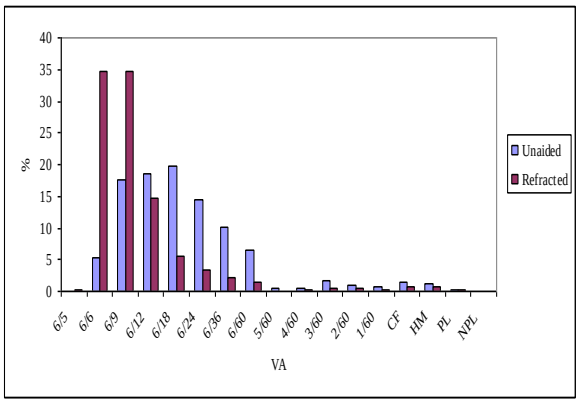
2008



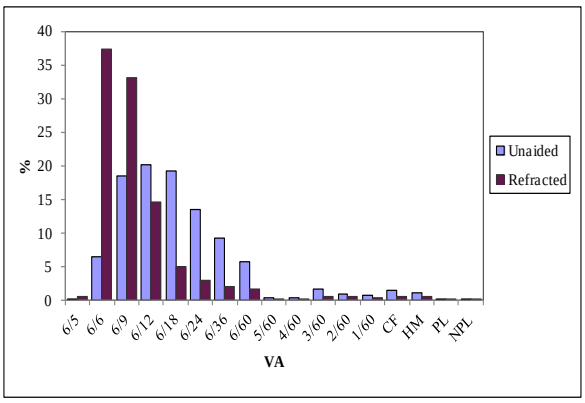
2009



2010



2011



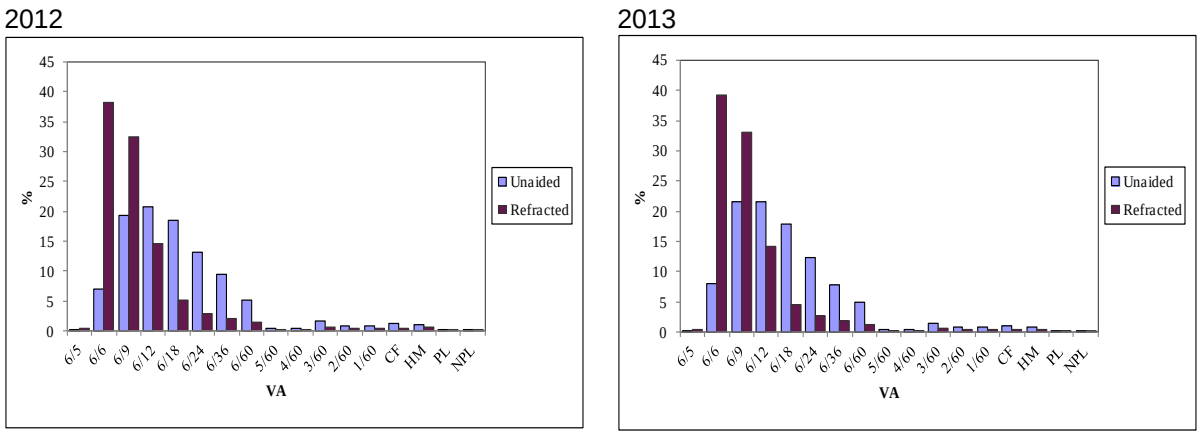
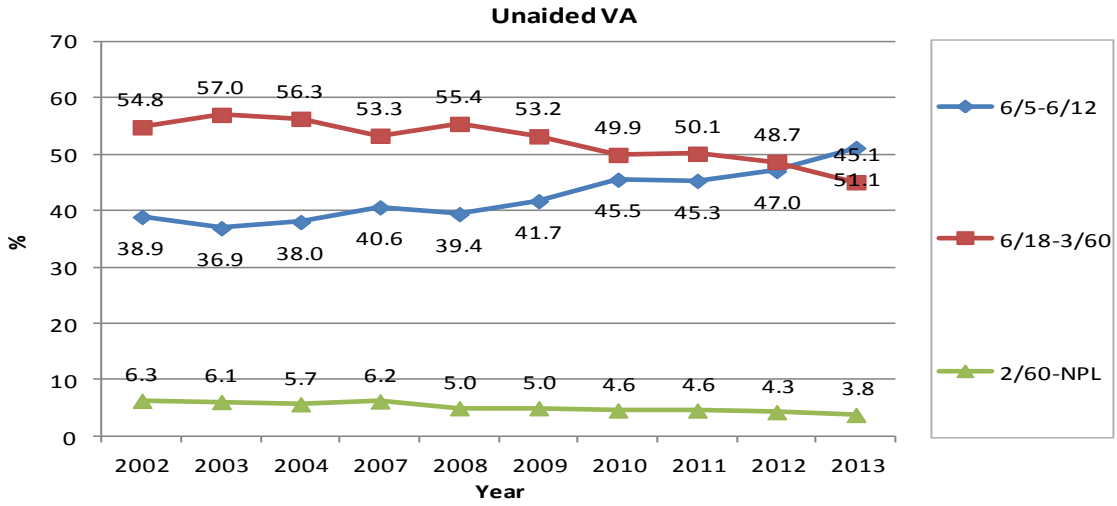
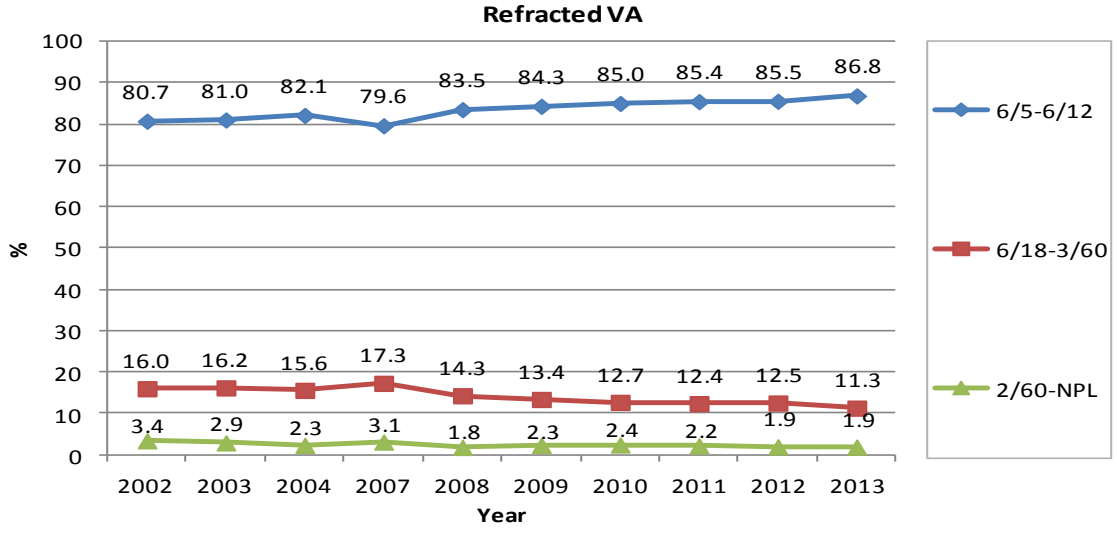


Figure 1.5.2.1(b): Post-operative Unaided and Refracted Visual Acuity by Visual Category for All Eyes, CSR 2002-2013





1.5.2.2 Post-operative Visual Acuity (Eyes without Ocular Co-morbidity)

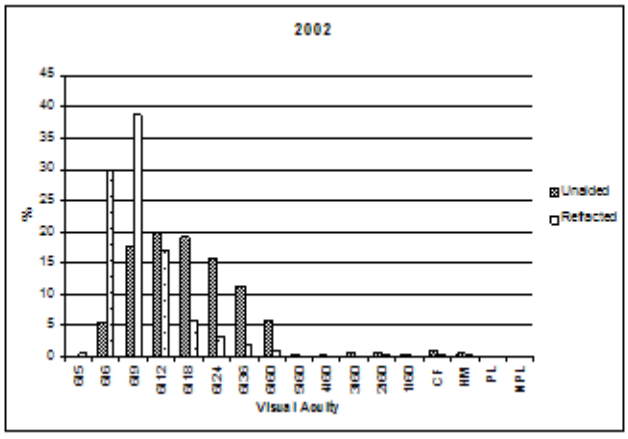
The percentage of eyes with unaided VA 6/12 or better slightly increased but similar to eyes with ocular co-morbidity; this percentage increased double folds following refraction. This trend remained unchanged throughout the years.

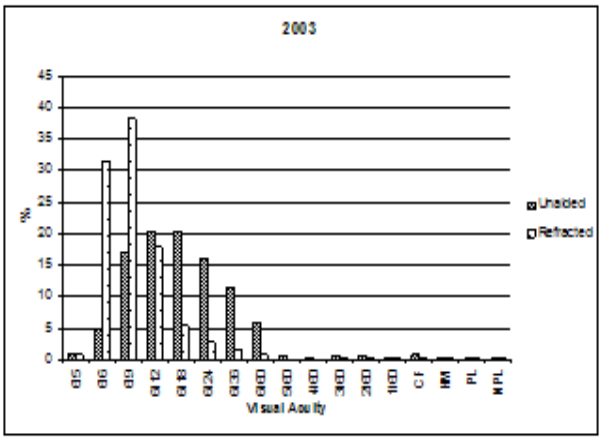
Table 1.5.2.2: Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2002-2013

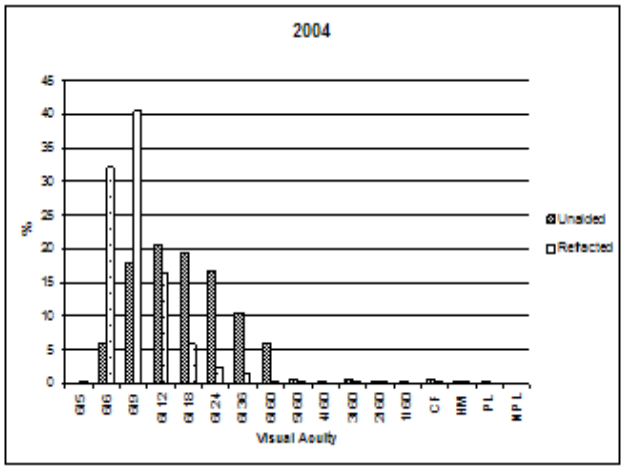
Year	**2002-2004**				**2007**				**2008**				**2009**			
	Unaided		**Refracted**		**Unaided**		**Refracted**		**Unaided**		**Refracted**		**Unaided**		**Refracted**	
VA	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
6/5	17	0.1	128	0.6	3	0.0	25	0.3	2	0	23	0.3	8	0.1	37	0.3
6/6	1259	5.4	6251	31.0	667	6.2	3326	33.5	561	6.2	3061	36.4	802	6.4	4717	40
6/9	4036	17.3	7818	38.8	2061	19.3	3574	36	1477	16.4	2939	35	2595	20.6	4348	36.9
6/12	4725	20.3	3463	17.2	2021	18.9	1473	14.8	1683	18.7	1377	16.4	2585	20.5	1602	13.6
6/5-6/12	**10037**	**43.1**	**17660**	**87.7**	**4752**	**44.4**	**8398**	**84.6**	**3723**	**41.3**	**7400**	**88.1**	**5990**	**47.5**	**10704**	**90.9**
6/18	4583	19.7	1145	5.7	2037	19.1	634	6.4	1882	20.9	411	4.9	2599	20.6	479	4.1
6/24	3746	16.1	572	2.8	1619	15.1	351	3.5	1518	16.9	254	3	1772	14	251	2.1
6/36	2606	11.2	331	1.6	1087	10.2	234	2.4	975	10.8	151	1.8	1170	9.3	152	1.3
6/60	1347	5.8	160	0.8	650	6.1	113	1.1	536	6	71	0.8	651	5.2	61	0.5
5/60	126	0.5	11	0.1	52	0.5	8	0.1	52	0.6	10	0.1	38	0.3	8	0.1
4/60	88	0.4	8	0.0	48	0.4	13	0.1	25	0.3	7	0.1	33	0.3	5	0
3/60	155	0.7	37	0.2	94	0.9	26	0.3	79	0.9	29	0.3	114	0.9	37	0.3
6/18-3/60	**12651**	**54.3**	**2264**	**11.2**	**5587**	**52.3**	**1379**	**13.9**	**5067**	**56.4**	**933**	**11**	**6377**	**50.5**	**993**	**8.4**
2/60	143	0.6	38	0.2	62	0.6	25	0.3	54	0.6	16	0.2	60	0.5	15	0.1
1/60	85	0.4	27	0.1	68	0.6	23	0.2	33	0.4	8	0.1	46	0.4	16	0.1
CF	211	0.9	70	0.3	120	1.1	47	0.5	73	0.8	23	0.3	87	0.7	27	0.2
HM	112	0.5	49	0.2	69	0.6	42	0.4	31	0.3	12	0.1	46	0.4	20	0.2
PL	31	0.1	19	0.1	23	0.2	13	0.1	7	0.1	4	0	9	0.1	6	0.1
NPL	22	0.1	14	0.1	8	0.1	7	0.1	7	0.1	0	0	3	0	1	0
2/60-NPL	**604**	**0.1**	**217**	**1.1**	**350**	**3.2**	**157**	**1.6**	**205**	**2.3**	**63**	**0.7**	**251**	**2**	**85**	**0.7**
Total	**23292**	**100**	**20141**	**100**	**10689**	**100**	**9934**	**100**	**8995**	**100**	**8396**	**100**	**12618**	**100**	**11782**	**100**

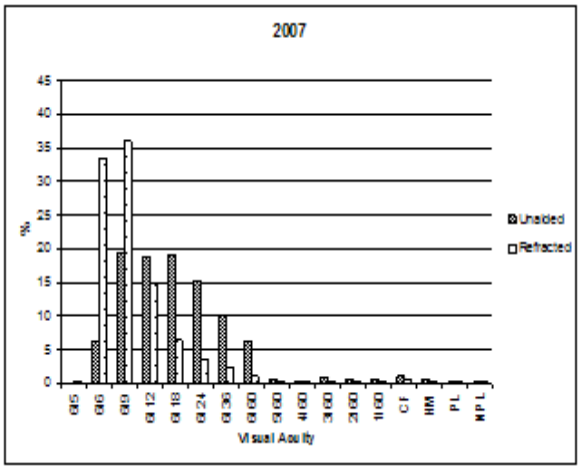
Year	2010				2011				2012				2013			
	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
VA	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	7	0.0	83	0.6	14	0.1	105	0.7	11	0.1	82	0.5	15	0.1	80	0.4
6/6	1127	8.0	5640	42.8	1249	7.9	6314	43.3	1422	8.3	6779	44.0	1922	9.9	8110	45.2
6/9	2989	21.1	4550	34.5	3447	21.8	5167	35.4	3845	22.5	5358	34.8	4846	24.9	6281	35.0
6/12	3311	23.4	1842	14.0	3587	22.6	1882	12.9	3870	22.7	2060	13.4	4502	23.1	2273	12.7
6/5-6/12	**7434**	**52.6**	**12115**	**92.0**	**8297**	**52.4**	**13468**	**92.4**	**9148**	**53.6**	**14279**	**92.6**	**11285**	**58.0**	**16744**	**93.3**
6/18	2777	19.6	445	3.4	3061	19.3	480	3.3	3212	18.8	501	3.3	3508	18.0	508	2.8
6/24	1805	12.8	242	1.8	2098	13.2	267	1.8	2154	12.6	248	1.6	2235	11.5	288	1.6
6/36	1113	7.9	139	1.1	1253	7.9	132	0.9	1419	8.3	159	1.0	1268	6.5	160	0.9
6/60	586	4.1	83	0.6	651	4.1	107	0.7	640	3.7	100	0.6	683	3.5	90	0.5
5/60	50	0.4	11	0.1	40	0.3	5	0.0	41	0.2	4	0.0	41	0.2	7	0.0
4/60	31	0.2	6	0.0	39	0.2	8	0.1	31	0.2	3	0.0	34	0.2	12	0.1
3/60	105	0.7	33	0.3	131	0.8	26	0.2	142	0.8	33	0.2	139	0.7	33	0.2
6/18-3/60	**6467**	**45.7**	**959**	**7.3**	**7273**	**45.9**	**1025**	**7.0**	**7639**	**44.7**	**1048**	**6.8**	**7908**	**40.6**	**1098**	**6.1**
2/60	56	0.4	16	0.1	71	0.4	22	0.2	78	0.5	18	0.1	72	0.4	23	0.1
1/60	40	0.3	18	0.1	51	0.3	15	0.1	60	0.4	22	0.1	55	0.3	21	0.1
CF	87	0.6	31	0.2	93	0.6	19	0.1	102	0.6	26	0.2	93	0.5	30	0.2
HM	48	0.3	26	0.2	46	0.3	23	0.2	37	0.2	15	0.1	46	0.2	21	0.1
PL	7	0.0	5	0.0	9	0.1	3	0.0	11	0.1	3	0.0	6	0.0	2	0.0
NPL	3	0.0	1	0.0	6	0.0	1	0.0	3	0.0	2	0.0	7	0.0	5	0.0
2/60-NPL	**241**	**1.7**	**97**	**0.7**	**276**	**1.7**	**83**	**0.6**	**291**	**1.7**	**86**	**0.6**	**279**	**1.4**	**102**	**0.6**
Total	**14142**	**100**	**13171**	**100**	**15846**	**100**	**14576**	**100**	**17078**	**100**	**15413**	**100**	**19472**	**100**	**17944**	**100**

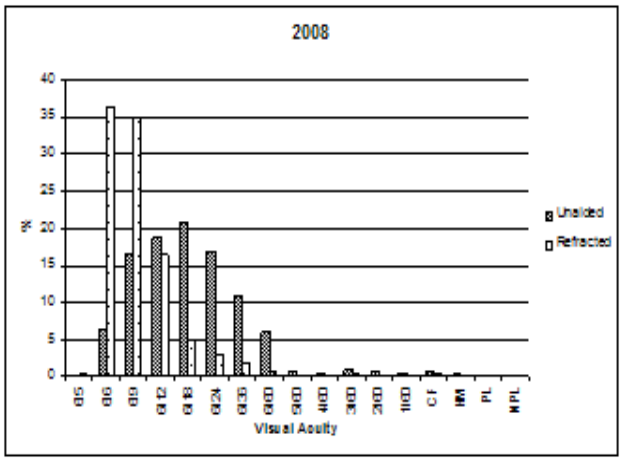
Figure 1.5.2.2(a): Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2002-2013

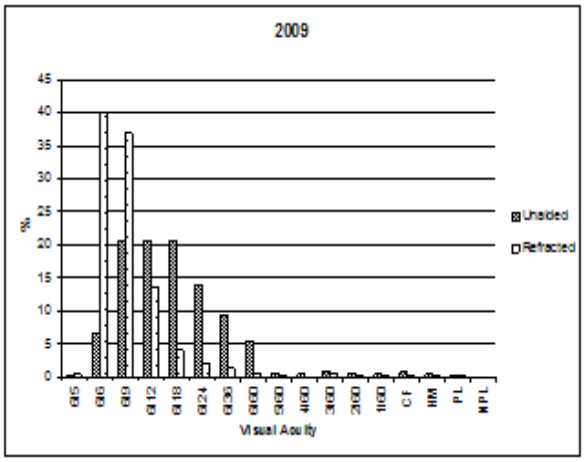


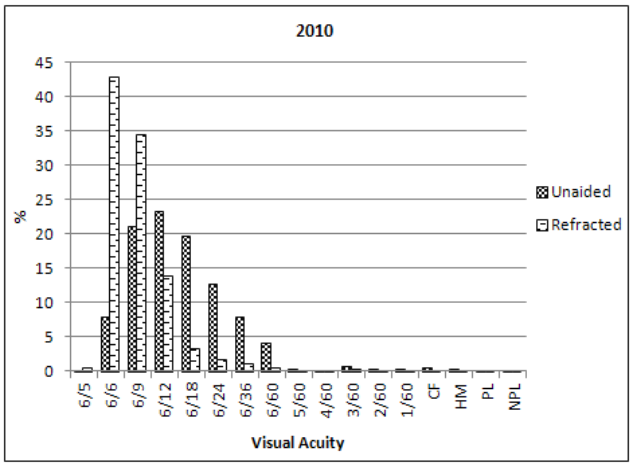


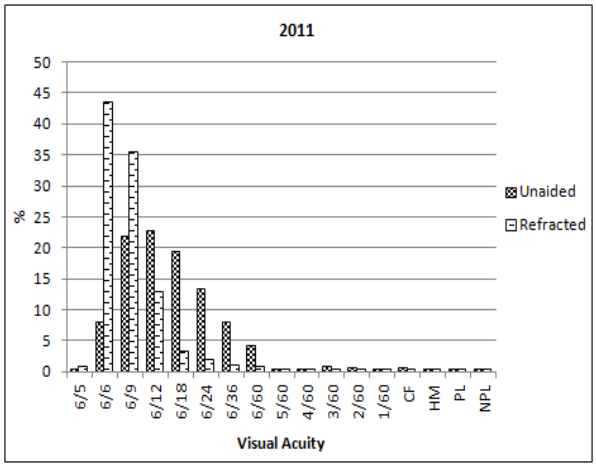

2004
%
Unaided
Refracted
Visual Acuity

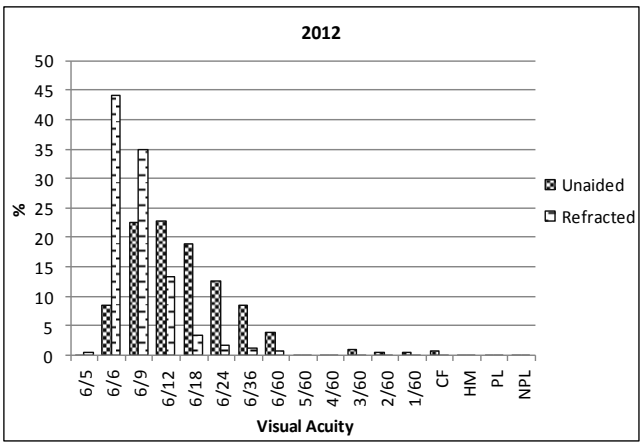

2007
%
Unaided
Refracted
Visual Acuity


2008
%
Unaided
Refracted
Visual Acuity


2009
%
Unaided
Refracted
Visual Acuity


2010
%
Unaided
Refracted
6/5
6/6
6/9
6/12
6/18
6/24
6/36
6/60
5/60
4/60
3/60
2/60
1/60
CF
HM
PL
NPL
Visual Acuity


2011
%
Unaided
Refracted
6/5
6/6
6/9
6/12
6/18
6/24
6/36
6/60
5/60
4/60
3/60
2/60
1/60
CF
HM
PL
NPL
Visual Acuity



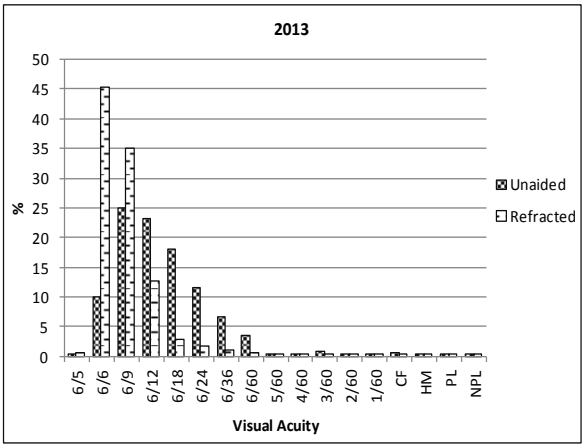
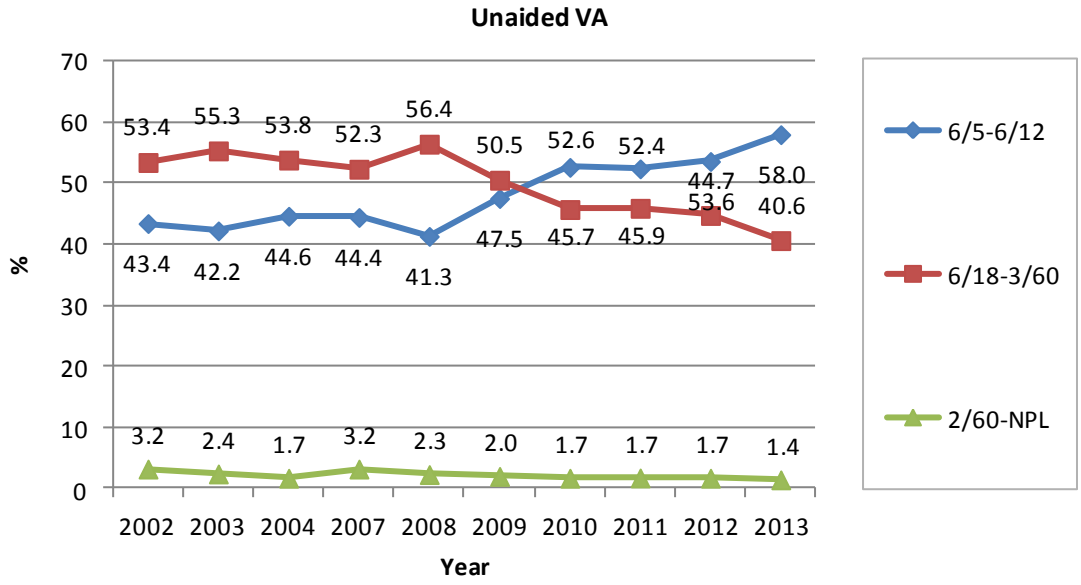
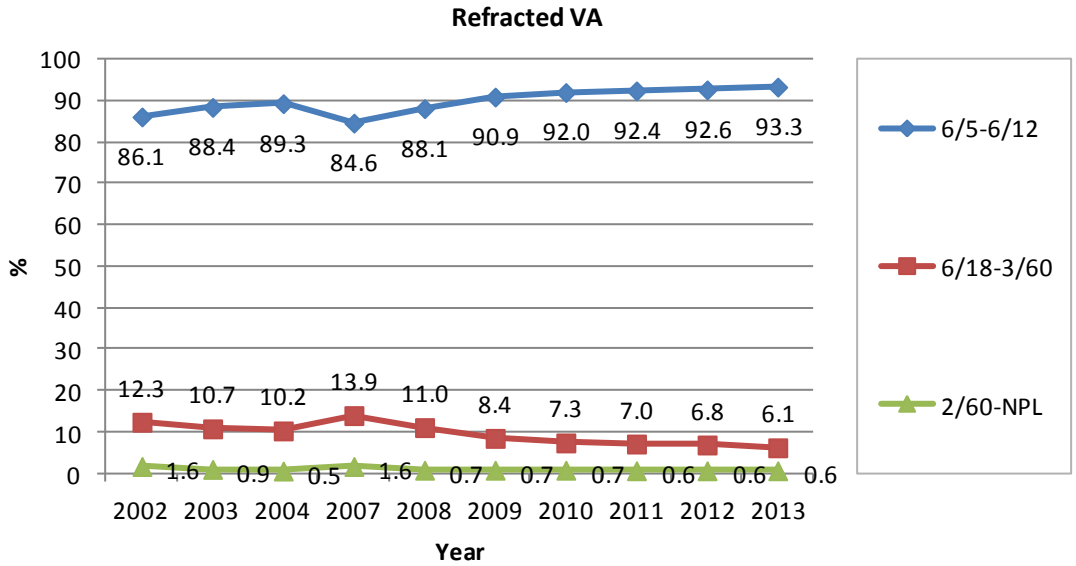


Figure 1.5.2.2(b): Post-operative Visual Acuity by Visual Category for Eyes without Ocular Co-morbidity, CSR 2002-2013





1.5.2.3 Post-operative Visual Acuity 6/12 or Better Among Eyes without Ocular Co-morbidity

The patients who had undergone phacoemulsification showed the highest proportion of achieving good visual outcome when compared with other surgeries. The percentage demonstrated an increasing trend (from 87.0% in 2002 to 94.5% in 2013). When complication occurred in phacoemulsification which necessitated conversion to ECCE, the visual outcome became less favorable.

The proportion of eyes with unaided VA 6/12 or better was poor in almost all types of surgery throughout the years. This percentage increased double folds following refraction. These findings indicated that a large number of patients required some forms of visual rehabilitation or correction post-operatively.

Table 1.5.2.3(a): Post-operative Visual Acuity 6/12 or Better for Eyes without Ocular Co-morbidities by Types of Surgery, CSR 2002-2013

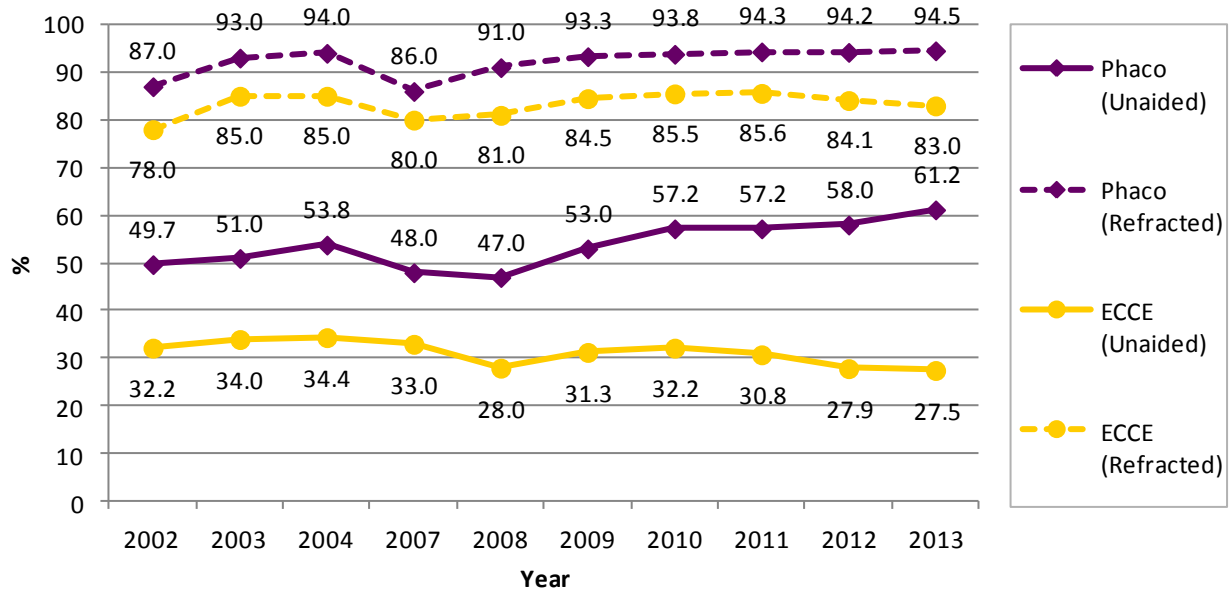
Year	2002-2004						2007						2008					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	26436	10868	41.1	22679	19295	85.1	7130	3080	43.0	6632	5551	84.0	8983	3719	41.0	8390	7392	88.0
Phaco	14078	7240	51.4	10696	9709	90.8	4868	2332	48.0	4508	3890	86.0	6419	3017	47.0	5958	5440	91.0
ECCE	16029	5343	33.3	10809	8757	81.0	2033	675	33.0	1910	1520	80.0	2263	629	28.0	2158	1744	81.0
Phaco → ECCE	963	289	30.0	635	500	78.7	158	36	23.0	143	89	62.0	201	40	20.0	184	140	76.0
Lens Aspiration	583	178	30.5	368	227	61.7	62	33	53.0	59	46	78.0	74	29	39.0	66	54	82.0
ICCE	88	22	25.0	76	39	51.3	15	2	13.0	10	4	39.0	24	4	17.0	19	11	58.0
Secondary IOL	172	39	22.7	81	58	71.6	-	NA	-	-	NA	-	-	NA	-	-	NA	-

Year	2009						2010						2011					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	12618	5990	47.5	11782	10704	90.9	14142	7434	52.6	13171	12115	92.0	15846	8297	52.4	14576	13468	92.4
Phaco	9511	5038	53.0	9001	8397	93.3	11520	6589	57.2	10818	10151	93.8	13036	7454	57.2	12155	11465	94.3
ECCE	2607	816	31.3	2329	1967	84.5	2089	672	32.2	1866	1596	85.5	2238	689	30.8	1901	1628	85.6
Phaco → ECCE	270	53	19.6	259	200	77.2	268	67	25.0	253	198	78.3	311	59	19.0	291	210	72.2
Lens Aspiration	160	57	35.6	128	89	69.5	192	86	44.8	168	126	75.0	200	79	39.5	175	131	74.9
ICCE	29	7	24.1	25	15	60.0	28	4	14.3	25	13	52.0	20	3	15.0	19	10	52.6
Secondary IOL	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-

	2012						2013					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	17078	9148	53.6	15413	14279	92.6	19441	11264	57.9	17915	16716	93.3
Phaco	14540	8439	58.0	13344	12564	94.2	17505	10710	61.2	16159	15275	94.5
ECCE	2044	570	27.9	1633	1373	84.1	1403	386	27.5	1269	1053	83.0
Phaco → ECCE	261	41	15.7	239	176	73.6	306	69	22.5	281	219	77.9
Lens Aspiration	163	84	51.5	141	124	87.9	164	84	51.2	151	129	85.4
ICCE	24	2	8.3	20	13	65.0	38	8	21.1	35	28	80.0
Secondary IOL	-	NA	-	-	NA	-	-	-	-	-	-	-

** Note: Secondary IOL was excluded from CSR from the year 2007*

Figure 1.5.2.3(a): Post-operative Visual Acuity 6/12 or Better for Eyes without Ocular Co-morbidities by ECCE and Phaco, CSR 2002-2013



The proportion of eyes with no ocular co morbidity and good post operative vision but had intra-operative complication was also highest in phaco

Table 1.5.2.3(b): Post-operative Refracted Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidities by Complications and Types of Surgery, CSR 2013

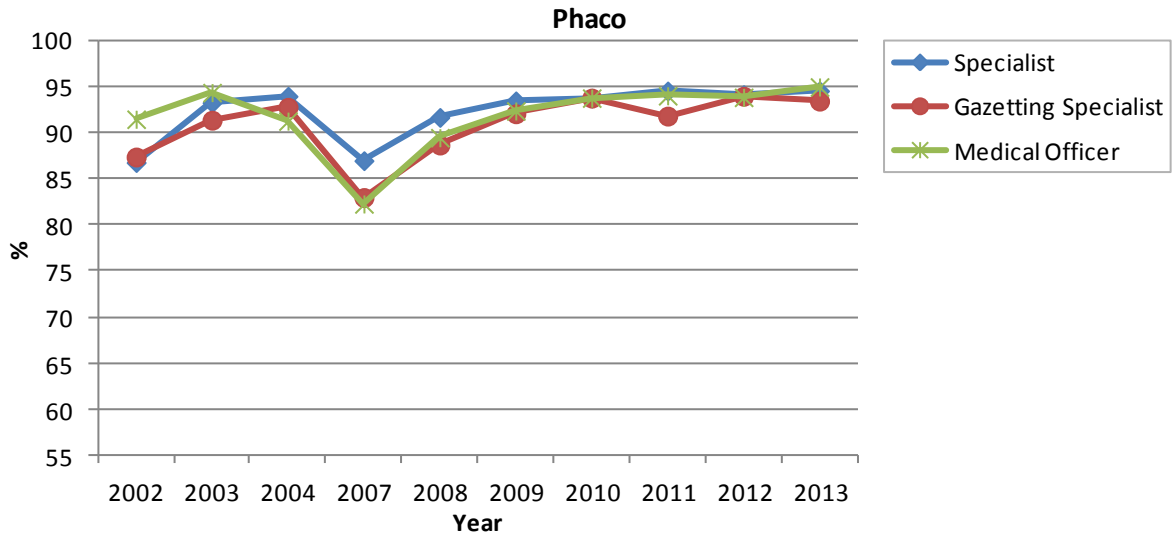
	Types of Cataract Surgery																	
	All Surgeries			Lens Aspiration			ECCE			Phaco			Phaco → ECCE			ICCE		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
	17915	16716	93.3	151	129	85.4	1269	1053	83.0	16159	15275	94.5	281	219	77.9	35	28	80.0
With intra-op complications	753	588	78.1	10	6	60.0	103	66	64.1	486	407	83.7	136	94	69.1	14	12	85.7
No intra-op complications	17162	16128	94.0	141	123	87.2	1166	987	84.6	15673	14868	94.9	145	125	86.2	21	16	76.2

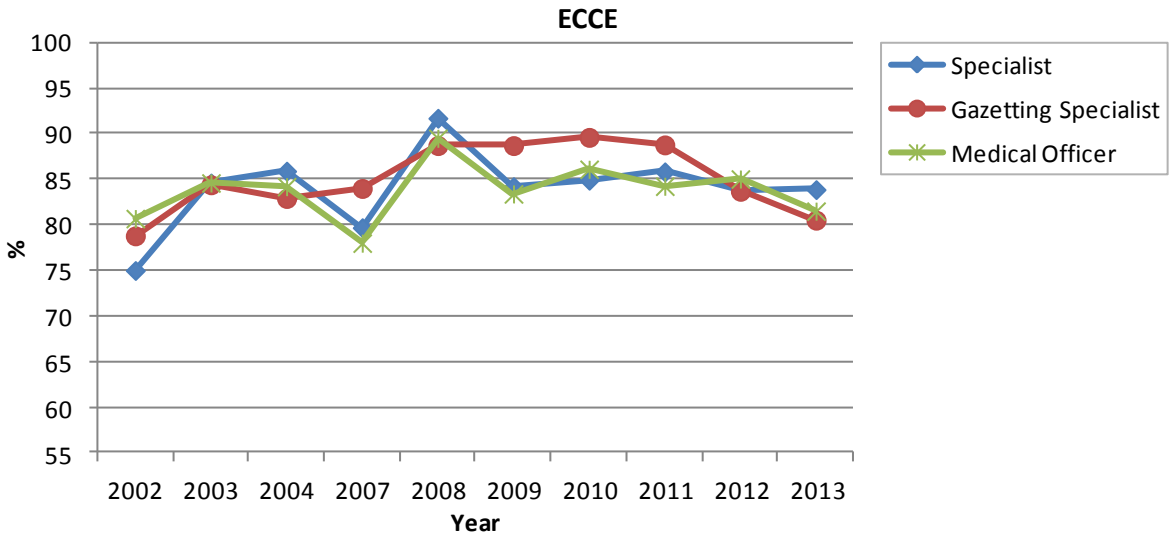
Table 1.5.2.3(c): Post-operative Refracted Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidities by Surgeon Status and Types of Surgery, CSR 2013

	Types of Cataract Surgery																	
	All Surgeries			Lens Aspiration			ECCE			Phaco			Phaco → ECCE			ICCE		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
	17915	16716	93.3	151	129	85.4	1269	1053	83.0	16159	15275	94.5	281	219	77.9	35	28	80.0
Specialist	15859	14852	93.7	143	124	86.7	806	676	83.9	14621	13829	94.6	244	191	78.3	26	20	76.9
Gazetting Specialist	1083	995	91.9	7	5	71.4	77	62	80.5	965	902	93.5	27	20	74.1	7	6	85.7
Medical Officer	959	856	89.3	1	0	0.0	384	313	81.5	561	533	95.0	10	8	80.0	2	2	100.0

In general, better visual outcomes were observed in surgeries performed by specialists

Figure 1.5.2.3(b): Post-operative Refracted Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidities by Surgeon Status and Types of Surgery, CSR 2002-2013




ECCE
100
95
90
85
80
75
70
65
60
55
%
2002
2003
2004
2007
2008
2009
2010
2011
2012
2013
Year
Specialist
Gazetting Specialist
Medical Officer

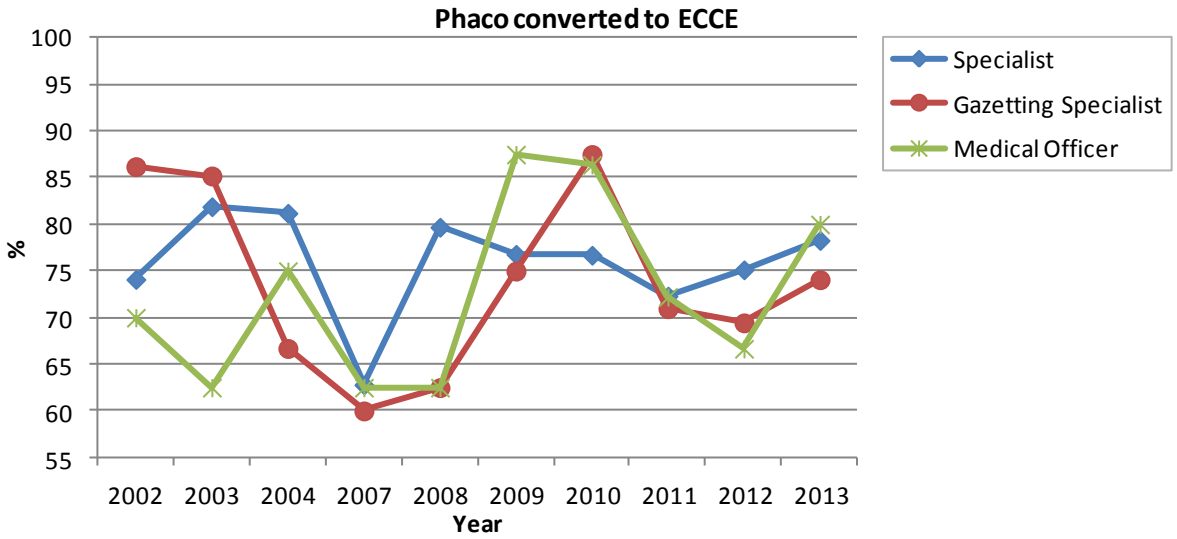

Phaco converted to ECCE
100
95
90
85
80
75
70
65
60
55
%
2002
2003
2004
2007
2008
2009
2010
2011
2012
2013
Year
Specialist
Gazetting Specialist
Medical Officer

Table 1.5.2.3(d): Post-operative Refracted Visual Acuity 6/12 or Better for Patients without Ocular Co-morbidities by SDP and Types of Surgery, CSR 2013

Hospital	Type of Cataract Surgery																		
	All Patients	All Surgeries			Lens Aspiration			ECCE			Phaco			Phaco → ECCE			ICCE		
	N	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**
All Centre	17944	17915	16716	93.3	151	129	85.4	1269	1053	83.0	16159	15275	94.5	281	219	77.9	35	28	80.0
Alor Setar	864	864	780	90.3	16	11	68.8	118	96	81.4	717	664	92.6	11	7	63.6	1	1	100.0
Ampang	428	428	423	98.8	3	3	100.0	11	11	100.0	409	404	98.8	5	5	100.0	0	0	0.0
Batu Pahat	247	247	227	91.9	4	4	100.0	34	29	85.3	199	186	93.5	9	7	77.8	1	1	100.0
Bintulu	163	163	154	94.5	0	0	0.0	4	3	75.0	155	149	96.1	3	2	66.7	0	0	0.0
Bukit Mertajam	252	252	244	96.8	0	0	0.0	26	25	96.2	226	219	96.9	0	0	0.0	0	0	0.0
Ipoh	1461	1442	1357	94.1	3	3	100.0	63	50	79.4	1361	1290	94.8	13	12	92.3	2	2	100.0
Johor Bahru	676	676	604	89.3	8	5	62.5	21	13	61.9	640	581	90.8	5	4	80.0	2	1	50.0
Kangar	146	146	135	92.5	1	1	100.0	3	3	100.0	137	127	92.7	3	2	66.7	2	2	100.0
Kemaman	7	7	7	100.0	0	0	0.0	1	1	100.0	6	6	100.0	0	0	0.0	0	0	0.0
Keningau	12	12	12	100.0	0	0	0.0	6	6	100.0	6	6	100.0	0	0	0.0	0	0	0.0
Klang	821	821	762	92.8	8	6	75.0	31	18	58.1	763	725	95.0	12	9	75.0	3	3	100.0
Kota Bharu	130	130	116	89.2	3	2	66.7	38	31	81.6	83	79	95.2	4	3	75.0	2	1	50.0
Kota Kinabalu	684	684	629	92.0	13	11	84.6	144	129	89.6	506	474	93.7	16	11	68.8	4	3	75.0
Kuala Krai	207	207	198	95.7	2	2	100.0	15	13	86.7	181	176	97.2	7	5	71.4	1	1	100.0
Kuala Lumpur	400	398	373	93.7	3	3	100.0	40	37	92.5	350	328	93.7	3	3	100.0	1	1	100.0
Kuala Pilah	328	328	308	93.9	4	3	75.0	22	20	90.9	294	277	94.2	7	7	100.0	1	1	100.0
Kuala Terengganu	729	729	666	91.4	19	16	84.2	127	100	78.7	575	544	94.6	5	4	80.0	3	2	66.7
Kuantan	409	407	396	97.3	3	2	66.7	89	85	95.5	303	297	98.0	11	11	100.0	1	1	100.0
Kuching	914	914	823	90.0	5	5	100.0	9	5	55.6	888	805	90.7	9	7	77.8	2	1	50.0
Melaka	876	876	792	90.4	6	6	100.0	98	76	77.6	764	703	92.0	4	4	100.0	0	0	0.0
Miri	631	631	581	92.1	5	5	100.0	6	5	83.3	618	570	92.2	0	0	0.0	2	1	50.0
Muar	307	307	287	93.5	2	2	100.0	13	10	76.9	286	270	94.4	6	5	83.3	0	0	0.0
Pulau Pinang	757	757	714	94.3	3	3	100.0	3	2	66.7	735	697	94.8	16	12	75.0	0	0	0.0
Putrajaya	183	183	181	98.9	2	2	100.0	6	4	66.7	166	166	100.0	9	9	100.0	0	0	0.0
Sandakan	181	181	171	94.5	1	1	100.0	19	16	84.2	158	152	96.2	3	2	66.7	0	0	0.0
Sarikei	184	184	176	95.7	0	0	0.0	0	0	0.0	183	175	95.6	1	1	100.0	0	0	0.0
Selayang	578	578	522	90.3	6	5	83.3	12	6	50.0	546	501	91.8	11	7	63.6	3	3	100.0
Serdang	425	425	400	94.1	5	5	100.0	24	20	83.3	381	364	95.5	15	11	73.3	0	0	0.0
Seremban	722	722	694	96.1	2	1	50.0	27	24	88.9	685	661	96.5	8	8	100.0	0	0	0.0
Sibu	310	310	292	94.2	2	2	100.0	3	2	66.7	302	286	94.7	3	2	66.7	0	0	0.0
Sri Manjung	540	535	509	95.1	2	2	100.0	8	6	75.0	522	498	95.4	2	2	100.0	0	0	0.0
Sultan Ismail	200	200	192	96.0	5	5	100.0	19	17	89.5	165	161	97.6	11	9	81.8	0	0	0.0
Sungai Buloh	362	362	338	93.4	7	5	71.4	40	34	85.0	301	286	95.0	14	13	92.9	0	0	0.0
Sungei Petani	373	373	343	92.0	0	0	0.0	39	35	89.7	323	302	93.5	9	6	66.7	0	0	0.0
Taiping	324	324	320	98.8	1	1	100.0	17	16	94.1	304	301	99.0	2	2	100.0	0	0	0.0
Tawau	106	106	86	81.1	0	0	0.0	73	59	80.8	27	24	88.9	6	3	50.0	0	0	0.0
Teluk Intan	499	498	487	97.8	3	3	100.0	24	20	83.3	465	458	98.5	3	3	100.0	3	3	100.0
Temerloh	299	299	271	90.6	2	2	100.0	9	6	66.7	272	256	94.1	16	7	43.8	0	0	0.0
KK1M East Coast	21	21	17	81.0	0	0	0.0	2	1	50.0	17	16	94.1	2	0	0.0	0	0	0.0
KK1M Sarawak	44	44	39	88.6	0	0	0.0	0	0	0.0	43	38	88.4	1	1	100.0	0	0	0.0
MAIWP	1144	1144	1090	95.3	2	2	100.0	25	19	76.0	1097	1053	96.0	16	13	81.3	1	0	0.0

Figure 1.5.2.3(c): Post-operative Refracted Visual Acuity 6/12 or Better for Patients without Ocular Co-morbidities by SDP and All Surgeries, CSR 2013

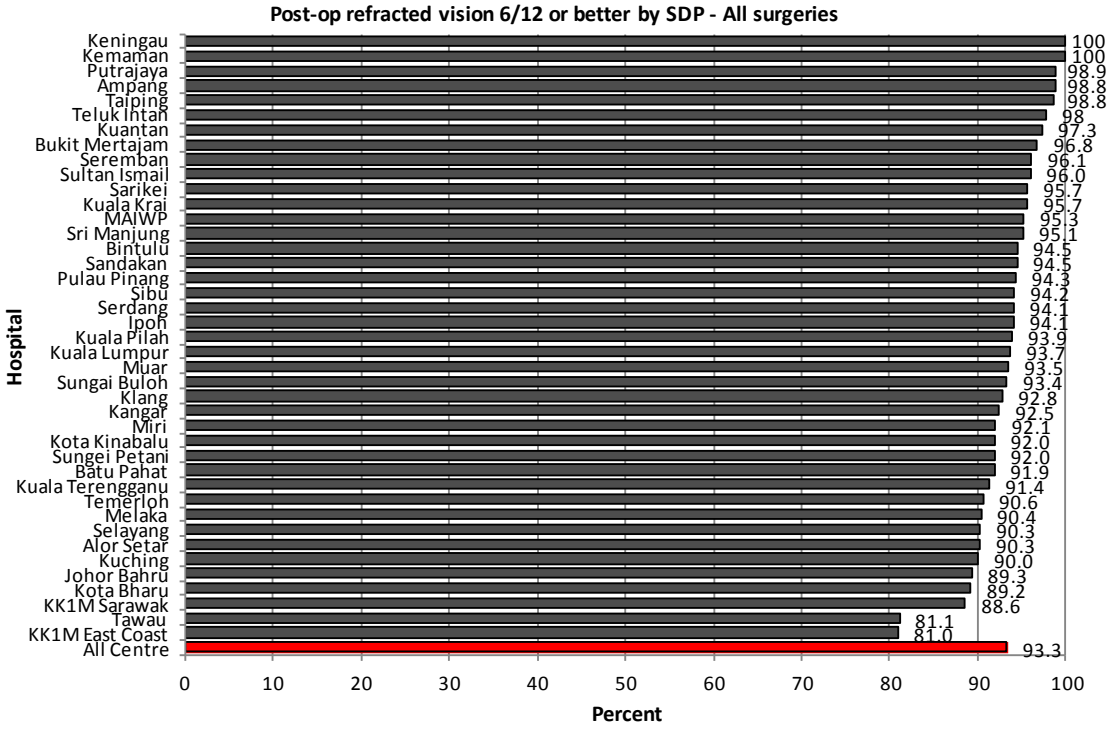


Figure 1.5.2.3(d): Post-operative Refracted Visual Acuity 6/12 or Better for Patients without Ocular Co-morbidities by SDP for Phacoemulsification, CSR 2013

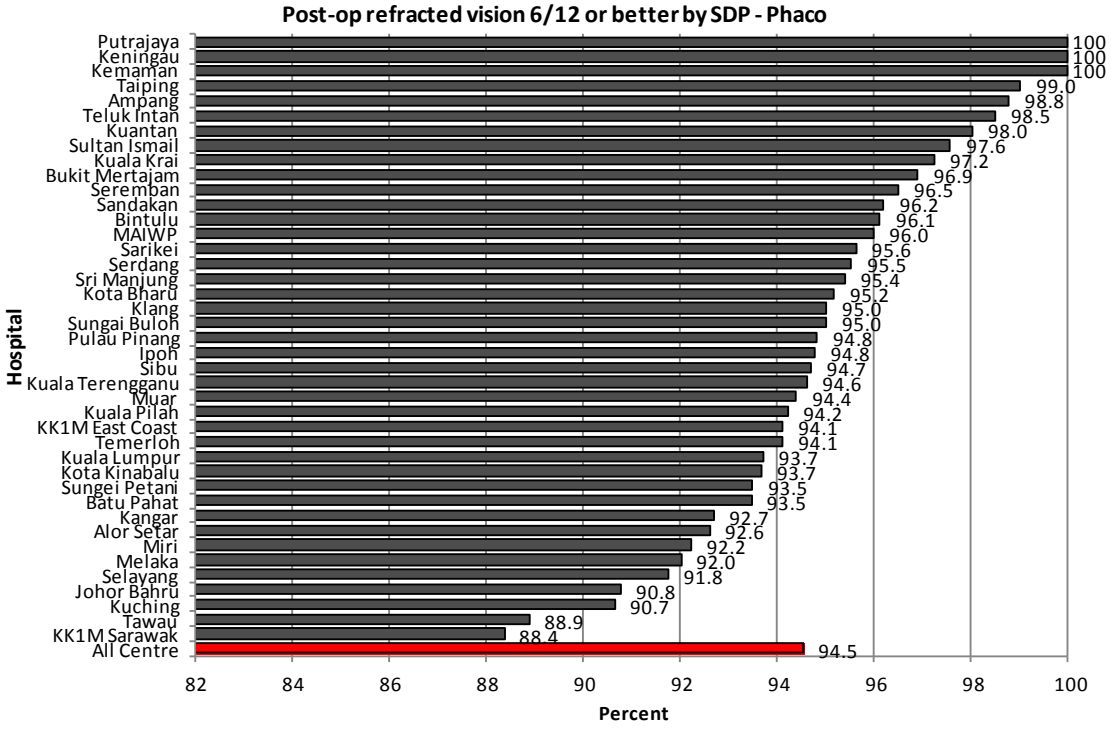
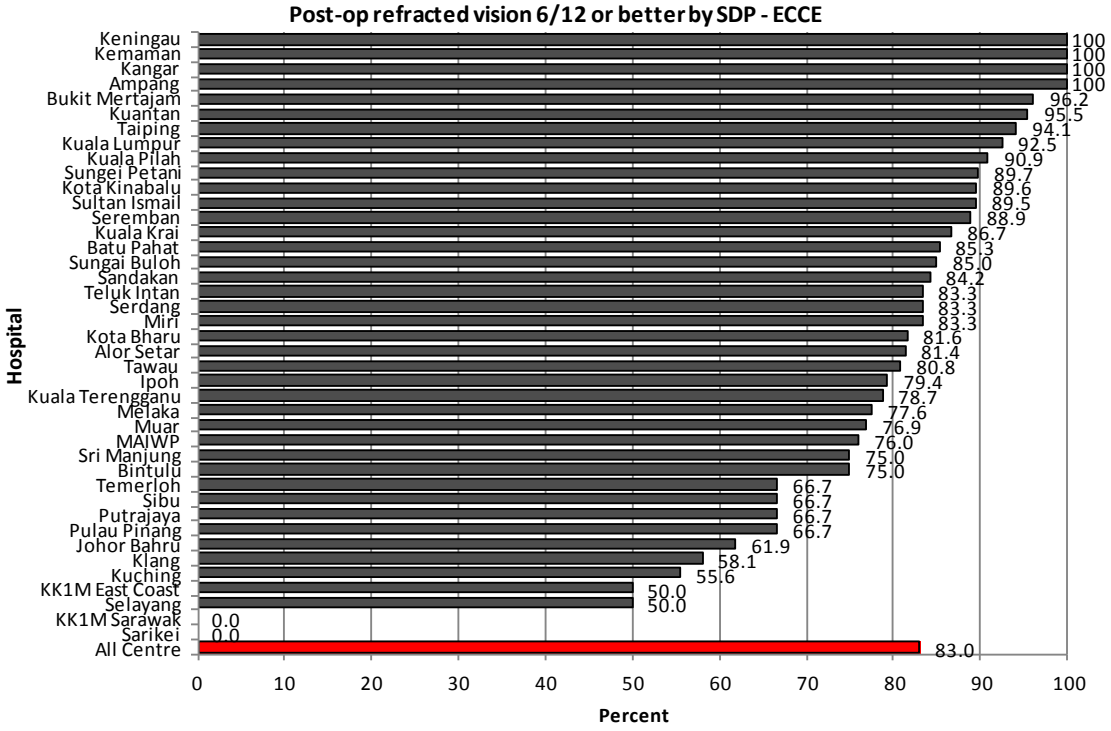


Figure 1.5.2.3(e): Post-operative Refracted Visual Acuity 6/12 or Better for Patients without Ocular Co-morbidities by SDP for ECCE, CSR 2013



1.5.3 Reasons for No Record of Visual Acuity

Of the 37150 eyes operated in 2013, 2019 eyes did not have record of visual acuity. The main reason for no record of VA was loss to follow up.

Table 1.5.3: Reasons for No Records of Visual Acuity, CSR 2002-2013

Years	2002-2004		2007		2008		2009		2010		2011		2012		2013	
Reasons	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
All cases	5143	100	1458	100	1463	100	1557	100	1359	100	1607	100	1787	100	2019	100
Loss to follow-up	3384	65.8	1078	73.9	1230	84.1	1261	81.0	1078	79.3	1362	84.8	1451	81.2	1697	84.1
Discharged by doctor	914	17.8	32	2.2	13	0.9	44	2.8	38	2.8	32	2.0	22	1.2	36	1.8
Unable to take vision	210	4.1	49	3.4	26	1.8	30	1.9	33	2.4	27	1.7	33	1.8	26	1.3
Others	635	12.3	299	20.5	194	13.3	222	14.3	210	15.5	186	11.6	281	15.7	260	12.9

1.5.4 Factors Contributing to Post-operative Refracted Visual Acuity of Worse than 6/12

The main contributing factors for eyes with post-operative refracted VA worse than 6/12 were pre-existing ocular co-morbidity followed by high astigmatism and PCO. High astigmatism, PCO and CMO in particular showed a decreasing trend consistent with the shift towards phacoemulsification and improvement in other aspect of cataract surgery technique over the years.

When eyes with preexisting ocular co-morbidity were excluded from analysis from the year 2004 onwards, high astigmatism contributed the highest number followed by preexisting ocular co-morbidity (not detected preoperatively).

Table 1.5.4(a): Factors Contributing to Post-operative Refracted VA of Worse than 6/12 in All Eyes, CSR 2002-2013

Years	**2002-2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Factors	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
N (total no. of post-op refracted vision worse than 6/12)							2973		3397		3597		3694		3948	
Preexisting ocular co-morbidity	1707	42.3	904	28.8	802	28.4	1016	34.2	1364	40.2	1412	39.3	1544	41.8	1571	39.8
High astigmatism	1202	31.7	478	15.2	460	16.3	395	13.3	378	11.1	397	11.0	438	11.9	435	11.0
Posterior capsular opacity	403	10.1	140	4.5	112	4.0	136	4.6	112	3.3	111	3.1	114	3.1	91	2.3
Cystoid macular oedema	185	4.6	101	3.2	64	2.3	82	2.8	94	2.8	96	2.7	88	2.4	80	2.0
Endophthalmitis	32	0.8	14	0.4	6	0.2	6	0.2	5	0.1	2	0.1	4	0.1	2	0.1
Corneal decompensation	62	1.4	28	0.9	31	1.1	61	2.1	33	1.0	36	1.0	42	1.1	50	1.3
Decentered IOL	18	0.4	4	0.1	6	0.2	5	0.2	5	0.1	8	0.2	9	0.2	15	0.4
Retinal detachment	42	0.9	67	2.1	50	1.8	56	1.9	44	1.3	35	1.0	69	1.9	29	0.7
Others	638	16.0	620	19.8	603	21.3	794	26.7	857	25.2	927	25.8	1072	29.0	1111	28.1
Missing/ Unavailable	63	1.9	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Figure 1.5.4: Factors Contributing to Post-operative Refracted VA of Worse than 6/12 in All Eyes, CSR 2002-2013

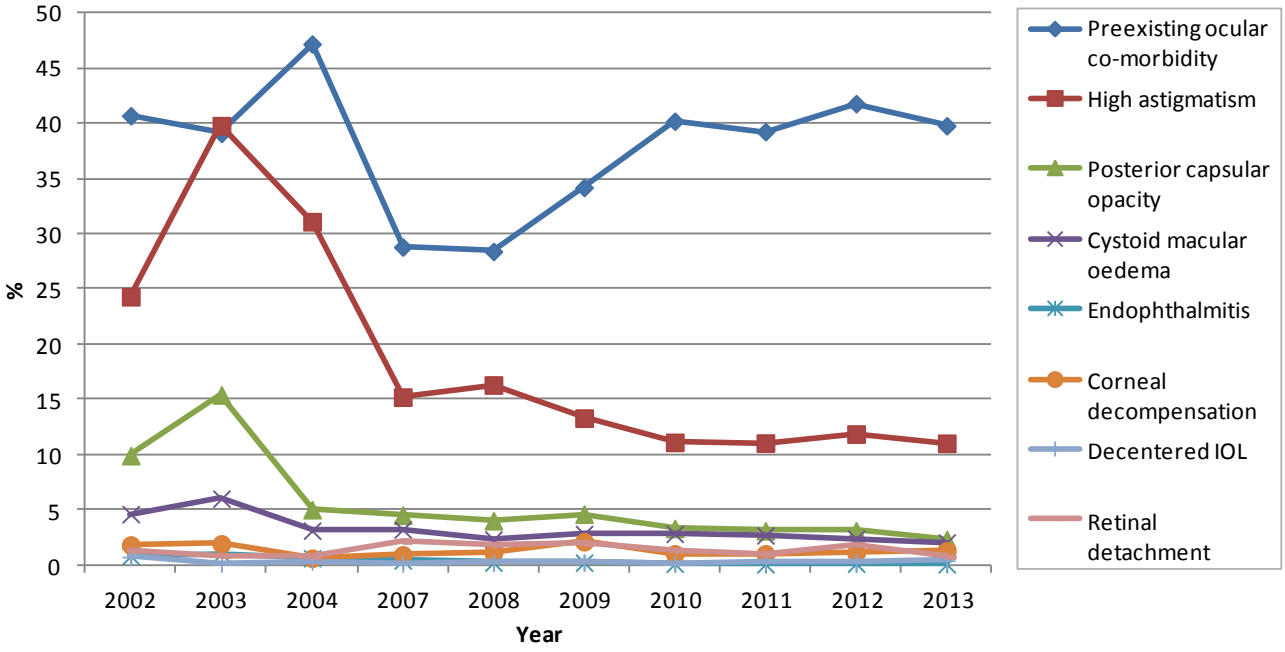


Table 1.5.4(b): Factors Contributing to Post-operative Refracted VA of Worse than 6/12 in Eyes without Preexisting Ocular co-morbidity, CSR 2004-2013

Years	**2004**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Factors	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
N							1078		1056		1108		1134		1200	
Preexisting ocular co-morbidity (not detected pre-operatively)	23	6.1	271	17.6	229	16.5	121	11.2	92	8.7	66	6.0	98	8.6	70	5.8
High astigmatism	197	52.0	303	19.7	286	20.6	178	16.5	180	17.0	175	15.8	193	17.0	167	13.9
Posterior capsular opacity	20	5.3	83	5.4	61	4.4	87	8.1	65	6.2	50	4.5	51	4.5	39	3.3
Cystoid macular oedema	20	5.3	52	3.4	26	1.9	32	3.0	42	4.0	38	3.4	38	3.4	29	2.4
Endophthalmitis	4	1.0	9	0.6	4	0.3	4	0.4	2	0.2	1	0.1	2	0.2	0	0.0
Corneal decompensation	3	0.8	15	1.0	13	0.9	36	3.3	21	2.0	18	1.6	18	1.6	18	1.5
Decentered IOL	2	0.5	4	0.3	2	0.1	1	0.1	0	0.0	4	0.4	5	0.4	6	0.5
Retinal detachment	1	0.3	18	1.2	11	0.8	11	1.0	6	0.6	1	0.1	6	0.5	3	0.3
Others	76	20.0	320	20.8	323	23.3	368	34.1	389	36.8	453	40.9	506	44.6	521	43.4
Missing/Unavailable	NA	-	461	30.0	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-

1.5.5 Actual or Residual Refractive Power (Spherical Equivalent)

Target refractive power is the refractive power aimed by the surgeon for a patient while the actual or residual refractive power or spherical equivalent (SE) is the postoperative refraction results for the same eye. Myopic shift is the shift of the refraction status (actual refraction) towards more negative value as compared to the targeted refraction pre-operatively. It can be the results of surgery induced astigmatism or more anterior placement of IOL in the bag. It can also be due to indentation of eyeball during biometry resulting in shorter axial length.

Data from 2007 to 2013 demonstrated that ECCE produced more myopic shift as compared to phaco. The difference between the target and actual refraction remained a broad-based distribution curve indicating that a large percentage of eyes did not achieve the target refraction status post-operatively.

Table 1.5.5(a): Distribution of Target and Actual Refractive Power in ECCE and Phaco, CSR 2007-2013

	Target Refraction							**Actual-Target Refraction**						
	All Patient							**All Patient**						
Years	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
N	11876	15083	20279	24528	25887	26061	28693	8738	12295	14670	17696	18813	17964	20458
Mean	-0.5	-0.1	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3
SD	+0.4	+0.4	+0.4	+0.4	+0.3	+0.4	+0.3	+1.1	+1.2	+1.1	+1.1	+1.0	+1.0	+0.9
Median	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2
Minimum	-9.0	-9.9	-9.9	-9.1	-9.1	-8.0	-8.5	-9.5	-9.9	-8.8	-9.8	-9.2	-9.9	-9.7
Maximum	+5.0	+9.5	+5.9	+6.0	+4.8	+9.0	+9.0	+5.0	+9.0	+10.7	+10.7	+10.7	+10.6	+10.7

	Actual Refraction													
	ECCE							**Phaco**						
Years	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
N	3624	4400	4013	3851	3714	3153	2809	8343	12085	12891	15485	17197	17931	22174
Mean	-1.1	-0.2	-1.0	-0.9	-1.0	-0.9	-0.9	-0.8	0.0	-0.7	-0.6	-0.7	-0.6	-0.6
SD	+1.4	+1.2	+1.4	+1.5	+1.4	+1.4	+1.4	+1.1	1.03	+1.0	+1.0	+0.9	+0.9	+0.8
Median	-1.0	-0.2	-1.0	-1.0	-1.0	-1.0	-0.9	-0.7	0.0	-0.7	-0.6	-0.6	-0.6	-0.5
Minimum	-10.0	-8.4	-10.0	-9.3	-7.3	-8.5	-10.0	-10.0	-10.0	-9.0	-10.0	-10.0	-9.9	-9.7
Maximum	+9.8	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0	+10.0

Note: Eyes with actual refractive power (SE) of more than +10.0D and -10.0D were excluded from analysis

Table 1.5.5(b): Percentage Distribution of Target and Actual Refractive Power in ECCE and Phaco, CSR 2007-2013

	Target Refraction													
	All Patients													
Years	**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Dioptre (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10.0-<(-9.5)	0	0.0	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-9.5-<(-9.0)	4	0.0	1	0.0	1	0.0	2	0.0	1	0.0	0	0.0	0	0.0
-9.0-<(-8.5)	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
-8.5-<(-8.0)	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
-8.0-<(-7.5)	2	0.0	3	0.0	1	0.0	1	0.0	0	0.0	1	0.0	0	0.0
-7.5-<(-7.0)	1	0.0	0	0.0	1	0.0	1	0.0	0	0.0	2	0.0	0	0.0
-7.0-<(-6.5)	3	0.0	1	0.0	0	0.0	1	0.0	1	0.0	1	0.0	1	0.0
-6.5-<(-5.0)	1	0.0	2	0.0	7	0.0	4	0.0	10	0.0	10	0.0	9	0.0
-5.0-<(-4.5)	3	0.0	4	0.0	7	0.0	3	0.0	3	0.0	5	0.0	5	0.0
-4.5-<(-4.0)	2	0.0	3	0.0	5	0.0	10	0.0	3	0.0	5	0.0	3	0.0
-4.0-<(-3.5)	7	0.1	8	0.1	11	0.1	5	0.0	11	0.0	5	0.0	1	0.0
-3.5-<(-3.0)	6	0.0	7	0.0	11	0.1	15	0.1	12	0.0	6	0.0	8	0.0
-3.0-<(-2.5)	13	0.1	22	0.1	18	0.1	29	0.1	15	0.1	15	0.1	15	0.1
-2.5-<(-2.0)	29	0.2	21	0.1	29	0.1	33	0.1	26	0.1	38	0.1	35	0.1
-2.0-<(-1.5)	77	0.6	48	0.3	58	0.3	46	0.2	54	0.2	67	0.3	55	0.2
-1.5-<(-1.0)	429	3.5	373	2.5	260	1.3	292	1.2	201	0.8	226	0.9	174	0.6
-1.0-<(-0.5)	4670	37.7	6155	40.9	7972	39.3	7590	30.9	7507	29.0	7190	27.6	6241	21.8
-0.5-<0.0	6631	53.5	7481	49.7	10604	52.3	15220	62.1	16915	65.3	17421	66.8	21135	73.7
0.0-<0.5	406	3.3	719	4.8	977	4.8	921	3.8	849	3.3	631	2.4	705	2.5
0.5-<1.0	77	0.6	145	1.0	182	0.9	238	1.0	234	0.9	216	0.8	187	0.7
1.0-<1.5	12	0.1	28	0.2	17	0.1	23	0.1	20	0.1	32	0.1	8	0.0
1.5-<2.0	5	0.0	14	0.1	22	0.1	19	0.1	9	0.0	52	0.2	28	0.1
2.0-<2.5	15	0.1	10	0.1	85	0.4	69	0.3	12	0.0	123	0.5	69	0.2
2.5-<3.0	0	0.0	6	0.0	4	0.0	3	0.0	2	0.0	10	0.0	11	0.0
3.0-<3.5	1	0.0	2	0.0	2	0.0	0	0.0	1	0.0	1	0.0	0	0.0
3.5-<4.0	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4.0-<4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0
4.5-<5.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	0	0.0	0	0.0
5.0-<5.5	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
5.5-<6.0	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6.0-<6.5	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
6.5-<7.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7.0-<7.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7.5-<8.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8.0-<8.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0
8.5-<9.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0
9.0-<9.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0
9.5-<10.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Eyes with actual refractive power (SE) of more than +10.0D and -10.0D were excluded from analysis

	Actual Refraction													
	ECCE													
Years	2007		2008		2009		2010		2011		2012		2013	
Dioptre (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10.0-<(-9.5)	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
-9.5-<(-9.0)	0	0.0	1	0.0	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0
-9.0-<(-8.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-8.5-<(-8.0)	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	2	0.1	0	0.0
-8.0-<(-7.5)	0	0.0	0	0.0	3	0.1	1	0.0	0	0.0	0	0.0	1	0.0
-7.5-<(-7.0)	0	0.0	1	0.0	1	0.0	0	0.0	1	0.0	1	0.0	1	0.0
-7.0-<(-6.5)	0	0.0	1	0.0	1	0.0	1	0.0	3	0.1	5	0.2	0	0.0
-6.5-<(-5.0)	0	0.0	3	0.1	10	0.2	9	0.2	16	0.4	4	0.1	2	0.1
-5.0-<(-4.5)	1	0.0	1	0.0	12	0.3	15	0.4	8	0.2	11	0.3	8	0.3
-4.5-<(-4.0)	3	0.1	5	0.1	15	0.4	16	0.4	20	0.5	20	0.6	5	0.2
-4.0-<(-3.5)	8	0.2	7	0.2	52	1.3	38	1.0	30	0.8	26	0.8	27	1.0
-3.5-<(-3.0)	19	0.5	15	0.3	74	1.8	68	1.8	62	1.7	51	1.6	45	1.6
-3.0-<(-2.5)	26	0.6	41	0.9	183	4.6	128	3.3	131	3.5	128	4.1	93	3.3
-2.5-<(-2.0)	65	1.6	76	1.7	318	7.9	252	6.5	235	6.3	204	6.5	164	5.8
-2.0-<(-1.5)	149	3.6	203	4.6	509	12.7	458	11.9	464	12.5	377	12.0	303	10.8
-1.5-<(-1.0)	360	8.7	431	9.7	713	17.8	716	18.6	662	17.8	530	16.8	492	17.5
-1.0-<(-0.5)	722	17.5	763	17.2	765	19.1	810	21.0	774	20.8	667	21.2	636	22.6
-0.5-<0.0	956	23.2	956	21.6	654	16.3	612	15.9	640	17.2	544	17.3	485	17.3
0.0-<0.5	860	20.8	983	22.2	397	9.9	373	9.7	371	10.0	297	9.4	296	10.5
0.5-<1.0	444	10.8	460	10.4	151	3.8	161	4.2	148	4.0	144	4.6	136	4.8
1.0-<1.5	236	5.7	228	5.1	60	1.5	80	2.1	68	1.8	65	2.1	46	1.6
1.5-<2.0	129	3.1	98	2.2	35	0.9	25	0.6	31	0.8	33	1.0	21	0.7
2.0-<2.5	50	1.2	48	1.1	20	0.5	19	0.5	17	0.5	9	0.3	10	0.4
2.5-<3.0	24	0.6	22	0.5	5	0.1	7	0.2	3	0.1	6	0.2	4	0.1
3.0-<3.5	15	0.4	16	0.4	3	0.1	9	0.2	5	0.1	4	0.1	3	0.1
3.5-<4.0	10	0.2	8	0.2	6	0.1	5	0.1	0	0.0	3	0.1	2	0.1
4.0-<4.5	3	0.1	3	0.1	0	0.0	5	0.1	0	0.0	3	0.1	3	0.1
4.5-<5.0	3	0.1	2	0.0	3	0.1	3	0.1	1	0.0	2	0.1	0	0.0
5.0-<5.5	3	0.1	2	0.0	1	0.0	2	0.1	1	0.0	0	0.0	2	0.1
5.5-<6.0	2	0.0	1	0.0	1	0.0	4	0.1	1	0.0	0	0.0	2	0.1
6.0-<6.5	1	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.0	2	0.1
6.5-<7.0	2	0.0	1	0.0	0	0.0	4	0.1	3	0.1	1	0.0	0	0.0
7.0-<7.5	1	0.0	3	0.1	1	0.0	5	0.1	0	0.0	3	0.1	0	0.0
7.5-<8.0	2	0.0	1	0.0	3	0.1	1	0.0	1	0.0	1	0.0	1	0.0
8.0-<8.5	1	0.0	3	0.1	2	0.0	4	0.1	2	0.1	1	0.0	1	0.0
8.5-<9.0	5	0.1	1	0.0	0	0.0	2	0.1	3	0.1	0	0.0	1	0.0
9.0-<9.5	1	0.0	8	0.2	3	0.1	4	0.1	5	0.1	3	0.1	3	0.1
9.5-<10.0	5	0.1	2	0.0	10	0.2	12	0.3	6	0.2	7	0.2	13	0.5

	Actual Refraction													
	Phaco													
Years	2007		2008		2009		2010		2011		2012		2013	
Dioptre (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10.0-<(-9.5)	0	0.0	1	0.0	0	0.0	2	0.0	1	0.0	1	0.0	1	0.0
-9.5-<(-9.0)	0	0.0	7	0.1	0	0.0	1	0.0	2	0.0	2	0.0	0	0.0
-9.0-<(-8.5)	0	0.0	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	1	0.0
-8.5-<(-8.0)	0	0.0	2	0.0	0	0.0	0	0.0	1	0.0	1	0.0	2	0.0
-8.0-<(-7.5)	0	0.0	3	0.0	0	0.0	0	0.0	1	0.0	2	0.0	4	0.0
-7.5-<(-7.0)	1	0.0	11	0.1	0	0.0	3	0.0	1	0.0	2	0.0	1	0.0
-7.0-<(-6.5)	0	0.0	6	0.0	3	0.0	3	0.0	2	0.0	2	0.0	2	0.0
-6.5-<(-5.0)	1	0.0	16	0.1	24	0.2	22	0.1	11	0.1	21	0.1	27	0.1
-5.0-<(-4.5)	1	0.0	15	0.1	14	0.1	13	0.1	11	0.1	13	0.1	11	0.0
-4.5-<(-4.0)	3	0.0	15	0.1	14	0.1	16	0.1	19	0.1	21	0.1	15	0.1
-4.0-<(-3.5)	5	0.1	19	0.2	42	0.3	41	0.3	35	0.2	37	0.2	31	0.1
-3.5-<(-3.0)	2	0.0	29	0.2	81	0.6	78	0.5	74	0.4	74	0.4	69	0.3
-3.0-<(-2.5)	7	0.1	58	0.5	208	1.6	182	1.2	161	0.9	164	0.9	169	0.8
-2.5-<(-2.0)	27	0.3	80	0.7	443	3.4	426	2.8	448	2.6	451	2.5	383	1.7
-2.0-<(-1.5)	88	1.0	147	1.2	1045	8.1	1043	6.7	1138	6.6	1100	6.1	1078	4.9
-1.5-<(-1.0)	277	3.1	393	3.2	2093	16.2	2367	15.3	2693	15.7	2700	15.1	2990	13.5
-1.0-<(-0.5)	1022	11.4	1370	11.3	3206	24.9	3831	24.7	4452	25.9	4715	26.3	5736	25.9
-0.5-<0.0	2602	29.1	3152	26.0	3143	24.4	3926	25.4	4566	26.5	4750	26.5	6611	29.8
0.0-<0.5	2551	28.5	3568	29.5	1697	13.2	2194	14.2	2358	13.7	2564	14.3	3405	15.4
0.5-<1.0	1273	14.2	1738	14.3	535	4.2	801	5.2	771	4.5	845	4.7	1081	4.9
1.0-<1.5	546	6.1	780	6.4	179	1.4	285	1.8	257	1.5	278	1.6	318	1.4
1.5-<2.0	268	3.0	367	3.0	79	0.6	112	0.7	91	0.5	85	0.5	123	0.6
2.0-<2.5	117	1.3	160	1.3	26	0.2	48	0.3	43	0.3	44	0.2	44	0.2
2.5-<3.0	59	0.7	56	0.5	14	0.1	27	0.2	20	0.1	17	0.1	18	0.1
3.0-<3.5	28	0.3	32	0.3	11	0.1	11	0.1	13	0.1	11	0.1	11	0.0
3.5-<4.0	17	0.2	23	0.2	5	0.0	10	0.1	4	0.0	7	0.0	4	0.0
4.0-<4.5	12	0.1	12	0.1	5	0.0	9	0.1	2	0.0	6	0.0	11	0.0
4.5-<5.0	11	0.1	4	0.0	2	0.0	3	0.0	4	0.0	1	0.0	6	0.0
5.0-<5.5	3	0.0	1	0.0	3	0.0	8	0.1	4	0.0	1	0.0	3	0.0
5.5-<6.0	1	0.0	3	0.0	2	0.0	1	0.0	2	0.0	1	0.0	1	0.0
6.0-<6.5	4	0.0	2	0.0	2	0.0	6	0.0	2	0.0	2	0.0	1	0.0
6.5-<7.0	4	0.0	1	0.0	2	0.0	2	0.0	1	0.0	1	0.0	4	0.0
7.0-<7.5	0	0.0	1	0.0	0	0.0	3	0.0	2	0.0	2	0.0	4	0.0
7.5-<8.0	2	0.0	3	0.0	0	0.0	0	0.0	1	0.0	2	0.0	3	0.0
8.0-<8.5	3	0.0	1	0.0	1	0.0	2	0.0	0	0.0	0	0.0	2	0.0
8.5-<9.0	0	0.0	0	0.0	2	0.0	2	0.0	1	0.0	1	0.0	1	0.0
9.0-<9.5	0	0.0	0	0.0	2	0.0	0	0.0	6	0.0	1	0.0	2	0.0
9.5-<10.0	4	0.0	6	0.0	6	0.0	7	0.0	5	0.0	6	0.0	1	0.0

Figure 1.5.5(a): Percentage Distribution of Actual Refractive Power in ECCE and Phaco, CSR 2007-2013

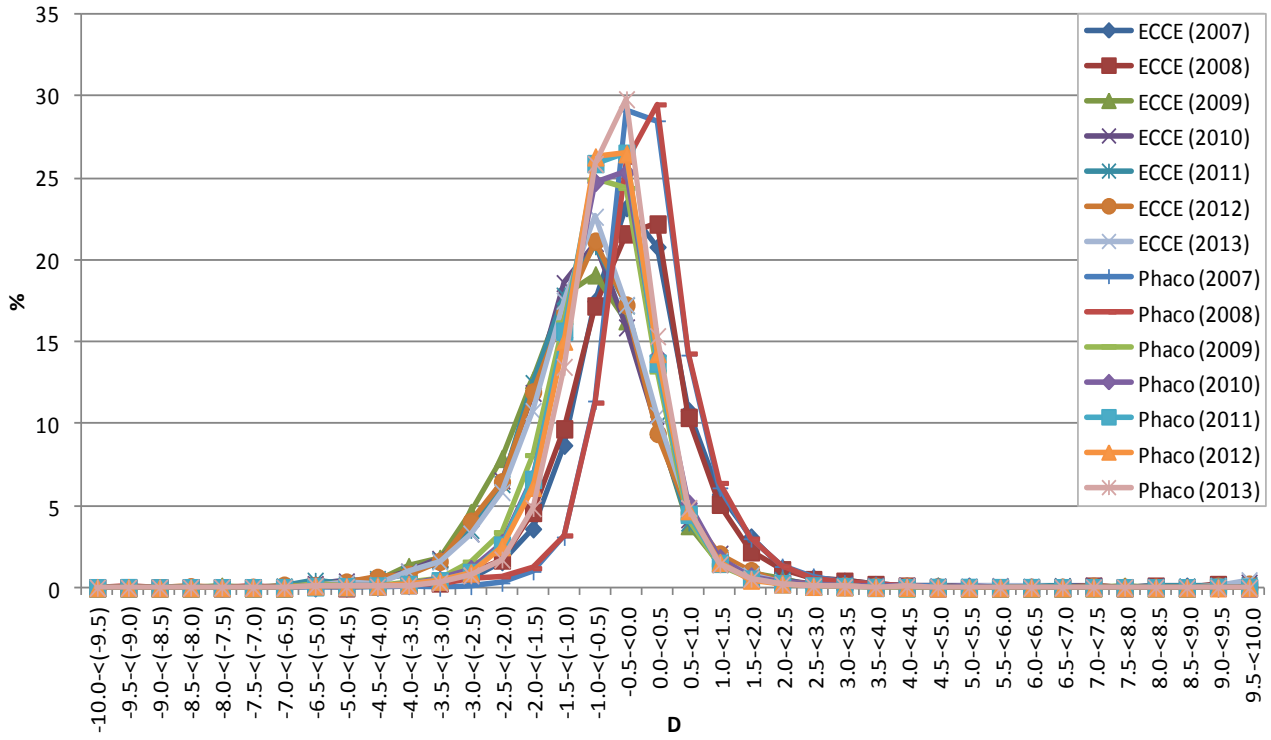


Table 1.5.5(c): Difference in Target and Actual Refractive Power for Patients who had Phacoemulsification Only, CSR 2007-2013

	Target Refraction														Actual Refraction													
Years	**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Power (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N	7975	100	10660	100	10837	100	13653	100	14901	100	14727	100	17430	100	8342	100	12154	100	12845	100	15485	100	17158	100	17884	100	22117	100
-5.0-<(-4.5)	2	0.0	4	0.0	3	0.0	1	0.0	1	0.0	2	0.0	3	0.0	15	0.2	13	0.1	14	0.1	13	0.1	11	0.1	13	0.1	11	0.0
-4.5-<(-4.0)	1	0.0	3	0.0	2	0.0	6	0.0	2	0.0	4	0.0	3	0.0	30	0.4	19	0.2	14	0.1	16	0.1	19	0.1	21	0.1	15	0.1
-4.0-<(-3.5)	5	0.1	7	0.1	5	0.0	5	0.0	6	0.0	4	0.0	0	0.0	49	0.6	17	0.1	42	0.3	41	0.3	35	0.2	37	0.2	31	0.1
-3.5-<(-3.0)	5	0.1	6	0.1	4	0.0	10	0.1	8	0.1	4	0.0	5	0.0	97	1.2	20	0.2	81	0.6	78	0.5	74	0.4	74	0.4	69	0.3
-3.0-<(-2.5)	10	0.1	20	0.2	6	0.1	15	0.1	9	0.1	6	0.0	10	0.1	200	2.4	55	0.5	208	1.6	182	1.2	161	0.9	164	0.9	169	0.8
-2.5-<(-2.0)	18	0.2	16	0.2	12	0.1	22	0.2	14	0.1	23	0.2	20	0.1	405	4.9	85	0.7	443	3.4	426	2.8	448	2.6	451	2.5	383	1.7
-2.0-<(-1.5)	51	0.6	35	0.3	32	0.3	19	0.1	30	0.2	40	0.3	32	0.2	746	8.9	164	1.3	1045	8.1	1043	6.7	1138	6.6	1100	6.2	1078	4.9
-1.5-<(-1.0)	239	3.0	288	2.7	115	1.1	151	1.1	115	0.8	112	0.8	111	0.6	1382	16.6	423	3.5	2093	16.3	2367	15.3	2693	15.7	2700	15.1	2990	13.5
-1.0-<(-0.5)	2473	31.0	4065	38.1	3699	34.1	3721	27.3	3867	26.0	3675	25.0	3285	18.8	1771	21.2	1408	11.6	3206	25.0	3831	24.7	4452	25.9	4715	26.4	5736	25.9
-0.5-<0.0	4512	56.6	5498	51.6	6282	58.0	9087	66.6	10338	69.4	10380	70.5	13446	77.1	1884	22.6	3167	26.1	3143	24.5	3926	25.4	4560	26.6	4750	26.6	6611	29.9
0.0-<0.5	583	7.3	563	5.3	494	4.6	443	3.2	379	2.5	261	1.8	334	1.9	1069	12.8	3534	29.1	1697	13.2	2194	14.2	2358	13.7	2564	14.3	3405	15.4
0.5-<1.0	45	0.6	107	1.0	115	1.1	123	0.9	114	0.8	138	0.9	132	0.8	399	4.8	1740	14.3	535	4.2	801	5.2	771	4.5	845	4.7	1081	4.9
1.0-<1.5	6	0.1	23	0.2	6	0.1	8	0.1	6	0.0	7	0.0	3	0.0	142	1.7	786	6.5	179	1.4	285	1.8	257	1.5	278	1.6	318	1.4
1.5-<2.0	2	0.0	7	0.1	8	0.1	6	0.0	1	0.0	18	0.1	11	0.1	55	0.7	365	3.0	79	0.6	112	0.7	91	0.5	85	0.5	123	0.6
2.0-<2.5	9	0.1	6	0.1	52	0.5	32	0.2	9	0.1	49	0.3	28	0.2	14	0.2	156	1.3	26	0.2	48	0.3	43	0.3	44	0.2	44	0.2
2.5-<3.0	1	0.0	4	0.0	2	0.0	1	0.0	1	0.0	4	0.0	7	0.0	15	0.2	55	0.5	14	0.1	27	0.2	20	0.1	17	0.1	18	0.1
3.0-<3.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	0.2	30	0.2	11	0.1	11	0.1	13	0.1	11	0.1	11	0.0
3.5-<4.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.0	22	0.2	5	0.0	10	0.1	4	0.0	7	0.0	4	0.0
4.0-<4.5	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0	10	0.1	5	0.0	9	0.1	2	0.0	6	0.0	11	0.0
4.5-<5.0	0	0.0	1	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	4	0.0	4	0.0	2	0.0	3	0.0	4	0.0	1	0.0	6	0.0
5.0-<5.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0	3	0.0	8	0.1	4	0.0	1	0.0	3	0.0

NOTE: Formula of $SE = Sp + (\frac{Cy}{2})$

	Actual Refraction													
	ECCE													
Years	2007		2008		2009		2010		2011		2012		2013	
Dioptre (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10.0-<(-9.5)	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
-9.5-<(-9.0)	0	0.0	1	0.0	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0
-9.0-<(-8.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-8.5-<(-8.0)	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	2	0.1	0	0.0
-8.0-<(-7.5)	0	0.0	0	0.0	3	0.1	1	0.0	0	0.0	0	0.0	1	0.0
-7.5-<(-7.0)	0	0.0	1	0.0	1	0.0	0	0.0	1	0.0	1	0.0	1	0.0
-7.0-<(-6.5)	0	0.0	1	0.0	1	0.0	1	0.0	3	0.1	5	0.2	0	0.0
-6.5-<(-5.0)	0	0.0	3	0.1	10	0.2	9	0.2	16	0.4	4	0.1	2	0.1
-5.0-<(-4.5)	1	0.0	1	0.0	12	0.3	15	0.4	8	0.2	11	0.3	8	0.3
-4.5-<(-4.0)	3	0.1	5	0.1	15	0.4	16	0.4	20	0.5	20	0.6	5	0.2
-4.0-<(-3.5)	8	0.2	7	0.2	52	1.3	38	1.0	30	0.8	26	0.8	27	1.0
-3.5-<(-3.0)	19	0.5	15	0.3	74	1.8	68	1.8	62	1.7	51	1.6	45	1.6
-3.0-<(-2.5)	26	0.6	41	0.9	183	4.6	128	3.3	131	3.5	128	4.1	93	3.3
-2.5-<(-2.0)	65	1.6	76	1.7	318	7.9	252	6.5	235	6.3	204	6.5	164	5.8
-2.0-<(-1.5)	149	3.6	203	4.6	509	12.7	458	11.9	464	12.5	377	12.0	303	10.8
-1.5-<(-1.0)	360	8.7	431	9.7	713	17.8	716	18.6	662	17.8	530	16.8	492	17.5
-1.0-<(-0.5)	722	17.5	763	17.2	765	19.1	810	21.0	774	20.8	667	21.2	636	22.6
-0.5-<0.0	956	23.2	956	21.6	654	16.3	612	15.9	640	17.2	544	17.3	485	17.3
0.0-<0.5	860	20.8	983	22.2	397	9.9	373	9.7	371	10.0	297	9.4	296	10.5
0.5-<1.0	444	10.8	460	10.4	151	3.8	161	4.2	148	4.0	144	4.6	136	4.8
1.0-<1.5	236	5.7	228	5.1	60	1.5	80	2.1	68	1.8	65	2.1	46	1.6
1.5-<2.0	129	3.1	98	2.2	35	0.9	25	0.6	31	0.8	33	1.0	21	0.7
2.0-<2.5	50	1.2	48	1.1	20	0.5	19	0.5	17	0.5	9	0.3	10	0.4
2.5-<3.0	24	0.6	22	0.5	5	0.1	7	0.2	3	0.1	6	0.2	4	0.1
3.0-<3.5	15	0.4	16	0.4	3	0.1	9	0.2	5	0.1	4	0.1	3	0.1
3.5-<4.0	10	0.2	8	0.2	6	0.1	5	0.1	0	0.0	3	0.1	2	0.1
4.0-<4.5	3	0.1	3	0.1	0	0.0	5	0.1	0	0.0	3	0.1	3	0.1
4.5-<5.0	3	0.1	2	0.0	3	0.1	3	0.1	1	0.0	2	0.1	0	0.0
5.0-<5.5	3	0.1	2	0.0	1	0.0	2	0.1	1	0.0	0	0.0	2	0.1
5.5-<6.0	2	0.0	1	0.0	1	0.0	4	0.1	1	0.0	0	0.0	2	0.1
6.0-<6.5	1	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.0	2	0.1
6.5-<7.0	2	0.0	1	0.0	0	0.0	4	0.1	3	0.1	1	0.0	0	0.0
7.0-<7.5	1	0.0	3	0.1	1	0.0	5	0.1	0	0.0	3	0.1	0	0.0
7.5-<8.0	2	0.0	1	0.0	3	0.1	1	0.0	1	0.0	1	0.0	1	0.0
8.0-<8.5	1	0.0	3	0.1	2	0.0	4	0.1	2	0.1	1	0.0	1	0.0
8.5-<9.0	5	0.1	1	0.0	0	0.0	2	0.1	3	0.1	0	0.0	1	0.0
9.0-<9.5	1	0.0	8	0.2	3	0.1	4	0.1	5	0.1	3	0.1	3	0.1
9.5-<10.0	5	0.1	2	0.0	10	0.2	12	0.3	6	0.2	7	0.2	13	0.5

	Phaco													
Years	2007		2008		2009		2010		2011		2012		2013	
Dioptre (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10.0-<(-9.5)	0	0.0	1	0.0	0	0.0	2	0.0	1	0.0	1	0.0	1	0.0
-9.5-<(-9.0)	0	0.0	7	0.1	0	0.0	1	0.0	2	0.0	2	0.0	0	0.0
-9.0-<(-8.5)	0	0.0	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	1	0.0
-8.5-<(-8.0)	0	0.0	2	0.0	0	0.0	0	0.0	1	0.0	1	0.0	2	0.0
-8.0-<(-7.5)	0	0.0	3	0.0	0	0.0	0	0.0	1	0.0	2	0.0	4	0.0
-7.5-<(-7.0)	1	0.0	11	0.1	0	0.0	3	0.0	1	0.0	2	0.0	1	0.0
-7.0-<(-6.5)	0	0.0	6	0.0	3	0.0	3	0.0	2	0.0	2	0.0	2	0.0
-6.5-<(-5.0)	1	0.0	16	0.1	24	0.2	22	0.1	11	0.1	21	0.1	27	0.1
-5.0-<(-4.5)	1	0.0	15	0.1	14	0.1	13	0.1	11	0.1	13	0.1	11	0.0
-4.5-<(-4.0)	3	0.0	15	0.1	14	0.1	16	0.1	19	0.1	21	0.1	15	0.1
-4.0-<(-3.5)	5	0.1	19	0.2	42	0.3	41	0.3	35	0.2	37	0.2	31	0.1
-3.5-<(-3.0)	2	0.0	29	0.2	81	0.6	78	0.5	74	0.4	74	0.4	69	0.3
-3.0-<(-2.5)	7	0.1	58	0.5	208	1.6	182	1.2	161	0.9	164	0.9	169	0.8
-2.5-<(-2.0)	27	0.3	80	0.7	443	3.4	426	2.8	448	2.6	451	2.5	383	1.7
-2.0-<(-1.5)	88	1.0	147	1.2	1045	8.1	1043	6.7	1138	6.6	1100	6.1	1078	4.9
-1.5-<(-1.0)	277	3.1	393	3.2	2093	16.2	2367	15.3	2693	15.7	2700	15.1	2990	13.5
-1.0-<(-0.5)	1022	11.4	1370	11.3	3206	24.9	3831	24.7	4452	25.9	4715	26.3	5736	25.9
-0.5-<0.0	2602	29.1	3152	26.0	3143	24.4	3926	25.4	4560	26.5	4750	26.5	6611	29.8
0.0-<0.5	2551	28.5	3568	29.5	1697	13.2	2194	14.2	2358	13.7	2564	14.3	3405	15.4
0.5-<1.0	1273	14.2	1738	14.3	535	4.2	801	5.2	771	4.5	845	4.7	1081	4.9
1.0-<1.5	546	6.1	780	6.4	179	1.4	285	1.8	257	1.5	278	1.6	318	1.4
1.5-<2.0	268	3.0	367	3.0	79	0.6	112	0.7	91	0.5	85	0.5	123	0.6
2.0-<2.5	117	1.3	160	1.3	26	0.2	48	0.3	43	0.3	44	0.2	44	0.2
2.5-<3.0	59	0.7	56	0.5	14	0.1	27	0.2	20	0.1	17	0.1	18	0.1
3.0-<3.5	28	0.3	32	0.3	11	0.1	11	0.1	13	0.1	11	0.1	11	0.0
3.5-<4.0	17	0.2	23	0.2	5	0.0	10	0.1	4	0.0	7	0.0	4	0.0
4.0-<4.5	12	0.1	12	0.1	5	0.0	9	0.1	2	0.0	6	0.0	11	0.0
4.5-<5.0	11	0.1	4	0.0	2	0.0	3	0.0	4	0.0	1	0.0	6	0.0
5.0-<5.5	3	0.0	1	0.0	3	0.0	8	0.1	4	0.0	1	0.0	3	0.0
5.5-<6.0	1	0.0	3	0.0	2	0.0	1	0.0	2	0.0	1	0.0	1	0.0
6.0-<6.5	4	0.0	2	0.0	2	0.0	6	0.0	2	0.0	2	0.0	1	0.0
6.5-<7.0	4	0.0	1	0.0	2	0.0	2	0.0	1	0.0	1	0.0	4	0.0
7.0-<7.5	0	0.0	1	0.0	0	0.0	3	0.0	2	0.0	2	0.0	4	0.0
7.5-<8.0	2	0.0	3	0.0	0	0.0	0	0.0	1	0.0	2	0.0	3	0.0
8.0-<8.5	3	0.0	1	0.0	1	0.0	2	0.0	0	0.0	0	0.0	2	0.0
8.5-<9.0	0	0.0	0	0.0	2	0.0	2	0.0	1	0.0	1	0.0	1	0.0
9.0-<9.5	0	0.0	0	0.0	2	0.0	0	0.0	6	0.0	1	0.0	2	0.0
9.5-<10.0	4	0.0	6	0.0	6	0.0	7	0.0	5	0.0	6	0.0	1	0.0

	Difference between Target and Actual Refraction													
Years	**2007**		**2008**		**2009**		**2010**		**2011**		**2012**		**2013**	
Power (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N	5782	100	8803	100	10812	100	13653	100	14874	100	14712	100	17408	100
-5.0-<(-4.5)	12	0.2	12	0.1	5	0.0	5	0.0	7	0.0	8	0.1	8	0.0
-4.5-<(-4.0)	14	0.2	19	0.2	8	0.1	7	0.1	10	0.1	9	0.1	12	0.1
-4.0-<(-3.5)	28	0.5	18	0.2	23	0.2	26	0.2	14	0.1	18	0.1	10	0.1
-3.5-<(-3.0)	43	0.7	51	0.6	52	0.5	37	0.3	32	0.2	38	0.3	37	0.2
-3.0-<(-2.5)	93	1.6	103	1.2	94	0.9	104	0.8	81	0.5	100	0.7	92	0.5
-2.5-<(-2.0)	176	3.0	245	2.8	238	2.2	189	1.4	191	1.3	204	1.4	184	1.1
-2.0-<(-1.5)	311	5.4	541	6.1	473	4.4	510	3.7	529	3.6	533	3.6	472	2.7
-1.5-<(-1.0)	595	10.3	1052	12.0	1129	10.4	1270	9.3	1390	9.3	1299	8.8	1364	7.8
-1.0-<(-0.5)	994	17.2	1984	22.5	2126	19.7	2659	19.5	3073	20.7	3004	20.4	3425	19.7
-0.5-<0.0	1367	23.6	2278	25.9	2862	26.5	3691	27.0	4404	29.6	4270	29.0	5382	30.9
0.0-<0.5	1179	20.4	1434	16.3	2245	20.8	3051	22.3	3270	22.0	3258	22.1	4131	23.7
0.5-<1.0	573	9.9	558	6.3	994	9.2	1329	9.7	1253	8.4	1341	9.1	1545	8.9
1.0-<1.5	225	3.9	214	2.4	329	3.0	422	3.1	410	2.8	401	2.7	484	2.8
1.5-<2.0	73	1.3	97	1.1	132	1.2	173	1.3	106	0.7	145	1.0	168	1.0
2.0-<2.5	32	0.6	46	0.5	55	0.5	63	0.5	63	0.4	45	0.3	46	0.3
2.5-<3.0	14	0.2	26	0.3	18	0.2	31	0.2	20	0.1	19	0.1	22	0.1
3.0-<3.5	13	0.2	15	0.2	8	0.1	18	0.1	13	0.1	10	0.1	6	0.0
3.5-<4.0	8	0.1	15	0.2	11	0.1	14	0.1	4	0.0	6	0.0	7	0.0
4.0-<4.5	3	0.0	12	0.1	4	0.0	8	0.1	3	0.0	2	0.0	4	0.0
4.5-<5.0	3	0.0	12	0.1	3	0.0	4	0.0	0	0.0	2	0.0	7	0.0
5.0-<5.5	9	0.2	9	0.1	3	0.0	6	0.0	1	0.0	0	0.0	2	0.0

NOTE: Formula of $SE = Sp + (\frac{Cy}{2})$

Figure 1.5.5(b): Difference in Target and Actual Refractive Power for Patients who had Phacoemulsification Only, CSR 2007-2013

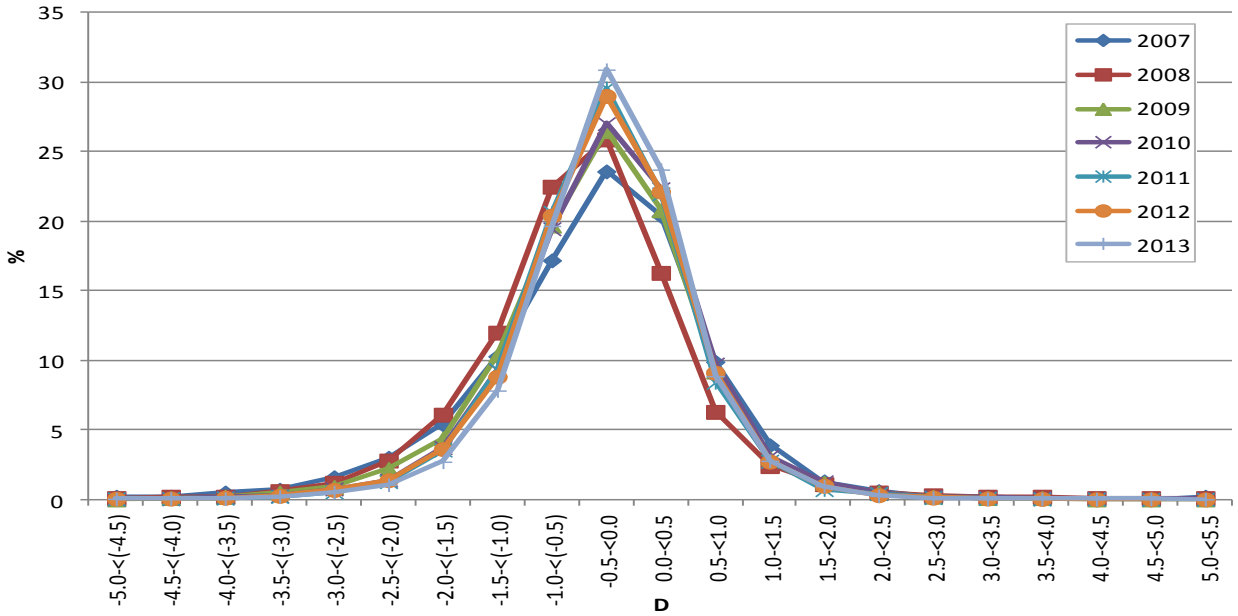


Table 1.5.5(d): Percentage of Difference in Target and Actual Refractive Power within ±1.0D by SDP, CSR 2013

Target/Planned refractive power = Section pre-clerking
Actual refractive power, SE = Section post-op visual acuity measurement (SE=SP+(CY/2))
Denominator = patient with refraction = if info available in refracted vision Section post-op visual acuity measurement

Hospital	All			By Phacoemulsification			By ECCE		
	No. of patient with refracted VA	Difference between Target and Actual Refraction within ±1.0D		No. of patient with refracted VA	Difference between Target and Actual Refraction within ±1.0D		No. of patient with refracted VA	Difference between Target and Actual Refraction within ±1.0D	
	N	n	%	N	n	%	N	n	%
All Centre	**25550**	**13891**	**54.4**	**21090**	**11883**	**56.3**	**3476**	**1622**	**46.7**
Alor Setar	1564	773	49.4	1253	676	54.0	254	71	28.0
Ampang	791	472	59.7	691	432	62.5	60	22	36.7
Batu Pahat	515	47	9.1	403	44	10.9	78	3	3.8
Bintulu	263	0	0.0	170	0	0.0	90	0	0.0
Bukit Mertajam	764	420	55.0	466	267	57.3	279	143	51.3
Sandakan	220	128	58.2	76	46	60.5	132	78	59.1
Ipoh	1617	881	54.5	1429	802	56.1	140	63	45.0
Kangar	398	324	81.4	365	304	83.3	20	15	75.0
Keningau	16	0	0.0	0	0	0.0	16	0	0.0
Kota Bharu	384	109	28.4	263	71	27.0	97	34	35.1
Kuala Krai	194	115	59.3	174	103	59.2	13	7	53.8
Kuala Lumpur	886	655	73.9	710	532	74.9	148	105	70.9
Kuala Pilah	396	1	0.3	337	1	0.3	45	0	0.0
Kuala Terengganu	751	493	65.6	529	371	70.1	173	103	59.5
Melaka	1240	805	64.9	1028	698	67.9	188	100	53.2
Miri	890	375	42.1	839	350	41.7	28	14	50.0
Muar	549	440	80.1	505	418	82.8	11	3	27.3
Pulau Pinang	1209	843	69.7	1156	817	70.7	25	13	52.0
Putrajaya	335	181	54.0	261	151	57.9	42	15	35.7
Kota Kinabalu	674	261	38.7	462	202	43.7	147	46	31.3
Selayang	1551	893	57.6	1397	826	59.1	65	28	43.1
Serdang	607	374	61.6	488	316	64.8	90	42	46.7
Sibu	637	1	0.2	588	1	0.2	34	0	0.0
Sri Manjung	422	288	68.2	374	265	70.9	36	17	47.2
Sultan Ismail	271	186	68.6	203	143	70.4	53	30	56.6
Johor Bahru	854	573	67.1	776	529	68.2	48	32	66.7
Sungai Buloh	447	117	26.2	364	104	28.6	54	8	14.8
Sungei Petani	666	416	62.5	470	310	66.0	171	95	55.6
Taiping	1016	868	85.4	810	716	88.4	185	143	77.3
Tawau	210	96	45.7	0	0	0.0	209	96	45.9
Teluk Intan	517	302	58.4	439	267	60.8	60	26	43.3
Temerloh	730	396	54.2	606	345	56.9	71	31	43.7
Kuantan	528	425	80.5	433	350	80.8	69	58	84.1
Klang	911	441	48.4	783	373	47.6	102	59	57.8
Seremban	1310	958	73.1	1113	835	75.0	169	108	63.9
Kuching	1217	234	19.2	1129	218	19.3	74	14	18.9

NOTE: Formula of Actual Refraction, $SE = Sp + (\frac{Cy}{2})$

Result is based on available info of target and actual refraction.

Table 1.5.5(e): Post-operative visual acuity and week of outcome notification, CSR 2013

Post op week	Unaided VA*						Refracted VA*					
	6/5-6/12		6/18-3/60		2/60-NPL		6/5-6/12		6/18-3/60		2/60-NPL	
	n	%	n	%	n	%	n	%	n	%	n	%
1 week	794	4.7	1025	6.9	141	11.2	399	1.5	98	2.9	22	3.9
2-4 weeks	770	4.6	780	5.2	137	10.9	1032	4.0	206	6.1	42	7.5
5-12 weeks	14,472	85.6	12,141	81.5	889	70.6	23,127	88.9	2,843	84.0	456	81.1
13-20 weeks	595	3.5	722	4.8	72	5.7	1101	4.2	189	5.6	33	5.9
21-30 weeks	104	0.6	87	0.6	7	0.6	158	0.6	24	0.7	5	0.9
31-60 weeks	44	0.3	32	0.2	4	0.3	66	0.3	4	0.1	3	0.5
>60 weeks	1	0.0	2	0.0	0	0.0	3	0.0	0	0.0	0	0.0
(Missing)	127	0.8	111	0.7	10	0.8	134	0.5	22	0.6	1	0.2
Total	**16907**		**14900**		**1260**		**26020**		**3386**		**562**	

*Missing of unaided VA = 4083 cases; refracted VA = 7182 cases

CHAPTER 2

OPHTHALMOLOGY SERVICE CENSUS 2013

Contributing Editors

Mohamad Aziz Salowi

Ruqqayah Ahmadshah Khan

Teng Kam Yoke

Monthly Ophthalmology Service Census

The census was returned by hard copy form at the end of each year from 2002 to 2006. For 2007 to 2013, census data were entered online on a monthly basis by the hospitals. Real time online reports both aggregated and by hospitals are available from 2007 onwards.

Table 2.1: Number of ophthalmology departments which have census returns

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of Ophthalmology departments	29	32	32	32	34	36	36	36	36	36	36	38

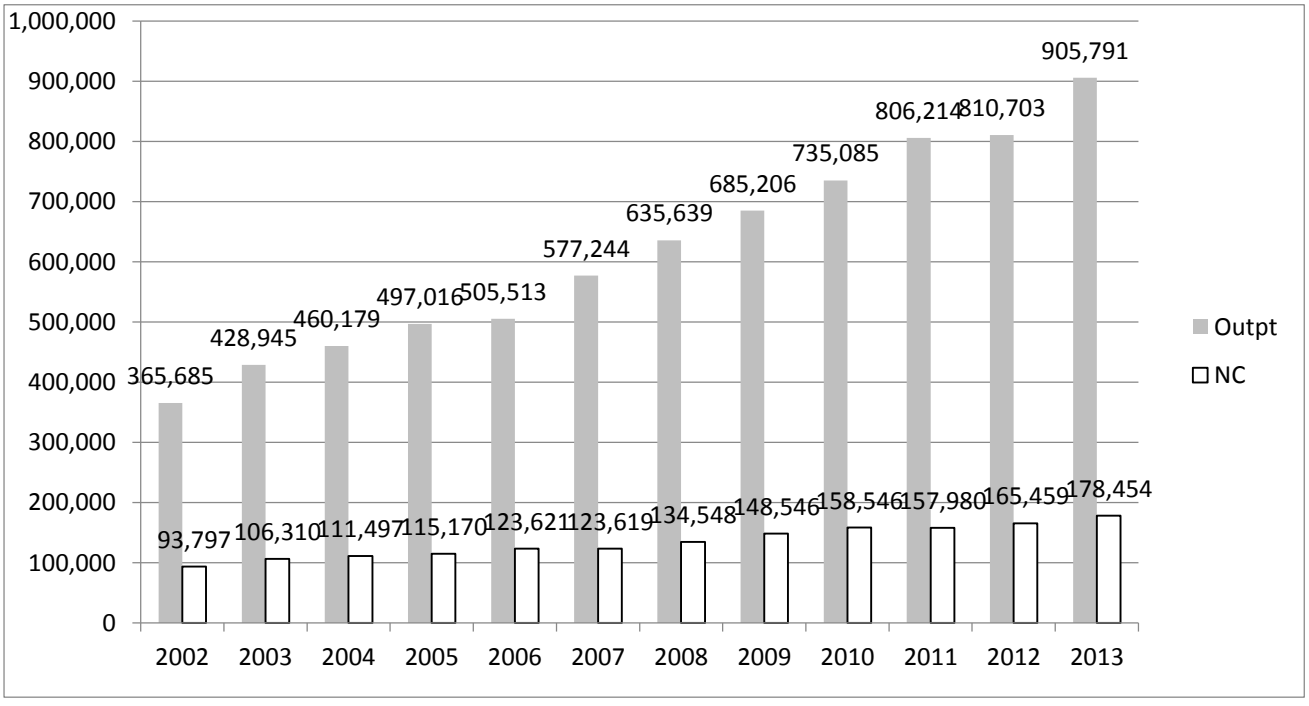


Figure 2.1: Number of out-patient visits at ophthalmology clinics, 2002-2013. Outpt = Total number of patients seen on an outpatient basis. NC = new cases.

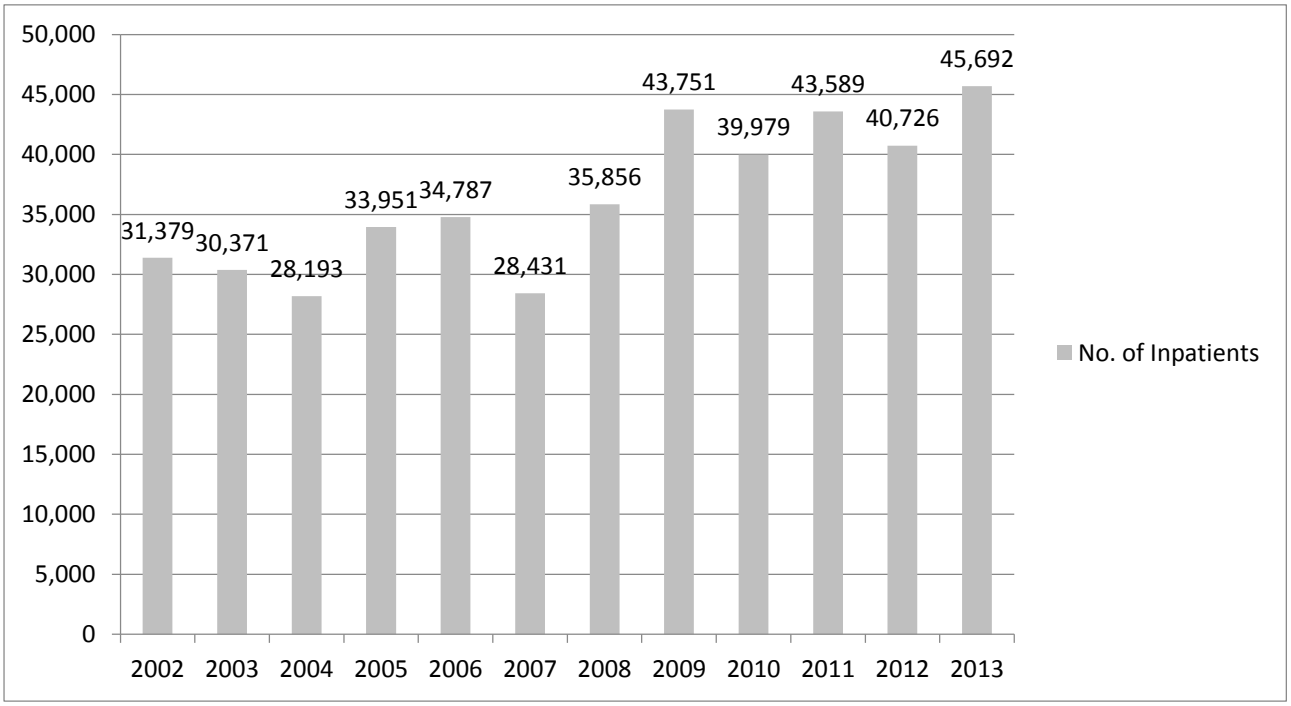


Figure 2.2: Number of inpatients admitted to eye wards, 2002-2013. The actual number of inpatients in 2013 may be higher than that quoted in the figure as some hospitals did not submit data regarding their number of inpatients.

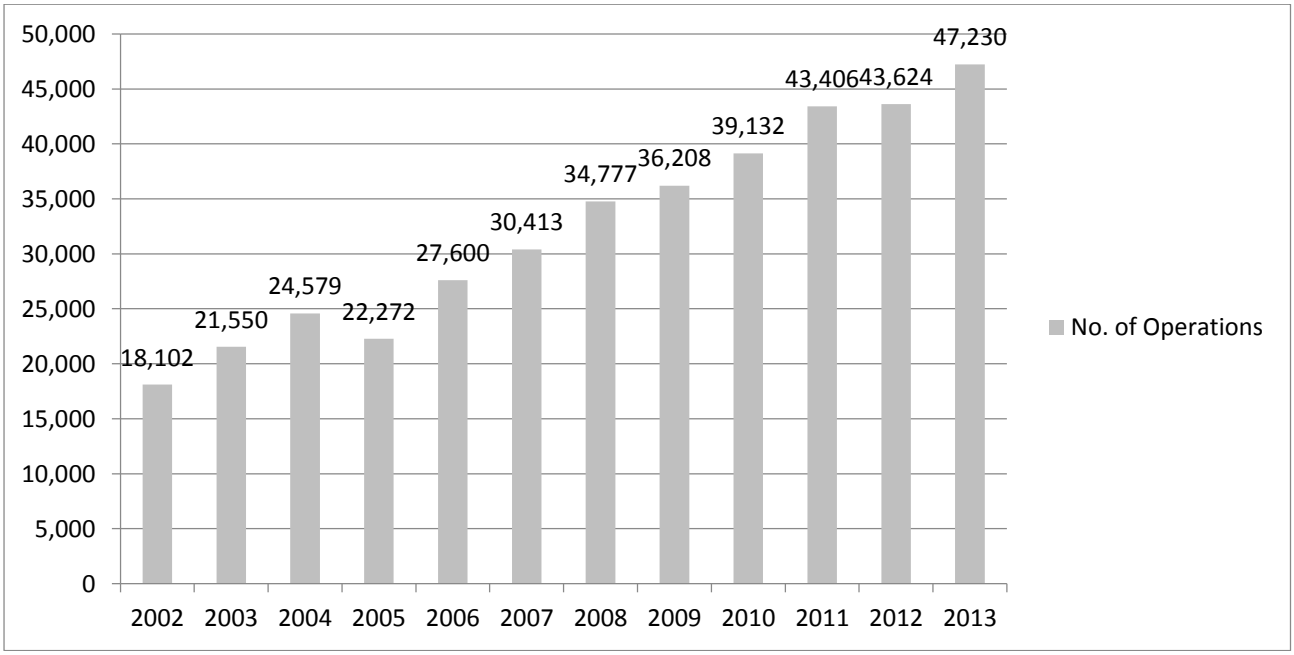


Figure 2.3: Number of ocular operations* performed, 2002-2013.
The actual number of ocular surgeries performed in 2013 may be higher than that quoted in the figure as some hospitals did not submit data regarding the number of surgeries performed.
*Ocular operations include surgery performed in operating theatre with grade B and C as classified in Fee Acts1951.

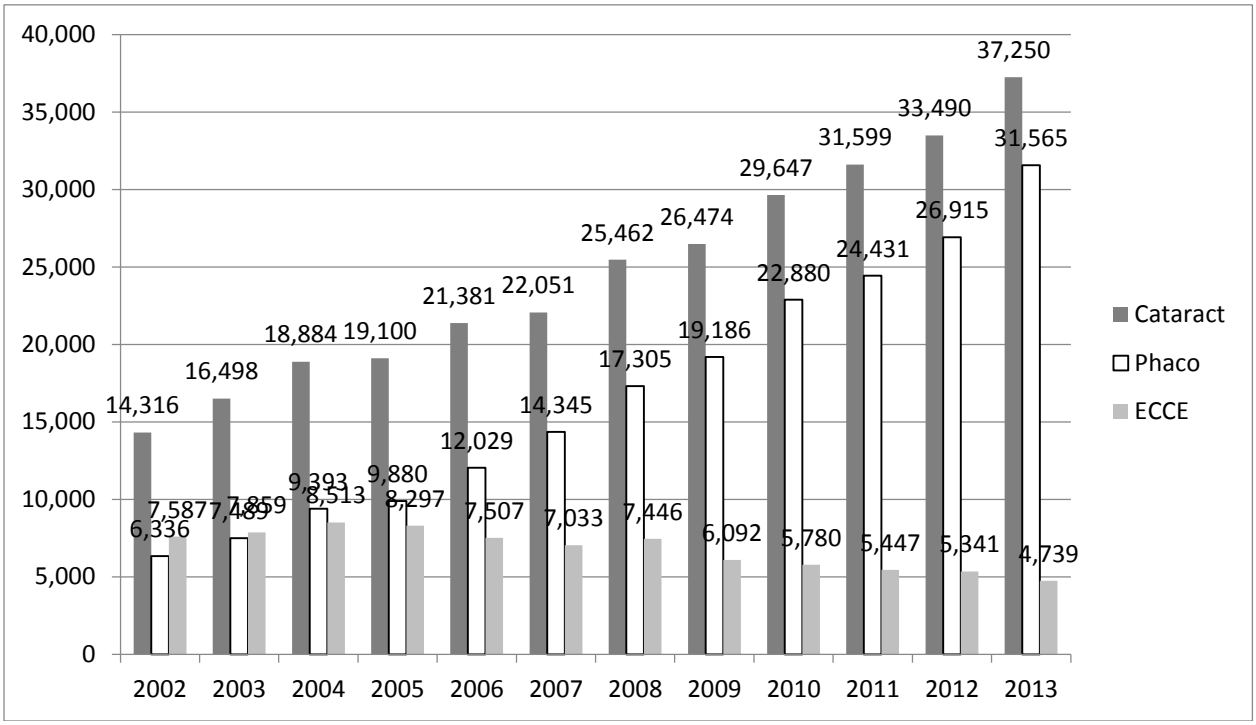


Figure 2.4: Number of cataract surgeries, ECCE and phacoemulsification performed, 2002-2013.

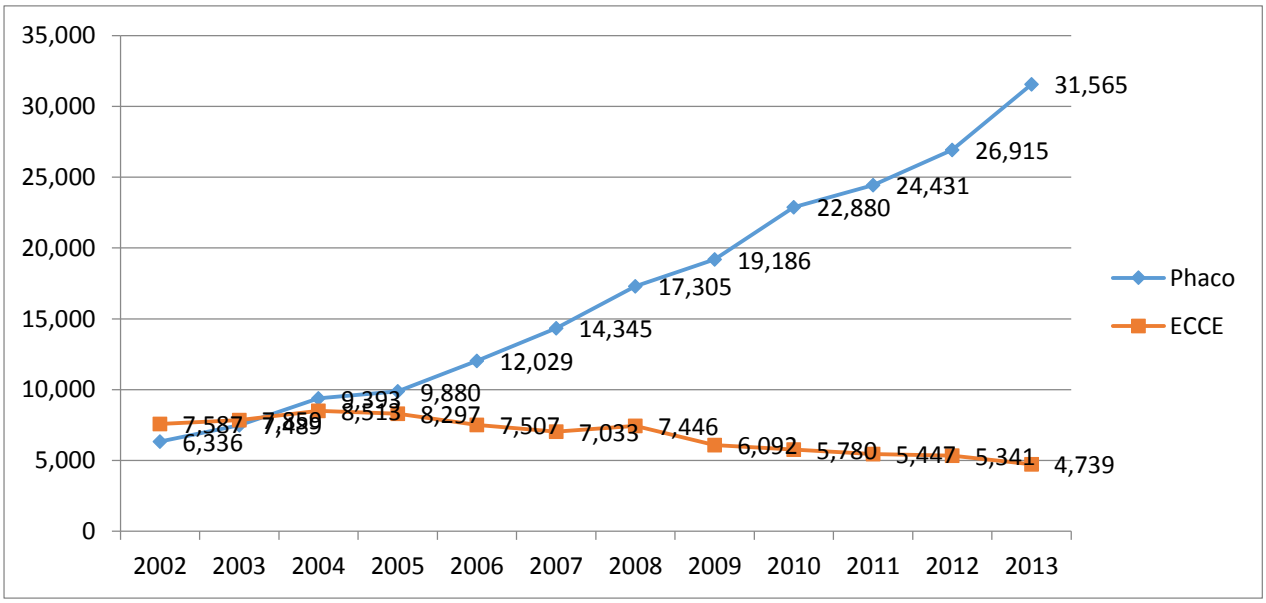


Figure 2.5: Trend of cataract surgeries performed by ECCE and phacoemulsification, 2002 – 2013.

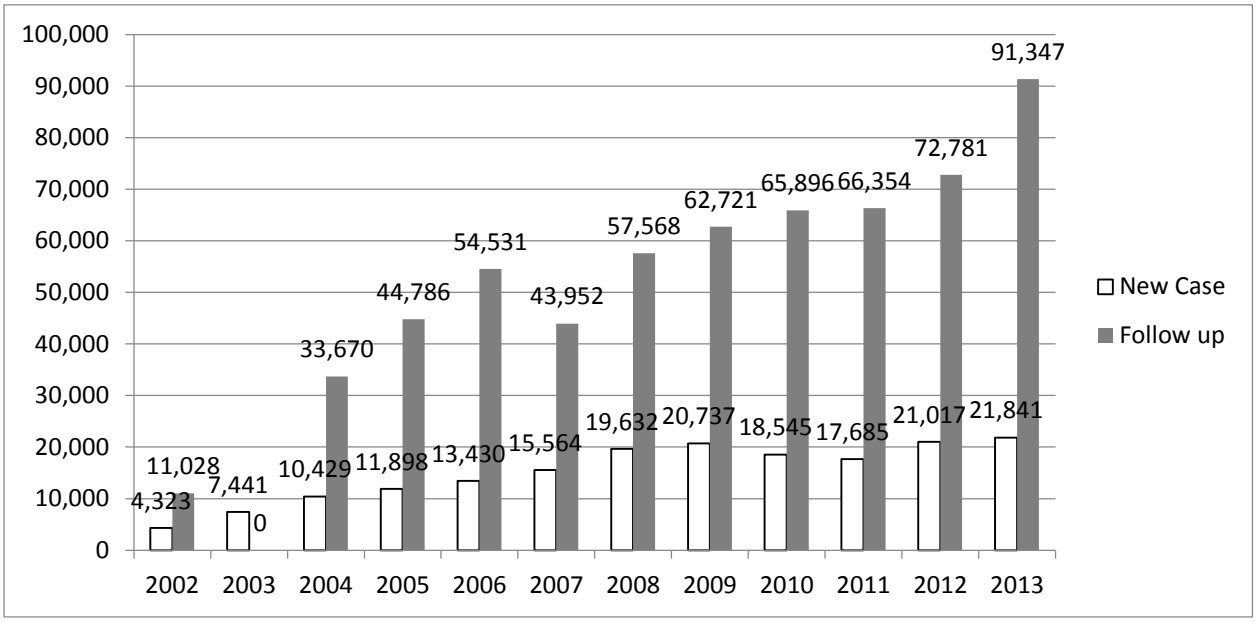


Figure 2.6: Diabetic patients seen at ophthalmology clinics, 2002-2013. The actual number of screened patients is probably higher as some hospitals did not submit data.

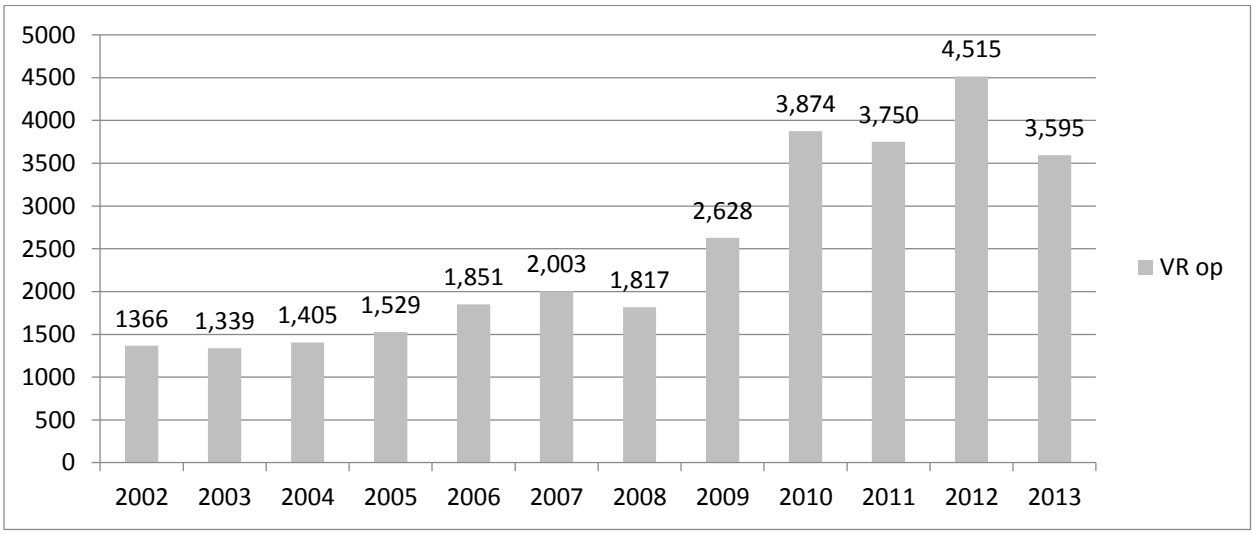


Figure 2.7: Number of vitreoretinal surgeries performed at hospitals with vitreoretinal surgeons, 2002-2013.

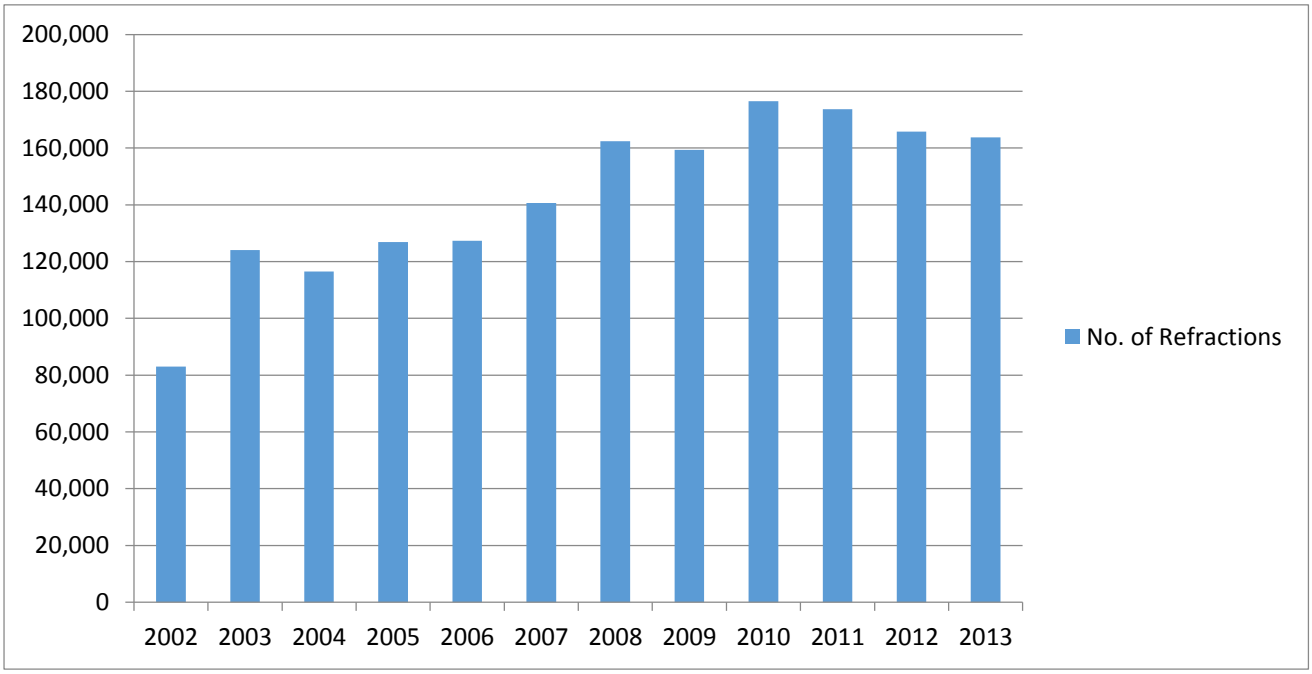


Figure 2.8: Number of refractions performed at ophthalmology clinics, 2002-2013. The actual number of refractions may be higher as some hospitals did not submit data.

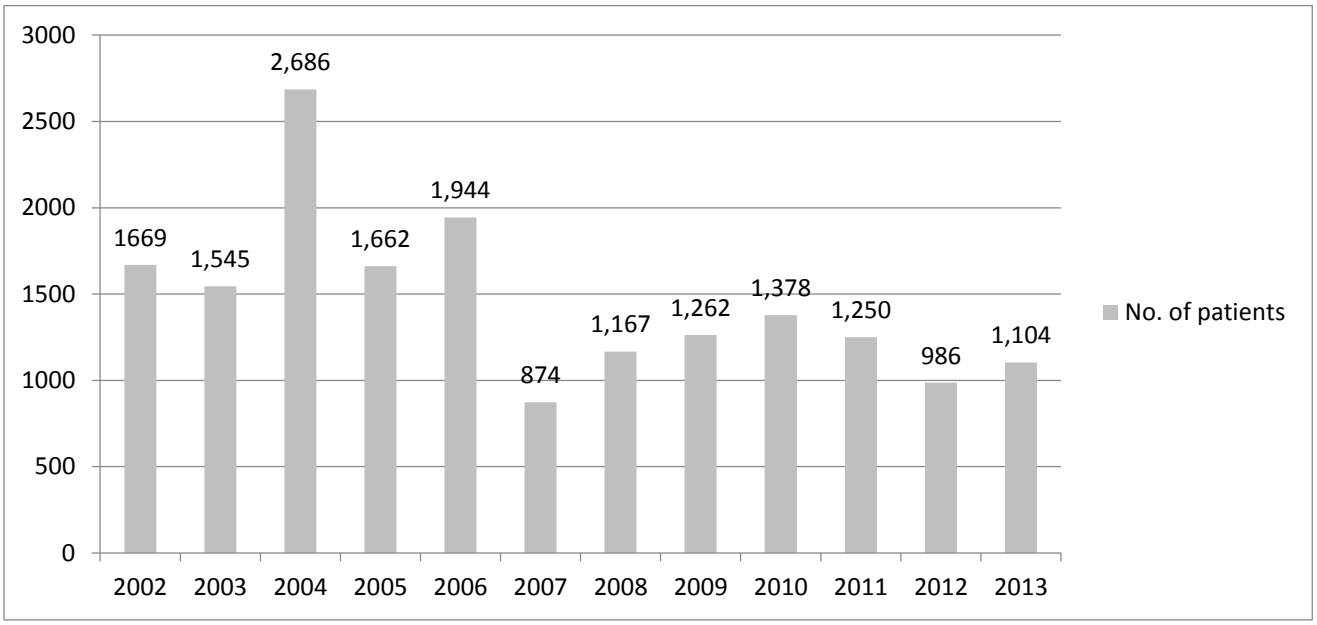


Figure 2.9: Number of patients with low vision assessments, 2002-2013. Please note that data was not submitted by some hospitals, therefore the actual number of low vision assessments performed may be higher that what is shown.

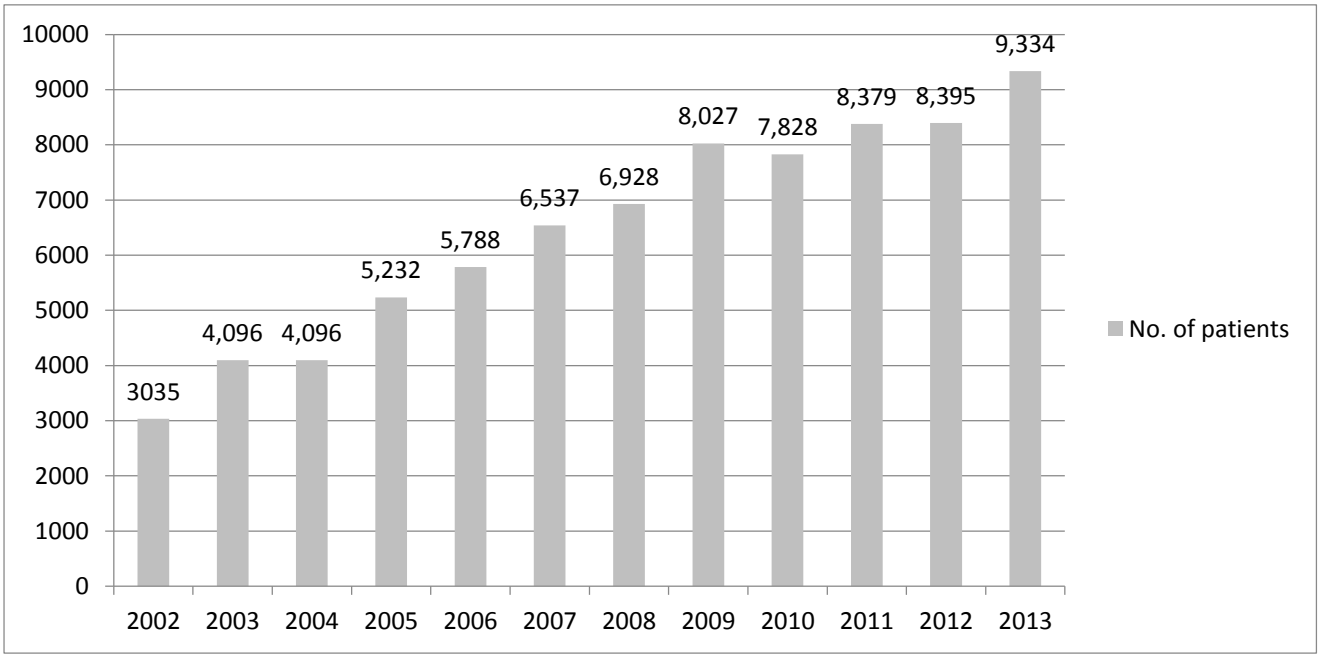


Figure 2.10: Number of premature infants screened for retinopathy of prematurity screening, 2002-2013. The actual number of babies screened is actually higher as data was not submitted by all hospitals.