

The 10th _____ *Report of the National* *Eye Database* **2016**

Included reports on

Cataract Surgery Registry 2002, 2003, 2004, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016

Klinik Katarak 1Malaysia and PUSAT PEMBEDAHAN KATARAK
MAIWP - Hospital Selayang, Retinoblastoma Registry

Editors

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With contributions from

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Norhafizah Hamzah and Nor Anita Omar



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Disclaimer

There is a potential that data published for previous years in current reports may differ from annual reports published earlier. This is because analysis is based on latest dataset in NED database which may have been updated by Source Data Producers.

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Thank you.

NED Steering Committee Members

July 2018

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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 two active patient registries, Monthly Ophthalmology Service Census, Outreach Census and three surveillance registries (on Contact Lens Corneal Ulcer, Intraocular Lens and Endophthalmitis). The patient registries are Cataract Surgery Registry, Retinoblastoma Registry, Glaucoma Registry, Diabetic Eye Registry and Age Related Macular Degeneration Registry. In 2016, Glaucoma Registry, Diabetic Eye Registry and Age Related Macular Degeneration Registry are inactive due to planning and upgrading work. The Source Data Producers are eye care providers, mainly from the public sector. 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

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 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, Hospital Queen Elizabeth and Hospital Umum Sarawak.

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 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 implemented 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	$\geq 80\%$ 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	$\geq 80\%$ 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	$\geq 80\%$ 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	$\leq 10\%$ 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 Incidence Reporting – Intraocular Lens

Intraocular lens may have defect during the manufacturing process and during 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 Incidence Reporting – 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 and 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

e-CUSUM

Cataract surgery is the most common procedure done in ophthalmology departments. The procedure is consistent and outcome is measured objectively by visual acuity. Cataract surgery outcome depends 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-mines data on occurrence of posterior capsular rupture and patients with post-operative vision worse than 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 effectively and easily.

Methods of the National Eye Database

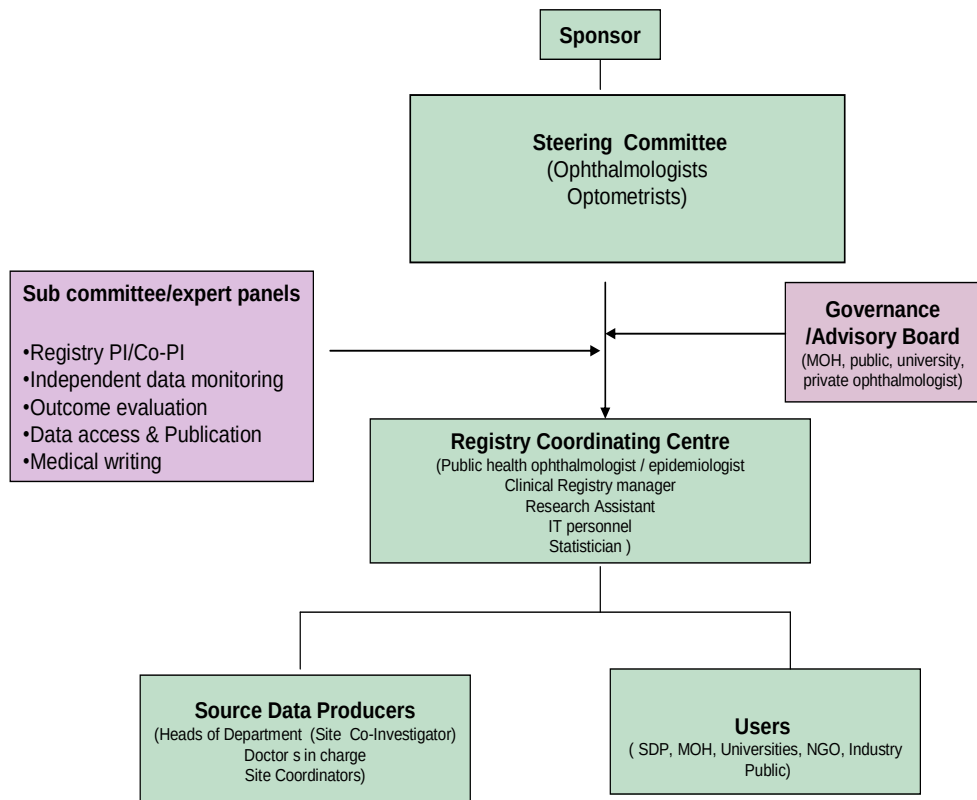
The National Eye Database is designed as a cohort study. It is an online clinical database hosted at the Association of Clinical Registry Malaysia website at www.acrm.org.my/ned. Its protocol was approved by the Medical Research Ethical Committee of MOH on 2nd September 2008 (reference number NMRR 08-552-1707)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

GOVERNANCE



NED SOURCE DATA PRODUCERS

NORTHERN ZONE	
No.	SDP
1.	Hospital Kangar
2.	Hospital Alor Star
3.	Hospital Sungai Petani
4.	Hospital Kulim
5.	Hospital Langkawi
6.	Hospital Pulau Pinang
7.	Hospital Bukit Mertajam
8.	Hospital Ipoh
9.	Hospital Taiping
10.	Hospital Teluk Intan
11.	Hospital Sri Manjung
12.	KK1M Kedah
13.	KK1M Pulau Pinang
EASTERN ZONE	
No.	SDP
14.	Hospital Kuantan
15.	Hospital Temerloh
16.	Hospital Kuala Terengganu
17.	Hospital Kemaman
18.	Hospital Kota Bharu
19.	Hospital Kuala Krai
20.	Hospital Tanah Merah
21.	KK1M Kelantan
22.	KK1M Terengganu
23.	KK1M Pahang
CENTRAL ZONE	
No.	SDP
24.	Hospital Kuala Lumpur
25.	Hospital Putrajaya
26.	Hospital Selayang
27.	Hospital Klang
28.	Hospital Serdang
29.	Hospital Sungai Buloh
30.	Hospital Ampang

31.	Hospital Shah Alam
32.	Hospital Seremban
33.	Hospital Kuala Pilah
34.	KK1M Negeri Sembilan
35.	Pusat Pembedahan Katarak MAWIP-Hospital Selayang
SOUTHERN ZONE	
No.	SDP
36.	Hospital Melaka
37.	Hospital Johor Baru
38.	Hospital Muar
39.	Hospital Batu Pahat
40.	Hospital Segamat
41.	Hospital Sultan Ismail
42.	KK1M Johor
SARAWAK	
No.	SDP
43.	Hospital Umum Sarawak
44.	Hospital Sibu
45.	Hospital Bintulu
46.	Hospital Miri
47.	Hospital Sarikei
48.	KK1M Sarawak
SABAH	
No.	SDP
49.	Hospital Queen Elizabeth
50.	Hospital Sandakan
51.	Hospital Tawau
52.	Hospital Keningau
53.	Hospital Likas
54.	KK1M Sabah

NED STATE MANAGERS

State	State Manager	Hospital
Sarawak + Sabah + Labuan	Dr Lo Tze Wen	Hospital Umum Sarawak
Sarawak	Dr Nur Reza bt Mohd Noh	Hospital Sibu
Johor	Dr RM Nachammai A/P S Ramasamy	Hospital Sultanah Aminah
Melaka	Dr Goh Ching Teak	Hospital Melaka
Perak	Dr Wong Wai Kuan	Hospital Ipoh
Penang	Dr Lee Cheng Imm	Hospital Pulau Pinang
Kedah+Perlis	Dr Annie Lee	Hospital Sultanah Bahiyah
Kelantan	Dr Mariyani bt Mad Said	Hospital Raja Perempuan Zainab II
Terengganu	Dr Dzawati Amalin bt Basemin	Hospital Sultanah Nur Zahirah
Negeri Sembilan	Dr Juliana bt Mohd Thani	Hospital Tuanku Ja'afar
Selangor	Dr Ho Siew Lee	Hospital Serdang
Pahang, Wilayah Persekutuan KL and Putrajaya	Central Manager	Hospital Selayang

State Manager for Sabah, Perlis, Pahang, Wilayah Persekutuan KL, Putrajaya and Labuan will be appointed when the MO/s is/are available and criteria are fulfilled

FOREWORD

The overall data submission for Cataract Surgery Registry (CSR) has been increasing over the years. Due to the increasing demand of outreach cataract surgery, the number of SDP in a form of Klinik Katarak 1Malaysia (KK1M) has also been increasing. This indicates the increasing awareness and enthusiasm of users in submitting data which can then be used to improve services which they are providing.

However, there is still lack of awareness regarding submission of data for Monthly Ophthalmological Census, Outreach Census and the Surveillance Databases (Adverse Incidence related to Intraocular Lens and Endophthalmitis). This is probably due the process involved in generating data is not part of the treatment workprocess (unlike CSR). But such awareness can still be instilled especially if data in all the applications in NED can be regularly presented and analysed for service usage and publication.

Data submission can also be improved by the appointment of NED State Managers. They are selected from each state throughout the country to manage data within their own state. This is an advanced initiative after NED MOship, to ensure further refinement of data entry and monitoring. The transfer of management from a Central single manager will enhance the quality of data through real time data cleaning besides ensuring ownership and better usage of the wealth of data available.

This group of State Managers are Medical Officers who have served for a long time in the Ophthalmology departments and may be as senior as some of the Specialists. They have by various individual reasons decided to remain in the department without specialisation. Hence besides being experienced they are unlikely to leave the Ministry of Health (MOH) as opposed to Specialists who are either transferable, busy or likely to resign. This important new role would be a form of acknowledgement on their contribution and loyalty to the department.

This is a significant milestone after NED MOship, the outcome of which has been encouraging. MOs have been presenting data in individual departments and we indeed can see the increasing usage of NED data for service and publication in the MOH. The appointment of a State Manager will bring this to another level.

Consultations on data management can be done locally and new ideas can develop. This will further propel NED forward as the main eye database in the country

Steering Committee Members

National Eye Database 2017/2018

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		

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EXECUTIVE SUMMARY

The ascertainment for the submissions of both Operative and Outcome data were maintained at >90.0% and >80.0% respectively. By CSR submission, Hospital Alor Setar, Hospital Ipoh, Hospital Klang, Hospital Melaka and Hospital Pulau Pinang were leading the way by producing more than 2000 surgeries per year. Mean age for patients presenting for cataract surgery in KK1M Mobile, Transit and Carnival was higher than other consistent with the service concept in rural areas. Like past years, the issue of increasing percentages of patients with Hypertension and Diabetes Mellitus and the low percentage of patients who had second eye cataract surgery need to be acknowledged and addressed by optimizing pre-operative care and increasing population awareness. The implementation of day care surgery concept also must be strengthened as only 71.2% of surgery was done as Day Care in 2016. The percentage of surgery using Phaco technique however, was increasing with a parallel increase in the use of topical anaesthesia and foldable acrylic Intraocular Lens. There was also an increasing trend in the combined usage of intracameral anaesthesia for cataract surgery. The percentage of intra-operative complications in general was in a decreasing trend with the percentage of Posterior Capsular Rupture, decreased further to 2.3%. The percentage of eye with post-operative infectious endophthalmitis also decreased to 0.03%.

REPORT SUMMARY

CATARACT SURGERY REGISTRY

1. Stock and Flow

- The number of SDP increased from 32 SDPs in 2007 to 69 SDPs in 2016 (44 hospitals and 25 KK1M).
- The total number of cataract surgery registered to CSR increased from 12798 in 2002 to 50625 in 2016.
- The CSR ascertainment decreased to 93.9% from 96.4% the previous year.

2. Characteristics of Patients

- The mean age of patients at the time of cataract surgery was 65.9 in 2016. This age was younger than data published by the Swedish cataract surgery register (74 years old).
- Up to 1/5 of patients presented within the age group of 65-69 years old (22.5% in 2016).
- The proportion of patients with systemic co-morbidity increased from 56.86 in 2002 to 78.7% in 2015.

- There was an increase in the proportion of patients presented for cataract surgery who had Hypertension (from 35.4% in 2002 to 64.6% in 2016) and Diabetes Mellitus (from 28.9% in 2002 to 45.7% in 2016).
- Senile cataract was the commonest cause of primary cataract (99.1 % in 2016).
- Trauma was the commonest cause for secondary cataract (57.6% in 2016).
- The proportion of patients who returned for cataract surgery in the fellow eye remained the same from 2002 to 2016, i.e. only one third (35.9% in 2016).
- Majority of the eyes had no prior ocular surgery (96.8% in 2016). The commonest prior ocular surgery was vitreoretinal surgery (1.2% in 2016).
- One third of the eyes had ocular co-morbidity (36.5% in 2016). The commonest ocular co-morbidity was diabetic retinopathy in any forms (11.4% in 2016).
- About 1/3 of the eyes had PH vision $\leq 6/18$ - 6/60 (30.8% in 2016).
- Refraction was not done in more than 2/3 of the eyes (66.0% in 2016). Most of them had unaided VA $\leq 3/60$ (46.3% in 2016).
- 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 2016 was -0.4D (SD 0.3)

3. Cataract Surgery Practice Patterns

- Selangor (7 main SDPs), Perak (4 main SDPS) and Sarawak (6 main SDPS), performed higher number of cataract surgeries compared to other state (>5000)
- More than 2/3 of the cataract surgery was performed by specialists (88.9% in 2016).
- The percentage of Phaco surgery done by medical officers was maintained at 3-4% (4.1% in 2016)
- The median duration taken to do a cataract surgery was 25 min for phaco and 50 min for ECCE in 2016.
- Though there was an increasing trend for day care surgery, from 39.3% in 2002 to 71.2% in 2016, the percentage varied among SDPs.
- Phaco was the preferred method of cataract surgery and the proportion increased from 39.7% in 2002 to 89.6% in 2016. Percentage of ECCE decreased from 54.0% in 2002 to 6.8% in 2016.
- The preferred IOL material was acrylic and foldable type.
- The percentage of phaco converted to ECCE was 1.7% in 2016. It remained the same over the years.
- Among combined surgery, VR surgery was the highest. It did not show any specific trend. (1.8% in 2016)
- Majority of cases were done under local anaesthesia (93.5% in 2016). The preferred type of local anesthesia was topical (73.5% in 2016).
- The use of topical anesthesia (excluding combined surgery) was 74.4% in 2016.
- The use of subtenon anesthesia (excluding combined surgery) was 18.8% in 2016
- The use of intracameral anesthesia (excluding combined surgery) was 23.9% in 2016

- Majority of the patient operated had IOL implantation (98.5% in 2016). Among these patients who had IOL, 97.0% had posterior chamber IOL.

4. Intra-operative Complications

- The percentage of intra-operative complication decreased from 5.2% in 2012 to 4.6% in 2016
- PCR decreased to 2.3% in 2016.
- Intra-op complication was seen among 56.7% of patients who had phaco converted to ECCE and 49.8% who had ICCE in 2016.
- In 2016, the percentage of intra-operative complication was higher in cataract surgeries performed by gazetted specialists (9.1%), followed by MO (8.2%) as compared to specialist (4.1%). For phaco surgeries, MO (4.5%), gazetted specialists (6.7%), and specialist (2.5%)

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 reduced from 0.08% in 2013 (27 patients) to 0.03% in 2016 (16 patients).
- The percentage of patients with unplanned return to OT did not show any specific trend. It was 0.24% in 2016
- There was no specific trend in the causes of unplanned return to OT.
- In eyes without ocular co-morbidity, the percentage of eyes with unaided vision of 6/12 and better appeared to be increasing (58.2% in 2016)
- Patients who had phaco had better post-op visual outcome when compared to other type of surgeries. 92.9% of phaco patients had refracted vision of 6/12 or better in 2016 as compared to ECCE (81.4%), phaco convert to ECCE (71.2%), lens aspiration (81.6%) and ICCE (55.9%).
- 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 92.9% in 2016 and among ECCE patients from 78.0% in 2002 to 81.4% in 2016.
- In all type of surgeries, visual outcome became less favourable when there were intra-operative complications.
- The main contributing factor for eyes with post-operative refracted VA worse than 6/12 was pre-existing ocular co-morbidity
- 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 2016, with the mean target refraction (all eyes) of -0.4D, the mean actual refraction was -0.5D for phaco eyes, and -0.8D for ECCE eyes. Thus, eyes which had undergone ECCE had more myopic shift than eyes which had phaco.

- In 2016, there was disparity between the targeted and the actual refraction in phaco, 85.2% of eyes had a different in target and actual refraction of between $\pm 1.0D$.

KLINIK KATARAK 1MALAYSIA

1. Stock and Flow

- The total number of cataract surgery registered to CSR increased from 140 in 2013 to 2519 in 2016.

2. Characteristics of Patients

- The mean age of patients at the time of cataract surgery was 67.5 in 2016. This age was older than in hospitals (65.9 years old).
- Up to 1/5 of patients presented within the age group of 65-69 years old (23.3% in 2016).
- In 2016, the proportion of patients with systemic co-morbidity was 72.0% (Hypertension was 78.6% and Diabetes Mellitus was 45.8%)
- Senile cataract was the commonest cause of primary cataract (99.4 % in 2016).
- Trauma was the cause for secondary cataract (60.0% in 2016).
- The proportion of patients who returned for cataract surgery in the fellow eye was only 1/5 (28.3% in 2016) which appeared to be increasing
- Majority of the eyes had no prior ocular surgery (99.2% in 2016).
- Less than one third of the eyes had ocular co-morbidity (19.3% in 2016). The commonest ocular co-morbidity was Diabetic Retinopathy in any forms (6.5% in 2016).
- More than half of the eyes had unaided vision $<3/60$ (47.4% in 2016).
- Refraction was not done in most of the eyes (72.7% in 2016). Most of them had unaided VA $<3/60$ (53.8% in 2016).
- Bimodal pattern of pre-operative vision was 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 2014 was -0.4D (SD 0.2)

3. Cataract Surgery Practice Patterns

- The number of cataract surgery performed by SDPs varied depending on location, period of service and availability of the bus and equipments
- The median duration taken to do a cataract surgery was 21 min for phaco and 35 min for ECCE in 2016.
- The percentage of surgeries performed under daycare setting increased from 55.5% in 2013 to 88.9% in 2016.

- Phaco was the preferred method of cataract surgery and the proportion increased from 88.5% in 2013 to 95.2% in 2016. Percentage of ECCE reduced from 8.6% in 2013 to 2.5% in 2016.
- The preferred IOL material was acrylic and non-foldable type.
- The use of topical anesthesia increased from 64.7% in 2013 to 88.6% in 2016, Subtenon reduced from 37.4% in 2013 to 11.8% in 2016 and intracameral reduced to 6.9% in 2016.
- Majority of the patient operated had IOL implantation (98.8% in 2016). Among these patients who had IOL, 98.1% had posterior chamber IOL.

4. Intra-operative Complications

- The percentage of intra-operative complication decreased from 7.1% in 2013 to 3.9% in 2016
- PCR increased from 1.4% in 2014 to 2.0% in 2016.

5. Cataract Surgery Outcome

- In average, more than 80.0% of patient registered to CSR had cataract surgery outcome data (81.8% in 2016)
- The percentage of patients with post-operative endophthalmitis was 0%.
- In eyes without ocular co-morbidity, only ½ of eyes had post-op unaided visual acuity 6/12 or better (56.3% in 2016). With refraction, more than 90.0% achieved post-op vision 6/12 or better (90.6% in 2016). 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. 91.5% of phaco patients had refracted vision of 6/12 or better in 2016 as compared to ECCE (66.7%).
- The main contributing factor for eyes with post-operative refracted VA worse than 6/12 was high astigmatism followed by pre-existing ocular co-morbidity.
- When patients with preexisting ocular co-morbidity were excluded from analysis, astigmatism was the major causes of poor visual outcome.
- In 2016, with the mean target refraction (all eyes) of -0.4D, the mean actual refraction was -0.5D 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 2016, there was disparity between the targeted and the actual refraction in phaco. 82.5% of eyes had a different in target and actual refraction of between $\pm 1.0D$.

PUSAT PEMBEDAHAN KATARAK MAIWP-HOSPITAL SELAYANG

1. Stock and Flow

- The total number of cataract surgery registered to CSR increased from 1824 in 2015 to 2900 in 2016.

2. Characteristics of Patients

- The mean age of patients at the time of cataract surgery was 65.3 in 2016. This age was younger than in hospital setup (65.9 years old).
- Up to 1/5 of patients presented within the age group of 65-69 years old (26.1% in 2016).
- In 2016, the proportion of patients with systemic co-morbidity was 80.6% (Hypertension was 65.7% and Diabetes Mellitus was 46.8%)
- Senile cataract was the commonest cause of primary cataract (91.4% in 2016).
- The proportion of patients who returned for cataract surgery in the fellow eye was one third (37.2% in 2016).
- Majority of the eyes had no prior ocular surgery (98.5% in 2016).
- Less than one third of the eyes had ocular co-morbidity (15.3% in 2016). The commonest ocular co-morbidity was Diabetic Retinopathy in any forms (6.1% in 2016)
- One third of the eyes had unaided vision $<6/18 - 6/60$ (41.4% in 2016).
- Refraction was not done in most of the eyes (88.5% in 2016). Most of them had unaided VA $<6/18 - 6/60$ (41.1% in 2016).
- Bimodal pattern of pre-operative vision was 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 2016 was -0.3D (SD 0.2)

3. Cataract Surgery Practice Patterns

- The median duration taken to do a cataract surgery was 20 min for phaco and 44.5 min for ECCE in 2016.
- Phaco was the preferred method of cataract surgery and the proportion increased from 95.1% in 2013 to 98.0% in 2016. Percentage of ECCE decreased from 2.5% in 2013 to 0.3% in 2016.
- The preferred IOL material was acrylic and non-foldable type.
- The use of topical anesthesia increased from 88.1% in 2015 to 92.0% in 2016. Intracameral anaesthesia showed an increasing trend, from 19.1% in 2013 to 36.3% in 2016. Subtenon anesthesia reduced from 11.0% in 2013 to 3.0% in 2016
- Majority of the patient operated had IOL implantation (99.6% in 2016). Among these patients who had IOL, 99.0% had posterior chamber IOL.

4. Intra-operative Complications

- The percentage of intra-operative complication increased from 3.5% in 2013 to 1.8% in 2016
- PCR increased from 1.3% in 2014 to 1.0% in 2016.

5. Cataract Surgery Outcome

- In 2016, only 76.4% cataract surgery had outcome data.
- The percentage of patients with post-operative endophthalmitis was 0%.
- In eyes without ocular co-morbidity, only ½ of eyes had post-op unaided visual acuity 6/12 or better (69.9% in 2016)
- Patients who had phaco had better post-op visual outcome when compared to other type of surgeries. 97.7% of phaco patients had refracted vision of 6/12 or better in 2016.
- 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.
- When patients with preexisting ocular co-morbidity were excluded from analysis, high astigmatism was the major causes of poor visual outcome.

SUMMARY OF COMPARISON BETWEEN HOSPITAL AND KK-KKM (2016)

		Hospitals	PPKM-HS	KK-KKM Mobile, Transit and Carnival
Concept of Service		Hospital based service	Outreach Low risk patients Fully day care Fully certified surgeons	Outreach Multilevel risk of patients Fully certified surgeons
Patient Profile	Age	Mean 65.9	Mean 65.3	Mean 67.5
	Main age group	65-69 (22.2%)	65-69 (26.1%)	65.69 (23.3%)
	Systemic Co-morbidity	64.7% (Hypertension 62.2%) (Diabetis Mellitus 46.1%)	65.7% (Hypertension 63.4%) (Diabetis Mellitus 46.8%)	62.0% (Hypertension 57.5%) (Diabetis Mellitus 36.2%)
	Second Eye Surgery	36.1%	37.2%	28.3%
	Ocular Co-morbidity	38.3% The commonest was diabetic retinopathy in any forms (12.3%)	15.3% The commonest was diabetic retinopathy in any forms (6.0%)	19.3% The commonest was diabetic retinopathy in any forms (6.5%)
	Presenting VA	<3/60 (48.6%)	<6/18 - 6/60 (41.4%)	<3/60 (47.4%)

		Hospitals	PPKM-HS	KK-KKM Mobile, Transit and Carnival
Surgical Practices	Day Care	68.5%	100%	88.9%
	Method of Cataract Extraction	Phaco 88.8% ECCE 7.4%	Phaco 98.0% ECCE 0.3%	Phaco 95.2% ECCE 2.5%
	Main anaesthesia	Topical (71.5%) Subtenon (20.4%) Intracameral (23.5%)	Topical (92.0%) Subtenon (3.0%) Intracameral (36.3%)	Topical (88.6%) Subtenon (11.8%) Intracameral (6.9%)
Intraoperative Complication	Overall percentage of intra-operative complication	4.8%	1.8%	3.9%
	PCR	2.4%	1.0%	2.0%
Outcome	Surgeries with outcome data	89.5%	76.4%	81.8%
	Post-operative Endophthalmitis	0.04% (16 patients).	0%	0%
	Percentage of unaided VA 6/12 or better in eye without ocular co-morbidity	57.5%	69.9%	56.3%
	Percentage of surgery using phaco achieving BCVA 6/12 or better in eyes without ocular co-morbidity	92.5%	97.7%	91.5%
	Percentage of eyes achieving difference of target and actual refraction within $\pm 1.0D$	95.8%	93.7%	83.4%

RETINOBLASTOMA REGISTRY

1. Stock and Flow

- A total of 208 patients registered, of which 26 and 13 patients were diagnosed in 2015 and 2016 respectively.

2. Patients Demography

- Median age at presentation was 1.95 years.
- Youngest age was 18.25 days and the oldest was 13 years old.
- A third (31.3%) of these patients was in the age group of 13 to 24 months and 24.0% were less than 12 months at presentation.
- More boys (54.3%) than girls were affected.
- Majority were of Malay ethnicity (54.3%), followed by Chinese (16.4%) and Indians (6.3%).

3. Ocular History and Presentation

- The most common presentation was leukocoria (80.8%)
- Mean duration of disease from onset of symptoms to presentation was 2 months with the majority (62.5%) within 1 to 6 months.
- 77 patients (37.0%) had bilateral disease.
- Six patients had positive family history of retinoblastoma.

4. Investigation and Classification

- The presence of calcified mass was detected in 68.4% by CT scan.
- In patients who underwent MRI, 11.0% showed presence of mass but only 9.5% had calcification.
- Extraocular extension detected by CT scan in 32 eyes (11.2%) and 8 eyes (2.8%) through CT scan and MRI respectively, the majority involved the optic pathway.
- More than half (54.4%) of the patients presented with Group E Retinoblastoma.

5. Management

- 61.1% of patients had systemic chemotherapy with a mean of 6.8 cycles (maximum 15 chemotherapy cycles).
- In bilateral cases, 12 patients had ocular (7 subtenon and 5 intravitreal injection) chemotherapy combined with systemic chemotherapy
- 98 affected eyes out of 131 eyes (74.8%) with unilateral RB were enucleated with 39.7% of these eyes showed histopathological extension outside eyeball.
- Among eyes with bilateral involvement, 38.3% of eyes were enucleated, 11 patients had external beam radiotherapy.

CHAPTER 1

CATARACT SURGERY REGISTRY 2016

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CHAPTER 1: CATARACT SURGERY REGISTRY

1.1 Stock and Flow

1.1.1 Stock and Flow

The number of CSR Source Data Provider (SDP) has continued increasing to 44 and 25 for SDP and KK1M respectively. The number of cataract surgeries registered to CSR has also increased from 18426 in 2007 to 50625 in 2016.

Table 1.1.1-1: Stock and Flow, CSR 2007-2016

Year	No of SDP		Total no of cataract surgery registered to CSR	Cataract surgery with visual outcome records	
	Hospital	KK1M (carnival, mobile, static and transit)		n	%
2007	32	0	18426	15786	85.7
2008	36	0	21496	19063	88.7
2009	36	0	24438	20590	84.3
2010	36	0	28506	24521	86.0
2011	36	0	30611	27219	88.0
2012	36	0	32473	28589	88.0
2013	40	7	37150	33063	89.0
2014	42	19	40532	36251	89.4
2015	42	26	44534	39066	87.7
2016	44	25	50625	44672	88.2

*2016: Hosp = 44; KK1M carnival = 7, static = 1, mobile = 9, transit = 8.

Table 1.1.1-2: Ascertainment for MOH Hospitals including KK1M locations, CSR 2007-2016

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

2014	41927	40532	96.7%
2015	46202	44534	96.4%
2016	53897	50625	93.9%

Note:

1. It is assumed that all KK1M (mobile, static and transit) census as 100%.

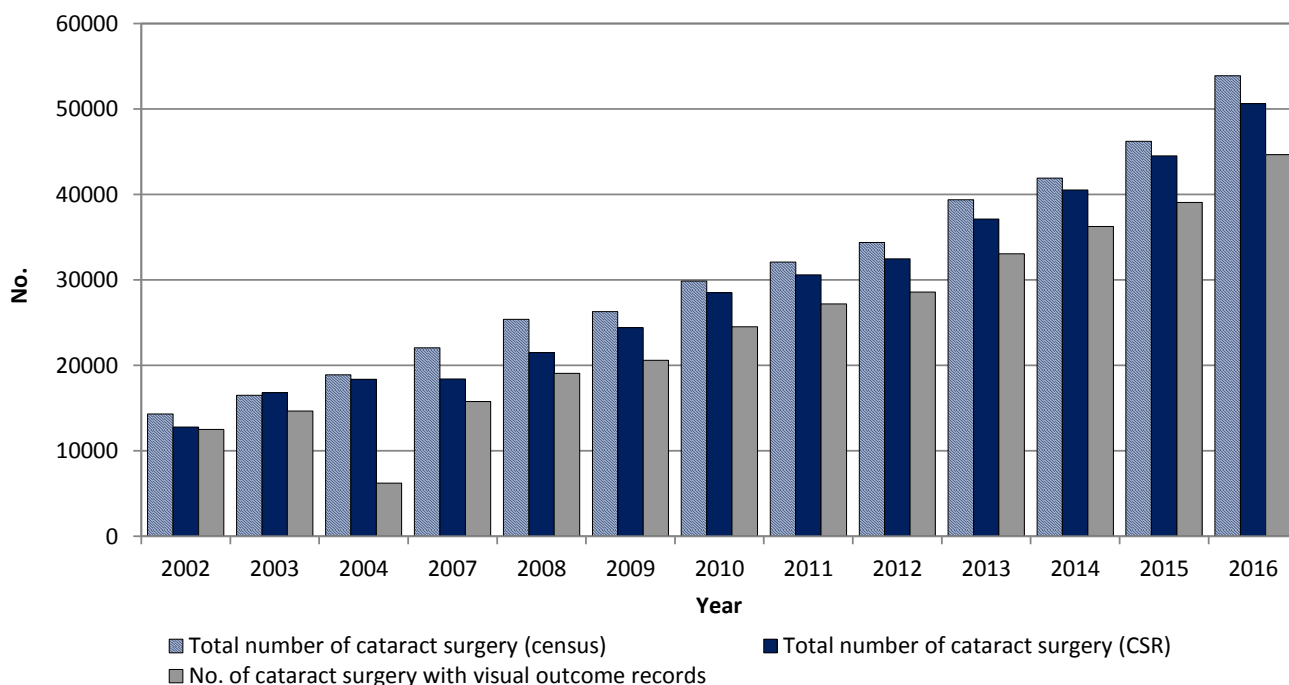


Figure 1.1.1-1: Stock and Flow, CSR 2002–2016

Table 1.1.1-3: Ascertainment by SDP, CSR 2016

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)
Alor Setar (including KK1M Alor Setar)	2650	2633	2610	2551	2149	99.4	99.1	97.7	82.3
Ampang	793	750	750	745	705	94.6	100.0	99.3	94.0
Batu Pahat (including KK1M Batu Pahat)	759	759	755	612	613	100.0	99.5	81.1	81.2
Bintulu	217	197	140	138	137	90.8	71.1	98.6	97.9
Bukit Mertajam	1486	1379	1379	1328	1183	92.8	100.0	96.3	85.8

Ipoh	3123	3123	3056	3006	2620	100.0	97.9	98.4	85.7
Kangar	652	652	652	652	611	100.0	100.0	100.0	93.7
Kemaman	28	28	21	20	19	100.0	75.0	95.2	90.5
Keningau	370	370	334	314	321	100.0	90.3	94.0	96.1
Klang	2526	2227	2227	1917	1754	88.2	100.0	86.1	78.8
Kota Bharu	1129	1113	1061	1033	1003	98.6	95.3	97.4	94.5
Kuala Krai	470	372	350	350	315	79.1	94.1	100.0	90.0
<i>(including KK1M Kuala Krai)</i>									
Kuala Lumpur	2082	1556	480	478	478	74.7	30.8	99.6	99.6
Kuala Pilah	948	600	584	574	546	63.3	97.3	98.3	93.5
Kuala Terengganu	1400	1330	1161	1150	1017	95.0	87.3	99.1	87.6
<i>(including KK1M Sul. Nur Zahirah)</i>									
Kuantan	1225	1225	865	859	835	100.0	70.6	99.3	96.5
Kulim	569	569	569	568	526	100.0	100.0	99.8	92.4
Langkawi	93	89	77	77	77	95.7	86.5	100.0	100.0
Likas	24	23	23	20	17	95.8	100.0	87.0	73.9
Melaka	2549	2549	2229	2193	2094	100.0	87.4	98.4	93.9
Miri	1045	1045	1045	1017	959	100.0	100.0	97.3	91.8
Muar	1085	1085	1060	973	908	100.0	97.7	91.8	85.7
Pulau Pinang	2694	2675	2639	2620	2533	99.3	98.7	99.3	96.0
<i>(including KK1M Pulau Pinang)</i>									
Putrajaya	432	429	424	412	389	99.3	98.8	97.2	91.7
Queen Elizabeth KK	1577	1458	746	745	740	92.5	51.2	99.9	99.2
<i>(including KK1M Queen Elizabeth)</i>									
Sandakan	441	414	305	305	305	93.9	73.7	100.0	100.0
Sarawak	1879	1879	1879	1530	1520	100.0	100.0	81.4	80.9
Sarikei	695	694	675	675	612	99.9	97.3	100.0	90.7
Segamat	132	121	120	120	117	91.7	99.2	100.0	97.5
Selayang	1570	1287	1287	1264	1077	82.0	100.0	98.2	83.7
Serdang	1408	536	536	524	469	38.1	100.0	97.8	87.5
Seremban	1832	1832	1714	1701	1559	100.0	93.6	99.2	91.0
Shah Alam	361	353	347	345	321	97.8	98.3	99.4	92.5
Sibu	796	796	787	766	702	100.0	98.9	97.3	89.2
Sri Manjung	705	684	684	673	600	97.0	100.0	98.4	87.7
Sultan Ismail	885	885	885	836	829	100.0	100.0	94.5	93.7
Sultanah Aminah JB	1582	1575	1572	1451	1398	99.6	99.8	92.3	88.9
Sungai Buloh	818	818	818	794	756	100.0	100.0	97.1	92.4
Sungei Petani	1782	1460	1451	1392	1171	81.9	99.4	95.9	80.7
<i>(including KK1M Sg. Petani)</i>									
Taiping	1575	1575	1575	1558	1464	100.0	100.0	98.9	93.0
Tanah Merah	18	18	0	0	0	100.0	0.0	0.0	0.0

Tawau	711	681	680	654	568	95.8	99.9	96.2	83.5
Teluk Intan	1327	1327	1327	1303	1156	100.0	100.0	98.2	87.1
Temerloh	1009	1009	1005	921	908	100.0	99.6	91.6	90.3

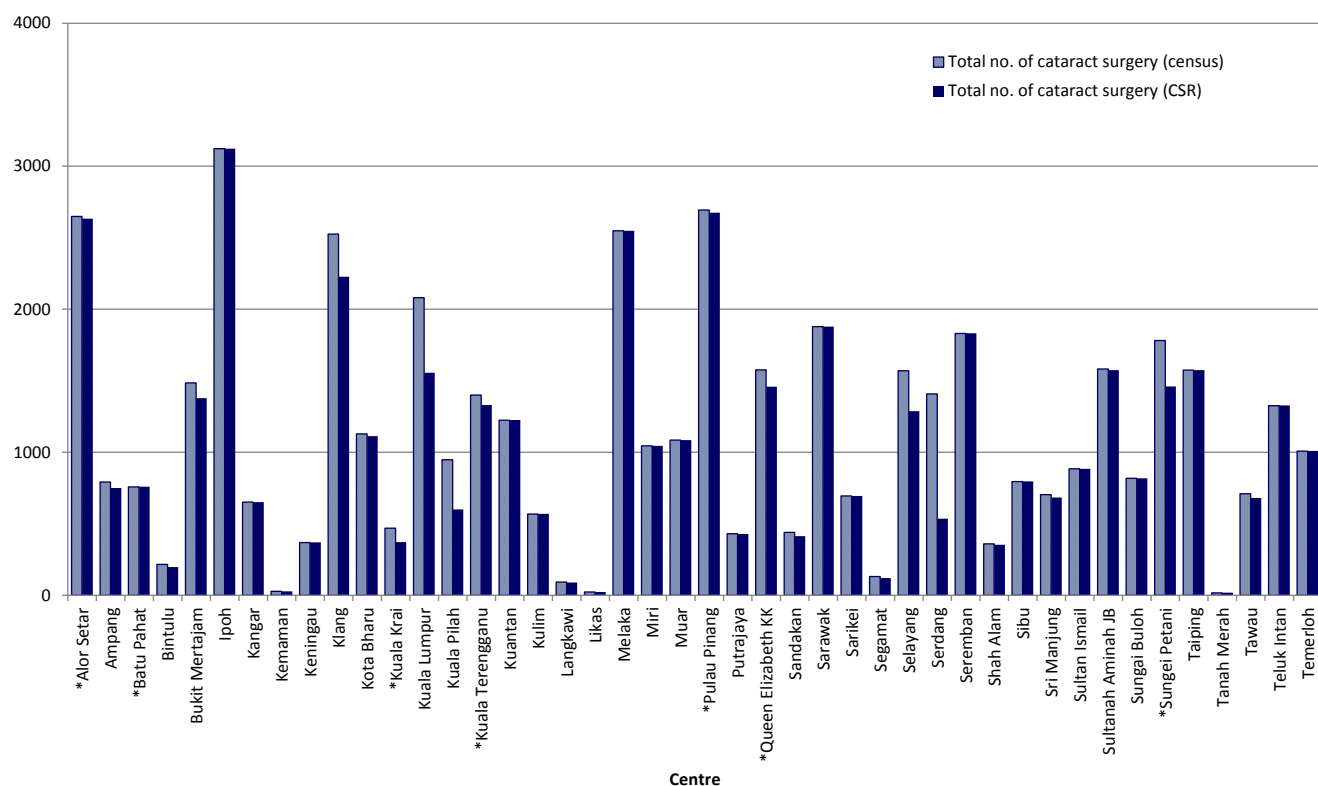


Figure 1.1.1-2: Ascertainment by SDP, CSR 2016

1.2 Characteristics of Patient

1.2.1 Demography

The mean age (years) for patients presented for cataract surgery was 66. A larger percentage of patients presented within the age group of 65-74 years old. There was no marked gender difference during the period.

Table 1.2.1-1: Age and Gender Distribution, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Total number of cataract surgery	18426		21496		24438		28506		30611		32473		37150		40532		44534		50624	
Age																				
Mean (years)	64.3		64.6		64.7		65		65		65		65.7		65.9		65.7		65.9	
Median (years)	66		66		66		66		66		66		67		67		67		67	
Minimum (month)	1		1		1.2		1.8		2.6		0.8		0.8		3.3		1.7		2.3	
Maximum (years)	97		102		99		99		104		99		105		101		97		110	
% Distribution																				
Age group, years	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0-4	54	0.3	49	0.2	56	0.2	60	0.2	49	0.2	64	0.2	20	0.1	25	0.1	68	0.2	64	0.1
5-9	54	0.3	59	0.3	66	0.3	70	0.3	74	0.2	81	0.3	41	0.1	40	0.1	70	0.2	84	0.2
10-14	51	0.3	42	0.2	43	0.2	47	0.2	57	0.2	61	0.2	64	0.2	49	0.1	69	0.2	75	0.2
15-19	49	0.3	49	0.2	52	0.2	70	0.3	72	0.2	64	0.2	82	0.2	77	0.2	62	0.1	86	0.2
20-24	71	0.4	84	0.4	77	0.3	73	0.3	103	0.3	75	0.2	94	0.3	86	0.2	118	0.3	104	0.2
25-29	77	0.4	67	0.3	104	0.4	90	0.3	90	0.3	96	0.3	113	0.3	106	0.3	127	0.3	147	0.3
30-34	80	0.4	100	0.5	106	0.4	137	0.5	125	0.4	146	0.5	133	0.4	128	0.3	177	0.4	196	0.4
35-39	180	1.0	162	0.8	180	0.7	198	0.7	224	0.7	196	0.6	219	0.6	212	0.5	280	0.6	295	0.6
40-44	314	1.7	377	1.8	377	1.5	457	1.6	408	1.3	474	1.5	459	1.2	469	1.2	478	1.1	521	1.0
45-49	727	4.0	777	3.6	881	3.6	966	3.4	984	3.2	988	3.0	1110	3.0	1035	2.6	1205	2.7	1193	2.4
50-54	1409	7.7	1630	7.6	1816	7.4	2077	7.3	2186	7.1	2089	6.4	2220	6.0	2365	5.8	2525	5.7	2775	5.5
55-59	2128	11.6	2540	11.8	2868	11.7	3379	11.9	3646	11.9	3758	11.6	4158	11.2	4507	11.1	4954	11.1	5470	10.8
60-64	2895	15.7	3497	16.3	4088	16.7	4846	17.0	5341	17.5	5689	17.5	6443	17.3	7272	17.9	7914	17.8	9059	17.9
65-69	3675	19.9	4169	19.4	4656	19.1	5069	17.8	5609	18.3	6372	19.6	7556	20.3	8563	21.1	9742	21.9	11365	22.5

70-74	3425	18.6	4138	19.3	4878	20.0	5651	19.8	5870	19.2	6102	18.8	7045	19.0	7444	18.4	7912	17.8	9256	18.3
75-79	2059	11.2	2456	11.4	2789	11.4	3446	12.1	3816	12.5	4135	12.7	5077	13.7	5502	13.6	5965	13.4	6481	12.8
≥80	1128	6.1	1279	6.0	1401	5.7	1868	6.6	1957	6.4	2083	6.4	2316	6.2	2652	6.5	2868	6.4	3453	6.8
Missing	50	0.3	21	0.1	0	0	2	0.0	0	0	0	0	0	0	0	0	0	0	1	0.0
Gender																				
Male	8820	47.9	10295	47.9	11829	48.4	13631	47.8	14696	48	15506	47.8	17604	47.4	19109	47.2	21486	48.3	24070	47.6
Female	9606	52.1	11168	52	12609	51.6	14871	52.2	15915	52	16966	52.3	19546	52.6	21423	52.8	23048	51.7	26555	52.5
Missing	0	0	33	0.2	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0

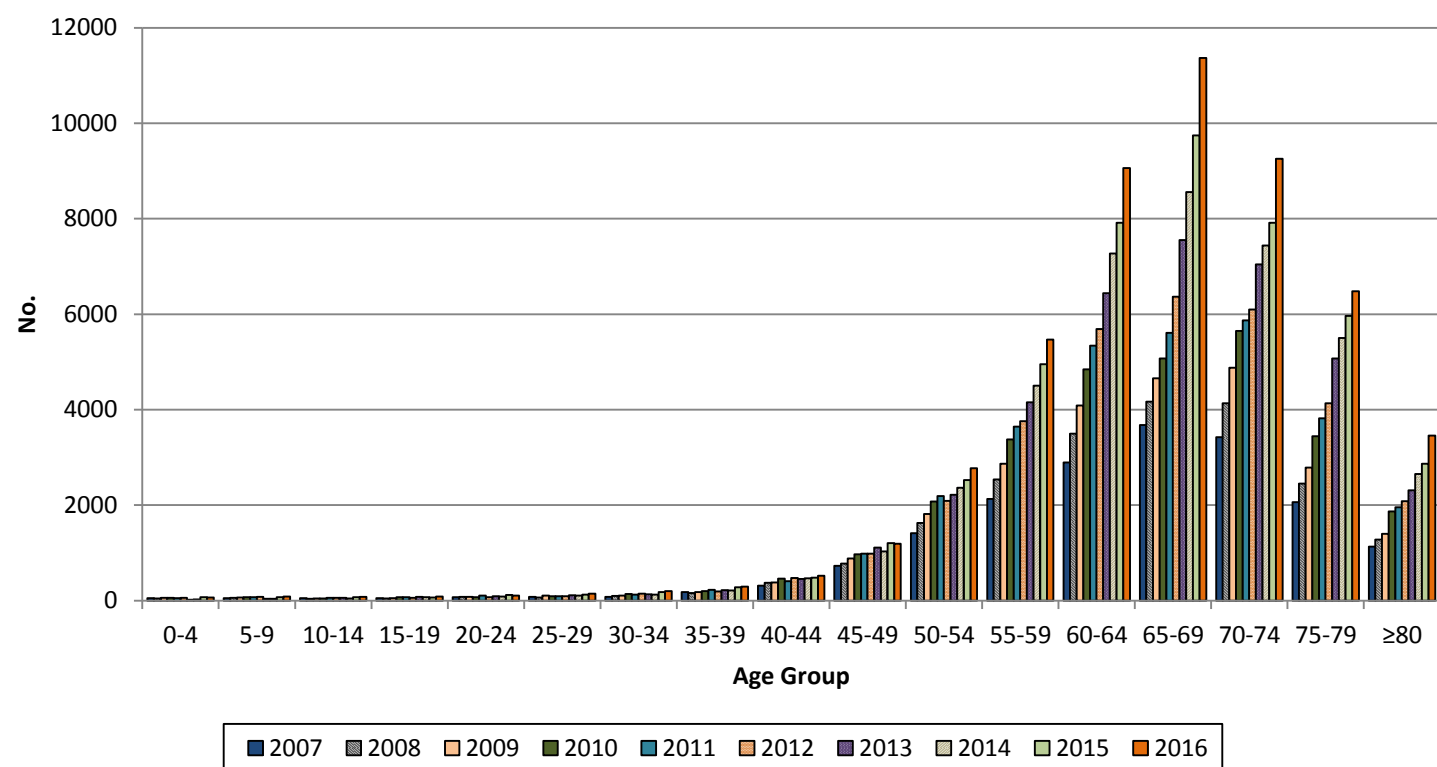


Figure 1.2.1-1: Age Distribution, CSR 2007-2016

1.2.2 Systemic Co-morbidity

The common systemic co-morbidity conditions encountered in patients presenting 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 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No of patients (N)	18426	21496	24438	28506	30611	32473	37150	40532	44534	50625
Percentage of patients with any systemic co-morbidity	67.5	68.7	71	70.6	72	72.4	74.8	75.6	76.2	78.7
Percentage of patients with specific systemic co-morbidity										
	n	%	n	%	n	%	n	%	n	%
1. Hypertension	8630	46.8	10932	50.9	13050	53.4	15630	54.8	17238	56.3
2. Diabetes Mellitus	6869	37.3	8188	38.1	9556	39.1	11598	40.7	12778	41.7
3. Ischaemic Heart Disease	1668	9.1	2037	9.5	2294	9.4	2441	8.6	2515	8.2
4. Renal Failure	461	2.5	624	2.9	679	2.8	804	2.8	822	2.53
5. Cerebrovascular accident	0	0	29	0.1	305	1.2	302	1.1	352	1.08
6. COAD/Asthma	798	4.3	955	4.4	1039	4.3	1024	3.6	1104	3.4
7. Others	1399	7.6	1974	9.2	2460	10.1	2891	10.1	3538	11.6
	3916	12.06	5766	15.5	6797	16.8	7904	17.7	10196	20.1

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

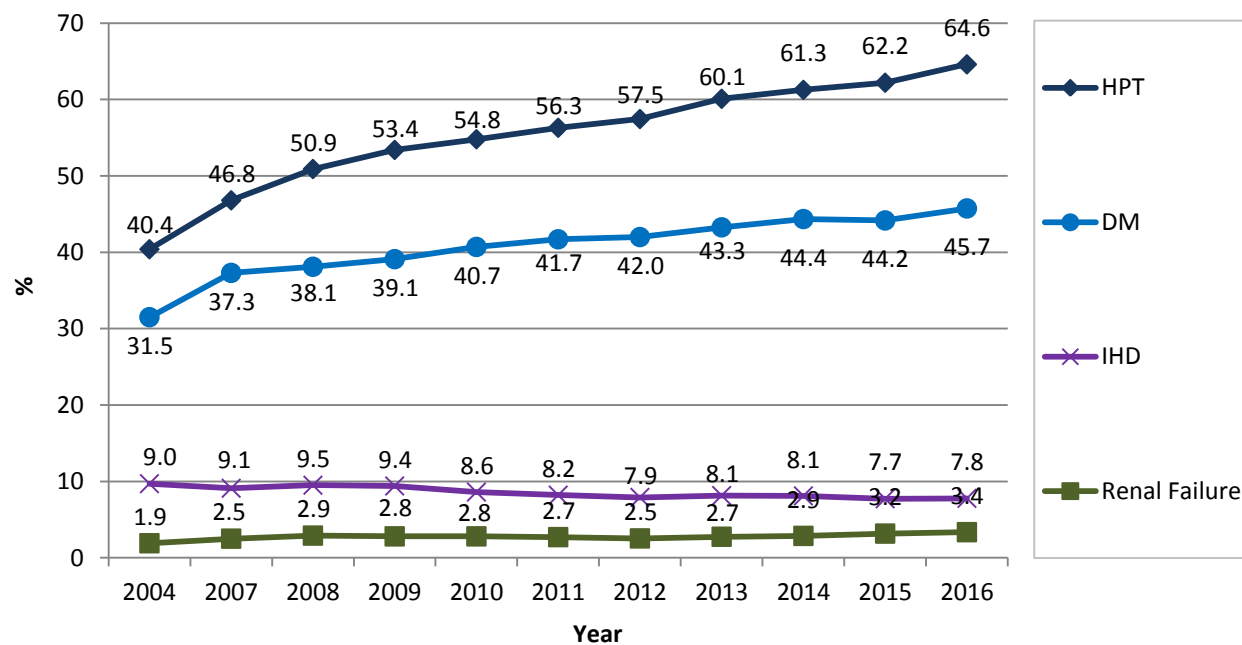


Figure 1.2.2-1: Percentage of Patients with Specific Ocular Co-morbidity, CSR 2002-2016

1.2.3 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 1.2.3-1: Causes of Cataract, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Primary cataract	17410	94.4	20329	94.6	23117	94.6	26981	94.7	29050	94.9	30813	94.9	35116	94.5	38908	96.0	42949	96.4	48719	96.2
Secondary cataract	557	3	530	2.5	587	2.4	660	2.3	764	2.5	608	1.9	547	1.5	568	1.4	750	1.7	818	1.6
Missing value	460	2.5	637	3	734	3	865	3	797	2.6	1052	3.2	1487	4.0	1056	2.6	835	1.9	1088	2.1
Primary Cataract (N)	17410		20329		23117		26981		29050		30813		35116		38168		42237		47967	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Senile/age related	17075	98.1	19995	98.4	22782	98.6	26671	98.9	28736	98.9	30299	98.3	34841	99.2	37904	99.3	41822	99.0	47541	99.1
Congenital	129	0.7	124	0.6	124	0.5	44	0.2	34	0.1	57	0.18	11	0.0	13	0.0	55	0.1	48	0.1
Development	169	1	156	0.8	166	0.7	236	0.9	249	0.9	419	1.36	233	0.7	215	0.6	302	0.7	331	0.7
Others	37	0.2	54	0.3	45	0.2	30	0.1	31	0.1	38	0.12	31	0.1	36	0.1	58	0.1	47	0.1
Secondary Cataract (N)	557		530		587		660		764		608		547		541		717		798	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Trauma	355	63.7	330	62.3	330	56.2	346	52.4	383	50.1	313	51.48	322	58.9	343	63.4	423	59.0	460	57.6
Drug induced	55	9.9	76	14.3	79	13.5	64	9.7	60	7.9	46	7.57	48	8.8	71	13.1	96	13.4	95	11.9
Surgery induced	82	14.7	39	7.4	107	18.2	93	14.1	101	13.2	122	20.07	88	16.1	78	14.4	110	15.3	144	18.0
Others	65	11.7	85	16	71	12.1	157	23.8	220	28.8	127	20.89	89	16.3	49	9.1	88	12.3	99	12.4

1.2.4 First or Second 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 2007. This was despite the declining percentage of eyes with intra-operative complications during surgery in the previous eye surgery (from 5.6% in 2002 to 2.6% in 2016).

The mean duration between the first and fellow eye showed an increasing trend, from 23.4 months in 2007 to 47.5 months in 2014 and slightly decrease to 45.4 in 2016.

Table 1.2.4-1: First of Second/Fellow eye Surgery, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
First eye surgery	12810	69.5	14610	68.0	16446	67.3	18919	66.4	20466	66.9	21539	66.3	23986	64.6	26080	64.3	28807	64.7	32404	64.0
Fellow eye surgery	5559	30.2	6849	31.9	7938	32.5	9441	33.1	10088	33.0	10896	33.6	13045	35.1	14267	35.2	15665	35.2	18151	35.9
Missing	57	0.3	37	0.2	54	0.2	146	0.5	57	0.2	38	0.1	119	0.3	185	0.5	62	0.1	70	0.1
Patients who had second surgery in the same year	759	4.1	1135	5.3	2702	11.1	2129	7.5	2246	7.3	2545	7.8	3214	8.7	3336	8.2	3721	8.4	4663	9.2
Period of time between first and fellow eye surgery (months)																				
N	4860		5953		7353		9378		10009		10784		12922		14170		15562		18046	
Mean	23.4		22		24.4		36.1		39.2		40.9		42.3		47.5		46.6		45.4	
SD	24.3		22.8		31.5		43.6		49.3		52.4		58.4		59.6		62.4		63.3	
Median	13.3		13.1		12.1		15.1		15.4		14.7		14.3		15.0		14.5		13.4	
Patients who had cataract surgery before	5559		6849		7938		9441		10088		10896		13045		14267		15665		18151	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Eyes with intra-operative complications during surgery in the first eye	313	5.6	298	4.4	346	4.4	324	3.4	302	3.0	281	2.6	341	2.6	386	2.7	396	2.5	464	2.6

1.2.5 Past Ocular Surgery of the Operated Eye

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

Table 1.2.5-1: Past Ocular Surgery of the Operated Eye, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of patients	18426	21496	24438	28506	30611	32473	37150	40532	44534	50625
No. of eyes with past ocular surgery record (N)	17379	20674	23109	26711	28349	30687	34625	37935	42425	48563
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
Patients with no past ocular surgery	16545 95.2	20010 96.8	22387 96.9	25870 96.9	27400 96.7	29770 97.0	33721 97.4	36938 97.4	41080 96.8	47024 96.8
Vitreoretinal surgery	261 1.4	161 0.8	267 1.2	352 1.3	325 1.1	326 1.1	350 1.0	329 0.9	581 1.4	606 1.2
Pterygium excision	869 0.5	140 0.7	164 0.7	212 0.8	207 0.7	208 0.7	268 0.8	386 1.0	401 0.9	514 1.1
Filtering surgery	1043 0.4	57 0.3	69 0.3	65 0.2	80 0.3	75 0.2	66 0.2	60 0.2	99 0.2	122 0.3
Penetrating keratoplasty	1738 0.1	14 0.1	18 0.1	21 0.1	11 0	11 0.0	18 0.1	8 0.0	21 0.0	25 0.1
Others	417 2.4	304 1.5	216 0.9	203 0.8	332 1.2	305 1.0	220 0.6	236 0.6	263 0.6	289 0.6

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

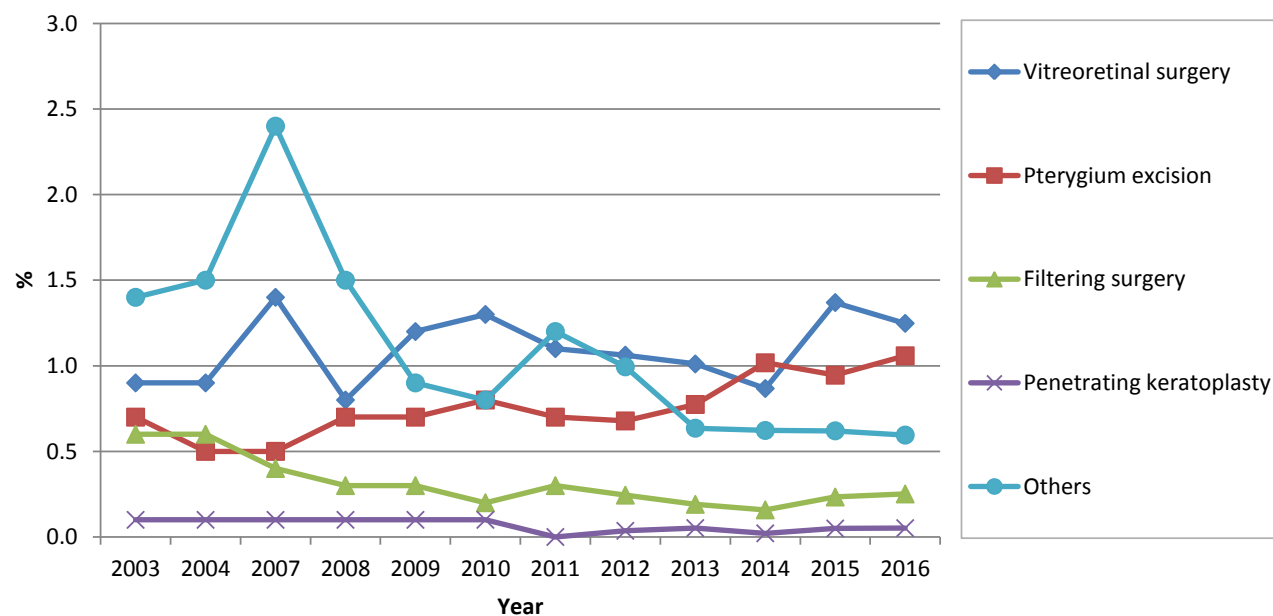


Figure 1.2.5-1: Percentage Distribution of Past Ocular Surgery of the Operated Eye, CSR 2003-2016

1.2.6 Pre-existing Ocular Co-morbidity

One third of the eyes to be operated had ocular co-morbidities. The commonest was diabetic retinopathy (DR) in any forms and followed by glaucoma.. The percentage of eyes presented with lens related complications (phacolytic and phacomorphic) appeared to be the same as 2015.

Table 1.2.6-1: Distribution of Pre-existing Ocular Co-Morbidity, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Patients with any ocular co-morbidity	5973	32.4	7269	33.8	9442	38.6	11977	42	12756	41.7	13024	40.1	15088	40.6	16142	39.8	17521	39.3	18490	36.5

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		
Patients with specific ocular co-morbidity																					
<u>Anterior segment</u>																					
1. Glaucoma	1126	6.1	1408	6.6	1655	6.8	1799	6.3	1976	6.5	2095	6.5	2349	6.3	2385	5.9	2861	6.4	3291	6.5	
2. Pterygium involving the cornea	288	1.6	319	1.5	345	1.4	387	1.4	405	1.3	405	1.3	477	1.3	540	1.3	534	1.2	565	1.1	
3. Pseudoexfoliation	221	1.2	253	1.2	318	1.3	289	1	312	1	365	1.1	381	1.0	445	1.1	492	1.1	527	1.0	
4. Corneal opacity	176	1	194	0.9	231	0.9	251	0.9	299	1	311	1	338	0.9	447	1.1	460	1.0	520	1.0	
5. Chronic uveitis	81	0.4	63	0.3	80	0.3	89	0.3	98	0.3	70	0.2	96	0.3	100	0.2	125	0.3	128	0.3	
<u>Len related complication</u>																					
1. Phacomorphic	89	0.5	85	0.4	83	0.3	120	0.4	114	0.4	138	0.4	90	0.2	110	0.3	156	0.4	181	0.4	
2. Phacolytic	44	0.2	45	0.2	47	0.2	59	0.2	69	0.2	41	0.1	56	0.2	63	0.2	88	0.2	93	0.2	
3. Subluxated/Disclosed	101	0.5	89	0.4	83	0.3	95	0.3	119	0.4	120	0.4	112	0.3	119	0.3	154	0.3	185	0.4	
<u>Posterior segment</u>																					
1. Diabetic Retinopathy: Non Proliferative	1125	6.1	1273	5.9	916	3.7	996	3.5	1783	5.8	1915	5.9	2214	6.0	2471	6.1	2603	5.8	3200	6.3	
2. Diabetic Retinopathy: Proliferative	465	2.5	614	2.9	1307	5.3	1973	6.9	1031	3.4	933	2.9	1021	2.7	1134	2.8	1338	3.0	1539	3.0	
3. Diabetic Retinopathy: CSME*	198	1.1	221	1	278	1.1	346	1.2	384	1.3	368	1.1	473	1.3	544	1.3	624	1.4	728	1.4	
4. Diabetic Retinopathy: Vitreous haemorrhage	176	1	165	0.8	230	0.9	250	0.9	296	1	258	0.8	237	0.6	275	0.7	347	0.8	331	0.7	
5. ARMD	231	1.3	259	1.2	387	1.6	462	1.6	494	1.6	521	1.6	609	1.6	695	1.7	875	2.0	997	2.0	
6. Other macular disease (includes hole or scar)	118	0.6	148	0.7	188	0.8	277	1	251	0.8	308	0.9	309	0.8	375	0.9	431	1.0	515	1.0	
7. Optic nerve disease, any type	71	0.4	69	0.3	118	0.5	149	0.5	123	0.4	182	0.6	191	0.5	206	0.5	238	0.5	227	0.4	
8. Retinal detachment	218	1.2	204	0.9	294	1.2	308	1.1	432	1.4	341	1.1	295	0.8	270	0.7	487	1.1	545	1.1	
9. Cannot be assessed	1357	7.4	2092	9.7	3139	12.8	4457	15.6	5053	16.5	4914	15.1	5881	15.8	6238	15.4	5960	13.4	4962	9.8	
<u>Miscellaneous</u>																					
1. Amblyopia	71	0.4	65	0.3	62	0.3	75	0.3	99	0.3	98	0.3	97	0.3	93	0.2	106	0.2	92	0.2	
2. Significant previous eye trauma	41	0.2	39	0.2	39	0.2	51	0.2	45	0.2	49	0.2	48	0.1	61	0.2	84	0.2	73	0.1	
3. Pre-existing non glaucoma field defect	4	0	2	0	6	0	3	0	4	0	6	0.0	4	0.0	8	0.0	15	0.0	3	0.0	
4. Others	668	3.6	755	3.5	1053	4.3	1321	4.6	1505	4.9	1729	5.3	2119	5.7	2065	5.1	2444	5.5	2890	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

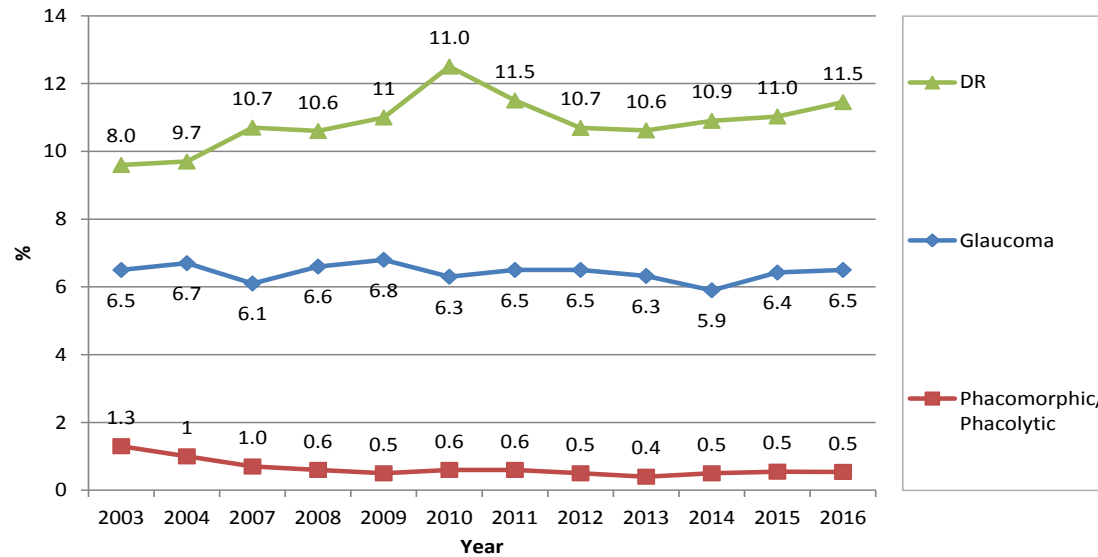


Figure 1.2.6-1: Percentage Distribution of Eyes with Diabetic Retinopathy, Glaucoma and Lens-induced Glaucoma, CSR 2003-2016

1.2.7 Pre-operative Vision

In 2016, 66% of all patients did not undergo refraction pre-operatively; however it has improved compared than previous years. The proportion of eyes operated (with unaided vision) in the category of <3/60 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 to 1/60.

Table 1.2.7-1: Distribution of Pre-Operative Vision, CSR 2007-2016

Year		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No. of patients (N)		18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Patients with unaided VA		18356	99.6	21212	98.7	23796	97.4	27977	98.1	30018	98.1	31833	98.0	35988	96.9	39019	96.3	43260	97.1	49635	98.0
Patients with Pin Hole VA		8724	47.3	10487	48.8	11595	47.4	14126	49.6	15134	49.4	16120	49.6	16737	45.1	16444	40.6	19271	43.3	37356	73.8
Patients with refracted VA		5071	27.8	5683	26.4	5150	21.1	7895	27.7	7932	25.9	7315	22.5	8418	22.7	9524	23.5	13455	30.2	17196	34.0
Patients with no refraction		13355	72.5	15813	73.6	19288	78.9	20611	72.3	22679	74.1	25158	77.5	28732	77.3	31008	76.5	31079	69.8	33429	66.0
6/12 and better	Unaided	602	3.3	646	3.0	788	3.3	1016	3.6	1133	3.8	1397	4.4	1865	5.2	1855	4.8	2115	4.9	2671	5.4
	Pin Hole	1305	15.0	1682	16.0	2037	17.6	2408	17.0	2843	18.8	3099	19.2	3756	22.4	3706	22.5	4104	21.3	6506	17.4
	Refracted	678	13.4	935	16.5	944	18.3	1474	18.7	1712	21.6	1840	25.2	2297	27.3	2280	23.9	2966	22.0	4043	23.5
<6/12 - 6/18	Unaided	1010	5.5	1172	5.5	1392	5.8	1750	6.3	2087	7.0	2311	7.3	2701	7.5	2958	7.6	3483	8.1	4271	8.6
	Pin Hole	1464	16.8	1886	18.0	2220	19.1	2688	19.0	3128	20.7	3221	20.0	3525	21.1	3506	21.3	4000	20.8	6465	17.3
	Refracted	625	12.3	851	15.0	838	16.3	1262	16.0	1481	18.7	1503	20.5	1564	18.6	1832	19.2	2483	18.5	3115	18.1
<6/18 - 6/60	Unaided	5638	30.7	6840	32.2	7869	33.1	9238	33.0	10255	34.2	11296	35.5	12787	35.5	14404	36.9	15805	36.5	18372	37.0
	Pin Hole	3135	35.9	3611	34.4	4454	38.4	5116	36.2	5636	37.2	5989	37.2	6228	37.2	6320	38.4	7056	36.6	11511	30.8
	Refracted	1497	29.5	1800	31.7	1729	33.6	2672	33.8	2731	34.4	2531	34.6	2788	33.1	3243	34.1	4531	33.7	5274	30.7
<6/60 - 3/60	Unaided	1086	5.9	1363	6.4	1588	6.7	2085	7.5	2227	7.4	2316	7.3	2686	7.5	2954	7.6	3285	7.6	3794	7.6
	Pin Hole	316	3.6	419	4.0	438	3.8	580	4.1	636	4.2	646	4.0	678	4.1	673	4.1	846	4.4	1687	4.5
	Refracted	253	5.0	241	4.2	229	4.4	390	4.9	324	4.1	228	3.1	361	4.3	383	4.0	630	4.7	747	4.3
<3/60	Unaided	9920	54.0	11180	52.7	12159	51.1	13888	49.6	14316	47.7	14513	45.6	15949	44.3	16848	43.2	18572	42.9	20527	41.4
	Pin Hole	2504	28.7	2889	27.5	2446	21.1	3334	23.6	2891	19.1	3165	19.6	2550	15.2	2239	13.6	3265	16.9	11187	29.9
	Refracted	2018	39.8	1845	32.5	1410	27.4	2097	26.6	1684	21.2	1213	16.6	1408	16.7	1786	18.8	2845	21.1	4017	23.4
Unaided VA for patient with no refraction		13355		15813		19288		20611		22679		25158		28732		31008		31079		33429	
n		13355		15813		19288		20611		22679		25158		28732		31008		31079		33429	
6/12 and better		396	3.0	414	2.6	553	2.9	651	3.2	702	3.1	887	3.5	1210	4.2	1228	4.0	1335	4.3	1519	4.5
<6/12 - 6/18		643	4.8	726	4.6	992	5.1	1062	5.2	1217	5.4	1431	5.7	1704	5.9	1893	6.1	2006	6.5	2376	7.1
<6/18 - 6/60		3794	28.4	4509	28.5	5654	29.3	5795	28.1	6624	29.2	7762	30.9	8755	30.5	9875	31.8	9619	31.0	10817	32.4
<6/60 - 3/60		696	5.2	920	5.8	1182	6.1	1382	6.7	1509	6.7	1755	7.0	1943	6.8	2056	6.6	2125	6.8	2372	7.1
<3/60		7666	57.4	9009	57.0	10412	54.0	11302	54.8	12134	53.5	12777	50.8	14091	49.0	14525	46.8	14846	47.8	15487	46.3

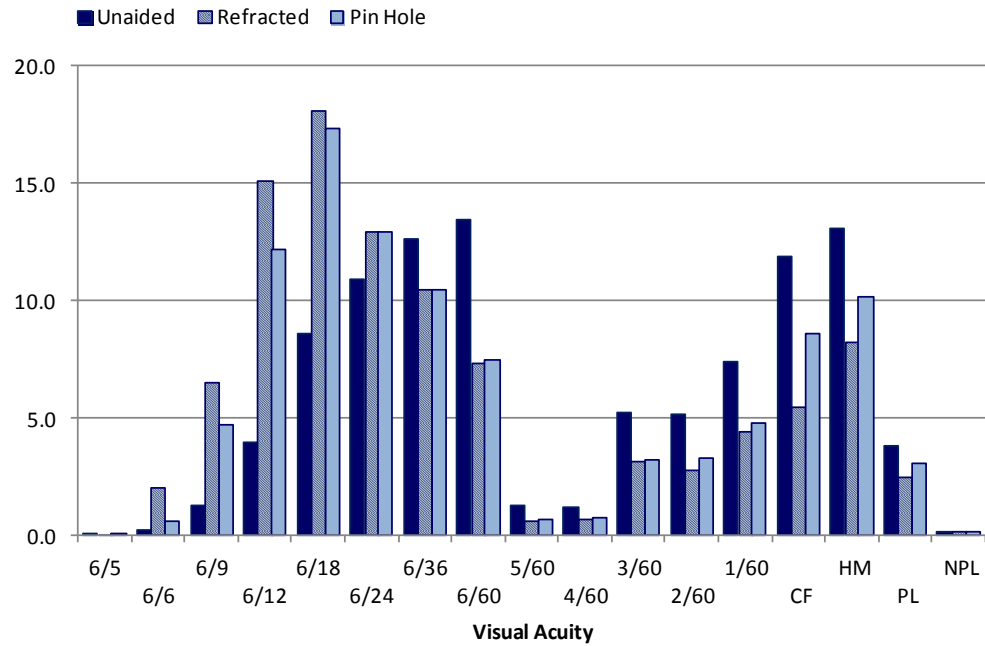


Figure 1.2.7-1: Distribution of Pre-operative Vision (Unaided and Refracted) CSR 2016

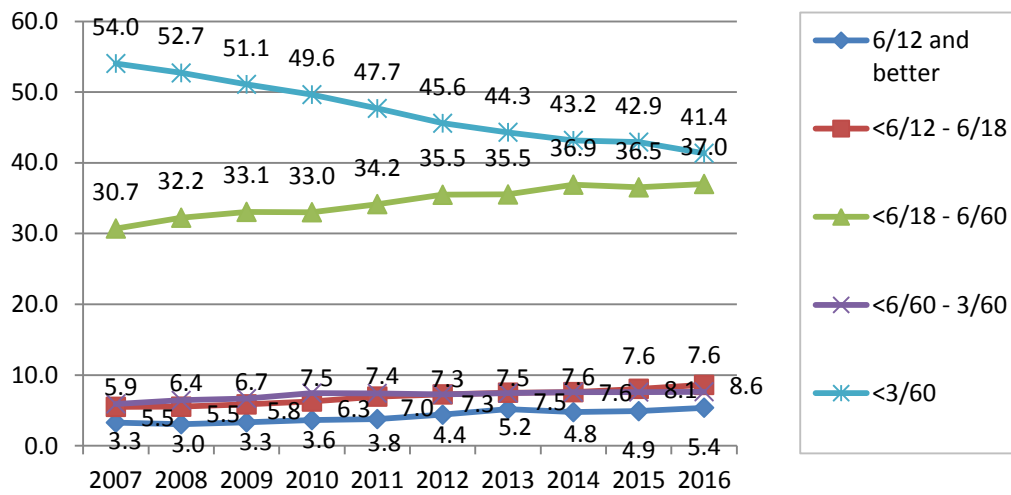


Figure 1.2.7-2: Distribution of Pre-operative Vision (Unaided), CSR 2007-2016

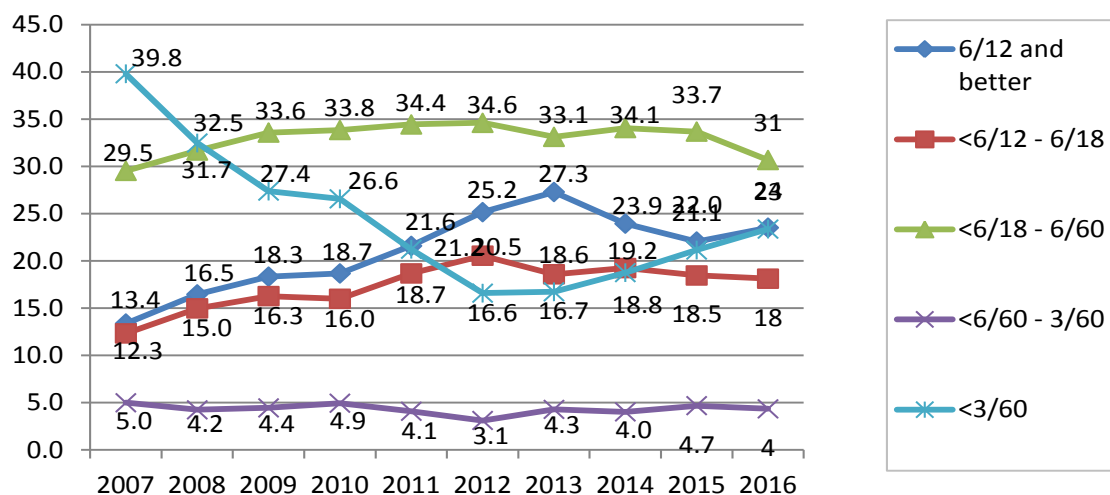


Figure 1.2.7-3: Distribution of Pre-operative Vision (Refracted), CSR 2007-2016

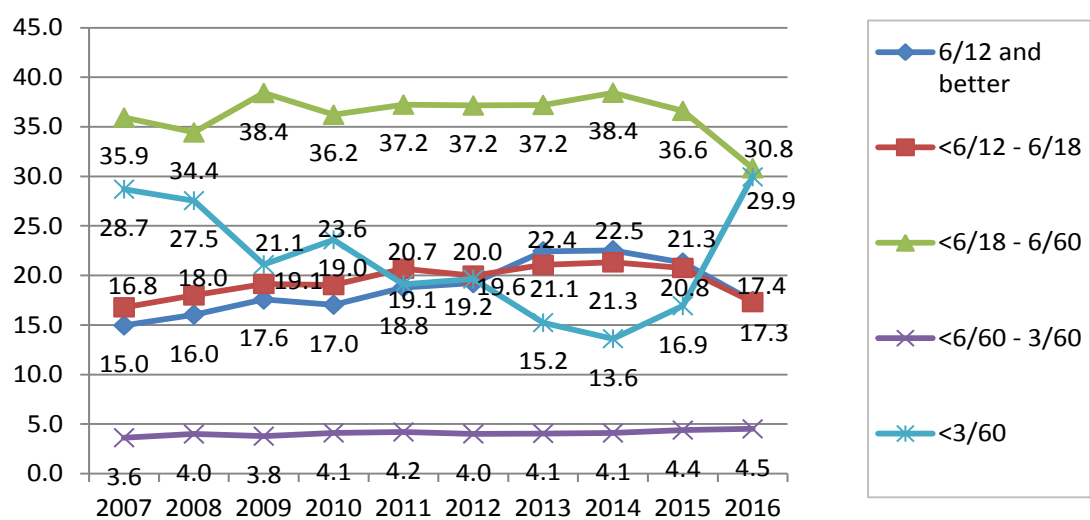


Figure 1.2.7-4: Distribution of Pre-operative Vision (Pin Hole), CSR 2007-2016

1.2.8 Target Refractive Power

The mean target refractive power in 2016 was -0.4D (SD 0.3), with minimum at -10.0D and maximum at +6.2D. The percentage of eyes aimed to have target refraction within (-0.5 to 0 D) increased to 75.1% in 2016. Overall data demonstrated that most surgeons participated in CSR aimed to give patient either emmetropic or slightly myopic refraction post- operatively.

Table 1.2.8-1: Distribution of Target Refractive Power, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Operated eye (N)	11876	15083	20279	24524	25885	26059	28685	32256	36703	43840
Mean	-0.5	-0.1	-0.4	-0.4	-0.4	-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	0.3	0.3	0.3
Median	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Minimum	-9	-9.9	-9.9	-9.1	-9.1	-8	-8.5	-8.1	-9.9	-10.0
Maximum	5	9.5	5.9	6	4.8	9	9	6.0	6.1	6.2

Table 1.2.8-2: Distribution of Target Refractive Power (excluding age 0-5 years), CSR 2009-2016

Year	2009	2010	2011	2012	2013	2014	2015	2016
Operated eye (N)	20236	24490	25848	26017	28678	32236	36663	43798
Mean	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
SD	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3
Median	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Minimum	-9.9	-9.1	-9.1	-8	-8.5	-8.1	-9.9	-10.0
Maximum	4.9	6	4.8	9	9	2.8	6.1	2.3

Table 1.2.8-3: Distribution of Target Refractive Power, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
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		Operated eye N=32256		Operated eye N=36703		Operated eye N=43840	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10-<(-9.5)	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0.0
-9.5-<(-9)	2	0	1	0	1	0	2	0	1	0	0	0	0	0	0	0	1	0	2	0.0
-9-<(-8.5)	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0.0
-8.5-<(-8)	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0.0	1	0.0
-8-<(-7.5)	2	0	3	0	1	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0
-7.5-<(-7)	1	0	0	0	1	0	1	0	0	0	2	0	0	0	0	0	1	0	0	0
-7-<(-6.5)	3	0	1	0	0	0	1	0	1	0	1	0	1	0	1	0	0	0	1	0.0
-6.5-<(-5)	1	0	2	0	7	0	4	0	10	0	10	0	9	0	10	0	4	0	7	0.0
-5-<(-4.5)	3	0	4	0	7	0	3	0	3	0	5	0	5	0	1	0	4	0	4	0.0
-4.5-<(-4)	1	0	3	0	5	0	10	0	3	0	5	0	3	0	4	0	3	0	6	0.0
-4-<(-3.5)	7	0.1	8	0.1	11	0.1	5	0	11	0	5	0	1	0	5	0	5	0	3	0.0
-3.5-<(-3)	6	0.1	7	0	11	0.1	15	0.1	12	0.1	6	0	8	0	5	0	10	0	5	0.0
-3-<(-2.5)	12	0.1	22	0.1	18	0.1	29	0.1	15	0.1	15	0.1	15	0.1	9	0.0	13	0.0	20	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	27	0.1	31	0.1	33	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	52	0.2	61	0.2	65	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	209	0.7	236	0.6	237	0.5
-1-<(-0.5)	4299	36.2	6151	40.8	7972	39.3	7590	31	7507	29	7190	27.6	6241	21.8	6840	21.2	8908	24.3	12314	28.1
-0.5-<0	6077	51.2	7480	49.6	10604	52.3	15218	62.1	16913	65.3	17421	66.9	21135	73.7	24210	75.1	26887	73.3	30789	70.2
0-<0.5	821	6.9	731	4.8	977	4.8	920	3.8	849	3.3	629	2.4	697	2.4	790	2.5	461	1.3	293	0.7
0.5-<1	91	0.8	158	1	182	0.9	237	1	234	0.9	216	0.8	187	0.7	73	0.2	35	0.1	28	0.1
1-<1.5	8	0.1	31	0.2	17	0.1	23	0.1	20	0.1	32	0.1	8	0	4	0	13	0	14	0
1.5-<2	5	0	14	0.1	22	0.1	19	0.1	9	0	52	0.2	28	0.1	5	0.0	8	0.0	3	0.0
2-<2.5	13	0.1	10	0.1	85	0.4	69	0.3	12	0.1	123	0.5	69	0.2	5	0.0	3	0.0	3	0.0
2.5-<3	1	0	6	0	4	0	3	0	2	0	10	0	11	0	2	0	2	0	0	0
3-<3.5	1	0	2	0	2	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0

3.5-<4	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0.0	3	0.0
4-<4.5	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0.0	2	0.0
4.5-<5	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0.0
5-<5.5	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0.0	0	0.0
5.5-<6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
6-<6.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0.0	1	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
7-<7.5	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
8-<8.5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8.5-<9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9-<9.5	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
9.5-10	0	0	1	0	0	0	0	0	0	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 1.2.8-4: Distribution of Target Refractive Power (excluding age 0-5 years), CSR 2007-2016

Year	2009		2010		2011		2012		2013		2014		2015		2016	
Target refractive power (Dioptres)	Operated eye N=20236		Operated eye N=24490		Operated eye N=25848		Operated eye N=26017		Operated eye N=28678		Operated eye N=32236		Operated eye N=36663		Operated eye N=43798	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10-<(-9.5)	2	0.0	0	0	0	0	0	0	0	0	0	0	1	0	2	0
-9.5-<(-9)	1	0.0	2	0	1	0	0	0	0	0	0	0	1	0	2	0
-9-<(-8.5)	0	0.0	0	0	0	0	0	0	1	0	0	0	1	0	2	0
-8.5-<(-8)	0	0.0	0	0	0	0	0	0	1	0	1	0	2	0	1	0
-8-<(-7.5)	1	0.0	1	0	0	0.0	1	0.0	0	0	1	0	1	0	0	0
-7.5-<(-7)	1	0.0	1	0	0	0.0	2	0.0	0	0	0	0	1	0	0	0
-7-<(-6.5)	0	0.0	1	0.0	1	0.0	1	0.0	1	0	1	0	0	0	1	0
-6.5-<(-5)	6	0.0	4	0.0	10	0.0	10	0.0	9	0	10	0	4	0	7	0
-5-<(-4.5)	7	0.0	3	0.0	3	0.0	5	0.0	5	0	1	0	4	0	4	0

-4.5-(-4)	5	0.0	10	0.0	3	0.0	5	0.0	3	0	4	0	3	0	5	0
-4-(-3.5)	9	0.0	5	0.0	11	0.0	5	0.0	1	0	5	0	5	0	2	0
-3.5-(-3)	10	0.1	15	0.1	12	0.1	6	0.0	8	0	5	0	10	0	5	0
-3-(-2.5)	18	0.1	29	0.1	15	0.1	15	0.1	15	0.1	9	0.0	13	0.0	19	0.0
-2.5-(-2)	29	0.1	33	0.1	26	0.1	37	0.1	33	0.1	27	0.1	31	0.1	33	0.1
-2-(-1.5)	58	0.3	46	0.2	53	0.2	67	0.3	55	0.2	52	0.2	59	0.2	65	0.2
-1.5-(-1)	259	1.3	291	1.2	199	0.8	226	0.9	174	0.6	209	0.7	236	0.6	236	0.5
-1-(-0.5)	7968	39.4	7587	31.0	7503	29.0	7186	27.6	6240	21.8	6839	21.2	8905	24.3	12310	28.1
-0.5-<0	10587	52.3	15210	62.1	16903	65.4	17406	66.9	21132	73.7	24202	75.1	26878	73.3	30781	70.3
0-<0.5	970	4.8	910	3.7	836	3.2	623	2.4	696	2.4	788	2.4	457	1.3	286	0.7
0.5-<1	177	0.9	235	1.0	232	0.9	215	0.8	187	0.7	69	0.2	34	0.1	27	0.1
1-<1.5	17	0.1	19	0.1	16	0.1	25	0.1	8	0	4	0	9	0	7	0
1.5-<2	20	0.1	16	0.1	8	0.0	49	0.2	28	0.1	3	0.0	3	0.0	1	0.0
2-<2.5	85	0.4	68	0.3	12	0.1	121	0.5	69	0.2	5	0.0	2	0.0	2	0.0
2.5-<3	4	0.0	3	0.0	2	0.0	8	0.0	11	0	1	0	1	0	0	0
3-<3.5	1	0.0	0	0.0	1	0.0	1	0.0	0	0	0	0	0	0	0	0
3.5-<4	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0	0	1	0	0	0
4-<4.5	0	0.0	0	0.0	0	0.0	1	0.0	0	0	0	0	0	0	0	0
4.5-<5	1	0.0	1	0.0	1	0.0	0	0.0	0	0	0	0	0	0	0	0
5-<5.5	0	0.0	1	0.0	0	0.0	0	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	0	0	0	0	0	0
6-<6.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0	0	0	1	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
7-<7.5	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
8-<8.5	0	0.0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8.5-<9	0	0.0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
9-<9.5	0	0.0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
9.5-10	0	0.0	0	0	0	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.

1.3 Cataract Surgical Practice

1.3.1 Number of Cataract Surgery by SDP

The number of SDPs performing between >1000 cataract surgeries per year appeared to be increasing.

Table 1.3.1-1: Range of Cataract Surgery Registered by SDP per year, Census versus CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No. of SDP	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR	Census	CSR
<100	1	1	1	1	1	1	1	1	1	1	1	1	4	4	2	2	7	8	8	8
100-500	15	10	10	15	12	15	10	13	9	9	8	8	7	9	8	11	8	9	11	11
501-1000	8	14	14	11	14	12	14	12	16	16	15	16	14	13	15	14	16	16	12	13
>1000	9	11	11	9	9	8	11	10	10	10	12	11	16	15	18	16	19	17	23	22

Table 1.3.1-2: Number of Cataract Surgery by Month, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No. of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
Month	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
January	1579	8.6	1862	8.7	1668	6.8	2347	8.2	2241	7.3	2460	7.6	2844	7.7	3161	7.8	3528	7.9	3972	7.9
February	1290	7.0	1653	7.7	1884	7.7	1985	7.0	1815	5.9	2762	8.5	2448	6.6	3258	8.0	2797	6.3	3732	7.4
March	1782	9.7	1812	8.4	2122	8.7	2850	10.0	2676	8.7	3055	9.4	2997	8.1	3924	9.7	4057	9.1	4750	9.4
April	1625	8.8	2321	10.8	2295	9.4	2714	9.5	2634	8.6	2612	8.0	3378	9.1	3855	9.5	4186	9.4	4495	8.9
May	1618	8.8	1871	8.7	2036	8.3	2559	9.0	2576	8.4	3004	9.3	3233	8.7	3153	7.8	3561	8.0	4390	8.7
June	1476	8.0	1950	9.1	2086	8.5	2591	9.1	2686	8.8	2652	8.2	3119	8.4	3501	8.6	3863	8.7	4286	8.5
July	1808	9.8	2049	9.5	2322	9.5	2670	9.4	2845	9.3	3121	9.6	3557	9.6	3122	7.7	3080	6.9	3221	6.4
August	1814	9.8	1791	8.3	1975	8.1	2401	8.4	2570	8.4	2237	6.9	2591	7.0	3403	8.4	3803	8.5	4939	9.8
September	1486	8.1	1462	6.8	1572	6.4	1659	5.8	2468	8.1	2454	7.6	3372	9.1	3433	8.5	3702	8.3	3913	7.7
October	1376	7.5	1552	7.2	2266	9.3	2447	8.6	2794	9.1	3064	9.4	3421	9.2	3163	7.8	4131	9.3	4471	8.8

November	1443	7.8	1646	7.7	2006	8.2	2102	7.4	2632	8.6	2625	8.1	3162	8.5	3477	8.6	4107	9.2	5009	9.9
December	1129	6.1	1527	7.1	2206	9.0	2181	7.6	2674	8.7	2427	7.5	3028	8.2	3082	7.6	3719	8.4	3447	6.8

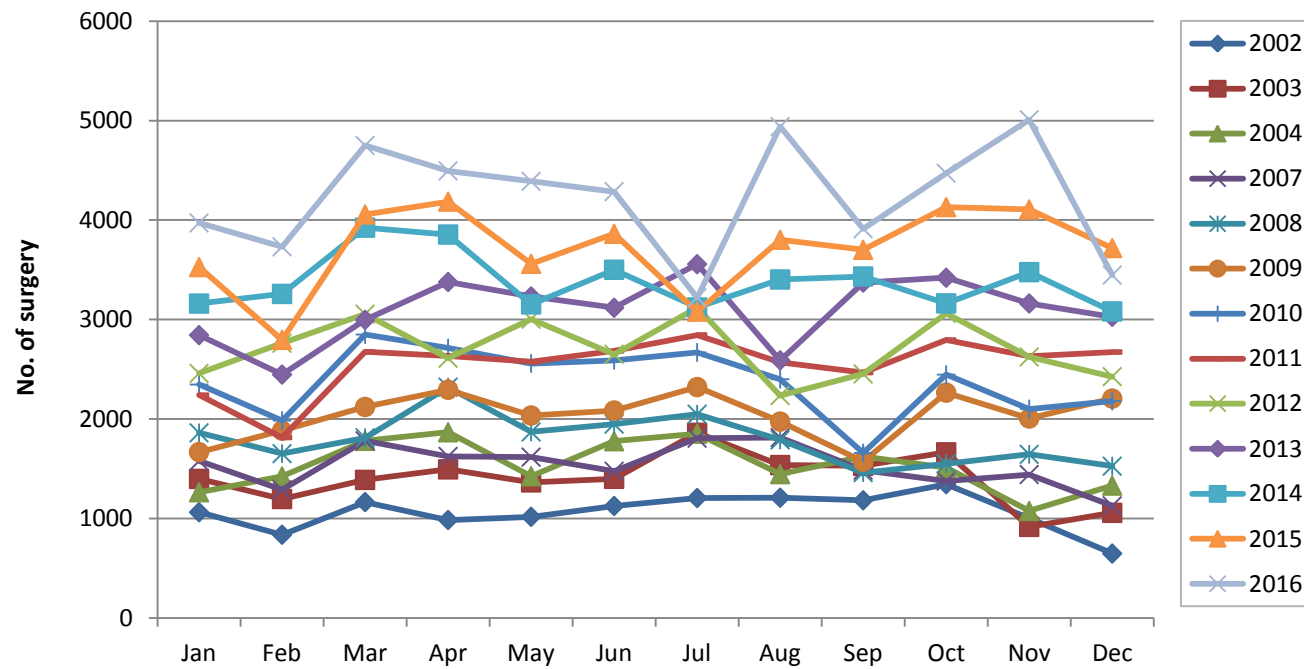


Figure 1.3.1-1: Number of Cataract Surgeries by Month, CSR 2002-2016

1.3.2 Number of Cataract Surgery Registered to CSR by State

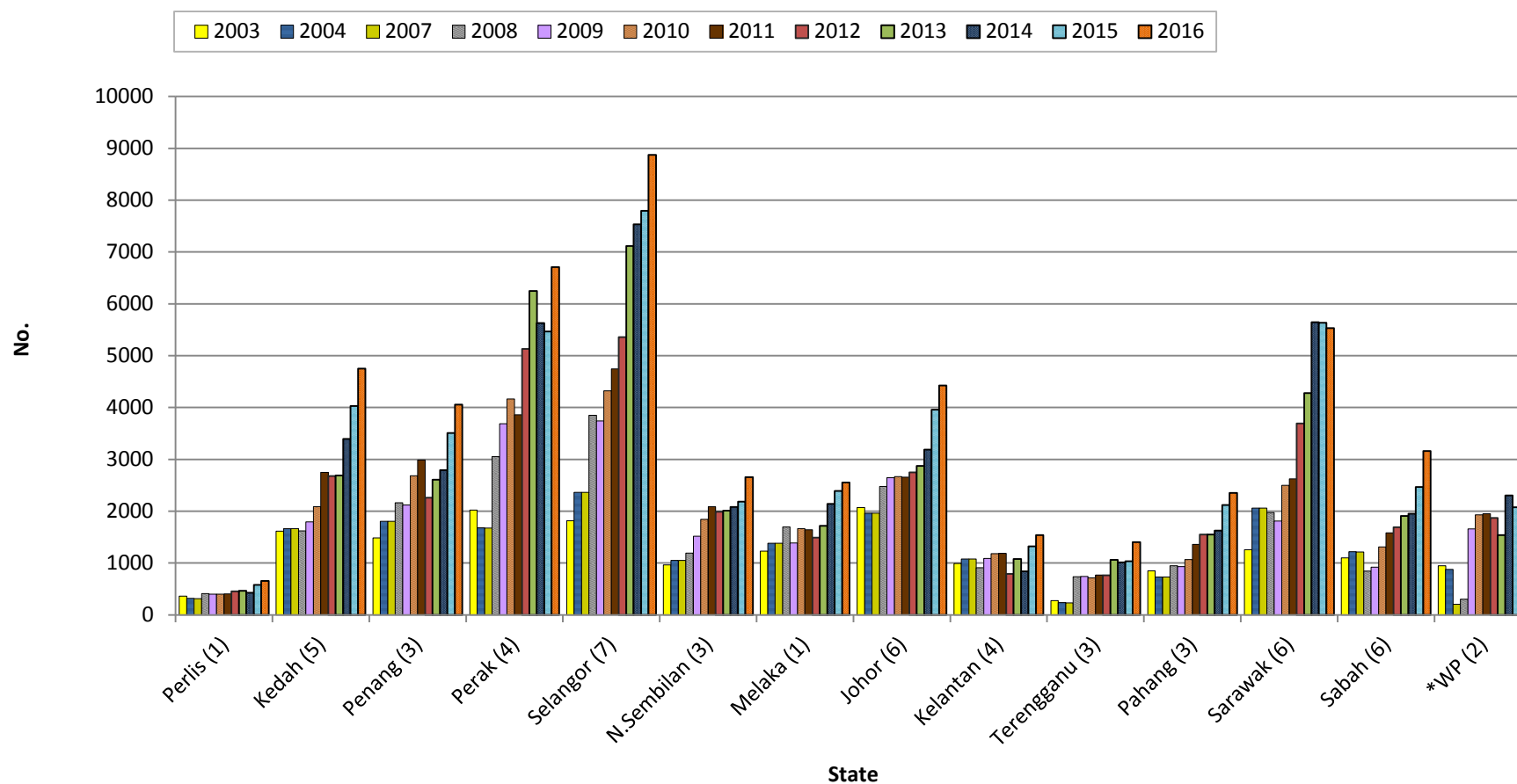


Figure 1.3.2-1: Number of Cataract Surgeries by State, CSR 2003-2016

*Wilayah Persekutuan in 2007 and 2008 for Putrajaya Hospital only

1.3.3 Surgeon Status

Specialists performed the highest number of cataract surgery followed by the medical officers (MO) and the gazetted 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 1.3.3-1: Surgeon Status, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No. of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Specialist	14327	77.8	16846	78.4	19400	79.4	24216	84.9	25590	83.6	27684	85.3	32861	88.5	36197	89.3	39624	89.0	44995	88.9
Gazetting Specialist	1276	6.9	1399	6.5	2053	8.4	1405	4.9	2487	8.1	2411	7.4	2014	5.4	2034	5.0	2251	5.1	2282	4.5
Medical Officer	2690	14.6	2697	12.5	2750	11.3	2871	10.1	2478	8.1	2354	7.3	2244	6.0	2249	5.6	2558	5.7	3090	6.1
Missing/NA	133	1.0	554	2.6	235	1.0	14	0.1	56	0.2	24	0.1	31	0.1	52	0.1	101	0.2	258	0.5

Table 1.3.3-2: Surgeon Status for Phaco, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No. of patients (N)	11960		14781		17717		21810		23872		26345		31625		35429		39131		45346	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Specialist	10294	86.1	12458	84.3	15206	85.8	19797	90.8	20963	87.8	23291	88.4	28774	91.0	32417	91.5	35766	91.4	41212	90.9
Gazetting Specialist	805	6.7	882	6.0	1422	8.0	929	4.3	1845	7.7	1850	7.0	1694	5.4	1776	5.0	1899	4.9	2021	4.5
Medical Officer	780	8.5	1064	7.2	923	5.2	1078	4.9	1050	4.4	1182	4.5	1132	3.6	1189	3.4	1372	3.5	1862	4.1
Missing/NA	81	0.7	377	2.6	166	0.9	6	0.0	14	0.1	22	0.1	25	0.1	47	0.1	94	0.2	251	0.6

Table 1.3.3-3: Surgeon Status for ECCE, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No. of patients (N)	5524		5627		5457		5363		5291		4784		4086		3613		3677		3439	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Specialist	3240	58.7	3528	62.7	3133	57.4	3237	60.4	3406	64.4	3231	67.5	2794	68.4	2434	67.4	2333	63.5	2113	61.4

Gazetting Specialist	391	7.1	403	7.2	516	9.5	405	7.6	513	9.7	435	9.1	218	5.3	170	4.7	226	6.2	164	4.8
Medical Officer	1848	33.5	1555	27.6	1754	32.1	1718	32.0	1369	25.9	1116	23.3	1072	26.2	1007	27.9	1116	30.4	1162	33.8
Missing/NA	45	0.8	141	2.5	54	1.0	3	0.0	3	0.1	2	0.0	2	0.1	2	0.1	2	0.1	0	0.0

Table 1.3.3-4: Specialist by SDP, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	14327	77.8	16846	78.4	19400	79.4	24216	85.0	25590	83.6	27684	85.3	32861	88.5	36197	89.3	39624	89.0	44995	88.9
Alor Setar	334	81.3	765	77.6	846	76.2	1376	90.1	1742	89.8	1595	86.9	1429	81.3	1839	87.3	2153	92.2	2400	91.7
Ampang	4	100.0	200	96.2	421	97.2	491	78.3	620	87.6	809	90.3	813	82.7	722	76.3	633	71.9	526	70.1
Batu Pahat	511	91.9	500	87.3	336	55.8	290	70.6	410	74.0	262	43.1	405	93.5	467	100.0	561	100.0	666	100.0
Bintulu	-	-	25	83.3	101	81.5	219	84.9	330	99.4	389	99.5	375	97.9	374	100.0	350	100.0	197	100.0
Bukit Mertajam	620	91.0	434	89.1	715	96.2	782	97.3	744	92.7	879	94.7	853	93.8	967	96.9	1178	93.1	1345	97.5
Ipoh	1068	68.2	1392	80.8	1460	68.3	1859	84.5	1479	81.0	2459	83.9	2741	90.4	2614	94.7	1978	77.7	2727	87.3
Kangar	317	97.8	390	97.5	395	99.0	395	98.8	402	99.8	445	98.0	386	82.8	365	85.7	458	79.5	567	87.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	47	100.0	72	100.0	3	100.0	17	60.7
Keningau	-	-	34	100.0	31	100.0	16	21.1	32	61.5	5	29.4	6	40.0	22	16.5	0	0.0	14	3.8
Klang	841	80.8	841	69.1	690	76.3	833	82.7	966	91.0	1317	93.3	1523	94.5	1363	93.3	1946	98.4	2164	97.2
Kota Bharu	680	83.5	583	78.9	804	88.3	858	89.4	862	91.1	485	89.0	625	91.6	279	97.9	831	90.2	1021	91.7
Kuala Krai	99	79.2	168	98.8	169	96.6	211	97.2	230	95.8	226	91.5	397	100.0	354	97.0	351	90.2	316	91.9
Kuala Lumpur	-	-	28	70.0	871	62.0	1359	82.5	1265	78.0	1387	91.5	1090	94.8	1750	90.6	1512	94.0	1403	90.2
Kuala Pilah	180	84.1	225	79.8	257	88.6	310	96.3	465	96.3	424	98.8	425	86.4	461	93.5	377	83.4	516	86.0
Kuala Terengganu	371	70.4	611	84.2	665	89.5	612	85.7	629	81.7	700	91.5	890	87.8	712	79.1	779	78.9	1046	79.2
Kuantan	21	87.5	306	77.5	235	80.2	553	89.9	614	90.3	607	88.7	490	79.2	497	86.3	707	65.5	1004	82.0
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265	100.0	395	94.5	528	92.8
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	95.0	80	89.9
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	100.0	23	100.0
Melaka	1112	72.8	1119	66.6	1098	79.2	1342	80.9	1367	83.3	1392	93.5	1550	90.2	1968	92.0	2133	89.3	2247	88.2
Miri	12	75.0	356	89.9	404	100.0	576	99.8	501	76.3	513	56.9	904	98.8	888	93.6	583	64.6	742	71.0

Muar	332	94.3	237	70.1	388	71.6	606	98.2	405	58.5	493	74.1	699	97.5	445	61.0	922	99.4	1085	100.0
Pulau Pinang	754	68.2	1142	84.2	1024	74.5	1516	80.8	1816	83.1	1079	81.1	1320	77.8	1639	91.5	2076	92.7	2343	90.4
Putrajaya	196	96.6	254	99.2	251	100.0	282	100.0	329	100.0	349	98.3	386	98.7	360	98.1	452	97.6	416	97.0
Queen Elizabeth KK	423	79.4	265	75.5	344	79.4	552	88.5	540	78.7	551	72.2	658	67.3	737	70.9	900	79.4	1022	73.2
Sandakan	-	-	100	73.0	72	45.6	123	59.1	98	36.2	128	48.3	404	98.3	235	99.2	411	82.4	364	87.9
Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	285	99.7	554	99.8	643	99.4	689	99.3
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	100.0
Selayang	1221	86.2	1190	83.3	1164	82.1	1414	83.2	1523	81.9	1465	80.1	1088	81.4	730	81.2	1119	82.7	1098	85.3
Serdang	532	87.9	620	89.1	567	94.8	506	97.3	610	91.6	677	95.5	957	93.5	1233	97.5	981	99.9	530	98.9
Seremban	547	57.2	249	27.7	812	66.1	1147	75.5	1262	78.6	1109	71.1	1167	76.8	1078	68.0	1213	70.3	1435	78.3
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	353	100.0
Sibu	337	88.0	254	96.6	130	33.6	345	75.8	230	45.5	675	90.6	759	84.3	859	99.2	521	89.7	763	95.9
Sri Manjung	121	79.6	285	81.4	318	97.2	375	96.9	417	99.3	464	99.6	820	98.6	623	99.7	666	100.0	490	71.6
Sultan Ismail	101	94.4	180	100.0	183	98.9	203	78.7	283	100.0	279	100.0	353	94.4	609	100.0	827	100.0	885	100.0
Sultanah Aminah JB	1031	66.8	825	60.0	1079	81.9	1097	79.7	770	68.3	1079	90.3	1177	87.2	1362	98.6	1607	97.8	1253	79.6
Sungai Buloh	144	98.6	273	85.6	361	93.3	467	99.8	450	100.0	514	100.0	579	99.8	686	99.0	770	99.5	817	99.9
Sungei Petani	488	98.2	626	98.9	683	99.9	546	97.8	731	90.1	740	87.6	859	92.4	932	91.2	896	89.1	1104	97.0
Taiping	279	100.0	378	99.7	610	99.7	683	76.8	853	89.5	899	80.4	1195	93.1	1231	99.8	1317	99.8	1575	100.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	100.0	17	94.4
Tawau	184	91.5	312	98.4	296	99.3	399	99.5	574	99.8	648	100.0	503	100.0	540	100.0	603	99.3	634	93.1
Teluk Intan	504	75.1	511	86.9	539	88.1	642	93.0	397	59.9	439	71.3	677	61.4	684	67.5	731	78.4	1256	94.6
Temerloh	244	55.0	405	76.3	382	59.7	290	64.4	651	95.6	827	95.3	837	96.7	954	91.1	845	99.3	923	91.5
Umum Sarawak	719	71.8	763	75.5	698	78.2	941	78.0	993	87.8	1375	83.0	1490	86.6	1514	73.2	1731	85.7	1631	86.8
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	100.0
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	209	100.0	339	100.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	99.5	2	100.0	62	100.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	100.0	191	86.8
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	59	92.2	-	-	186	99.5	114	95.8
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79	94.0
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	95.4	270	98.2
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	76	100.0	798	96.0	1111	98.2	908	99.0

KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	33	86.8	33	82.5	50	100.0	
MAIWP	-	-	-	-	-	-	-	-	-	1564	98.8	2197	97.0	1714	94.0	2536	87.4

Table 1.3.3-5: GazettingSpecialist by SDP, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	1276	6.9	1399	6.5	2053	8.4	1405	4.9	2487	8.1	2411	7.4	2,014	5.4	2,034	5.0	2,251	5.1	2,282	4.5
Alor Setar	0	0.0	74	7.5	30	2.7	7	0.5	3	0.2	131	7.1	165	9.4	96	4.6	1	0.0	4	0.2
Ampang	0	0.0	0	0.0	0	0.0	4	0.6	6	0.8	18	2.0	7	0.7	0	0.0	59	6.7	60	8.0
Batu Pahat	0	0.0	60	10.5	197	32.7	75	18.2	135	24.4	329	54.1	26	6.0	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	8	2.1	0	0.0	0	0.0	0	0.0
Bukit Mertajam	0	0.0	0	0.0	2	0.3	0	0.0	40	5.0	33	3.6	13	1.4	0	0.0	55	4.3	0	0.0
Ipoh	10	0.6	0	0.0	118	5.5	0	0.0	63	3.5	230	7.8	156	5.1	43	1.6	322	12.6	180	5.8
Kangar	0	0.0	0	0.0	1	0.3	0	0.0	1	0.2	0	0.0	66	14.2	14	3.3	0	0.0	0	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	11	39.3
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	0.0
Klang	104	10.0	194	15.9	142	15.7	109	10.8	92	8.7	94	6.7	68	4.2	79	5.4	1	0.1	15	0.7
Kota Bharu	41	5.0	42	5.7	2	0.2	2	0.2	4	0.4	6	1.1	5	0.7	0	0.0	6	0.7	4	0.4
Kuala Krai	0	0.0	0	0.0	0	0.0	0	0.0	10	4.2	21	8.5	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	-	-	8	20.0	368	26.2	15	0.9	86	5.3	20	1.3	15	1.3	62	3.2	31	1.9	33	2.1
Kuala Pilah	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53	10.8	30	6.1	71	15.7	66	11.0
Kuala Terengganu	97	18.4	35	4.8	9	1.2	28	3.9	93	12.1	8	1.0	50	4.9	133	14.8	130	13.2	172	13.0
Kuantan	0	0.0	27	6.8	17	5.8	1	0.2	1	0.1	0	0.0	38	6.1	12	2.1	206	19.1	97	7.9
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	216	14.1	267	15.9	44	3.2	66	4.0	147	9.0	14	0.9	2	0.1	4	0.2	80	3.3	193	7.6
Miri	0	0.0	4	1.0	0	0.0	0	0.0	148	22.5	383	42.5	11	1.2	58	6.1	313	34.7	261	25.0
Muar	0	0.0	93	27.5	149	27.5	6	1.0	287	41.5	172	25.9	13	1.8	282	38.7	5	0.5	0	0.0
Pulau Pinang	141	12.8	26	1.9	226	16.4	220	11.7	186	8.5	30	2.3	63	3.7	22	1.2	79	3.5	80	3.1

Putrajaya	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	0.0
Queen Elizabeth KK	0	0.0	9	2.6	44	10.2	42	6.7	92	13.4	152	19.9	173	17.7	202	19.4	169	14.9
Sandakan	-	-	1	0.7	1	0.6	0	0.0	55	20.3	17	6.4	0	0.0	0	0.0	0	0.0
Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	1	0.3	0	0.0	0	0.0
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Selayang	47	3.3	34	2.4	118	8.3	24	1.4	3	0.2	60	3.3	40	3.0	24	2.7	93	6.9
Serdang	35	5.8	58	8.3	29	4.8	6	1.2	33	5.0	16	2.3	31	3.0	3	0.2	1	0.1
Seremban	43	4.5	28	3.1	18	1.5	46	3.0	6	0.4	4	0.3	32	2.1	74	4.7	120	7.0
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Sibu	1	0.3	0	0.0	194	50.1	92	20.2	254	50.3	68	9.1	138	15.3	0	0.0	0	0.0
Sri Manjung	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4	7	0.8	0	0.0	0	0.0
Sultan Ismail	0	0.0	0	0.0	2	1.1	55	21.3	0	0.0	0	0.0	21	5.6	0	0.0	0	0.0
Sultanah Aminah JB	273	17.7	232	16.9	136	10.3	202	14.7	320	28.4	82	6.9	158	11.7	8	0.6	6	0.4
Sungai Buloh	0	0.0	46	14.4	9	2.3	0	0.0	0	0.0	0	0.0	0	0.0	2	0.3	1	0.1
Sungei Petani	6	1.2	0	0.0	0	0.0	0	0.0	47	5.8	3	0.4	0	0.0	0	0.0	74	7.4
Taiping	0	0.0	1	0.3	2	0.3	206	23.2	100	10.5	219	19.6	89	6.9	2	0.2	3	0.2
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Tawau	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	0.0
Teluk Intan	0	0.0	0	0.0	0	0.0	4	0.6	221	33.3	133	21.6	362	32.8	282	27.8	153	16.4
Temerloh	115	25.9	64	12.1	139	21.7	99	22.0	0	0.0	25	2.9	16	1.8	82	7.8	0	0.0
Umum Sarawak	147	14.7	96	9.5	56	6.3	96	8.0	54	4.8	141	8.5	175	10.2	483	23.4	240	11.9
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	5	7.8	-	-	1	0.5
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	32	3.9	20	1.8
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	7.9	5	12.5
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	7	0.4	2	0.1	6	0.3

Table 1.3.3-6: Medical Officer by SDP, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	2690	14.6	2697	12.5	2750	11.3	2871	10.1	2478	8.1	2354	7.2	2,244	6.0	2,249	5.5	2,558	5.7	3,090	6.1
Alor Setar	76	18.5	146	14.8	234	21.1	144	9.4	194	10.0	109	5.9	164	9.3	169	8.0	182	7.8	212	8.1
Ampang	0	0.0	2	1.0	12	2.8	132	21.1	82	11.6	69	7.7	163	16.6	224	23.7	188	21.4	164	21.9
Batu Pahat	45	8.1	13	2.3	69	11.5	46	11.2	9	1.6	17	2.8	2	0.5	0	0.0	0	0.0	0	0.0
Bintulu	-	-	5	16.7	23	18.5	39	15.1	2	0.6	2	0.5	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	59	8.7	53	10.9	26	3.5	22	2.7	19	2.4	16	1.7	43	4.7	31	3.1	32	2.5	34	2.5
Ipoh	441	28.2	291	16.9	335	15.7	330	15.0	230	12.6	220	7.5	114	3.8	102	3.7	247	9.7	216	6.9
Kangar	5	1.5	6	1.5	3	0.8	5	1.3	0	0.0	9	2.0	14	3.0	47	11.0	118	20.5	85	13.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	-	-	0	0.0	0	0.0	60	78.9	20	38.5	12	70.6	9	60.0	111	83.5	82	100.0	356	96.2
Klang	89	8.5	179	14.7	70	7.7	63	6.3	1	0.1	0	0.0	20	1.2	19	1.3	31	1.6	48	2.2
Kota Bharu	91	11.2	114	15.4	105	11.5	100	10.4	80	8.5	54	9.9	52	7.6	6	2.1	84	9.1	88	7.9
Kuala Krai	26	20.8	2	1.2	6	3.4	6	2.8	0	0.0	0	0.0	0	0.0	11	3.0	38	9.8	28	8.1
Kuala Lumpur	-	-	3	7.5	166	11.8	274	16.6	271	16.7	108	7.1	44	3.8	120	6.2	64	4.0	120	7.7
Kuala Pilah	31	14.5	57	20.2	33	11.4	12	3.7	18	3.7	5	1.2	14	2.8	2	0.4	4	0.9	18	3.0
Kuala Terengganu	59	11.2	78	10.7	69	9.3	74	10.4	48	6.2	57	7.5	74	7.3	55	6.1	78	7.9	103	7.8
Kuantan	3	12.5	62	15.7	41	14.0	61	9.9	65	9.6	77	11.3	90	14.5	67	11.6	166	15.4	124	10.1
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	22	5.3	41	7.2
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5.0	9	10.1
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	198	13.0	285	17.0	244	17.6	250	15.1	128	7.8	82	5.5	167	9.7	166	7.8	176	7.4	109	4.3
Miri	4	25.0	36	9.1	0	0.0	1	0.2	8	1.2	5	0.6	0	0.0	3	0.3	7	0.8	42	4.0
Muar	17	4.8	8	2.4	5	0.9	5	0.8	0	0.0	0	0.0	5	0.7	2	0.3	1	0.1	0	0.0
Pulau Pinang	208	18.8	188	13.9	124	9.0	140	7.5	184	8.4	221	16.6	312	18.4	130	7.3	85	3.8	168	6.5
Putrajaya	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	1.7	5	1.3	7	1.9	11	2.4	13	3.0
Queen Elizabeth KK	104	19.5	76	21.7	45	10.4	30	4.8	54	7.9	60	7.9	147	15.0	100	9.6	64	5.6	96	6.9
Sandakan	-	-	35	25.5	85	53.8	85	40.9	118	43.5	120	45.3	7	1.7	2	0.8	88	17.6	50	12.1

Sarikei	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	0.2	4	0.6	5	0.7	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	
Selayang	139	9.8	199	13.9	136	9.6	261	15.4	333	17.9	304	16.6	209	15.6	145	16.1	141	10.4	155	12.0
Serdang	38	6.3	18	2.6	2	0.3	8	1.5	23	3.5	16	2.3	35	3.4	28	2.2	0	0.0	6	1.1
Seremban	351	36.7	163	18.2	392	31.9	326	21.5	337	21.0	446	28.6	321	21.1	433	27.3	393	22.8	349	19.1
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	
Sibu	44	11.5	9	3.4	63	16.3	18	4.0	21	4.2	2	0.3	3	0.3	7	0.8	60	10.3	33	4.1
Sri Manjung	24	15.8	64	18.3	9	2.8	12	3.1	3	0.7	0	0.0	0	0.0	0	0.0	0	0.0	3	0.4
Sultan Ismail	5	4.7	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	0.0
Sultanah Aminah JB	234	15.2	313	22.7	102	7.7	77	5.6	37	3.3	34	2.8	15	1.1	11	0.8	30	1.8	59	3.7
Sungai Buloh	0	0.0	0	0.0	17	4.4	1	0.2	0	0.0	0	0.0	1	0.2	5	0.7	2	0.3	1	0.1
Sungei Petani	2	0.4	0	0.0	1	0.1	12	2.2	33	4.1	102	12.1	71	7.6	90	8.8	36	3.6	34	3.0
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	0	0.0	0	0.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	5.6
Tawau	16	8.0	5	1.6	2	0.7	2	0.5	1	0.2	0	0.0	0	0.0	0	0.0	4	0.7	38	5.6
Teluk Intan	166	24.7	77	13.1	73	11.9	44	6.4	45	6.8	44	7.1	62	5.6	46	4.5	48	5.2	71	5.4
Temerloh	81	18.2	60	11.3	119	18.6	61	13.6	30	4.4	16	1.8	13	1.5	11	1.1	6	0.7	9	0.9
Umum Sarawak	134	13.4	150	14.8	139	15.6	170	14.1	84	7.4	141	8.5	56	3.3	71	3.4	48	2.4	95	5.1
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0	0.0	0	0.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	0.5
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	-	-	0	0.0	0	0.0
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.2
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	4.6	5	1.8
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	0.1	0	0.0	0	0.0
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5.3	2	5.0	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	12	0.8	23	1.0	7	0.4	100	3.4

1.3.4 Duration of Surgery

Table 1.3.4-1: Duration of Surgery by Types of Cataract Surgery, CSR 2007-2016

Year	2007		2008		2009*		2010*		2011*		2012*		2013*		2014*		2015*		2016*	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Median	IQR	Median	IQR	Median	IQR	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	26	20-36	25	20-36	25	20-35
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	25	20-32	25	20-31	23	19-30
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	45	35-61	50	37-65	50	36-65
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	55	43-70	58	45-74	58	45-73
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	53	42-70	58	44-74.5	55	42-70
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	35	25-50.5	39	25-60	35	25-53

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 1.3.4-2: Duration of Surgery by Surgeon Status, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Median	IQR	Median	IQR	Median	IQR	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	25	20-30	24	20-30	23	18-30
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	30	25-40	33	25-45	31	24-42
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	30	25-40	30	22-40	26	20-40
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	40	30-55	42	32-55	41	31-56
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	54	45-70	60	45-75	57	45-70
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	60	50-75	60.5	50-78	61	50-80

1.3.5 Distribution of Cataract Surgery Performed as Day Care

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 1.3.5-1: Distribution of Cataract Surgery Performed as Day Care, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of SDPs	32	36	36	36	36	36	41	43	50	54
Total number of cataract surgery registered to CSR	18426	21496	24438	28506	30611	32473	37150	40532	44534	50625
Number of surgery excluding children and combined surgery	17402	19835	22517	26514	28398	30144	32833	37999	41956	48915
Number and % of day care surgery excluding children and combined surgery	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
	7297 41.9	8449 42.6	10633 47.2	13657 51.5	14842 52.3	17827 59.1	20495 62.4	25342 66.7	28959 69.0	34843 71.2

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

Table 1.3.5-2: Distribution of Cataract Surgery Performed as Day Care (Excluding Children and Combined Surgery), CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
All Centres	7297 41.9	8449 42.6	10633 47.2	13657 51.5	14842 52.3	17827 59.1	20495 62.4	25342 66.7	28959 69.0	34843 71.2
Alor Setar	91 27.6	74 8.0	3 0.3	186 13.8	206 11.9	265 16.1	330 21.4	613 33.4	837 39.8	1062 44.2
Ampang	3 100.0	181 99.5	412 97.4	574 93.6	685 98.8	832 96.4	886 92.3	824 91.0	777 92.2	638 86.0
Batu Pahat	317 62.2	311 56.9	303 52.0	246 61.3	353 65.2	367 61.2	248 58.6	248 54.0	300 54.2	366 55.3

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Bintulu	0	0.0	2	7.7	1	0.9	9	3.8	18	6.1	206	60.4	225	71.0	204	65.2	183	68.5	102	57.0
Bukit Mertajam	82	12.4	25	5.5	650	88.8	714	90.8	719	93.5	846	94.3	840	96.2	906	95.3	1182	96.6	1336	98.2
Ipoh	672	48.2	896	58.1	1267	66.0	1487	75.4	1104	71.5	1894	78.5	2284	92.2	2058	86.6	1872	79.1	2242	75.4
Kangar	1	0.3	2	0.5	3	0.8	3	0.8	5	1.3	7	1.6	3	0.7	3	0.7	11	2.0	27	4.3
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	44	100.0	69	97.2	3	100.0	26	92.9
Keningau	0	0.0	1	3.5	3	10.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	13.8	116	31.4
Klang	11	1.1	22	1.9	65	7.5	87	9.6	159	17.9	373	28.2	631	41.1	547	40.0	764	40.9	843	38.4
Kota Bharu	8	1.1	17	2.5	124	14.8	294	33.5	220	24.9	102	20.5	70	11.4	18	6.6	477	56.9	827	79.0
Kuala Krai	0	0.0	0	0.0	0	0.0	2	1.0	75	33.3	133	61.6	295	79.1	306	89.0	374	98.2	338	98.8
Kuala Lumpur	0	0.0	35	92.1	725	53.3	684	42.4	486	30.3	351	24.8	46	4.5	426	25.3	380	27.1	355	23.6
Kuala Pilah	61	29.0	49	19.0	10	5.1	14	4.6	17	4.0	87	22.1	252	54.4	153	33.2	89	20.7	116	19.8
Kuala Terengganu	142	29.5	194	28.0	168	24.3	222	34.2	334	47.0	356	50.6	488	51.0	449	55.1	500	55.7	941	75.4
Kuantan	7	30.4	50	14.8	20	7.9	28	5.1	38	5.9	168	26.5	280	48.6	352	63.4	679	66.6	841	71.3
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	4.4	48	11.6	90	16.0
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	27.6	19	21.3
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	1420	98.2	1483	95.9	1121	89.3	1425	90.2	1530	95.7	1384	95.5	1504	91.9	1983	96.7	2233	96.8	2446	98.0
Miri	15	100.0	385	99.7	397	99.7	568	99.3	640	100.0	868	99.9	910	100.0	939	100.0	859	98.7	1012	98.4
Muar	2	0.6	0	0.0	1	0.2	0	0.0	1	0.1	22	3.3	4	0.6	8	1.1	187	20.4	515	48.0
Pulau Pinang	960	93.5	1193	91.9	1232	92.0	1682	94.8	1946	97.1	1262	96.8	1606	97.7	1599	97.7	2005	96.1	2384	96.7
Putrajaya	182	95.3	201	81.7	191	76.7	254	90.7	299	92.3	335	96.3	367	94.1	331	90.9	433	95.2	409	95.6
Queen Elizabeth KK	326	67.2	212	64.8	384	97.0	500	98.4	640	97.3	703	97.4	918	96.0	901	90.6	929	88.1	1092	81.7
Sandakan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	92	35.7	343	88.2	177	95.2	454	92.1	330	80.1
Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	274	96.1	536	96.9	623	98.7	688	99.6
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Selayang	1011	90.7	995	78.8	1026	86.8	1219	87.0	1305	91.1	1388	90.4	1088	93.5	760	94.1	855	84.5	800	80.6
Serdang	313	55.0	382	57.4	388	67.2	310	60.5	291	46.5	434	62.7	415	42.7	652	53.7	599	63.2	331	62.1
Seremban	589	70.3	399	69.3	789	85.3	1241	89.4	1433	93.7	1410	96.4	1405	96.8	1442	96.1	1591	97.1	1688	96.2
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	346	99.7
Sibu	0	0.0	1	0.4	1	0.3	2	0.4	3	0.6	394	59.7	630	76.1	790	93.9	549	95.6	755	96.1

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Sri Manjung	10	7.0	45	13.1	83	25.9	194	51.2	224	53.8	304	66.7	556	70.7	385	66.5	424	67.2	520	77.3
Sultan Ismail	1	1.0	8	4.6	1	0.5	1	0.4	2	0.7	1	0.4	0	0.0	21	3.5	261	32.2	409	46.7
Sultanah Aminah JB	48	3.2	44	3.3	42	3.5	45	3.7	14	1.4	26	2.5	75	6.0	529	40.3	1152	74.6	1265	83.9
Sungai Buloh	99	78.0	230	74.4	312	81.0	392	85.4	377	85.9	422	82.9	376	65.7	442	74.9	536	72.8	598	73.4
Sungei Petani	5	1.0	2	0.4	3	0.5	59	11.0	377	47.3	291	35.7	366	41.2	297	30.6	352	36.4	920	81.9
Taiping	54	20.5	46	12.7	95	16.4	117	13.9	130	14.3	516	48.5	621	50.1	689	57.4	750	58.0	925	60.4
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	100.0	18	100.0
Tawau	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4	1	0.2	2	0.4	33	5.3
Teluk Intan	2	0.3	66	11.5	1	0.2	1	0.1	5	0.8	3	0.5	6	0.9	4	0.4	11	1.2	80	6.0
Temerloh	1	0.2	5	1.0	2	0.3	1	0.2	151	22.3	438	52.4	456	53.3	567	54.8	512	61.0	474	47.5
Umum Sarawak	863	91.0	893	93.6	809	95.2	1096	95.0	1055	97.1	1547	97.7	1575	97.9	1838	95.5	1770	95.6	1715	95.1
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	30.1
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	170	81.3	307	90.6
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	184	99.5	2	100.0	61	100.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	100.0	139	64.1
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	2	3.2	-	-	157	86.7	109	91.6
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	100.0
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91	70.0	263	96.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	74	98.7	811	99.8	1087	96.5	914	99.9
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	15.2	25	64.1	8	16.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	2264	100.0	1824	100.0	2893	100.0

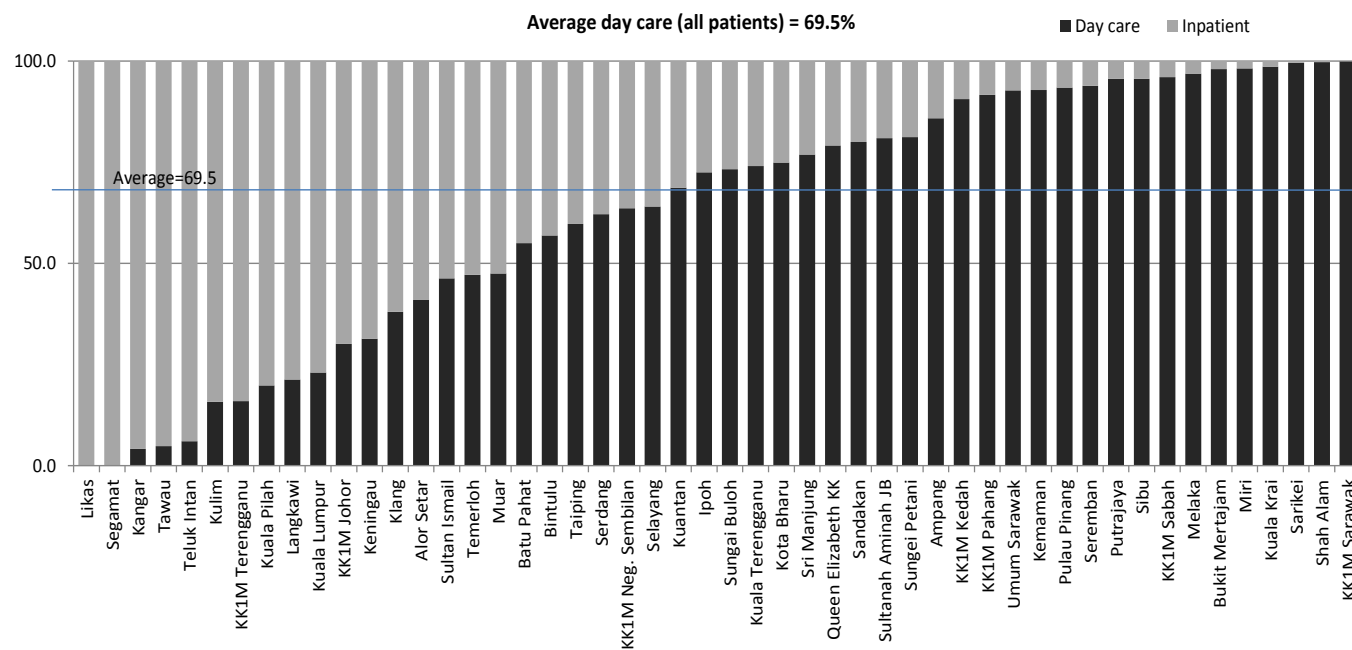


Figure 1.3.5-1: Distribution of Cataract Surgery by SDP (Day Care VS In Patient), CSR 2016

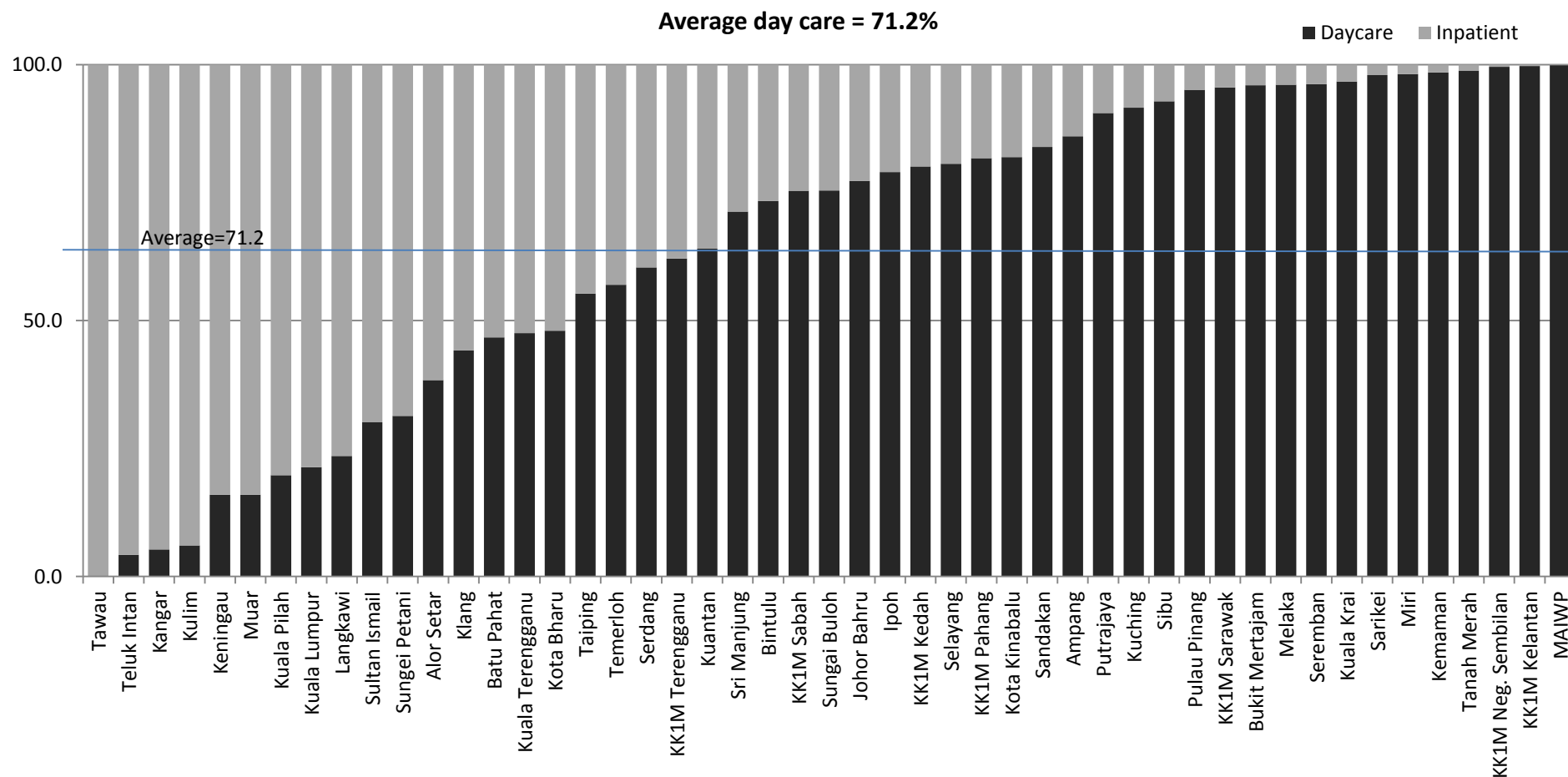


Figure 1.3.5-2: Distribution of Cataract Surgery Performed by SDP (Day Care VS In Patient, Excluding Surgery Done in Children and Combined Surgery), CSR 2016

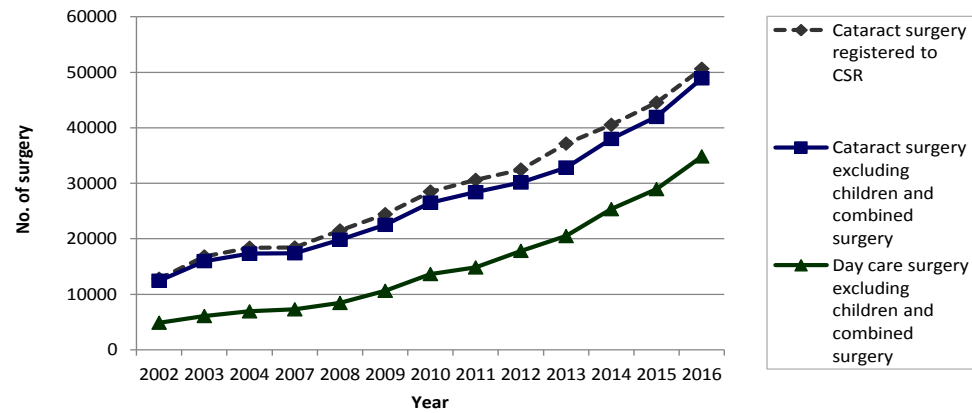


Figure 1.3.5-3: Distribution of Cataract Surgery Performed as Day Care by SDP (Excluding Surgery Done in Children and Combined Surgery), CSR 2002-2016

1.3.6 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 1.3.6-1: Distribution of Types Cataract Surgery, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Phacoemulsification	11960	65.1	14781	69.1	17717	72.5	21810	76.5	23872	78	26345	81.1	31625	85.1	35429	87.4	39131	87.9	45346	89.6
ECCE	5524	30.1	5627	26.3	5457	22.3	5363	18.8	5291	17.3	4784	14.7	4086	11.0	3613	8.9	3677	8.3	3439	6.8
Lens Aspiration	323	1.8	340	1.6	400	1.6	451	1.6	460	1.5	444	1.4	364	1.0	370	0.9	521	1.2	527	1.0
Phaco converted to ECCE	432	2.4	524	2.4	573	2.3	586	2.1	652	2.1	621	1.9	769	2.1	805	2.0	833	1.9	870	1.7
ICCE	141	0.8	129	0.6	134	0.5	143	0.5	123	0.4	136	0.4	173	0.5	176	0.4	223	0.5	275	0.5

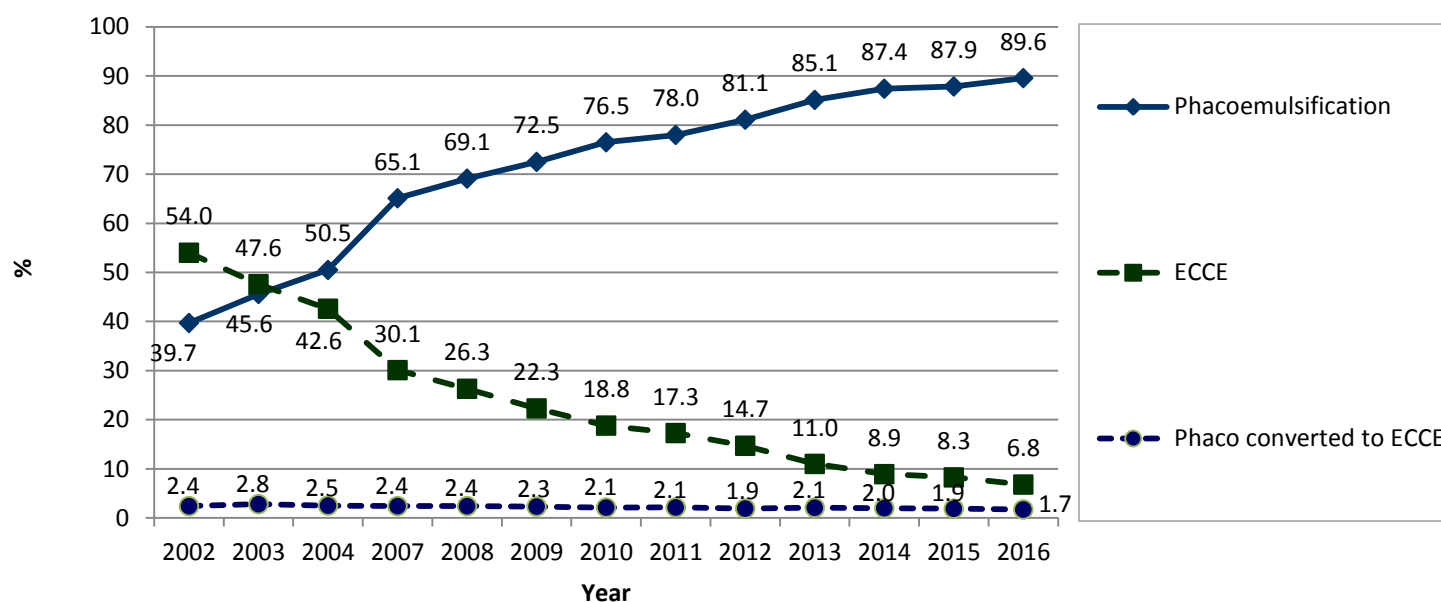


Figure 1.3.6-1: Distribution of Phaco, ECCE and Phaco Converted to ECCE, CSR 2002-2016

Table 1.3.6-2: Distribution of Types Cataract Surgery by SDP, CSR 2007-2016

Type of Cataract Surgery												
	All Surgeries		Phaco		ECCE		Lens Aspiration		Phaco Converted to ECCE		ICCE	
	N	%	n	%	n	%	n	%	n	%	n	%
All Centres	50625	100.0	45346	89.6	3439	6.8	527	1.0	870	1.7	275	0.5
Alor Setar	2,616	100.0	2,336	89.3	214	8.2	20	0.8	21	0.8	5	0.2
Ampang	750	100.0	578	77.1	133	17.7	3	0.4	34	4.5	2	0.3
Batu Pahat	666	100.0	588	88.3	47	7.1	10	1.5	13	2.0	6	0.9
Bintulu	197	100.0	176	89.3	10	5.1	2	1.0	8	4.1	0	0.0
Bukit Mertajam	1379	100.0	1094	79.3	270	19.6	1	0.1	8	0.6	5	0.4
Ipoh	3,123	100.0	2,893	92.6	135	4.3	23	0.7	47	1.5	18	0.6
Kangar	652	100.0	518	79.4	119	18.3	6	0.9	4	0.6	3	0.5
Kemaman	28	100.0	19	67.9	6	21.4	1	3.6	2	7.1	0	0.0
Keningau	370	100.0	340	91.9	23	6.2	0	0.0	3	0.8	0	0.0
Klang	2,227	100.0	2,027	91.0	119	5.3	24	1.1	35	1.6	17	0.8
Kota Bharu	1113	100.0	793	71.2	249	22.4	29	2.6	33	3.0	8	0.7
Kuala Krai	344	100.0	255	74.1	71	20.6	7	2.0	7	2.0	2	0.6
Kuala Lumpur	1,556	100.0	1,290	82.9	177	11.4	40	2.6	41	2.6	3	0.2
Kuala Pilah	600	100.0	542	90.3	19	3.2	6	1.0	17	2.8	11	1.8
Kuala Terengganu	1321	100.0	1067	80.8	166	12.6	33	2.5	33	2.5	15	1.1
Kuantan	1225	100.0	980	80.0	171	14.0	14	1.1	50	4.1	5	0.4
Kulim	569	100.0	492	86.5	66	11.6	2	0.4	5	0.9	3	0.5
Langkawi	89	100.0	75	84.3	14	15.7	0	0.0	0	0.0	0	0.0
Likas	23	100.0	0	0.0	0	0.0	22	95.7	0	0.0	0	0.0
Melaka	2,549	100.0	2,377	93.3	106	4.2	14	0.5	30	1.2	10	0.4
Miri	1045	100.0	998	95.5	30	2.9	6	0.6	7	0.7	4	0.4
Muar	1085	100.0	1021	94.1	25	2.3	15	1.4	21	1.9	3	0.3
Pulau Pinang	2,591	100.0	2,487	96.0	51	2.0	9	0.3	26	1.0	13	0.5
Putrajaya	429	100.0	350	81.6	56	13.1	7	1.6	15	3.5	1	0.2
Queen Elizabeth KK	1397	100.0	1177	84.3	152	10.9	11	0.8	34	2.4	9	0.6

Sandakan	414	100.0	358	86.5	44	10.6	2	0.5	8	1.9	1	0.2
Sarikei	694	100.0	674	97.1	10	1.4	2	0.3	2	0.3	2	0.3
Segamat	121	100.0	100	82.6	7	5.8	3	2.5	10	8.3	1	0.8
Selayang	1,287	100.0	1,131	87.9	27	2.1	58	4.5	20	1.6	15	1.2
Serdang	536	100.0	483	90.1	33	6.2	6	1.1	13	2.4	0	0.0
Seremban	1,832	100.0	1,662	90.7	121	6.6	20	1.1	15	0.8	8	0.4
Shah Alam	353	100.0	340	96.3	5	1.4	1	0.3	4	1.1	1	0.3
Sibu	796	100.0	752	94.5	11	1.4	4	0.5	11	1.4	15	1.9
Sri Manjung	684	100.0	659	96.3	17	2.5	6	0.9	2	0.3	0	0.0
Sultan Ismail	885	100.0	815	92.1	36	4.1	11	1.2	15	1.7	6	0.7
Sultanah Aminah JB	1,575	100.0	1,468	93.2	35	2.2	21	1.3	34	2.2	14	0.9
Sungai Buloh	818	100.0	739	90.3	37	4.5	5	0.6	33	4.0	4	0.5
Sungei Petani	1138	100.0	1006	88.4	82	7.2	10	0.9	29	2.5	9	0.8
Taiping	1,575	100.0	1346	85.5	203	12.9	9	0.6	10	0.6	7	0.4
Tanah Merah	18	100.0	9	50.0	7	38.9	0	0.0	2	11.1	0	0.0
Tawau	681	100.0	574	84.3	78	11.5	5	0.7	14	2.1	9	1.3
Teluk Intan	1327	100.0	1191	89.8	96	7.2	10	0.8	20	1.5	9	0.7
Temerloh	1009	100.0	863	85.5	84	8.3	13	1.3	38	3.8	9	0.9
Umum Sarawak	1,879	100.0	1,807	96.2	13	0.7	19	1.0	26	1.4	13	0.7
KK1M Johor	93	100.0	90	96.8	1	1.1	0	0.0	2	2.2	0	0.0
KK1M Kedah	339	100.0	332	97.9	2	0.6	0	0.0	5	1.5	0	0.0
KK1M Kelantan	62	100.0	34	54.8	26	41.9	0	0.0	2	3.2	0	0.0
KK1M Neg. Sembilan	220	100.0	206	93.6	1	0.5	1	0.5	11	5.0	1	0.5
KK1M Pahang	119	100.0	108	90.8	8	6.7	0	0.0	3	2.5	0	0.0
KK1M Pulau Pinang	84	100.0	80	95.2	2	2.4	0	0.0	2	2.4	0	0.0
KK1M Sabah	275	100.0	262	95.3	7	2.5	0	0.0	5	1.8	1	0.4
KK1M Sarawak	917	100.0	898	97.9	4	0.4	0	0.0	13	1.4	1	0.1
KK1M Terengganu	50	100.0	45	90.0	3	6.0	0	0.0	2	4.0	0	0.0
MAIWP	2,900	100.0	2,841	98.0	10	0.3	16	0.6	25	0.9	6	0.2

Table 1.3.6-3: Distribution of Phaco by SDP, CSR 2007-2016

Years	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	11960	65.1	14781	69.1	17717	72.5	21810	76.5	23872	78.0	26345	81.1	31625	85.1	35429	87.4	39131	87.9	45346	89.6
Alor Setar	240	58.4	715	72.9	702	63.2	1147	75.1	1510	77.9	1451	79.1	1358	77.2	1687	80.1	1,953	83.6	2,336	89.3
Ampang	3	75.0	75	36.1	308	71.1	558	89.0	661	93.4	779	86.9	822	83.6	809	85.5	693	78.8	578	77.1
Batu Pahat	453	81.6	451	79.1	443	73.6	307	74.7	425	76.7	447	73.5	332	76.7	341	73.0	486	86.6	588	88.3
Bintulu	-	-	9	31.0	75	60.5	183	70.9	241	72.6	245	62.7	357	93.2	353	94.4	337	96.3	176	89.3
Bukit Mertajam	403	59.2	163	33.5	462	62.2	503	62.6	427	53.2	564	60.8	620	68.2	749	75.1	988	78.1	1094	79.3
Ipoh	1117	71.4	1434	83.6	1801	84.3	1913	87.0	1496	81.9	2596	88.5	2801	92.4	2566	93.0	2,258	88.7	2,893	92.6
Kangar	91	28.1	303	75.9	367	92.0	342	85.5	375	93.1	412	90.7	421	90.3	356	83.6	423	73.4	518	79.4
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	37	78.7	44	61.1	2	66.7	19	67.9
Keningau	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	40.0	96	72.2	75	91.5	340	91.9
Klang	570	55.0	655	53.8	486	53.8	617	61.3	907	85.5	1224	86.7	1476	91.6	1351	92.5	1,801	91.1	2,027	91.0
Kota Bharu	406	49.9	383	51.8	538	59.1	604	62.9	580	61.3	367	67.3	386	56.6	162	56.8	549	59.6	793	71.2
Kuala Krai	0	0.0	78	45.9	85	48.6	168	77.4	211	87.9	222	89.9	350	88.2	292	80.0	274	70.4	255	74.1
Kuala Lumpur	NA	NA	25	62.5	925	65.8	1141	69.2	1091	67.3	1208	79.7	956	83.1	1576	81.6	1,393	86.6	1,290	82.9
Kuala Pilah	24	11.4	58	20.6	73	25.2	149	46.3	376	77.8	361	84.1	416	84.6	430	87.2	399	88.3	542	90.3
Kuala Terengganu	242	46.5	429	59.4	473	63.7	453	63.4	517	67.1	537	70.2	778	76.7	707	78.6	773	78.3	1067	80.8
Kuantan	22	91.7	314	80.9	218	74.4	448	72.8	533	78.4	555	81.1	450	72.7	421	73.1	824	76.4	980	80.0
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	239	90.2	360	86.1	492	86.5
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	81.7	75	84.3
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	1152	75.9	1335	80.3	1111	80.1	1295	78.1	1315	80.1	1203	80.8	1395	81.2	1919	89.7	2,189	91.6	2,377	93.3
Miri	7	46.7	296	74.7	392	97.0	556	96.4	593	90.3	849	94.2	892	97.5	893	94.1	837	92.7	998	95.5
Muar	281	80.1	236	70.7	452	83.4	526	85.3	616	89.0	608	91.4	647	90.2	628	86.1	855	92.1	1021	94.1
Pulau Pinang	751	68.1	1116	82.3	1208	87.9	1707	91.0	2077	95.0	1260	94.7	1589	93.7	1712	95.6	2,139	95.5	2,487	96.0
Putrajaya	93	45.8	166	64.8	186	74.1	200	70.9	263	79.9	271	76.3	303	77.5	289	78.7	395	85.3	350	81.6
Queen Elizabeth KK	346	65.4	260	74.3	331	76.4	481	77.1	534	77.8	529	69.3	694	71.0	847	81.4	932	82.3	1177	84.3
Sandakan	NA	NA	0	0.0	0	0.0	4	1.9	21	7.7	104	39.2	354	86.1	206	86.9	420	84.2	358	86.5

Sarikei	-	-	-	-	-	-	-	-	-	-	281	98.3	538	96.9	633	97.8	674	97.1
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	82.6
Selayang	1305	92.4	1291	91.0	1255	88.5	1542	90.8	1619	87.1	1625	88.8	1233	92.2	809	90.0	1,166	86.2
Serdang	412	68.1	521	75.0	483	80.8	371	71.3	466	70.0	564	79.5	836	81.7	1072	84.7	893	90.9
Seremban	589	61.9	610	68.9	912	74.2	1249	82.2	1368	85.2	1315	84.3	1363	89.7	1441	90.9	1,570	91.0
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	340	96.3
Sibu	0	0.0	0	0.0	126	32.6	386	84.8	376	74.5	683	91.7	835	92.8	826	95.4	538	92.6
Sri Manjung	14	9.3	111	31.7	203	62.1	314	81.1	344	81.9	412	88.4	799	96.0	608	97.3	650	97.6
Sultan Ismail	64	63.4	114	63.7	131	70.8	172	66.7	189	66.8	208	74.6	276	73.8	496	81.4	712	86.1
Sultanah Aminah JB	1418	91.9	1293	94.0	1166	88.5	1274	92.5	986	87.5	1069	89.5	1261	93.4	1303	94.4	1,512	92.0
Sungai Buloh	121	82.9	271	85.2	272	70.3	346	73.9	371	82.4	419	81.5	450	77.6	599	86.4	708	91.5
Sungei Petani	410	82.5	483	76.4	580	84.8	455	81.5	662	81.6	604	71.5	704	75.7	743	72.7	883	87.8
Taiping	100	35.8	169	44.6	440	71.9	552	62.1	618	64.8	885	79.2	1060	82.6	1030	83.5	1107	83.9
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	55.6
Tawau	0	0.0	3	1.0	0	0.0	0	0.0	0	0.0	1	0.2	133	26.4	354	65.6	497	81.9
Teluk Intan	435	64.8	358	60.9	465	76.0	564	81.7	571	86.1	505	82.0	963	87.4	923	91.1	808	86.7
Temerloh	210	47.3	354	67.0	393	61.4	317	70.4	537	78.9	717	82.6	718	82.9	898	85.8	731	85.9
Umum Sarawak	680	68.0	702	69.4	654	73.2	966	80.0	996	88.1	1546	93.3	1648	95.8	1986	96.0	1,929	95.5
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	96.8
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	209	100.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	94	50.5	2	100.0	34
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	75.0	206
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	47	73.4	-	-	161	86.1
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	95.2
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	107	81.7	262
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	74	97.4	808	97.2	1,096	96.9
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	84.2	30	75.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	1504	95.0	2196	96.9	1,777	97.4

Table 1.3.6-4: Distribution of ECCE by SDP, CSR 2007-2016

Years	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	832	n	%	n	%	n	%
All Centres	5524	30.1	5627	26.3	5457	22.3	5363	18.8	5291	17.3	4784	14.7	4086	11.0	3613	8.9	3677	8.3	3439	6.8
Alor Setar	160	38.9	247	25.2	349	31.4	310	20.3	349	18.0	294	16.0	338	19.2	343	16.3	302	12.9	214	8.2
Ampang	1	25.0	106	51.0	102	23.6	38	6.1	28	4.0	72	8.0	118	12.0	105	11.1	134	15.2	133	17.7
Batu Pahat	83	15.0	95	16.7	130	21.6	78	19.0	104	18.8	111	18.3	81	18.7	80	17.1	48	8.6	47	7.1
Bintulu	-	-	19	65.5	38	30.6	70	27.1	83	25.0	136	34.8	14	3.7	6	1.6	6	1.7	10	5.1
Bukit Mertajam	265	38.9	315	64.7	265	35.7	284	35.3	350	43.6	338	36.4	277	30.5	237	23.7	262	20.7	270	19.6
Ipoh	396	25.3	240	14.0	238	11.1	208	9.5	193	10.6	250	8.5	146	4.8	126	4.6	170	6.7	135	4.3
Kangar	223	68.8	86	21.6	18	4.5	46	11.5	19	4.7	27	5.9	34	7.3	50	11.7	140	24.3	119	18.3
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	9	19.1	25	34.7	1	33.3	6	21.4
Keningau	-	-	33	97.1	28	90.3	72	94.7	51	98.1	17	100.0	9	60.0	33	24.8	6	7.3	23	6.2
Klang	403	38.9	499	41.0	368	40.7	341	33.9	120	11.3	146	10.3	64	4.0	76	5.2	107	5.4	119	5.3
Kota Bharu	337	41.4	302	40.9	302	33.2	280	29.2	287	30.3	141	25.9	246	36.1	106	37.2	305	33.1	249	22.4
Kuala Krai	119	95.2	81	47.6	82	46.9	33	15.2	15	6.3	16	6.5	24	6.0	51	14.0	108	27.8	71	20.6
Kuala Lumpur	NA	NA	12	30.0	403	28.7	447	27.1	454	28.0	263	17.3	163	14.2	289	15.0	150	9.3	177	11.4
Kuala Pilah	164	77.7	190	67.6	175	60.3	137	42.5	81	16.8	52	12.1	44	8.9	32	6.5	26	5.8	19	3.2
Kuala Terengganu	243	46.7	238	33.0	226	30.4	207	29.0	201	26.1	177	23.1	185	18.2	150	16.7	162	16.4	166	12.6
Kuantan	1	4.2	37	9.5	46	15.7	114	18.5	98	14.4	89	13.0	140	22.6	132	22.9	182	16.9	171	14.0
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	6.4	40	9.6	66	11.6
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	16.7	14	15.7
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	307	20.2	271	16.3	205	14.8	283	17.1	274	16.7	248	16.7	279	16.2	147	6.9	127	5.3	106	4.2
Miri	7	46.7	95	24.0	10	2.5	15	2.6	48	7.3	28	3.1	11	1.2	38	4.0	39	4.3	30	2.9
Muar	49	14.0	81	24.3	52	9.6	44	7.1	38	5.5	19	2.9	41	5.7	56	7.7	42	4.5	25	2.3
Pulau Pinang	270	24.5	177	13.1	124	9.0	127	6.8	68	3.1	34	2.6	47	2.8	29	1.6	52	2.3	51	2.0
Putrajaya	104	51.2	79	30.9	57	22.7	65	23.0	42	12.8	48	13.5	48	12.3	46	12.5	35	7.6	56	13.1
Queen Elizabeth KK	155	29.3	74	21.1	62	14.3	117	18.8	96	14.0	163	21.4	223	22.8	131	12.6	132	11.7	152	10.9
Sandakan	NA	NA	130	99.2	154	97.5	191	91.8	231	85.2	148	55.8	45	10.9	29	12.2	64	12.8	44	10.6

Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	1.4
Segamat	-	-	-	-	-	-	-	-	-	-	2	0.7	10	1.8	8	1.2	7	5.8
Selayang	44	3.1	70	4.9	106	7.5	80	4.7	116	6.2	75	4.1	43	3.2	34	3.8	57	4.2
Serdang	151	25.0	133	19.1	79	13.2	113	21.7	156	23.4	109	15.4	128	12.5	122	9.6	52	5.3
Seremban	319	33.5	219	24.7	261	21.2	226	14.9	194	12.1	207	13.3	128	8.4	101	6.4	121	7.0
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1.4
Sibu	372	97.1	257	97.7	258	66.7	48	10.5	96	19.0	43	5.8	34	3.8	12	1.4	18	3.1
Sri Manjung	134	88.7	233	66.6	122	37.3	71	18.3	65	15.5	40	8.6	14	1.7	11	1.8	9	1.4
Sultan Ismail	32	31.7	61	34.1	49	26.5	72	27.9	83	29.3	55	19.7	63	16.8	70	11.5	58	7.0
Sultanah Aminah JB	53	3.4	30	2.2	55	4.2	27	2.0	72	6.4	69	5.8	44	3.3	26	1.9	51	3.1
Sungai Buloh	8	5.5	25	7.9	88	22.7	89	19.0	54	12.0	63	12.3	89	15.3	58	8.4	39	5.0
Sungei Petani	57	11.5	99	15.7	58	8.5	70	12.5	101	12.5	204	24.1	167	18.0	191	18.7	79	7.9
Taiping	159	57.0	194	51.2	154	25.2	303	34.1	315	33.1	208	18.6	206	16.0	190	15.4	199	15.1
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	44.4
Tawau	196	97.5	305	97.1	292	98.0	380	94.8	557	96.9	634	97.8	308	61.2	149	27.6	88	14.5
Teluk Intan	222	33.1	193	32.8	111	18.1	92	13.3	72	10.9	86	14.0	109	9.9	68	6.7	78	8.4
Temerloh	210	47.3	138	26.1	204	31.9	104	23.1	79	11.6	87	10.0	81	9.4	101	9.6	79	9.3
Umum Sarawak	276	27.6	263	26.0	186	20.8	181	15.0	101	8.9	87	5.3	33	1.9	18	0.9	17	0.8
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.1
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82	44.1	0	0.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	11	17.2	-	-	17	9.1
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	13.7
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3	12	1.4	13	1.1
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	15.8	9	22.5
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	39	2.5	18	0.8	13	0.7

1.3.7 Distribution of Combined Surgery

Table 1.3.7-1: Distribution of Combined Surgery, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any types of combined surgeries	891	4.8	664	3.1	871	3.6	1082	3.8	1194	3.9	1221	3.8	1026	2.8	1028	2.6	1458	3.3	1490	2.9
Specific types of combined surgery																				
Pterygium Surgery	135	0.7	94	0.4	100	0.4	99	0.3	133	0.4	111	0.3	83	0.2	115	0.3	113	0.3	135	0.3
Filtering Glaucoma Surgery	131	0.7	142	0.7	132	0.5	121	0.4	64	0.2	71	0.2	114	0.3	95	0.2	102	0.2	75	0.2
Vitreoretinal Surgery	435	2.4	237	1.1	402	1.6	601	2.1	672	2.2	585	1.8	536	1.4	532	1.3	893	2.0	890	1.8
Penetrating Keratoplasty	0	0.0	3	0.0	6	0.0	2	0.0	1	0.0	3	0.0	2	0.0	2	0.0	1	0.0	0	0.0
Others	190	1.0	188	0.9	259	1.1	272	1.0	344	1.1	477	1.5	311	0.8	304	0.8	367	0.8	437	0.9

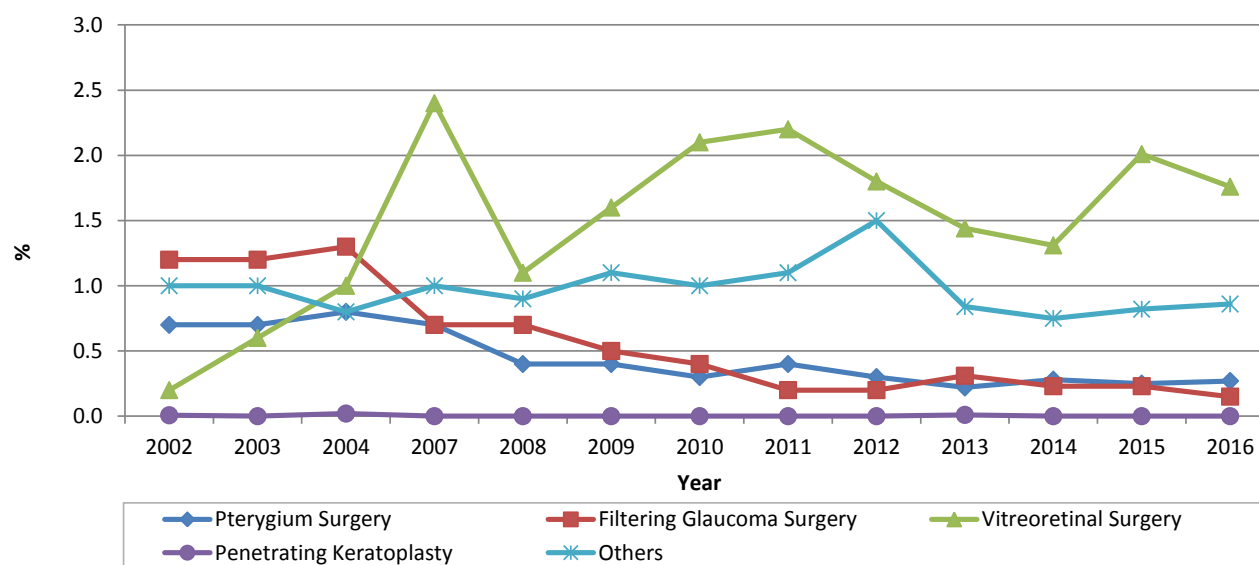


Figure 1.3.7-1: Distribution of Specific Combined Surgery, CSR 2002-2015

Table 1.3.7-2: Distribution of Combined Surgery by SDP, CSR 2007-2016

Combined Surgery													
	All Surgeries N	Any Combined Surgery		Pterygium Surgery		Filtering Surgery		Vitreo-Retinal Surgery		Penetrating Keratoplasty		Others	
		n	%	n	%	n	%	n	%	n	%	n	%
All Centres	50625	1490	2.9	135	0.3	75	0.1	890	1.8	0	0.0	437	0.9
Alor Setar	2616	205	7.8	10	0.4	14	0.5	140	5.4	0	0.0	56	2.1
Ampang	750	7	0.9	4	0.5	2	0.3	0	0.0	0	0.0	1	0.1
Batu Pahat	666	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2
Bintulu	197	17	8.6	12	6.1	0	0.0	0	0.0	0	0.0	5	2.5
Bukit Mertajam	1379	16	1.2	4	0.3	0	0.0	1	0.1	0	0.0	11	0.8
Ipoh	3123	136	4.4	1	0.0	10	0.3	119	3.8	0	0.0	6	0.2
Kangar	652	12	1.8	3	0.5	1	0.2	0	0.0	0	0.0	8	1.2
Kemaman	28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Keningau	370	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	2227	16	0.7	2	0.1	1	0.0	3	0.1	0	0.0	10	0.4
Kota Bharu	1113	62	5.6	1	0.1	5	0.4	36	3.2	0	0.0	22	2.0
Kuala Krai	344	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Lumpur	1556	22	1.4	3	0.2	0	0.0	0	0.0	0	0.0	19	1.2
Kuala Pilah	600	13	2.2	4	0.7	0	0.0	3	0.5	0	0.0	6	1.0
Kuala Terengganu	1321	66	5.0	8	0.6	1	0.1	24	1.8	0	0.0	34	2.6
Kuantan	1225	42	3.4	0	0.0	0	0.0	32	2.6	0	0.0	10	0.8
Kulim	569	4	0.7	0	0.0	0	0.0	0	0.0	0	0.0	4	0.7
Langkawi	89	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Likas	23	3	13.0	0	0.0	0	0.0	0	0.0	0	0.0	3	13.0
Melaka	2549	46	1.8	0	0.0	16	0.6	25	1.0	0	0.0	5	0.2
Miri	1045	12	1.1	3	0.3	0	0.0	0	0.0	0	0.0	9	0.9
Muar	1085	6	0.6	3	0.3	1	0.1	0	0.0	0	0.0	2	0.2
Pulau Pinang	2591	124	4.8	4	0.2	5	0.2	111	4.3	0	0.0	4	0.2
Putrajaya	429	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2
Queen Elizabeth KK	1397	58	4.2	9	0.6	1	0.1	39	2.8	0	0.0	18	1.3

Sandakan	414	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Sarikei	694	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Segamat	121	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
Selayang	1287	267	20.7	1	0.1	5	0.4	213	16.6	0	0.0	55	4.3
Serdang	536	3	0.6	1	0.2	0	0.0	0	0.0	0	0.0	2	0.4
Seremban	1832	71	3.9	1	0.1	1	0.1	44	2.4	0	0.0	33	1.8
Shah Alam	353	6	1.7	0	0.0	0	0.0	0	0.0	0	0.0	6	1.7
Sibu	796	7	0.9	1	0.1	2	0.3	0	0.0	0	0.0	5	0.6
Sri Manjung	684	5	0.7	2	0.3	0	0.0	0	0.0	0	0.0	3	0.4
Sultan Ismail	885	4	0.5	0	0.0	0	0.0	0	0.0	0	0.0	4	0.5
Sultanah Aminah JB	1575	59	3.7	1	0.1	1	0.1	40	2.5	0	0.0	17	1.1
Sungai Buloh	818	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Sungei Petani	1138	10	0.9	2	0.2	0	0.0	0	0.0	0	0.0	8	0.7
Taiping	1575	38	2.4	5	0.3	0	0.0	0	0.0	0	0.0	34	2.2
Tanah Merah	18	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	681	53	7.8	35	5.1	7	1.0	0	0.0	0	0.0	14	2.1
Teluk Intan	1327	3	0.2	2	0.2	0	0.0	0	0.0	0	0.0	1	0.1
Temerloh	1009	10	1.0	4	0.4	0	0.0	0	0.0	0	0.0	6	0.6
Umum Sarawak	1879	66	3.5	3	0.2	0	0.0	60	3.2	0	0.0	3	0.2
KK1M Johor	93	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Kedah	339	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Kelantan	62	1	1.6	1	1.6	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	220	3	1.4	1	0.5	0	0.0	0	0.0	0	0.0	2	0.9
KK1M Pahang	119	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Pulau Pinang	84	1	1.2	0	0.0	0	0.0	0	0.0	0	0.0	1	1.2
KK1M Sabah	275	1	0.4	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Sarawak	917	2	0.2	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Terengganu	50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MAIWP	2900	7	0.2	0	0.0	1	0.0	0	0.0	0	0.0	6	0.2

1.3.8 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.

The percentage of surgeons using combined, subconjunctival and intracameral LA appeared to be increasing

Table 1.3.8-1: Types of Anaesthesia, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
General Anesthesia	1207	6.6	1223	5.7	1578	6.5	1884	6.6	1845	6.0	2117	6.5	2229	6.0	2415	6.0	2655	6.0	2764	5.5
Local Anesthesia	17143	93.4	20188	94.3	22776	93.2	26440	92.8	28634	93.5	30215	93.1	34622	93.2	37654	92.9	41422	93.0	47349	93.5
Type of local anaesthesia																				
Subtenon	9990	58.3	11014	54.6	11525	50.6	10952	41.4	10512	36.7	9849	32.6	9913	28.6	9351	24.8	9294	22.4	8973	19.0
Topical	4853	28.3	6680	33.1	8382	36.8	13112	49.6	16825	58.8	18461	61.1	22220	64.2	25068	66.6	28458	68.7	34825	73.5
Peribulbar	1282	7.5	1227	6.1	1244	5.5	881	3.3	440	1.5	279	0.9	308	0.9	474	1.3	218	0.5	203	0.4
Retrobulbar	1031	6.0	1182	5.9	1037	4.6	864	3.3	808	2.8	667	2.2	503	1.5	436	1.2	753	1.8	623	1.3
Intracameral	249	1.5	710	3.5	1596	7.0	2587	9.8	2933	10.2	3419	11.3	4733	13.7	6311	16.8	8938	21.6	11155	23.6
Subconjunctival	232	1.4	251	1.2	437	1.9	898	3.4	771	2.7	1266	4.2	1338	3.9	1352	3.6	1253	3.0	1240	2.6
Facial block	20	0.1	143	0.7	95	0.4	40	0.2	43	0.2	21	0.1	24	0.1	14	0.0	11	0.0	13	0.0
Others	0	0.0	NA	NA	0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Combined local anaesthesia	720	4.2	1274	6.3	1918	8.4	3182	12.0	4038	14.1	4375	14.5	4868	14.1	5954	15.8	7902	19.1	10461	22.1
Types of sedation for patients under local anaesthesia																				
No sedation	9668	56.4*	11234	55.6	12809	56.2	15970	60.4	18646	65.1	19379	64.1	18685	54.0	19249	51.1	22260	53.7	25926	54.8
Oral sedation alone	2387	13.9	2923	14.5	3532	15.5	3171	12.0	2852	10.0	1810	6.0	1391	4.0	1823	4.8	2879	7.0	3218	6.8
Intravenous alone	72	0.4	37	0.2	35	0.2	22	0.1	27	0.1	36	0.1	31	0.1	36	0.1	66	0.2	124	0.3
Intravenous plus oral	0	0.0	NA	NA	NA	NA	2	0.0	6	0.0	6	0.0	1	0.0	2	0.0	1	0.0	3	0.0
Intramuscular alone	3	0.0	121	0.6	52	0.2	0	0.0	3	0.0	2	0.0	18	0.1	1	0.0	0	0.0	5	0.0

*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 1.3.8-2: Types of Anaesthesia (50 years and above), CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	16715		19709		22496		26336		28425		30228		34815		38305		41880		47859	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
General Anesthesia	628	3.8	681	3.5	950	6.5	1184	4.5	1173	4.1	1412	4.7	1545	4.4	1760	4.6	1784	4.3	1872	3.9
Local Anesthesia	16018	95.8	18946	96.1	21468	93.2	24981	94.9	27131	95.5	28689	94.9	32985	94.7	36107	94.3	39658	94.7	45502	95.1
Type of local anaesthesia																				
Subtenon	9397	58.7	10354	54.7	10861	50.6	10338	41.4	9979	36.8	9340	32.6	9435	28.6	8938	24.8	8885	22.4	8653	19.0
Topical	4510	28.2	6274	33.1	7952	37.0	12473	49.9	16003	59.0	17557	61.2	21203	64.3	24071	66.7	27349	69.0	33542	73.7
Peribulbar	1224	7.6	1159	6.1	1173	5.5	842	3.4	415	1.5	257	0.9	287	0.9	441	1.2	197	0.5	169	0.4
Retrobulbar	905	5.6	1084	5.7	921	4.3	749	3.0	665	2.5	573	2.0	430	1.3	382	1.1	608	1.5	483	1.1
Intracameral	231	1.4	685	3.6	1527	7.1	2447	9.8	2818	10.4	3287	11.5	4539	13.8	6089	16.9	8585	21.6	10759	23.6
Subconjunctival	218	1.4	233	1.2	412	1.9	847	3.4	721	2.7	1200	4.2	1272	3.9	1295	3.6	1202	3.0	1196	2.6
Facial block	20	0.1	134	0.7	86	0.4	39	0.2	40	0.1	20	0.1	24	0.1	13	0.0	11	0.0	13	0.0
Others	0	0.0	NA	NA	0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Combined local anaesthesia	672	4.2	1219	6.4	1815	8.5	3030	12.1	3830	14.1	4135	14.4	4645	14.1	5700	15.8	7564	19.1	10049	22.1
Types of sedation for patients under local anaesthesia																				
No sedation	9027	56.4	10524	55.5	12056	56.2	15019	60.1	17616	64.9	18386	64.1	17810	54.0	18485	51.2	21347	53.8	24981	54.9
Oral sedation alone	2264	14.1	2798	14.8	3355	15.6	3055	12.2	2731	10.1	1748	6.1	1339	4.1	1755	4.9	2776	7.0	3106	6.8
Intravenous alone	55	0.3	37	0.2	29	0.1	18	0.1	23	0.1	34	0.1	28	0.1	26	0.1	62	0.2	114	0.3
Intravenous plus oral	0	0.0	NA	NA	NA	NA	2	0.0	5	0.0	6	0.0	1	0.0	1	0.0	1	0.0	3	0.0
Intramuscular alone	3	0.0	114	0.6	47	0.2	0	0.0	2	0.0	2	0.0	17	0.1	1	0.0	0	0.0	4	0.0

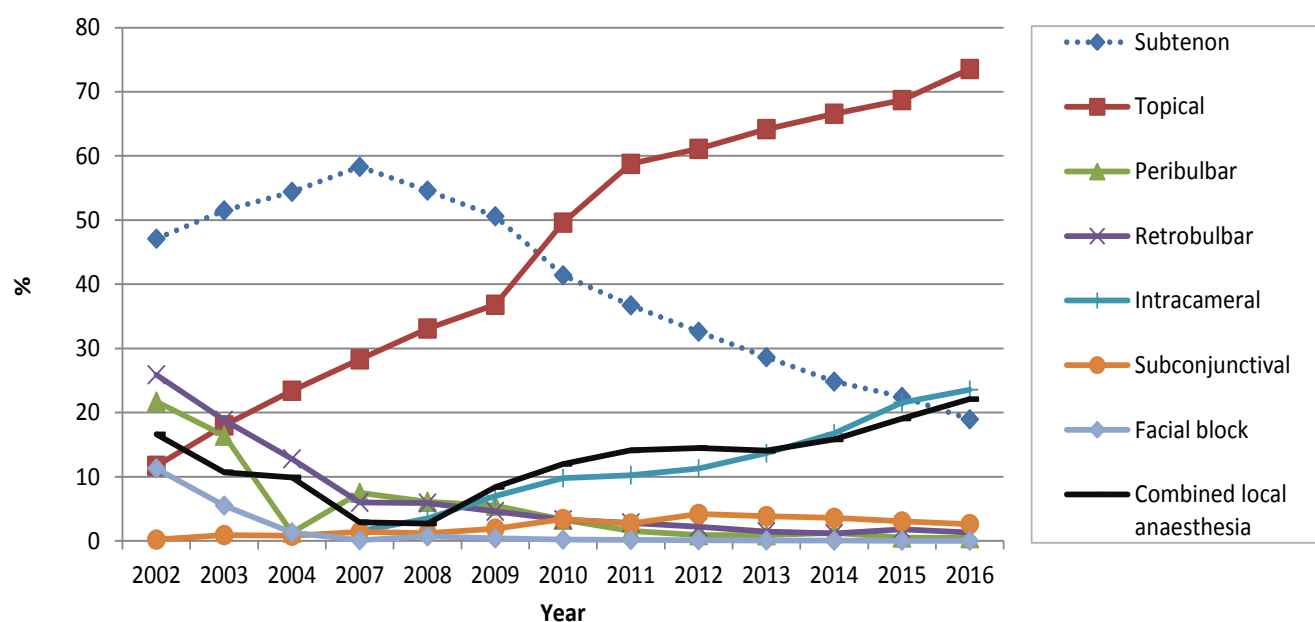


Figure 1.3.8-1: Types of Anaesthesia, CSR 2002-2016

Table 1.3.8-3: Types of Anaesthesia by SDP, CSR 2016

Types of Anaesthesia					
	N	General		Local	
		n	%	n	%
All Centres	50625	2764	5.5	47349	93.5
Alor Setar	2616	256	9.8	2359	90.2
Ampang	750	32	4.3	715	95.3
Batu Pahat	666	34	5.1	631	94.7
Bintulu	197	5	2.5	192	97.5
Bukit Mertajam	1379	23	1.7	1286	93.3
Ipoh	3,123	322	10.3	2,796	89.5
Kangar	652	18	2.8	633	97.1
Kemaman	28	2	7.1	26	92.9
Keningau	370	2	0.5	367	99.2
Klang	2,227	213	9.6	1,997	89.7
Kota Bharu	1113	54	4.9	1057	95.0
Kuala Krai	344	6	1.7	331	96.2
Kuala Lumpur	1,556	136	8.7	1,414	90.9
Kuala Pilah	600	21	3.5	576	96.0
Kuala Terengganu	1,321	85	6.4	1184	89.6
Kuantan	1225	126	10.3	1097	89.6
Kulim	569	10	1.8	559	98.2
Langkawi	89	0	0.0	60	67.4
Likas	23	23	100.0	0	0.0
Melaka	2,549	58	2.3	2,451	96.2
Miri	1045	16	1.5	1029	98.5
Muar	1085	24	2.2	1061	97.8
Pulau Pinang	2,591	61	2.4	2,523	97.4

Putrajaya	429	17	4.0	411	95.8
Queen Elizabeth KK	1397	140	10.0	1251	89.5
Sandakan	414	5	1.2	344	83.1
Sarikei	694	3	0.4	682	98.3
Segamat	121	3	2.5	116	95.9
Selayang	1,287	77	6.0	1,095	85.1
Serdang	536	60	11.2	466	86.9
Seremban	1,832	93	5.1	1,733	94.6
Shah Alam	353	4	1.1	327	92.6
Sibu	796	13	1.6	783	98.4
Sri Manjung	684	39	5.7	644	94.2
Sultan Ismail	885	114	12.9	770	87.0
Sultanah Aminah JB	1,575	77	4.9	1,494	94.9
Sungai Buloh	818	93	11.4	721	88.1
Sungei Petani	1138	100	8.8	1038	91.2
Taiping	1,575	206	13.1	1,369	86.9
Tanah Merah	18	0	0.0	18	100.0
Tawau	681	13	1.9	663	97.4
Teluk Intan	1,327	22	1.7	1,305	98.3
Temerloh	1009	48	4.8	954	94.5
Umum Sarawak	1,879	106	5.6	1,772	94.3
KK1M Johor	93	0	0.0	92	98.9
KK1M Kedah	339	4	1.2	335	98.8
KK1M Kelantan	62	0	0.0	62	100.0
KK1M Neg. Sembilan	220	0	0.0	220	100.0
KK1M Pahang	119	0	0.0	119	100.0
KK1M Pulau Pinang	84	0	0.0	84	100.0
KK1M Sabah	275	0	0.0	272	98.9
KK1M Sarawak	917	0	0.0	917	100.0
KK1M Terengganu	50	0	0.0	48	96.0
MAIWP	2,900	0	0.0	2,900	100.0

Table 1.3.8-4: Types of Anaesthesia by SDP (50 years and above), CSR 2016

Types of Anaesthesia					
	N	General		Local	
		n	%	n	%
All Centres	47,859	1,872	3.9	45,502	95.1
Alor Setar	2,478	177	7.1	2,300	92.8
Ampang	714	21	2.9	690	96.6
Batu Pahat	636	16	2.5	619	97.3
Bintulu	183	3	1.6	180	98.4
Bukit Mertajam	1335	16	1.2	1251	93.7
Ipoh	2,972	256	8.6	2,711	91.2
Kangar	616	3	0.5	612	99.4
Kemaman	27	1	3.7	26	96.3

Keningau	352	2	0.6	349	99.1
Klang	2,108	169	8.0	1,922	91.2
Kota Bharu	1017	9	0.9	1006	98.9
Kuala Krai	321	3	0.9	311	96.9
Kuala Lumpur	1,432	90	6.3	1336	93.3
Kuala Pilah	579	13	2.2	564	97.4
Kuala Terengganu	1223	37	3.0	1135	92.8
Kuantan	1148	91	7.9	1055	91.9
Kulim	546	7	1.3	539	98.7
Langkawi	87	0	0.0	59	67.8
Likas	0	0	0.0	0	0.0
Melaka	2,449	40	1.6	2,370	96.8
Miri	995	10	1.0	985	99.0
Muar	1035	13	1.3	1022	98.7
Pulau Pinang	2,478	53	2.1	2,418	97.6
Putrajaya	415	11	2.7	403	97.1
Queen Elizabeth KK	1307	105	8.0	1196	91.5
Sandakan	380	4	1.1	316	83.2
Sarikei	665	2	0.3	654	98.3
Segamat	113	2	1.8	109	96.5
Selayang	1,118	20	1.8	997	89.2
Serdang	510	43	8.4	457	89.6
Seremban	1,733	55	3.2	1,672	96.5
Shah Alam	330	3	0.9	305	92.4
Sibu	746	9	1.2	737	98.8
Sri Manjung	648	27	4.2	620	95.7
Sultan Ismail	825	79	9.6	745	90.3
Sultanah Aminah JB	1,469	48	3.3	1,418	96.5
Sungai Buloh	755	74	9.8	677	89.7
Sungei Petani	1081	79	7.3	1002	92.7
Taiping	1,513	176	11.6	1,337	88.4
Tanah Merah	18	0	0.0	18	100.0
Tawau	629	4	0.6	620	98.6
Teluk Intan	1,273	5	0.4	1,268	99.6
Temerloh	958	28	2.9	924	96.5
Umum Sarawak	1,754	64	3.6	1,689	96.3
KK1M Johor	91	0	0.0	90	98.9
KK1M Kedah	329	4	1.2	325	98.8
KK1M Kelantan	60	0	0.0	60	100.0
KK1M Neg. Sembilan	217	0	0.0	217	100.0
KK1M Pahang	118	0	0.0	118	100.0
KK1M Pulau Pinang	78	0	0.0	78	100.0
KK1M Sabah	266	0	0.0	263	98.9
KK1M Sarawak	893	0	0.0	893	100.0
KK1M Terengganu	48	0	0.0	46	95.8
MAIWP	2,788	0	0.0	2,788	100.0

Table 1.3.8-5: Types of Local Anaesthesia by SDP, CSR 2016

Local Anaesthesia																	
	All N	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	47,349	623	1.3	203	0.4	8,973	19.0	1,240	2.6	13	0.0	34,825	73.5	11,155	23.6	10,461	22.1
Alor Setar	2,359	73	3.1	2	0.1	213	9.0	8	0.3	0	0.0	1913	81.1	368	15.6	223	9.5
Ampang	715	0	0.0	0	0.0	126	17.6	4	0.6	0	0.0	554	77.5	574	80.3	525	73.4
Batu Pahat	631	1	0.2	0	0.0	501	79.4	99	15.7	0	0.0	11	1.7	86	13.6	72	11.4
Bintulu	192	1	0.5	0	0.0	133	69.3	3	1.6	0	0.0	60	31.3	53	27.6	58	30.2
Bukit Mertajam	1286	0	0.0	0	0.0	237	18.4	0	0.0	0	0.0	178	13.8	878	68.3	24	1.9
Ipoh	2,796	49	1.8	42	1.5	214	7.7	4	0.1	1	0.0	2,496	89.3	2,532	90.6	2,435	87.1
Kangar	633	3	0.5	0	0.0	628	99.2	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0
Kemaman	26	0	0.0	0	0.0	9	34.6	0	0.0	0	0.0	14	53.8	0	0.0	3	11.5
Keningau	367	1	0.3	19	5.2	1	0.3	0	0.0	0	0.0	350	95.4	0	0.0	8	2.2
Klang	1,997	1	0.1	1	0.1	239	12.0	1	0.1	0	0.0	1,743	87.3	237	11.9	240	12.0
Kota Bharu	1057	16	1.5	8	0.8	884	83.6	1	0.1	0	0.0	166	15.7	18	1.7	37	3.5
Kuala Krai	331	0	0.0	0	0.0	60	18.1	0	0.0	0	0.0	268	81.0	0	0.0	3	0.9
Kuala Lumpur	1,414	4	0.3	56	4.0	391	27.7	4	0.3	0	0.0	1056	74.7	778	55.0	838	59.3
Kuala Pilah	576	0	0.0	1	0.2	264	45.8	5	0.9	0	0.0	398	69.1	2	0.3	98	17.0
Kuala Terengganu	1184	1	0.1	0	0.0	260	22.0	2	0.2	0	0.0	950	80.2	13	1.1	58	4.9
Kuantan	1097	28	2.6	1	0.1	670	61.1	4	0.4	0	0.0	611	55.7	193	17.6	407	37.1
Kulim	559	0	0.0	0	0.0	62	11.1	0	0.0	0	0.0	541	96.8	337	60.3	383	68.5
Langkawi	60	1	1.7	0	0.0	7	11.7	0	0.0	0	0.0	53	88.3	0	0.0	2	3.3
Likas	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
Melaka	2,451	6	0.2	0	0.0	44	1.8	1	0.0	1	0.0	2,419	98.7	17	0.7	44	1.8
Miri	1029	1	0.1	0	0.0	151	14.7	0	0.0	1	0.1	905	87.9	0	0.0	29	2.8
Muar	1061	0	0.0	0	0.0	44	4.1	1	0.1	0	0.0	1,055	99.4	602	56.7	632	59.6
Pulau Pinang	2,523	97	3.8	1	0.0	112	4.4	0	0.0	1	0.0	2,366	93.8	251	9.9	304	12.0
Putrajaya	411	0	0.0	0	0.0	55	13.4	0	0.0	0	0.0	115	28.0	367	89.3	115	28.0
Queen Elizabeth KK	1251	0	0.0	9	0.7	279	22.3	2	0.2	1	0.1	1180	94.3	582	46.5	741	59.2

Sandakan	344	0	0.0	2	0.6	46	13.4	0	0.0	1	0.3	280	81.4	0	0.0	8	2.3
Sarikei	682	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	215	31.5	0	0.0	0	0.0
Segamat	116	2	1.7	1	0.9	24	20.7	0	0.0	0	0.0	5	4.3	11	9.5	2	1.7
Selayang	1,095	237	21.6	37	3.4	102	9.3	7	0.6	1	0.1	645	58.9	152	13.9	186	17.0
Serdang	466	2	0.4	0	0.0	228	48.9	0	0.0	0	0.0	231	49.6	67	14.4	73	15.7
Seremban	1,733	0	0.0	4	0.2	151	8.7	42	2.4	1	0.1	1377	79.5	310	17.9	157	9.1
Shah Alam	327	0	0.0	0	0.0	21	6.4	4	1.2	0	0.0	314	96.0	135	41.3	150	45.9
Sibu	783	0	0.0	0	0.0	34	4.3	1	0.1	0	0.0	781	99.7	0	0.0	34	4.3
Sri Manjung	644	1	0.2	0	0.0	6	0.9	0	0.0	0	0.0	639	99.2	3	0.5	5	0.8
Sultan Ismail	770	1	0.1	0	0.0	42	5.5	641	83.2	1	0.1	276	35.8	11	1.4	204	26.5
Sultanah Aminah JB	1,494	38	2.5	3	0.2	438	29.3	296	19.8	0	0.0	748	50.1	572	38.3	549	36.7
Sungai Buloh	721	3	0.4	0	0.0	75	10.4	25	3.5	3	0.4	329	45.6	406	56.3	234	32.5
Sungei Petani	1038	0	0.0	0	0.0	138	13.3	2	0.2	0	0.0	898	86.5	0	0.0	0	0.0
Taiping	1,369	0	0.0	0	0.0	279	20.4	1	0.1	1	0.1	1095	80.0	0	0.0	7	0.5
Tanah Merah	18	0	0.0	0	0.0	18	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	663	3	0.5	1	0.2	109	16.4	32	4.8	0	0.0	559	84.3	8	1.2	40	6.0
Teluk Intan	1,305	0	0.0	0	0.0	953	73.0	0	0.0	0	0.0	204	15.6	181	13.9	35	2.7
Temerloh	954	0	0.0	2	0.2	364	38.2	2	0.2	0	0.0	520	54.5	204	21.4	288	30.2
Umum Sarawak	1,772	39	2.2	13	0.7	21	1.2	3	0.2	0	0.0	1,735	97.9	5	0.3	45	2.5
KK1M Johor	92	1	1.1	0	0.0	23	25.0	18	19.6	0	0.0	42	45.7	23	25.0	15	16.3
KK1M Kedah	335	0	0.0	0	0.0	13	3.9	0	0.0	0	0.0	325	97.0	8	2.4	11	3.3
KK1M Kelantan	62	0	0.0	0	0.0	39	62.9	0	0.0	0	0.0	23	37.1	0	0.0	0	0.0
KK1M Neg. Sembilan	220	0	0.0	0	0.0	99	45.0	1	0.5	0	0.0	184	83.6	1	0.5	65	29.5
KK1M Pahang	119	1	0.8	0	0.0	49	41.2	0	0.0	0	0.0	87	73.1	26	21.8	45	37.8
KK1M Pulau Pinang	84	0	0.0	0	0.0	3	3.6	0	0.0	0	0.0	58	69.0	24	28.6	1	1.2
KK1M Sabah	272	0	0.0	0	0.0	3	1.1	0	0.0	0	0.0	231	84.9	0	0.0	38	14.0
KK1M Sarawak	917	0	0.0	0	0.0	13	1.4	0	0.0	0	0.0	908	25.2	66	7.2	5	0.5
KK1M Terengganu	48	0	0.0	0	0.0	12	25.0	0	0.0	0	0.0	45	1891.7	0	0.0	1	2.1
MAIWP	2,900	12	0.4	0	0.0	86	3.0	25	0.9	0	0.0	2,668	92.0	1,054	36.3	984	33.9

Table 1.3.8-6: Types of Local Anaesthesia by SDP (50 years and above), CSR 2016

Local Anaesthesia																	
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	45,502	483	1.1	169	0.4	8,653	19.0	1,196	2.6	13	0.0	33,542	73.7	10,759	23.6	10,049	22.1
Alor Setar	2,300	64	2.8	2	0.1	211	9.2	8	0.3	0	0.0	1872	81.4	354	15.4	216	9.4
Ampang	690	0	0.0	0	0.0	121	17.5	4	0.6	0	0.0	534	77.4	552	80.0	505	73.2
Batu Pahat	619	1	0.2	0	0.0	491	79.3	98	15.8	0	0.0	11	1.8	83	13.4	70	11.3
Bintulu	180	1	0.6	0	0.0	126	70.0	3	1.7	0	0.0	56	31.1	48	26.7	54	30.0
Bukit Mertajam	1,251	0	0.0	0	0.0	232	18.5	0	0.0	0	0.0	170	13.6	856	68.4	23	1.8
Ipoh	2,711	37	1.4	32	1.2	213	7.9	4	0.1	1	0.0	2,435	89.8	2,464	90.9	2,374	87.6
Kangar	612	3	0.5	0	0.0	608	99.3	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
Kemaman	26	0	0.0	0	0.0	9	34.6	0	0.0	0	0.0	14	53.8	0	0.0	3	11.5
Keningau	349	0	0.0	17	4.9	1	0.3	0	0.0	0	0.0	334	95.7	0	0.0	7	2.0
Klang	1,922	1	0.1	1	0.1	228	11.9	1	0.1	0	0.0	1,678	87.3	227	11.8	229	11.9
Kota Bharu	1,006	12	1.2	8	0.8	847	84.2	1	0.1	0	0.0	157	15.6	17	1.7	37	3.7
Kuala Krai	311	0	0.0	0	0.0	56	18.0	0	0.0	0	0.0	250	80.4	0	0.0	1	0.3
Kuala Lumpur	1,336	3	0.2	54	4.0	370	27.7	4	0.3	0	0.0	994	74.4	732	54.8	788	59.0
Kuala Pilah	564	0	0.0	1	0.2	254	45.0	5	0.9	0	0.0	392	69.5	2	0.4	94	16.7
Kuala Terengganu	1,135	1	0.1	0	0.0	252	22.2	2	0.2	0	0.0	910	80.2	13	1.1	58	5.1
Kuantan	1,055	22	2.1	0	0.0	651	61.7	4	0.4	0	0.0	589	55.8	185	17.5	393	37.3
Kulim	539	0	0.0	0	0.0	61	11.3	0	0.0	0	0.0	521	96.7	324	60.1	369	68.5
Langkawi	59	1	1.7	0	0.0	6	10.2	0	0.0	0	0.0	53	89.8	0	0.0	2	3.4
Likas	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
Melaka	2,370	5	0.2	0	0.0	43	1.8	1	0.0	1	0.0	2,339	98.7	15	0.6	41	1.7
Miri	985	1	0.1	0	0.0	143	14.5	0	0.0	1	0.1	869	88.2	0	0.0	29	2.9
Muar	1022	0	0.0	0	0.0	41	4.0	1	0.1	0	0.0	1017	99.5	581	56.8	610	59.7
Pulau Pinang	2,418	69	2.9	0	0.0	109	4.5	0	0.0	1	0.0	2,286	94.5	243	10.0	289	12.0
Putrajaya	403	0	0.0	0	0.0	54	13.4	0	0.0	0	0.0	112	27.8	360	89.3	112	27.8
Queen Elizabeth KK	1,196	0	0.0	5	0.4	267	22.3	2	0.2	1	0.1	1,130	94.5	570	47.7	719	60.1

Sandakan	316	0	0.0	2	0.6	41	13.0	0	0.0	1	0.3	257	81.3	0	0.0	7	2.2
Sarikei	654	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	209	32.0	0	0.0	0	0.0
Segamat	109	2	1.8	1	0.9	23	21.1	0	0.0	0	0.0	5	4.6	9	8.3	2	1.8
Selayang	997	176	17.7	29	2.9	96	9.6	5	0.5	1	0.1	624	62.6	146	14.6	173	17.4
Serdang	457	2	0.4	0	0.0	226	49.5	0	0.0	0	0.0	226	49.5	65	14.2	72	15.8
Seremban	1,672	0	0.0	4	0.2	142	8.5	42	2.5	1	0.1	1332	79.7	297	17.8	150	9.0
Shah Alam	305	0	0.0	0	0.0	18	5.9	4	1.3	0	0.0	292	95.7	125	41.0	137	44.9
Sibu	737	0	0.0	0	0.0	28	3.8	1	0.1	0	0.0	735	99.7	0	0.0	28	3.8
Sri Manjung	620	1	0.2	0	0.0	5	0.8	0	0.0	0	0.0	616	99.4	3	0.5	5	0.8
Sultan Ismail	745	1	0.1	0	0.0	42	5.6	618	83.0	1	0.1	269	36.1	11	1.5	199	26.7
Sultanah Aminah JB	1,418	29	2.0	2	0.1	420	29.6	282	19.9	0	0.0	703	49.6	551	38.9	523	36.9
Sungai Buloh	677	2	0.3	0	0.0	71	10.5	25	3.7	3	0.4	314	46.4	386	57.0	223	32.9
Sungei Petani	1,002	0	0.0	0	0.0	132	13.2	2	0.2	0	0.0	868	86.6	0	0.0	0	0.0
Taiping	1,337	0	0.0	0	0.0	272	20.3	1	0.1	1	0.1	1,069	80.0	0	0.0	6	0.4
Tanah Merah	18	0	0.0	0	0.0	18	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	620	3	0.5	1	0.2	94	15.2	30	4.8	0	0.0	526	84.8	8	1.3	35	5.6
Teluk Intan	1,268	0	0.0	0	0.0	929	73.3	0	0.0	0	0.0	193	15.2	178	14.0	33	2.6
Temerloh	924	0	0.0	1	0.1	353	38.2	2	0.2	0	0.0	509	55.1	198	21.4	281	30.4
Umum Sarawak	1,689	32	1.9	9	0.5	18	1.1	3	0.2	0	0.0	1,656	98.0	5	0.3	35	2.1
KK1M Johor	90	1	1.1	0	0.0	22	24.4	18	20.0	0	0.0	42	46.7	22	24.4	15	16.7
KK1M Kedah	325	0	0.0	0	0.0	13	4.0	0	0.0	0	0.0	315	96.9	8	2.5	11	3.4
KK1M Kelantan	60	0	0.0	0	0.0	38	63.3	0	0.0	0	0.0	22	36.7	0	0.0	0	0.0
KK1M Neg. Sembilan	217	0	0.0	0	0.0	97	44.7	1	0.5	0	0.0	181	83.4	1	0.5	63	29.0
KK1M Pahang	118	1	0.8	0	0.0	48	40.7	0	0.0	0	0.0	87	73.7	26	22.0	45	38.1
KK1M Pulau Pinang	78	0	0.0	0	0.0	3	3.8	0	0.0	0	0.0	56	71.8	20	25.6	1	1.3
KK1M Sabah	263	0	0.0	0	0.0	13	4.9	0	0.0	0	0.0	222	84.4	65	24.7	37	14.1
KK1M Sarawak	893	0	0.0	0	0.0	12	1.3	0	0.0	0	0.0	884	99.0	0	0.0	5	0.6
KK1M Terengganu	46	0	0.0	0	0.0	3	6.5	0	0.0	0	0.0	43	93.5	0	0.0	1	2.2
MAIWP	2,788	12	0.4	0	0.0	82	2.9	23	0.8	0	0.0	2,564	92.0	1,009	36.2	939	33.7

Table 1.3.8-7: Types of Local Anaesthesia by SDP (Excluding Combined Surgery), CSR 2016

Local Anesthesia																	
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	46,240	135	0.3	115	0.2	8,690	18.8	1,204	2.6	13	0.0	34,421	74.4	11,058	23.9	10,184	22.0
Alor Setar	2,233	4	0.2	1	0.0	200	9.0	3	0.1	0	0.0	1,862	83.4	366	16.4	209	9.4
Ampang	709	0	0.0	0	0.0	121	17.1	4	0.6	0	0.0	550	77.6	572	80.7	521	73.5
Batu Pahat	630	1	0.2	0	0.0	500	79.4	99	15.7	0	0.0	11	1.7	86	13.7	72	11.4
Bintulu	176	1	0.6	0	0.0	117	66.5	3	1.7	0	0.0	60	34.1	53	30.1	58	33.0
Bukit Mertajam	1,270	0	0.0	0	0.0	229	18.0	0	0.0	0	0.0	173	13.6	871	68.6	20	1.6
Ipoh	2,688	4	0.1	4	0.1	206	7.7	3	0.1	1	0.0	2,440	90.8	2,498	92.9	2,379	88.5
Kangar	621	3	0.5	0	0.0	616	99.2	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0
Kemaman	26	0	0.0	0	0.0	9	34.6	0	0.0	0	0.0	14	53.8	0	0.0	3	11.5
Keningau	367	1	0.3	19	5.2	1	0.3	0	0.0	0	0.0	350	95.4	0	0.0	8	2.2
Klang	1,986	1	0.1	1	0.1	232	11.7	1	0.1	0	0.0	1,739	87.6	237	11.9	240	12.1
Kota Bharu	1,017	0	0.0	3	0.3	861	84.7	1	0.1	0	0.0	164	16.1	18	1.8	31	3.0
Kuala Krai	331	0	0.0	0	0.0	60	18.1	0	0.0	0	0.0	268	81.0	0	0.0	3	0.9
Kuala Lumpur	1,393	3	0.2	54	3.9	379	27.2	4	0.3	0	0.0	1,038	74.5	769	55.2	823	59.1
Kuala Pilah	563	0	0.0	1	0.2	252	44.8	4	0.7	0	0.0	396	70.3	2	0.4	96	17.1
Kuala Terengganu	1,143	1	0.1	0	0.0	227	19.9	0	0.0	0	0.0	934	81.7	13	1.1	48	4.2
Kuantan	1,068	4	0.4	0	0.0	667	62.5	4	0.4	0	0.0	605	56.6	193	18.1	402	37.6
Kulim	555	0	0.0	0	0.0	61	11.0	0	0.0	0	0.0	538	96.9	335	60.4	380	68.5
Langkawi	60	1	1.7	0	0.0	7	11.7	0	0.0	0	0.0	53	88.3	0	0.0	2	3.3
Likas	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
Melaka	2,427	0	0.0	0	0.0	38	1.6	1	0.0	1	0.0	2,403	99.0	17	0.7	40	1.6
Miri	1,017	0	0.0	0	0.0	148	14.6	0	0.0	1	0.1	896	88.1	0	0.0	28	2.8
Muar	1,056	0	0.0	0	0.0	43	4.1	0	0.0	0	0.0	1,050	99.4	601	56.9	629	59.6
Pulau Pinang	2,403	4	0.2	0	0.0	102	4.2	0	0.0	1	0.0	2,330	97.0	251	10.4	284	11.8
Putrajaya	410	0	0.0	0	0.0	55	13.4	0	0.0	0	0.0	115	28.0	366	89.3	115	28.0
Queen Elizabeth KK	1,228	0	0.0	1	0.1	272	22.1	2	0.2	1	0.1	1,162	94.6	571	46.5	723	58.9

Sandakan	343	0	0.0	2	0.6	45	13.1	0	0.0	1	0.3	279	81.3	0	0.0	7	2.0
Sarikei	681	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	215	31.6	0	0.0	0	0.0
Segamat	115	2	1.7	1		24	20.9	0	0.0	0	0.0	5	4.3	11	9.6	2	1.7
Selayang	879	71	8.1	19	2.2	93	10.6	3	0.3	1	0.1	618	70.3	149	17.0	154	17.5
Serdang	464	2	0.4	0	0.0	228	49.1	0	0.0	0	0.0	229	49.4	67	14.4	73	15.7
Seremban	1,705	0	0.0	2	0.1	140	8.2	41	2.4	1	0.1	1,364	80.0	301	17.7	149	8.7
Shah Alam	321	0	0.0	0		18	5.6	3	0.9	0	0.0	308	96.0	133	41.4	144	44.9
Sibu	776	0	0.0	0	0.0	30	3.9	0	0.0	0	0.0	775	99.9	0	0.0	30	3.9
Sri Manjung	639	1	0.2	0	0.0	6	0.9	0	0.0	0	0.0	634	99.2	3	0.5	5	0.8
Sultan Ismail	768	1	0.1	0	0.0	42	5.5	639	83.2	1	0.1	276	35.9	11	1.4	204	26.6
Sultanah Aminah JB	1,443	6	0.4	1	0.1	429	29.7	291	20.2	0	0.0	726	50.3	567	39.3	527	36.5
Sungai Buloh	720	3	0.4	0	0.0	74	10.3	25	3.5	3	0.4	328	45.6	405	56.3	233	32.4
Sungei Petani	1,033	0	0.0	0	0.0	137	13.3	2	0.2	0	0.0	894	86.5	0	0.0	0	0.0
Taiping	1,343	0	0.0	0	0.0	258	19.2	1	0.1	1	0.1	1,089	81.1	0	0.0	6	0.4
Tanah Merah	18	0	0.0	0	0.0	18	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	614	3	0.5	1	0.2	85	13.8	22	3.6	0	0.0	536	87.3	7	1.1	31	5.0
Teluk Intan	1,302	0	0.0	0	0.0	950	73.0	0	0.0	0	0.0	204	15.7	181	13.9	35	2.7
Temerloh	945	0	0.0	2	0.2	356	37.7	2	0.2	0	0.0	514	54.4	201	21.3	281	29.7
Umum Sarawak	1,720	4	0.2	3	0.2	19	1.1	2	0.1	0	0.0	1,713	99.6	5	0.3	28	1.6
KK1M Johor	92	1	1.1	0		23	25.0	18	19.6	0	0.0	42	45.7	23	25.0	15	16.3
KK1M Kedah	335	0	0.0	0	0.0	13	3.9	0	0.0	0	0.0	325	97.0	8	2.4	11	3.3
KK1M Kelantan	61	0	0.0	0	0.0	38	62.3	0	0.0	0	0.0	23	37.7	0	0.0	0	0.0
KK1M Neg. Sembilan	217	0	0.0	0	0.0	97	44.7	1	0.5	0	0.0	183	84.3	1	0.5	65	30.0
KK1M Pahang	119	1	0.8	0	0.0	49	41.2	0	0.0	0	0.0	87	73.1	26	21.8	45	37.8
KK1M Pulau Pinang	83	0	0.0	0		3	3.6	0	0.0	0	0.0	58	69.9	23	27.7	1	1.2
KK1M Sabah	271	0	0.0	0	0.0	13	4.8	0	0.0	0	0.0	231	85.2	65	24.0	38	14.0
KK1M Sarawak	915	0	0.0	0	0.0	12	1.3	0	0.0	0	0.0	906	99.0	0	0.0	5	0.5
KK1M Terengganu	48	0	0.0	0	0.0	3	6.3	0	0.0	0	0.0	45	93.8	0	0.0	1	2.1
MAIWP	2,893	12	0.4	0	0.0	84	2.9	24	0.8	0	0.0	2,662	92.0	1,052	36.4	980	33.9

Table 1.3.8-8: Types of Local Anaesthesia by SDP (50 years and above, Excluding Combined Surgery), CSR 2016

Local Anesthesia																	
	All	Retrobulbar		Peribulbar		Subtenon		Sub-conjunctival		Facial block		Topical		Intracameral		Combined	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	44,575	112	0.3	104	0.2	8,389	18.8	1,163	2.6	13	0.0	33,194	74.5	10,677	24.0	9,817	22.0
Alor Setar	2,184	3	0.1	1	0.0	198	9.1	3	0.1	0	0.0	1,824	83.5	352	16.1	203	9.3
Ampang	684	0	0.0	0	0.0	116	17.0	4	0.6	0	0.0	530	77.5	550	80.4	501	73.2
Batu Pahat	618	1	0.2	0	0.0	490	79.3	98	15.9	0	0.0	11	1.8	83	13.4	70	11.3
Bintulu	164	1	0.6	0	0.0	110	67.1	3	1.8	0	0.0	56	34.1	48	29.3	54	32.9
Bukit Mertajam	1,235	0	0.0	0	0.0	224	18.1	0	0.0	0	0.0	165	13.4	849	68.7	19	1.5
Ipoh	2,626	4	0.2	2	0.1	206	7.8	3	0.1	1	0.0	2,390	91.0	2,438	92.8	2,329	88.7
Kangar	600	3	0.5	0	0.0	596	99.3	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
Kemaman	26	0	0.0	0	0.0	9	34.6	0	0.0	0	0.0	14	53.8	0	0.0	3	11.5
Keningau	349	0	0.0	17	4.9	1	0.3	0	0.0	0	0.0	334	95.7	0	0.0	7	2.0
Klang	1,913	1	0.1	1	0.1	222	11.6	1	0.1	0	0.0	1,675	87.6	227	11.9	229	12.0
Kota Bharu	970	0	0.0	3	0.3	824	84.9	1	0.1	0	0.0	155	16.0	17	1.8	31	3.2
Kuala Krai	311	0	0.0	0	0.0	56	18.0	0	0.0	0	0.0	250	80.4	0	0.0	1	0.3
Kuala Lumpur	1,323	3	0.2	53	4.0	363	27.4	4	0.3	0	0.0	982	74.2	726	54.9	778	58.8
Kuala Pilah	552	0	0.0	1	0.2	243	44.0	4	0.7	0	0.0	391	70.8	2	0.4	93	16.8
Kuala Terengganu	1,098	1	0.1	0	0.0	222	20.2	0	0.0	0	0.0	895	81.5	13	1.2	48	4.4
Kuantan	1,031	2	0.2	0	0.0	648	62.9	4	0.4	0	0.0	583	56.5	185	17.9	388	37.6
Kulim	535	0	0.0	0	0.0	60	11.2	0	0.0	0	0.0	518	96.8	322	60.2	366	68.4
Langkawi	59	1	1.7	0	0.0	6	10.2	0	0.0	0	0.0	53	89.8	0	0.0	2	3.4
Likas	0		0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		0.0	0	0.0
Melaka	2,347	0	0.0	0	0.0	37	1.6	1	0.0	1	0.0	2,323	99.0	15	0.6	37	1.6
Miri	973	0	0.0	0	0.0	140	14.4	0	0.0	1	0.1	860	88.4	0	0.0	28	2.9
Muar	1,017	0	0.0	0	0.0	40	3.9	0	0.0	0	0.0	1,012	99.5	580	57.0	607	59.7
Pulau Pinang	2,332	3	0.1	0	0.0	100	4.3	0	0.0	1	0.0	2,261	97.0	243	10.4	275	11.8
Putrajaya	402	0	0.0	0	0.0	54	13.4	0	0.0	0	0.0	112	27.9	359	89.3	112	27.9
Queen Elizabeth KK	1,177	0	0.0	0	0.0	260	22.1	2	0.2	1	0.1	1,113	94.6	560	47.6	702	59.6

Sandakan	315	0	0.0	2	0.6	40	12.7	0	0.0	1	0.3	256	81.3	0	0.0	6	1.9
Sarikei	653	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	209	32.0	0	0.0	0	0.0
Segamat	108	2	1.9	1	0.9	23	21.3	0	0.0	0	0.0	5	4.6	9	8.3	2	1.9
Selayang	836	57	6.8	17	2.0	88	10.5	3	0.4	1	0.1	601	71.9	143	17.1	148	17.7
Serdang	455	2	0.4	0	0.0	226	49.7	0	0.0	0	0.0	224	49.2	65	14.3	72	15.8
Seremban	1,649	0	0.0	2	0.1	132	8.0	41	2.5	1	0.1	1,321	80.1	289	17.5	142	8.6
Shah Alam	300	0	0.0	0	0.0	16	5.3	3	1.0	0	0.0	287	95.7	123	41.0	132	44.0
Sibu	730	0	0.0	0	0.0	24	3.3	0	0.0	0	0.0	729	99.9	0	0.0	24	3.3
Sri Manjung	615	1	0.2	0	0.0	5	0.8	0	0.0	0	0.0	611	99.3	3	0.5	5	0.8
Sultan Ismail	743	1	0.1	0	0.0	42	5.7	616	82.9	1	0.1	269	36.2	11	1.5	199	26.8
Sultanah Aminah JB	1,377	5	0.4	1	0.1	411	29.8	277	20.1	0	0.0	687	49.9	547	39.7	507	36.8
Sungai Buloh	676	2	0.3	0	0.0	70	10.4	25	3.7	3	0.4	313	46.3	385	57.0	222	32.8
Sungei Petani	998	0	0.0	0	0.0	131	13.1	2	0.2	0	0.0	865	86.7	0	0.0	0	0.0
Taiping	1,312	0	0.0	0	0.0	252	19.2	1	0.1	1	0.1	1,063	81.0	0	0.0	5	0.4
Tanah Merah	18	0	0.0	0	0.0	18	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tawau	574	3	0.5	1	0.2	72	12.5	20	3.5	0	0.0	504	87.8	7	1.2	26	4.5
Teluk Intan	1,265	0	0.0	0	0.0	926	73.2	0	0.0	0	0.0	193	15.3	178	14.1	33	2.6
Temerloh	915	0	0.0	1	0.1	345	37.7	2	0.2	0	0.0	503	55.0	195	21.3	274	29.9
Umum Sarawak	1,644	2	0.1	1	0.1	16	1.0	2	0.1	0	0.0	1,637	99.6	5	0.3	21	1.3
KK1M Johor	90	1	1.1	0	0.0	22	24.4	18	20.0	0	0.0	42	46.7	22	24.4	15	16.7
KK1M Kedah	325	0	0.0	0	0.0	13	4.0	0	0.0	0	0.0	315	96.9	8	2.5	11	3.4
KK1M Kelantan	59	0	0.0	0	0.0	37	62.7	0	0.0	0	0.0	22	37.3	0	0.0	0	0.0
KK1M Neg. Sembilan	214	0	0.0	0	0.0	95	44.4	1	0.5	0	0.0	180	84.1	1	0.5	63	29.4
KK1M Pahang	118	1	0.8	0	0.0	48	40.7	0	0.0	0	0.0	87	73.7	26	22.0	45	38.1
KK1M Pulau Pinang	77	0	0.0	0	0.0	3	3.9	0	0.0	0	0.0	56	72.7	19	24.7	1	1.3
KK1M Sabah	262	0	0.0	0	0.0	13	5.0	0	0.0	0	0.0	222	84.7	64	24.4	37	14.1
KK1M Sarawak	891	0	0.0	0	0.0	12	1.3	0	0.0	0	0.0	882	99.0	0	0.0	5	0.6
KK1M Terengganu	46	0	0.0	0	0.0	3	6.5	0	0.0	0	0.0	43	93.5	0	0.0	1	2.2
MAIWP	2,784	12	0.4	0	0.0	81	2.9	23	0.8	0	0.0	2,561	92.0	1,008	36.2	938	33.7

Table 1.3.8-9: Subtenon Anaesthesia by SDP, CSR 2007-2016

Years	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	9990	58.3	11014	54.6	11525	50.6	10952	41.4	10512	36.7	9849	32.6	9,913	28.6	9,351	24.8	9,294	22.4	8,973	19.0
Alor Setar	35	9.5	109	12.1	239	25.3	274	20.7	323	18.8	426	26.5	600	40.8	379	21.1	275	13.4	213	9.0
Ampang	3	75.0	162	78.3	110	27.1	70	11.5	27	3.8	58	6.7	117	12.4	125	13.8	134	15.9	126	17.6
Batu Pahat	545	99.6	567	99.5	562	94.8	280	69.5	156	29.1	161	27.4	166	39.8	293	64.8	348	65.2	501	79.4
Bintulu	-	-	24	0.0	118	99.2	255	99.6	328	100.0	382	100.0	374	98.9	374	100.0	346	99.1	133	69.3
Bukit Mertajam	422	69.5	294	64.1	239	32.7	399	50.8	423	54.3	384	42.7	275	31.0	283	29.3	281	23.1	237	18.4
Ipoh	702	47.1	921	56.2	872	43.5	567	27.3	387	23.5	517	19.6	448	16.8	198	8.9	279	13.4	214	7.7
Kangar	313	98.4	389	98.5	383	98.5	383	98.7	397	100.0	442	99.1	457	98.5	414	99.0	559	98.9	628	99.2
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	8	17.4	24	33.8	1	33.3	9	34.6
Keningau	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1	20	15.5	1	1.3	1	0.3
Klang	468	57.1	297	27.3	178	24.1	326	38.5	67	7.2	62	5.0	45	3.3	58	4.6	168	9.8	239	12.0
Kota Bharu	726	99.2	672	99.3	837	98.0	885	97.6	884	99.0	495	97.6	629	98.6	273	99.3	784	90.2	884	83.6
Kuala Krai	115	100.0	142	86.6	169	98.8	203	95.8	222	94.9	243	99.6	388	100.0	248	69.3	86	22.3	60	18.1
Kuala Lumpur	NA	NA	27	73.0	620	50.7	800	56.7	829	60.7	601	46.8	310	31.0	761	43.9	332	23.3	391	27.7
Kuala Pilah	208	99.5	270	97.8	252	89.7	237	79.5	371	79.6	304	72.6	208	44.1	303	65.9	300	69.8	264	45.8
Kuala Terengganu	419	85.2	590	84.8	417	59.7	267	39.8	274	38.1	291	40.6	215	22.7	207	24.7	304	33.6	260	22.0
Kuantan	9	47.4	162	54.9	143	63.8	358	78.9	456	77.2	345	63.3	366	76.3	399	86.0	769	80.9	670	61.1
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	5.4	45	11.0	62	11.1
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	17.9	7	11.7
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	443	30.1	463	28.9	376	28.5	310	19.5	211	13.4	128	9.0	223	13.7	123	6.0	64	2.8	44	1.8
Miri	1	6.3	352	90.0	187	46.9	90	15.7	161	24.9	60	6.8	24	2.7	364	38.4	317	35.9	151	14.7
Muar	166	49.7	326	98.5	528	99.2	460	77.7	104	15.8	54	8.3	37	5.4	53	7.6	37	4.1	44	4.1
Pulau Pinang	967	97.6	687	54.5	474	37.3	328	18.5	76	3.5	56	4.4	165	10.0	122	7.0	124	5.9	112	4.4
Putrajaya	188	98.9	236	99.6	240	99.2	260	100.0	240	80.3	125	37.4	100	27.0	77	21.8	45	10.3	55	13.4
Queen Elizabeth KK	195	39.2	81	24.1	82	20.3	115	22.0	91	14.0	142	19.9	206	22.3	248	25.9	249	24.4	279	22.3
Sandakan	NA	NA	0	0.0	86	57.7	116	61.4	140	55.6	113	45.0	24	6.0	7	3.0	23	4.9	46	13.4

Sarikei	-	-	-	-	-	-	-	-	-	-	-	2	0.7	5	0.9	6	0.9	0	0.0	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	20.7	
Selayang	152	11.1	174	12.7	190	13.9	249	15.1	211	11.8	323	18.4	260	19.9	131	16.8	166	14.2	102	9.3
Serdang	522	91.7	375	56.9	396	70.7	375	80.5	432	70.7	414	60.6	339	36.1	362	31.0	247	26.2	228	48.9
Seremban	210	24.1	294	35.4	356	30.7	563	38.3	591	38.5	422	29.1	270	18.7	240	15.8	199	12.0	151	8.7
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	6.4	
Sibu	33	9.6	96	38.9	155	40.4	26	5.8	37	7.4	10	1.3	11	1.2	22	2.6	22	3.9	34	4.3
Sri Manjung	136	92.5	133	38.7	28	8.6	35	9.2	47	11.4	32	7.2	9	1.1	4	0.7	8	1.3	6	0.9
Sultan Ismail	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5	15	5.3	159	32.9	170	24.0	42	5.5
Sultanah Aminah JB	1103	74.0	801	60.1	942	74.8	464	35.3	436	41.1	501	43.9	521	40.4	278	20.7	354	22.6	438	29.3
Sungai Buloh	98	80.3	221	90.2	325	99.4	374	91.2	319	79.4	292	67.4	373	77.9	158	26.7	88	12.7	75	10.4
Sungei Petani	472	99.0	591	98.2	646	99.2	235	44.9	180	23.3	236	29.3	229	26.1	218	24.7	104	11.5	138	13.3
Taiping	156	71.2	166	54.2	121	22.4	328	41.4	402	48.4	356	36.4	373	32.5	189	17.5	343	28.8	279	20.4
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	100.0	18	100.0
Tawau	195	100.0	303	98.4	287	99.7	382	99.5	553	100.0	615	99.2	380	78.8	406	77.2	154	25.6	109	16.4
Teluk Intan	190	28.6	406	72.0	397	66.4	386	58.2	472	73.2	586	99.2	1,063	98.9	986	99.1	903	99.2	953	73.0
Temerloh	390	94.4	429	83.1	425	67.8	410	96.7	611	94.0	586	69.9	403	47.5	491	48.2	378	45.6	364	38.2
Umum Sarawak	404	42.7	254	26.3	145	17.1	142	12.5	54	4.9	86	5.4	56	3.4	59	3.0	25	1.3	21	1.2
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	25.0	
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	13	3.9
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	138	75.4	0	0.0	39	62.9
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	75.0	99	45.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	51	79.7	-	-	105	57.4	49	41.2
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3.6
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	14.4	13	4.8
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3	5	0.6	13	1.2	12	1.3
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	28.6	9	24.3	3	6.3
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	171	10.8	123	5.4	87	4.8	86	3.0

Table 1.3.8-10: Subtenon Anaesthesia by SDP (50 years and above), CSR 2007-2016

Years	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	9397	56.2	10354	54.7	10861	50.6	10338	41.4	9979	36.8	9340	32.6	9,435	28.6	8,938	24.8	8,885	22.4	8,653	19.0
Alor Setar	33	8.8	103	11.9	228	25.8	263	21.0	309	19.0	418	27.0	586	41.2	373	21.6	270	13.6	211	9.2
Ampang	2	66.7	150	77.7	103	26.8	66	11.3	27	4.0	56	6.7	114	12.7	121	13.8	127	15.6	121	17.5
Batu Pahat	511	99.2	534	99.4	537	94.5	269	70.6	152	29.4	157	27.8	163	40.2	285	64.9	334	64.7	491	79.3
Bintulu	-	-	22	88.0	106	99.1	230	100.0	303	100.0	356	100.0	342	99.4	341	100.0	314	99.1	126	70.0
Bukit Mertajam	402	65.2	279	64.1	224	32.4	372	50.7	408	54.9	358	42.2	265	31.5	269	29.0	271	23.2	232	18.5
Ipoh	663	46.0	881	55.9	838	43.4	550	27.6	378	23.6	500	19.7	430	16.8	192	8.9	275	13.5	213	7.9
Kangar	298	97.1	363	98.6	365	98.4	365	98.6	383	100.0	418	99.1	446	98.5	395	99.0	544	98.9	608	99.3
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	8	18.2	21	31.8	1	33.3	9	34.6
Keningau	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1	20	16.0	1	1.3	1	0.3
Klang	442	47.4	271	26.7	169	24.1	312	39.2	63	7.3	58	5.0	43	3.3	54	4.5	161	9.8	228	11.9
Kota Bharu	683	95.5	628	99.2	760	98.1	818	97.4	828	99.0	459	97.7	591	98.7	252	99.2	731	89.9	847	84.2
Kuala Krai	111	96.5	132	86.8	163	98.8	188	95.4	208	94.5	231	99.6	369	100.0	239	68.7	83	22.4	56	18.0
Kuala Lumpur	-	-	27	77.1	594	50.8	759	56.6	796	61.3	581	47.4	298	31.0	737	44.2	323	23.9	370	27.7
Kuala Pilah	197	98.5	251	98.0	240	89.6	228	79.7	355	79.2	292	72.5	195	43.1	294	65.5	293	70.3	254	45.0
Kuala Terengganu	390	82.5	557	84.7	392	59.7	251	40.1	261	38.1	273	40.6	198	22.0	197	24.8	292	33.9	252	22.2
Kuantan	7	33.3	151	54.5	138	63.3	338	78.6	444	77.5	330	62.9	356	76.2	386	86.4	743	81.0	651	61.7
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	5.6	40	10.2	61	11.3
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	18.9	6	10.2
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	428	30.6	455	30.0	363	29.2	303	20.0	210	14.0	125	9.2	216	14.0	118	5.9	61	2.7	43	1.8
Miri	1	6.3	330	89.7	176	46.2	85	15.7	151	24.5	56	6.6	22	2.5	348	38.4	301	35.2	143	14.5
Muar	158	48.2	308	98.4	507	99.2	429	77.7	100	15.9	51	8.0	36	5.6	51	7.6	35	4.0	41	4.0
Pulau Pinang	929	91.5	668	54.6	462	37.4	320	18.7	74	3.6	53	4.2	153	9.6	113	6.7	122	6.0	109	4.5
Putrajaya	178	95.2	226	99.6	231	99.1	255	100.0	224	80.3	116	36.4	95	26.5	74	21.8	44	10.6	54	13.4
Queen Elizabeth KK	181	39.2	73	23.7	74	20.2	108	22.3	85	13.9	132	19.9	193	22.2	235	25.8	232	24.3	267	22.3
Sandakan	-	-	0	0.0	80	58.8	110	61.5	134	55.8	107	46.1	23	6.2	6	2.8	21	4.7	41	13.0

Sarikei	-	-	-	-	-	-	-	-	-	-	-	2	0.7	5	0.9	6	1.0	0	0.0	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	21.1	
Selayang	132	10.6	165	13.5	178	14.4	227	15.1	191	11.8	300	18.5	244	20.2	116	16.1	151	14.6	96	9.6
Serdang	485	89.2	358	57.0	380	70.5	354	80.6	407	71.3	389	61.1	324	36.5	345	30.7	234	25.8	226	49.5
Seremban	199	22.7	272	34.6	336	30.7	529	37.9	562	38.2	392	28.4	258	18.5	234	16.0	192	12.0	142	8.5
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	5.9	
Sibu	32	9.3	89	39.0	145	40.6	23	5.5	33	7.1	10	1.4	10	1.2	21	2.6	21	3.9	28	3.8
Sri Manjung	128	90.1	123	38.9	27	8.7	34	9.2	44	11.2	31	7.2	9	1.2	4	0.7	5	0.8	5	0.8
Sultan Ismail	4	4.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	15	5.5	153	32.8	165	23.9	42	5.6
Sultanah Aminah JB	1025	72.9	724	59.5	846	74.7	427	35.1	403	41.3	468	45.1	478	40.2	254	20.0	338	23.1	420	29.6
Sungai Buloh	91	70.5	207	90.4	306	99.4	346	91.1	294	78.8	280	67.1	356	77.9	146	26.4	86	13.1	71	10.5
Sungei Petani	444	96.3	551	98.2	612	99.2	225	45.5	172	23.4	231	30.1	221	26.3	212	25.4	100	11.5	132	13.2
Taiping	148	58.3	158	53.6	117	22.5	313	41.3	385	48.7	349	36.8	367	33.1	182	17.3	338	29.0	272	20.3
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	100.0	18	100.0
Tawau	169	100.0	275	98.2	258	99.6	334	99.7	500	100.0	561	99.1	338	78.1	377	77.4	136	25.8	94	15.2
Teluk Intan	176	28.2	386	72.0	375	65.6	371	58.2	458	73.0	570	99.3	1,031	98.8	964	99.1	860	99.3	929	73.3
Temerloh	371	90.5	410	83.5	402	68.4	401	96.6	587	94.1	555	69.7	382	47.2	478	48.3	360	45.1	353	38.2
Umum Sarawak	379	42.6	227	25.6	129	16.2	135	12.6	50	4.9	76	5.1	49	3.2	52	2.8	24	1.3	18	1.1
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	24.4
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	13	4.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	75.1	0	0.0	38	63.3
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	75.0	97	44.7
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	48	80.0	-	-	104	57.5	48	40.7
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3.8
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	14.2	13	4.9
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	1	1.4	5	0.6	13	1.2	12	1.3
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	28.6	9	25.0	3	6.5
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	159	10.5	112	5.2	83	4.8	82	2.9

Table 1.3.8-11: Topical Anaesthesia by SDP, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	4853	28.3	6680	33.1	8382	36.8	13112	49.6	16825	58.8	18461	61.1	22,220	64.2	25,068	66.6	28,458	68.7	34,825	73.5
Alor Setar	1	0.3	95	10.6	124	13.1	676	51.2	876	51.0	922	57.4	547	37.2	1107	61.7	1371	66.7	1913	81.1
Ampang	3	75.0	64	30.9	248	61.1	500	81.8	674	95.9	807	92.7	908	96.3	827	91.1	707	83.8	554	77.5
Batu Pahat	1	0.2	0	0.0	25	4.2	85	21.1	355	66.2	184	31.3	15	3.6	0	0.0	9	1.7	11	1.7
Bintulu	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60	31.3
Bukit Mertajam	0	0.0	2	0.4	62	8.5	0	0.0	1	0.1	8	0.9	0	0.0	2	0.2	16	1.3	178	13.8
Ipoh	573	38.5	594	36.2	1137	56.7	1521	73.3	1348	81.7	2167	82.1	2,417	90.8	2,163	97.2	1,531	73.4	2,496	89.3
Kangar	0	0.0	0	0.0	3	0.8	3	0.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.2
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	29	63.0	52	73.2	3	100.0	14	53.8
Keningau	-	-	28	93.3	21	91.3	2	2.8	0	0.0	0	0.0	0	0.0	74	57.4	76	95.0	350	95.4
Klang	210	25.6	566	52.1	427	57.7	480	56.7	751	81.0	981	79.4	1,298	94.8	1,138	91.0	1,482	86.9	1,743	87.3
Kota Bharu	0	0.0	1	0.1	12	1.4	22	2.4	7	0.8	8	1.6	0	0.0	0	0.0	59	6.8	166	15.7
Kuala Krai	0	0.0	9	5.5	1	0.6	14	6.6	93	39.7	0	0.0	0	0.0	161	45.0	332	86.2	268	81.0
Kuala Lumpur	NA	NA	2	5.4	208	17.0	237	16.8	202	14.8	163	12.7	352	35.2	509	29.4	651	45.7	1056	74.7
Kuala Pilah	0	0.0	1	0.4	0	0.0	9	3.0	38	8.2	51	12.2	236	50.0	103	22.4	225	52.3	398	69.1
Kuala Terengganu	75	15.2	99	14.2	274	39.3	402	59.9	445	61.8	434	60.5	765	80.6	650	77.6	597	66.0	950	80.2
Kuantan	4	21.1	40	13.6	2	0.9	9	2.0	7	1.2	0	0.0	0	0.0	49	10.6	290	30.5	611	55.7
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	72.4	404	98.8	541	96.8
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	71.4	53	88.3
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	1075	73.1	1233	76.9	1014	76.9	1572	98.7	1549	98.6	1415	99.3	1,541	94.8	2,008	97.5	2,251	97.7	2,419	98.7
Miri	0	0.0	12	3.1	211	52.9	483	84.3	478	73.9	823	92.9	882	97.5	627	66.2	661	74.8	905	87.9
Muar	160	47.9	4	1.2	1	0.2	130	22.0	547	83.1	584	89.3	580	84.8	644	92.7	891	98.2	1055	99.4
Pulau Pinang	8	0.8	560	44.4	814	64.1	1387	78.4	2002	92.4	1185	92.2	1,525	92.6	1,573	89.8	1,884	90.2	2,366	93.8
Putrajaya	0	0.0	0	0.0	0	0.0	0	0.0	3	1.0	1	0.3	4	1.1	4	1.1	356	81.1	115	28.0
Queen Elizabeth KK	242	48.7	221	65.8	265	65.8	416	79.7	582	89.4	624	87.4	791	85.7	796	83.1	928	90.9	1180	94.3
Sandakan	NA	NA	12	9.2	34	22.8	86	45.5	83	32.9	92	36.7	367	91.5	225	96.6	450	95.1	280	81.4

Sarikei	-	-	-	-	-	-	-	-	-	-	-	280	98.6	546	98.9	641	99.8	215	31.5	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	4.3	
Selayang	983	71.5	981	71.7	989	72.2	1142	69.4	1255	70.1	1262	71.9	969	74.1	600	76.8	830	71.1	645	58.9
Serdang	33	5.8	247	37.5	151	27.0	88	18.9	164	26.8	264	38.7	533	56.8	752	64.4	561	59.6	231	49.6
Seremban	1	0.1	102	12.3	273	23.5	632	43.0	1059	69.0	999	68.9	980	67.8	1156	76.0	1382	83.5	1377	79.5
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	314	96.0
Sibu	0	0.0	0	0.0	173	45.1	347	77.1	450	89.6	736	99.3	889	99.6	843	98.8	567	99.6	781	99.7
Sri Manjung	11	7.5	201	58.4	298	92.0	353	92.9	365	88.8	418	93.9	781	98.9	587	98.3	634	99.1	639	99.2
Sultan Ismail	0	0.0	0	0.0	1	0.8	10	5.7	58	32.0	87	46.8	212	75.4	95	19.6	46	6.5	276	35.8
Sultanah Aminah JB	359	24.1	501	37.6	159	12.6	488	37.1	1034	97.5	1114	97.7	289	22.4	440	32.7	953	60.9	748	50.1
Sungai Buloh	27	22.1	15	6.1	6	1.8	33	8.0	76	18.9	105	24.2	62	12.9	193	32.6	271	39.2	329	45.6
Sungei Petani	0	0.0	0	0.0	0	0.0	240	45.9	640	82.9	633	78.6	711	81.1	756	85.7	841	93.2	898	86.5
Taiping	63	28.8	102	33.3	213	39.4	466	58.8	431	51.9	626	64.1	776	67.7	906	83.7	866	72.7	1,095	80.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Tawau	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	94	19.5	112	21.3	437	72.7	559	84.3
Teluk Intan	469	70.6	152	27.0	287	48.0	258	38.9	152	23.6	12	2.0	17	1.6	33	3.3	0	0.0	204	15.6
Temerloh	27	6.5	103	20.0	234	37.3	21	5.0	39	6.0	226	27.0	337	39.7	243	23.8	220	26.5	520	54.5
Umum Sarawak	528	55.8	733	75.9	714	84.0	1000	88.3	1061	96.5	1530	95.6	1,592	97.8	1,855	93.9	1,838	96.7	1,735	97.9
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	45.7
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	209	100.0	325	97.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	18.0	0	0.0	23	37.1
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	100.0	184	83.6
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	16	25.0	-	-	79.0	43.2	87.0	73.1
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58.0	69.0
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122.0	97.6	231.0	84.9
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	74	98.7	818	99.3	1107	98.1	908	99.0
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	80.0	28	75.7	45	93.8
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	1,351	85.3	2,171	95.8	1,607	88.1	2,668	92.0

Table 1.3.8-12: Topical Anaesthesia by SDP (50 years and above), CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	4510	27.0	6274	33.1	7952	37.0	12473	49.9	16003	59.0	17557	61.2	21,203	64.3	24,071	66.7	27,349	69.0	33,542	73.7
Alor Setar	1	0.3	88	10.1	115	13.0	652	52.0	839	51.5	888	57.4	523	36.8	1064	61.6	1322	66.6	1872	81.4
Ampang	2	66.7	62	32.1	236	61.3	475	81.6	653	96.3	777	92.5	867	96.2	801	91.1	682	83.9	534	77.4
Batu Pahat	1	0.2	0	0.0	25	4.4	80	21.0	340	65.8	172	30.5	14	3.5	0	0.0	9	1.7	11	1.8
Bintulu	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	56	31.1
Bukit Mertajam	0	0.0	2	0.5	62	9.0	0	0.0	1	0.1	8	0.9	0	0.0	1	0.1	16	1.4	170	13.6
Ipoh	534	37.1	575	36.5	1090	56.5	1455	73.0	1309	81.8	2090	82.3	2,333	91.1	2,104	97.3	1,500	73.6	2,435	89.8
Kangar	0	0.0	0	0.0	3	0.8	3	0.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	27	61.4	49	74.2	3	100.0	14	53.8
Keningau	-	-	23	92.0	19	90.5	2	3.0	0	0.0	0	0.0	0	0.0	73	58.4	75	94.9	334	95.7
Klang	196	21.0	531	52.3	408	58.2	446	56.0	695	81.0	922	79.3	1,230	94.6	1,084	90.9	1,421	86.8	1,678	87.3
Kota Bharu	0	0.0	1	0.2	10	1.3	22	2.6	6	0.7	8	1.7	0	0.0	0	0.0	56	6.9	157	15.6
Kuala Krai	0	0.0	9	5.9	1	0.6	14	7.1	86	39.1	0	0.0	0	0.0	157	45.1	319	86.2	250	80.4
Kuala Lumpur	-	-	1	2.9	198	16.9	223	16.6	189	14.6	157	12.8	338	35.2	494	29.6	619	45.7	994	74.4
Kuala Pilah	0	0.0	0	0.0	0	0.0	9	3.1	38	8.5	49	12.2	229	50.7	101	22.5	215	51.6	392	69.5
Kuala Terengganu	68	14.4	94	14.3	259	39.4	373	59.6	423	61.8	408	60.6	732	81.2	615	77.4	570	66.2	910	80.2
Kuantan	4	19.0	37	13.4	2	0.9	9	2.1	5	0.9	0	0.0	0	0.0	45	10.1	277	30.2	589	55.8
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	179	71.6	387	98.7	521	96.7
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37	69.8	53	89.8
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	991	70.8	1151	75.9	951	76.5	1495	98.7	1483	98.5	1350	99.3	1,464	94.8	1,940	97.5	2,178	97.7	2,339	98.7
Miri	0	0.0	12	3.3	204	53.5	457	84.3	457	74.2	791	93.1	842	97.6	600	66.2	643	75.2	869	88.2
Muar	155	47.3	4	1.3	1	0.2	121	21.9	521	83.0	568	89.4	543	84.3	618	92.7	864	98.3	1017	99.5
Pulau Pinang	7	0.7	543	44.4	789	63.9	1346	78.6	1931	92.8	1153	92.4	1,473	92.9	1,518	90.2	1,841	91.1	2,286	94.5
Putrajaya	0	0.0	0	0.0	0	0.0	0	0.0	2	0.7	1	0.3	4	1.1	4	1.2	340	81.9	112	27.8
Queen Elizabeth KK	210	45.5	204	66.2	241	65.8	390	80.4	546	89.5	583	87.8	745	85.8	754	82.7	869	91.2	1130	94.5
Sandakan	-	-	11	8.9	31	22.8	83	46.4	79	32.9	84	36.2	339	91.6	207	96.3	424	95.3	257	81.3

Sarikei	-	-	-	-	-	-	-	-	-	-	-	267	98.9	536	98.9	625	99.8	209	32.0	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	4.6	
Selayang	927	74.5	906	73.9	921	74.3	1080	71.7	1192	73.4	1185	72.9	907	75.0	568	78.8	763	73.6	624	62.6
Serdang	26	4.8	235	37.4	149	27.6	82	18.7	149	26.1	243	38.1	504	56.8	723	64.4	542	59.8	226	49.5
Seremban	1	0.1	97	12.3	255	23.3	602	43.1	1015	69.0	962	69.7	947	67.9	1103	75.5	1338	83.7	1332	79.7
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	292	95.7	
Sibu	0	0.0	0	0.0	163	45.7	328	77.9	419	89.5	695	99.3	833	99.6	801	98.8	538	99.6	735	99.7
Sri Manjung	10	7.0	184	58.2	284	91.6	341	92.7	350	89.1	406	94.0	761	98.8	581	98.3	620	99.5	616	99.4
Sultan Ismail	0	0.0	0	0.0	1	0.9	10	5.8	58	32.2	82	45.3	207	75.5	89	19.1	46	6.7	269	36.1
Sultanah Aminah JB	339	24.1	464	38.2	151	13.3	458	37.6	951	97.5	1016	98.0	271	22.8	414	32.6	891	60.8	703	49.6
Sungai Buloh	24	18.6	14	6.1	6	1.9	31	8.2	73	19.6	102	24.5	59	12.9	181	32.8	255	38.9	314	46.4
Sungei Petani	0	0.0	0	0.0	0	0.0	225	45.5	607	82.7	596	77.7	678	80.8	712	85.3	808	93.3	868	86.6
Taiping	61	24.0	102	34.6	205	39.3	447	59.0	409	51.7	605	63.8	744	67.1	879	83.7	844	72.4	1069	80.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Tawau	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	88	20.3	102	20.9	383	72.7	526	84.8
Teluk Intan	440	70.5	146	27.2	279	48.8	248	38.9	148	23.6	11	1.9	16	1.5	31	3.2	0	0.0	193	15.2
Temerloh	24	5.9	97	19.8	217	36.9	21	5.1	37	5.9	216	27.1	314	38.8	238	24.1	213	26.7	509	55.1
Umum Sarawak	489	55.0	681	76.8	675	84.7	945	88.2	992	96.4	1429	95.6	1,514	98.2	1,770	94.4	1,760	97.2	1,656	98.0
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	46.7
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	206	100.0	315	96.9
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	18.6	0	0.0	22	36.7
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	100.0	181	83.4
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	16	26.7	-	-	78.0	43.1	87	73.7
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	71.8
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	118.0	98.3	222	84.4
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	73	98.6	794	99.4	1087	98.0	884	99.0
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	80.0	27	75.0	43	93.5
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	1,301	85.6	2,080	95.9	1,535	88.3	2,564	92.0

Table 1.3.8-13: Types of Sedation in Eyes Given Local Anaesthesia by SDP, CSR 2016

	Types of sedation								
	All Local Anaesthesia	No Sedation		Oral Alone		Intravenous Alone		Intramuscular Alone	
	N	n	%	n	%	n	%	n	%
All Centres	47,349	25,926	54.8	3,218	6.8	124	0.3	5	0.0
Alor Setar	2,359	1,805	76.5	4	0.2	2	0.1	0	0.0
Ampang	715	46	6.4	0	0.0	0	0.0	0	0.0
Batu Pahat	631	311	49.3	0	0.0	0	0.0	0	0.0
Bintulu	192	86	44.8	0	0.0	0	0.0	0	0.0
Bukit Mertajam	1286	145	11.3	379	29.5	0	0.0	0	0.0
Ipoh	2,796	1502	53.7	7	0.3	82	2.9	0	0.0
Kangar	633	2	0.3	0	0.0	0	0.0	0	0.0
Kemaman	26	17	65.4	0	0.0	1	3.8	0	0.0
Keningau	367	265	72.2	1	0.3	0	0.0	0	0.0
Klang	1,997	204	10.2	0	0.0	1	0.1	0	0.0
Kota Bharu	1057	465	44.0	2	0.2	4	0.4	0	0.0
Kuala Krai	331	97	29.3	0	0.0	4	1.2	0	0.0
Kuala Lumpur	1,414	325	23.0	1	0.1	2	0.1	0	0.0
Kuala Pilah	576	486	84.4	1	0.2	0	0.0	0	0.0
Kuala Terengganu	1184	724	61.1	0	0.0	11	0.9	1	0.1
Kuantan	1097	457	41.7	1	0.1	1	0.1	0	0.0
Kulim	559	190	34.0	0	0.0	0	0.0	0	0.0
Langkawi	60	45	75.0	0	0.0	0	0.0	0	0.0
Likas	0	0	0.0	0	0.0	0	0.0	0	0.0
Melaka	2,451	1,923	78.5	4	0.2	0	0.0	0	0.0
Miri	1029	1018	98.9	0	0.0	0	0.0	0	0.0
Muar	1061	1055	99.4	1	0.1	0	0.0	0	0.0
Pulau Pinang	2,523	933	37.0	1517	60.1	2	0.1	0	0.0
Putrajaya	411	358	87.1	0	0.0	0	0.0	0	0.0
Queen Elizabeth KK	1251	768	61.4	5	0.4	1	0.1	0	0.0
Sandakan	344	26	7.6	0	0.0	0	0.0	0	0.0
Sarikei	682	213	31.2	0	0.0	0	0.0	0	0.0
Segamat	116	3	2.6	0	0.0	0	0.0	0	0.0
Selayang	1,095	386	35.3	2	0.2	0	0.0	0	0.0
Serdang	466	84	18.0	0	0.0	2	0.4	0	0.0
Seremban	1,733	1094	63.1	4	0.2	0	0.0	0	0.0
Shah Alam	327	196	59.9	1	0.3	0	0.0	0	0.0
Sibu	783	719	91.8	1	0.1	0	0.0	0	0.0
Sri Manjung	644	600	93.2	1	0.2	0	0.0	0	0.0
Sultan Ismail	770	742	96.4	0	0.0	1	0.1	0	0.0
Sultanah Aminah JB	1,494	547	36.6	0	0.0	0	0.0	0	0.0
Sungai Buloh	721	8	1.1	0	0.0	0	0.0	0	0.0
Sungei Petani	1038	1038	100.0	0	0.0	0	0.0	0	0.0
Taiping	1,369	1,365	99.7	0	0.0	0	0.0	0	0.0
Tanah Merah	18	17	94.4	0	0.0	1	5.6	0	0.0

Tawau	663	317	47.8	106	16.0	3	0.5	0	0.0
Teluk Intan	1,305	50	3.8	1140	87.4	0	0.0	0	0.0
Temerloh	954	332	34.8	3	0.3	1	0.1	0	0.0
Umum Sarawak	1,772	984	55.5	2	0.1	0	0.0	0	0.0
KK1M Johor	92	45	48.9	0	0.0	0	0.0	0	0.0
KK1M Kedah	335	335	100.0	0	0.0	0	0.0	0	0.0
KK1M Kelantan	62	25	40.3	0	0.0	1	1.6	0	0.0
KK1M Neg. Sembilan	220	182	82.7	0	0.0	0	0.0	0	0.0
KK1M Pahang	119	52	43.7	0	0.0	0	0.0	0	0.0
KK1M Pulau Pinang	84	28	33.3	33	39.3	0	0.0	0	0.0
KK1M Sabah	272	139	51.1	0	0.0	0	0.0	0	0.0
KK1M Sarawak	917	382	41.7	1	0.1	0	0.0	0	0.0
KK1M Terengganu	48	6	12.5	0	0.0	0	0.0	0	0.0
MAIWP	2,900	2,784	96.0	1	0.0	4	0.1	4	0.1

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

Table 1.3.8-14: Types of Sedation in Eyes Given Local Anaesthesia by SDP (50 years and above), CSR 2016

	Types of sedation								
	All Local Anaesthesia	No Sedation		Oral Alone		Intravenous Alone		Intramuscular Alone	
	N	n	%	n	%	n	%	n	%
All Centres	45,502	24,981	54.9	3,106	6.8	114	0.3	4	0.0
Alor Setar	2,300	1,760	76.5	4	0.2	2	0.1	0	0.0
Ampang	690	42	6.1	0	0.0	0	0.0	0	0.0
Batu Pahat	619	305	49.3	0	0.0	0	0.0	0	0.0
Bintulu	180	83	46.1	0	0.0	0	0.0	0	0.0
Bukit Mertajam	1,251	140	11.2	368	29.4	0	0.0	0	0.0
Ipoh	2,711	1462	53.9	7	0.3	74	2.7	0	0.0
Kangar	612	2	0.3	0	0.0	0	0.0	0	0.0
Kemaman	26	17	65.4	0	0.0	1	3.8	0	0.0
Keningau	349	255	73.1	1	0.3	0	0.0	0	0.0
Klang	1,922	198	10.3	0	0.0	1	0.1	0	0.0
Kota Bharu	1,006	442	43.9	1	0.1	4	0.4	0	0.0
Kuala Krai	311	89	28.6	0	0.0	4	1.3	0	0.0
Kuala Lumpur	1336	310	23.2	1	0.1	2	0.1	0	0.0
Kuala Pilah	564	478	84.8	1	0.2	0	0.0	0	0.0
Kuala Terengganu	1135	695	61.2	0	0.0	11	1.0	0	0.0
Kuantan	1055	441	41.8	1	0.1	1	0.1	0	0.0
Kulim	539	185	34.3	0	0.0	0	0.0	0	0.0
Langkawi	59	44	74.6	0	0.0	0	0.0	0	0.0
Likas	0	0	0.0	0	0.0	0	0.0	0	0.0
Melaka	2,370	1,862	78.6	4	0.2	0	0.0	0	0.0
Miri	985	974	98.9	0	0.0	0	0.0	0	0.0
Muar	1,022	1,016	99.4	1	0.1	0	0.0	0	0.0

Pulau Pinang	2,418	892	36.9	1462	60.5	2	0.1	0	0.0
Putrajaya	403	351	87.1	0	0.0	0	0.0	0	0.0
Queen Elizabeth KK	1196	734	61.4	5	0.4	1	0.1	0	0.0
Sandakan	316	25	7.9	0	0.0	0	0.0	0	0.0
Sarikei	654	207	31.7	0	0.0	0	0.0	0	0.0
Segamat	109	3	2.8	0	0.0	0	0.0	0	0.0
Selayang	997	357	35.8	2	0.2	0	0.0	0	0.0
Serdang	457	83	18.2	0	0.0	1	0.2	0	0.0
Seremban	1,672	1,058	63.3	3	0.2	0	0.0	0	0.0
Shah Alam	305	184	60.3	0	0.0	0	0.0	0	0.0
Sibu	737	676	91.7	0	0.0	0	0.0	0	0.0
Sri Manjung	620	578	93.2	1	0.2	0	0.0	0	0.0
Sultan Ismail	745	718	96.4	0	0.0	1	0.1	0	0.0
Sultanah Aminah JB	1,418	517	36.5	0	0.0	0	0.0	0	0.0
Sungai Buloh	677	8	1.2	0	0.0	0	0.0	0	0.0
Sungei Petani	1002	1002	100.0	0	0.0	0	0.0	0	0.0
Taiping	1,337	1,334	99.8	0	0.0	0	0.0	0	0.0
Tanah Merah	18	17	94.4	0	0.0	1	5.6	0	0.0
Tawau	620	298	48.1	101	16.3	2	0.3	0	0.0
Teluk Intan	1,268	48	3.8	1,108	87.4	0	0.0	0	0.0
Temerloh	924	322	34.8	2	0.2	1	0.1	0	0.0
Umum Sarawak	1,689	931	55.1	1	0.1	0	0.0	0	0.0
KK1M Johor	90	44	48.9	0	0.0	0	0.0	0	0.0
KK1M Kedah	325	325	100.0	0	0.0	0	0.0	0	0.0
KK1M Kelantan	60	25	41.7	0	0.0	1	1.7	0	0.0
KK1M Neg. Sembilan	217	179	82.5	0	0.0	0	0.0	0	0.0
KK1M Pahang	118	52	44.1	0	0.0	0	0.0	0	0.0
KK1M Pulau Pinang	78	28	35.9	31	39.7	0	0.0	0	0.0
KK1M Sabah	263	132	50.2	0	0.0	0	0.0	0	0.0
KK1M Sarawak	893	371	41.5	1	0.1	0	0.0	0	0.0
KK1M Terengganu	46	6	13.0	0	0.0	0	0.0	0	0.0
MAIWP	2,788	2,676	96.0	0	0.0	4	0.1	4	0.1

Table 1.3.8-15: Oral Sedation Alone by SDP, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	2387	13.9	2923	14.5	3532	15.5	3171	12.0	2852	10.0	1810	6.0	1391	4.0	1823	4.8	2879	7.0	3218	6.8
Alor Setar	4	1.1	9	1.0	23	2.4	4	0.3	0	0.0	1	0.1	1	0.1	0	0.0	2	0.1	4	0.2
Ampang	0	0.0	0	0.0	1	0.2	3	0.5	0	0.0	3	0.3	2	0.2	0	0.0	0	0.0	0	0.0
Batu Pahat	0	0.0	1	0.2	3	0.5	1	0.2	1	0.2	1	0.2	4	1.0	4	0.9	0	0.0	0	0.0
Bintulu	-	-	7	24.1	29	24.4	32	12.5	4	1.2	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0
Bukit Mertajam	204	33.6	356	77.6	466	63.8	308	39.2	185	23.7	107	12.0	66	7.4	108	11.3	349	28.7	379	29.5
Ipoh	7	0.5	6	0.4	9	0.4	13	0.6	11	0.7	2	0.1	7	0.3	3	0.1	4	0.2	7	0.3
Kangar	4	1.3	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	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	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	0	0.0	0	0.0	1	0.3
Klang	1	0.1	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
Kota Bharu	5	0.7	5	0.7	15	1.8	5	0.6	1	0.1	0	0.0	0	0.0	0	0.0	12	1.4	2	0.2
Kuala Krai	3	2.6	11	6.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0
Kuala Lumpur	NA	NA	0	0.0	1	0.1	1	0.1	2	0.1	15	1.2	32	3.2	10	0.6	0	0.0	1	0.1
Kuala Pilah	99	47.4	97	35.1	205	73.0	77	25.8	211	45.3	96	23.0	22	4.7	24	5.2	2	0.5	1	0.2
Kuala Terengganu	16	3.3	2	0.3	72	10.3	104	15.5	15	2.1	23	3.3	2	0.2	3	0.4	1	0.1	0	0.0
Kuantan	0	0.0	0	0.0	0	0.0	2	0.4	5	0.8	0	0.0	1	0.2	0	0.0	10	1.1	1	0.1
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	0.2	0	0.0
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	0	0.0	2	0.1	7	0.5	0	0.0	0	0.0	0	0.0	1	0.1	2	0.1	3	0.1	4	0.2
Miri	0	0.0	0	0.0	0	0.0	1	0.2	3	0.5	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0
Muar	4	1.2	0	0.0	0	0.0	4	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Pulau Pinang	847	85.5	1124	89.2	1018	80.2	1339	75.6	1382	63.8	662	51.6	818	49.7	1227	70.1	1539	73.9	1517	60.2
Putrajaya	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	4	1.2	6	1.6	6	1.7	3	0.7	0	0.0
Queen Elizabeth KK	0	0.0	0	0.0	0	0.0	0	0.0	5	0.8	0	0.0	1	0.1	2	0.2	2	0.2	5	0.4
Sandakan	-	-	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Sarikei	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	
Selayang	13	0.9	2	0.1	10	0.7	13	0.8	6	0.3	1	0.1	3	0.2	0	0.0	1	0.1	2	0.2
Serdang	2	0.4	0	0.0	0	0.0	3	0.6	0	0.0	0	0.0	5	0.5	1	0.1	0	0.0	0	0.0
Seremban	3	0.3	5	0.6	14	1.2	2	0.1	4	0.3	2	0.1	1	0.1	1	0.1	1	0.1	4	0.2
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.3
Sibu	323	94.2	57	23.1	141	36.7	39	8.7	24	4.8	1	0.1	0	0.0	1	0.1	3	0.5	1	0.1
Sri Manjung	3	2.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1	2	0.3	0	0.0	1	0.2
Sultan Ismail	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	0.0	0	0.0
Sultanah Aminah JB	188	12.6	212	15.9	57	4.5	4	0.3	0	0.0	0	0.0	0	0.0	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	1	0.2	1	0.1	0	0.0
Sungei Petani	253	53.0	487	80.9	578	88.8	443	84.7	281	36.4	11	1.4	4	0.5	1	0.1	0	0.0	0	0.0
Taiping	7	3.2	20	6.5	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Tawau	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.6	12	2.3	144	24.0	106	16.1
Teluk Intan	0	0.0	158	28.0	366	61.2	356	53.7	95	14.7	353	59.7	247	23.0	408	41.0	794	87.3	1140	87.4
Temerloh	400	96.9	357	69.2	511	81.5	414	97.6	613	94.3	526	63.1	153	18.0	4	0.4	4	0.5	3	0.3
Umum Sarawak	0	0.0	0	0.0	2	0.2	1	0.1	0	0.0	1	0.1	0	0.0	2	0.1	0	0.0	2	0.1
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	9	14.1	-	-	1.0	0.5	0.0	0.0
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.0	39.3
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	1	0.1
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	1	0.0

Table 1.3.8-16: Oral Sedation Alone by SDP (50 years and above), CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	2264	13.5	2798	14.8	3355	15.6	3055	12.2	2731	10.1	1748	6.1	1339	4.1	1755	4.9	2776	7.0	3106	6.8
Alor Setar	4	1.1	9	1.0	23	2.6	4	0.3	0	0.0	1	0.1	1	0.1	0	0.0	2	0.1	4	0.2
Ampang	0	0.0	0	0.0	1	0.3	3	0.5	0	0.0	3	0.4	2	0.2	0	0.0	0	0.0	0	0.0
Batu Pahat	0	0.0	0	0.0	2	0.4	1	0.3	1	0.2	0	0.0	4	1.0	3	0.7	0	0.0	0	0.0
Bintulu	-	-	7	28.0	25	23.4	31	13.5	4	1.3	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0
Bukit Mertajam	198	32.1	340	78.2	437	63.2	284	38.7	174	23.4	102	12.0	63	7.5	104	11.3	336	28.8	368	29.4
Ipoh	6	0.4	6	0.4	9	0.5	13	0.7	9	0.6	2	0.1	6	0.2	3	0.1	4	0.2	7	0.3
Kangar	3	1.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	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	0	0.0	0	0.0	1	0.3
Klang	1	0.1	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
Kota Bharu	5	0.7	4	0.6	14	1.8	5	0.6	1	0.1	0	0.0	0	0.0	0	0.0	7	0.9	1	0.1
Kuala Krai	3	2.6	11	7.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0
Kuala Lumpur	-	-	0	0.0	1	0.1	1	0.1	2	0.2	14	1.1	31	3.2	9	0.5	0	0.0	1	0.1
Kuala Pilah	95	47.5	92	35.9	194	72.4	75	26.2	200	44.6	92	22.8	21	4.6	20	4.5	2	0.5	1	0.2
Kuala Terengganu	16	3.4	2	0.3	65	9.9	98	15.7	14	2.0	21	3.1	2	0.2	3	0.4	1	0.1	0	0.0
Kuantan	0	0.0	0	0.0	0	0.0	2	0.5	5	0.9	0	0.0	1	0.2	0	0.0	10	1.1	1	0.1
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	0.3	0	0.0
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	0	0.0	2	0.1	7	0.6	0	0.0	0	0.0	0	0.0	1	0.1	2	0.1	3	0.1	4	0.2
Miri	0	0.0	0	0.0	0	0.0	1	0.2	3	0.5	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0
Muar	4	1.2	0	0.0	0	0.0	4	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Pulau Pinang	809	79.7	1092	89.2	992	80.4	1300	75.9	1331	64.0	648	51.9	789	49.7	1177	70.0	1503	74.5	1462	60.5
Putrajaya	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	3	0.9	4	1.1	6	1.8	3	0.7	0	0.0
Queen Elizabeth KK	0	0.0	0	0.0	0	0.0	0	0.0	5	0.8	0	0.0	1	0.1	2	0.2	2	0.2	5	0.4
Sandakan	-	-	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Sarikei	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	
Selayang	9	0.7	2	0.2	9	0.7	12	0.8	5	0.3	1	0.1	2	0.2	0	0.0	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	1	0.1	0	0.0	0	0.0
Seremban	2	0.2	5	0.6	13	1.2	2	0.1	3	0.2	2	0.1	1	0.1	1	0.1	1	0.1	3	0.2
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Sibu	307	89.0	53	23.2	131	36.7	36	8.6	23	4.9	1	0.1	0	0.0	1	0.1	3	0.6	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	2	0.3	0	0.0	1	0.2
Sultan Ismail	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	0.0	0	0.0
Sultanah Aminah JB	173	12.3	200	16.4	52	4.6	4	0.3	0	0.0	0	0.0	0	0.0	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	1	0.2	1	0.2	0	0.0
Sungei Petani	237	51.4	456	81.3	546	88.5	421	85.1	265	36.1	11	1.4	3	0.4	1	0.1	0	0.0	0	0.0
Taiping	7	2.8	19	6.4	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Tawau	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.7	12	2.5	133	25.2	101	16.4
Teluk Intan	0	0.0	153	28.5	346	60.5	347	54.5	92	14.7	342	59.6	242	23.2	400	41.1	757	87.5	1108	87.4
Temerloh	379	92.4	340	69.2	482	82.0	405	97.6	590	94.6	503	63.2	145	17.9	4	0.4	3	0.4	2	0.2
Umum Sarawak	0	0.0	0	0.0	2	0.3	1	0.1	0	0.0	1	0.1	0	0.0	2	0.1	0	0.0	1	0.1
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	9	15.0	-	-	1.0	0.6	0.0	0.0
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.0	39.7
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	1	0.1
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0

Table 1.3.8-17: Intravenous Sedation Alone by SDP, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	72	0.4	37	0.2	35	0.2	22	0.1	27	0.1	36	0.1	31	0.1	36	0.1	66	0.2	124	0.3
Alor Setar	1	0.3	1	0.1	0	0.0	1	0.1	0	0.0	5	0.3	1	0.1	1	0.1	3	0.1	2	0.1
Ampang	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0
Batu Pahat	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	0.0	0	0.0
Bintulu	-	-	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	0.0
Bukit Mertajam	2	0.3	0	0.0	2	0.3	3	0.4	0	0.0	10	1.3	3	0.3	7	0.8	0	0.0	0	0.0
Ipoh	6	0.4	8	0.5	6	0.3	1	0.0	4	0.2	3	0.1	2	0.1	3	0.1	21	1.0	82	2.9
Kangar	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	0.0	0	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	1	2.2	0	0.0	0	0.0	1	3.8
Keningau	-	-	0	0.0	0	0.0	3	4.2	6	13.6	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0
Klang	11	1.3	3	0.3	2	0.3	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1
Kota Bharu	5	0.7	2	0.3	6	0.7	2	0.2	0	0.0	0	0.0	1	0.2	0	0.0	1	0.1	4	0.4
Kuala Krai	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	4	1.2
Kuala Lumpur	NA	NA	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	1	0.1	1	0.1	0	0.0	2	0.1
Kuala Pilah	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Terengganu	7	1.4	14	2.0	7	1.0	5	0.7	13	1.8	12	1.7	7	0.7	7	0.8	7	0.8	11	0.9
Kuantan	0	0.0	0	0.0	0	0.0	2	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	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	1	0.1	0	0.0	0	0.0
Muar	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Pulau Pinang	3	0.3	4	0.3	0	0.0	0	0.0	0	0.0	2	0.3	1	0.1	1	0.2	5	0.9	2	0.2
Putrajaya	0	0.0	0	0.0	2	0.8	0	0.0	0	0.0	0	0.0	1	0.3	1	0.3	0	0.0	0	0.0
Queen Elizabeth KK	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	1	0.1
Sandakan	-	-	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	0.0

Sarikei	-	-	-	-	-	-	-	-	-	-	2	0.7	0	0.0	0	0.0	0	0.0
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Selayang	33	2.4	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	0	0.0	7	0.6	0	0.0
Serdang	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	1	0.1	4	0.4	2	0.4
Seremban	1	0.1	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Sibu	1	0.3	0	0.0	0	0.0	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	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	0	0.0	1	0.1
Sultanah Aminah JB	0	0.0	0	0.0	4	0.3	0	0.0	0	0.0	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	1	0.1	0	0.0
Sungei Petani	1	0.2	0	0.0	0	0.0	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	0	0.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	5.6
Tawau	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.5
Teluk Intan	0	0.0	1	0.2	0	0.0	2	0.3	0	0.0	0	0.0	0	0.0	1	0.9	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	9	0.9	13	1.6
Umum Sarawak	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	1	1.6
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	1	1.6	-	-	1	0.5	0	0.0
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	1	0.1	0	0.0	0	0.0	4	0.1

Table 1.3.8-18: Intravenous Sedation Alone by SDP (50 years and above), CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All Centres	55	0.3	37	0.2	29	0.1	18	0.1	23	0.1	34	0.1	28	0.1	26	0.1	62	0.2	114	0.3
Alor Setar	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	4	0.3	1	0.1	1	0.1	3	0.2	2	0.1
Ampang	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0
Batu Pahat	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	0.0	0	0.0
Bintulu	-	-	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	0.0
Bukit Mertajam	2	0.3	0	0.0	2	0.3	2	0.3	0	0.0	10	1.2	3	0.4	6	0.7	0	0.0	0	0.0
Ipoh	4	0.3	8	0.5	6	0.3	1	0.1	3	0.2	3	0.1	2	0.1	2	0.1	20	1.0	74	2.7
Kangar	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	0.0	0	0.0
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	1	2.3	0	0.0	0	0.0	1	3.8
Keningau	-	-	0	0.0	0	0.0	3	4.5	5	12.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Klang	9	1.0	3	0.3	2	0.3	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1
Kota Bharu	5	0.7	2	0.3	5	0.6	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	4	0.4
Kuala Krai	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	0.0	4	1.3
Kuala Lumpur	-	-	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	0	0.0	1	0.1	0	0.0	2	0.1
Kuala Pilah	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
Kuala Terengganu	5	1.1	14	2.1	4	0.6	5	0.8	12	1.8	11	1.6	6	0.7	2	0.3	7	0.8	11	1.0
Kuantan	0	0.0	0	0.0	0	0.0	2	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
Melaka	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	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	0	0.0	0	0.0
Muar	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Pulau Pinang	3	0.3	4	0.3	0	0.0	0	0.0	0	0.0	2	0.2	1	0.1	1	0.2	4	0.8	2	0.2
Putrajaya	0	0.0	0	0.0	2	0.9	0	0.0	0	0.0	0	0.0	1	0.3	1	0.3	0	0.0	0	0.0
Queen Elizabeth KK	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	1	0.1
Sandakan	-	-	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	0.0

Sarikei	-	-	-	-	-	-	-	-	-	-	2	0.7	0	0.0	0	0.0	0	0.0
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Selayang	23	1.8	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	0	0.0	7	0.7	0	0.0
Serdang	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	1	0.1	3	0.3	1	0.2
Seremban	1	0.1	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
Sibu	1	0.3	0	0.0	0	0.0	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	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	0	0.0	1	0.1
Sultanah Aminah JB	0	0.0	0	0.0	3	0.3	0	0.0	0	0.0	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	1	0.2	0	0.0
Sungei Petani	1	0.2	0	0.0	0	0.0	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	0	0.0
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	1	5.6
Tawau	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4
Teluk Intan	0	0.0	1	0.2	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.9	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	8	0.8	12	1.5
Umum Sarawak	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	0.0
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	1	1.7
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	1	1.7	-	-	1.0	0.6	0.0	0.0
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
MAIWP	-	-	-	-	-	-	-	-	-	-	1	0.1	0	0.0	0	0.0	4	0.1

1.3.9 Intraocular Lens (IOL)

In 2016 the percentage of eyes with IOL implantation was 98.5%. Out of this proportion, 97% 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 1.3.9-1: IOL Implantation, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
No of patients (N)	18426		21496		24438		28506		30611		32473		37150		40532		44534		50625	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
With IOL	17873	97.0	21115	98.2	23982	98.1	27980	98.1	30061	98.2	31991	98.5	36545	98.4	40006	98.7	43869	98.5	49890	98.5
Without IOL	553	3.0	375	1.7	423	1.7	502	1.8	487	1.6	419	1.3	431	1.2	495	1.2	651	1.5	721	1.4
Not Available	-	-	6	0.0	33	0.1	24	0.1	63	0.2	63	0.2	174	0.5	31	0.1	14	0.0	14	0.0
IOL Placement																				
No of IOL	17873		21115		23982		27980		30061		31991		36545		40006		43869		49890	
PCIOL	17350	97.1	20342	96.3	23032	96.0	26932	96.3	28963	96.3	30683	95.9	35194	96.3	38453	96.1	42365	96.6	48371	97.0
ACIOL	482	2.7	454	2.2	570	2.4	543	1.9	573	1.9	575	1.8	595	1.6	633	1.6	739	1.7	781	1.6
Scleral Fixated IOL	35	0.2	36	0.2	21	0.1	20	0.1	21	0.1	15	0.0	25	0.1	29	0.1	23	0.1	24	0.0
Others	6	0.0	14	0.1	22	0.1	21	0.1	44	0.1	53	0.2	59	0.2	94	0.2	95	0.2	74	0.1
Not Available /missing	-	-	269	1.3	337	1.4	464	1.7	460	1.5	665	2.1	672	1.8	797	2.0	647	1.5	640	1.3
Materials of IOL																				
No of IOL	17873		21115		23982		27980		30061		31991		36545		40006		43869		49890	
1. Acrylic	11955	66.9	15382	72.8	19160	79.9	24270	86.7	26917	89.5	28861	90.2	32798	89.7	37056	92.6	40466	92.2	46764	93.7
2. PMMA	5547	31.0	5300	25.1	4313	18.0	3259	11.6	2603	8.7	2295	7.2	2083	5.7	1736	4.3	1952	4.4	1714	3.4
3. Silicone	97	0.5	113	0.5	137	0.6	75	0.3	110	0.4	117	0.4	347	0.9	143	0.4	211	0.5	72	0.1
4. Others	74	0.4	19	0.1	58	0.2	32	0.1	37	0.1	84	0.3	75	0.2	115	0.3	180	0.4	522	1.0
Not Available/ missing	200	1.1	301	1.4	314	1.3	344	1.2	394	1.3	634	2.0	1242	3.4	956	2.4	1060	2.4	818	1.6
Types of IOL																				
No of IOL	17873		21115		23982		27980		30061		31991		36545		40006		43869		49890	
1. Foldable	11972	67.0	15320	72.6	19093	79.6	24036	85.9	26553	88.3	29107	91.0	33987	93.0	37536	93.8	41575	94.8	48331	96.9
2. Non-foldable	5590	31.3	5316	25.2	4280	17.8	3231	11.5	2694	9.0	2345	7.3	1929	5.3	1820	4.5	1868	4.3	1436	2.9
Not Available/ missing	311	1.7	479	2.3	609	2.5	713	2.5	814	2.7	539	1.7	629	1.7	650	1.6	426	1.0	123	0.2

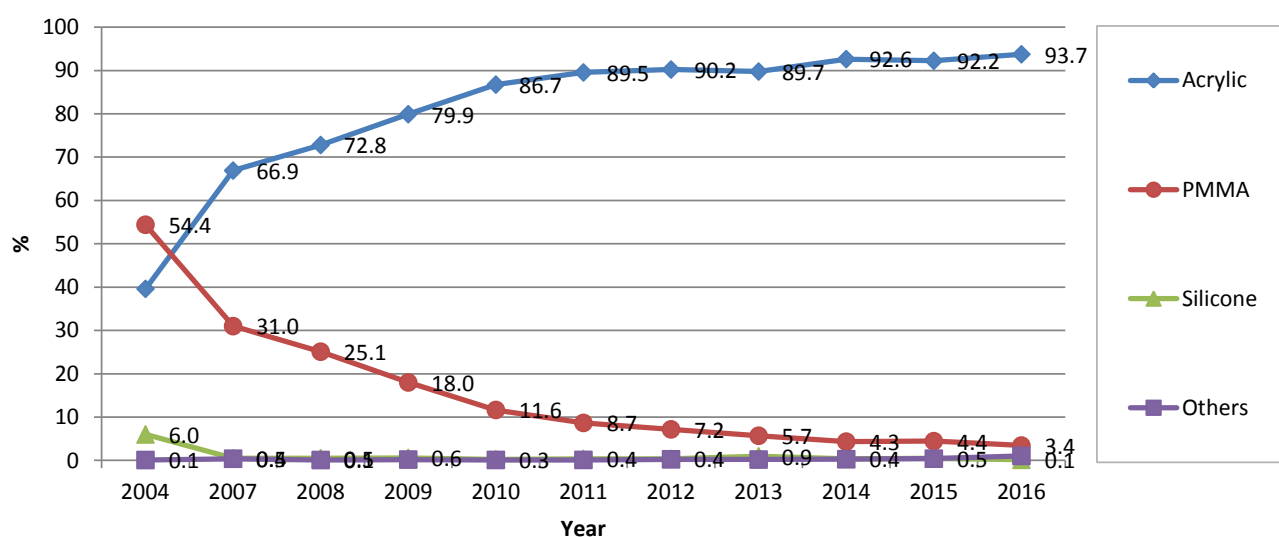


Figure 1.3.9-1: Intraocular Lens Implantation, CSR 2002-2016

Table 1.3.9-2: Distribution of IOL Placement by SDP, CSR 2016

Cataract Surgery With IOL							
	N	Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL	
		n	%	n	%	n	%
All Centres	49890	48371	97.0	781	1.6	24	0.0
Alor Setar	2564	2496	97.3	23	0.9	2	0.1
Ampang	746	707	94.8	31	4.2	0	0.0
Batu Pahat	663	632	95.3	12	1.8	0	0.0
Bintulu	190	185	97.4	5	2.6	0	0.0
Bukit Mertajam	1373	1344	97.9	9	0.7	0	0.0
Ipoh	3067	2992	97.6	48	1.6	2	0.1
Kangar	641	601	93.8	12	1.9	0	0.0
Kemaman	26	23	88.5	1	3.8	0	0.0
Keningau	370	353	95.4	10	2.7	0	0.0
Klang	2208	2122	96.1	40	1.8	1	0.0
Kota Bharu	1093	1056	96.6	33	3.0	0	0.0
Kuala Krai	336	323	96.1	6	1.8	0	0.0
Kuala Lumpur	1547	1512	97.7	14	0.9	0	0.0
Kuala Pilah	593	556	93.8	24	4.0	0	0.0
Kuala Terengganu	1269	1221	96.2	24	1.9	2	0.2
Kuantan	1213	1145	94.4	34	2.8	1	0.1
Kulim	561	536	95.5	6	1.1	0	0.0
Langkawi	89	86	96.6	2	2.2	0	0.0
Likas	9	9	100.0	0	0.0	0	0.0
Melaka	2528	2461	97.3	16	0.6	5	0.2
Miri	1039	1030	99.1	4	0.4	0	0.0
Muar	1079	1069	99.1	6	0.6	3	0.3
Pulau Pinang	2550	2520	98.8	25	1.0	0	0.0
Putrajaya	426	412	96.7	9	2.1	0	0.0

Queen Elizabeth KK	1353	1303	96.3	25	1.8	0	0.0
Sandakan	411	348	84.7	7	1.7	0	0.0
Sarikei	686	675	98.4	3	0.4	0	0.0
Segamat	120	107	89.2	7	5.8	0	0.0
Selayang	1235	1097	88.8	63	5.1	2	0.2
Serdang	533	498	93.4	6	1.1	0	0.0
Seremban	1811	1736	95.9	34	1.9	0	0.0
Shah Alam	353	333	94.3	6	1.7	0	0.0
Sibu	782	764	97.7	16	2.0	2	0.3
Sri Manjung	671	657	97.9	12	1.8	0	0.0
Sultan Ismail	875	860	98.3	12	1.4	0	0.0
Sultanah Aminah JB	1565	1510	96.5	32	2.0	1	0.1
Sungai Buloh	811	792	97.7	10	1.2	1	0.1
Sungei Petani	1105	1093	98.9	12	1.1	0	0.0
Taiping	1568	1551	98.9	17	1.1	0	0.0
Tanah Merah	18	18	100.0	0	0.0	0	0.0
Tawau	663	634	95.6	16	2.4	0	0.0
Teluk Intan	1321	1283	97.1	38	2.9	0	0.0
Temerloh	983	970	98.7	6	0.6	2	0.2
Umum Sarawak	1824	1799	98.6	19	1.0	0	0.0
KK1M Johor	93	92	98.9	1	1.1	0	0.0
KK1M Kedah	334	332	99.4	2	0.6	0	0.0
KK1M Kelantan	61	60	98.4	1	1.6	0	0.0
KK1M Neg. Sembilan	217	207	95.4	4	1.8	0	0.0
KK1M Pahang	119	110	92.4	5	4.2	0	0.0
KK1M Pulau Pinang	83	83	100.0	0	0.0	0	0.0
KK1M Sabah	274	268	97.8	2	0.7	0	0.0
KK1M Sarawak	903	895	99.1	6	0.7	0	0.0
KK1M Terengganu	49	45	91.8	0	0.0	0	0.0
MAIWP	2889	2860	99.0	25	0.9	0	0.0

1.4 Intraoperative Complication

The percentage occurrence of PCR was maintained throughout the years. The more serious complications such as nucleus drop (or dropped nucleus) and suprachoroidal haemorrhage were not frequent and the trend remained unchanged.

1.4.1 Intra-operative Complications

Table 1.4.1-1: Distribution of Type of Intra-operative Complications, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of patients (N)	18380	21496	24438	28506	30611	32473	37150	40532	44534	50625
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
Patient with intra-op complication	1999 10.9	1636 7.6	1645 6.7	1610 5.6	1787 5.8	1702 5.2	1998 5.4	2159 5.3	2224 5.0	2334 4.6
<u>Types of complications:</u>										
PCR	764 4.2	798 3.7	858 3.5	840 2.9	936 3.1	870 2.7	1017 2.7	1100 2.7	1145 2.6	1183 2.3
Vitreous loss	569 3.1	608 2.8	642 2.6	639 2.2	611 2.0	529 1.6	644 1.7	661 1.6	793 1.8	855 1.7
Zonular dehiscence	275 1.5	322 1.5	372 1.5	377 1.3	362 1.2	359 1.1	391 1.0	467 1.2	602 1.4	696 1.4
Drop nucleus	21 0.1	33 0.2	40 0.2	38 0.1	58 0.2	56 0.2	63 0.2	87 0.2	90 0.2	75 0.1
Suprachoroidal haemorrhage	9 0.0	10 0.0	13 0.1	9 0.0	8 0.0	8 0.0	8 0.0	4 0.0	4 0.0	4 0.0
Central corneal oedema	58 0.3	27 0.1	22 0.1	26 0.1	36 0.1	30 0.1	23 0.1	36 0.1	15 0.0	26 0.1
Others	350 1.9	361 1.7	373 1.5	338 1.2	449 1.5	439 1.3	572 1.5	550 1.4	546 1.2	541 1.1

Table 1.4.1-2: Distribution of Type of Intra-operative Complications (Posterior Capsular Rupture) CSR 2007-2016

Year	2007*	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of patients (N)	18380	21496	24438	28506	30611	32473	37150	40532	44534	50625
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
Patient with intra-op complication	1999 10.9	1636 7.6	1645 6.7	1610 5.6	1787 5.8	1702 5.2	1998 5.4	2159 5.3	2224 5.0	2334 4.6
<u>Types of complications:</u>										
PCR and Others**	764 4.2	798 3.7	858 3.5	840 2.9	936 3.1	870 2.7	1017 2.7	1100 2.7	1145 2.6	1183 2.3
PCR Only		347 1.6	403 1.6	402 1.4	485 1.6	481 1.5	547 1.5	588 1.4	555 1.2	561 1.1

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

**PCR and Others = including PCR only, and PCR+Others

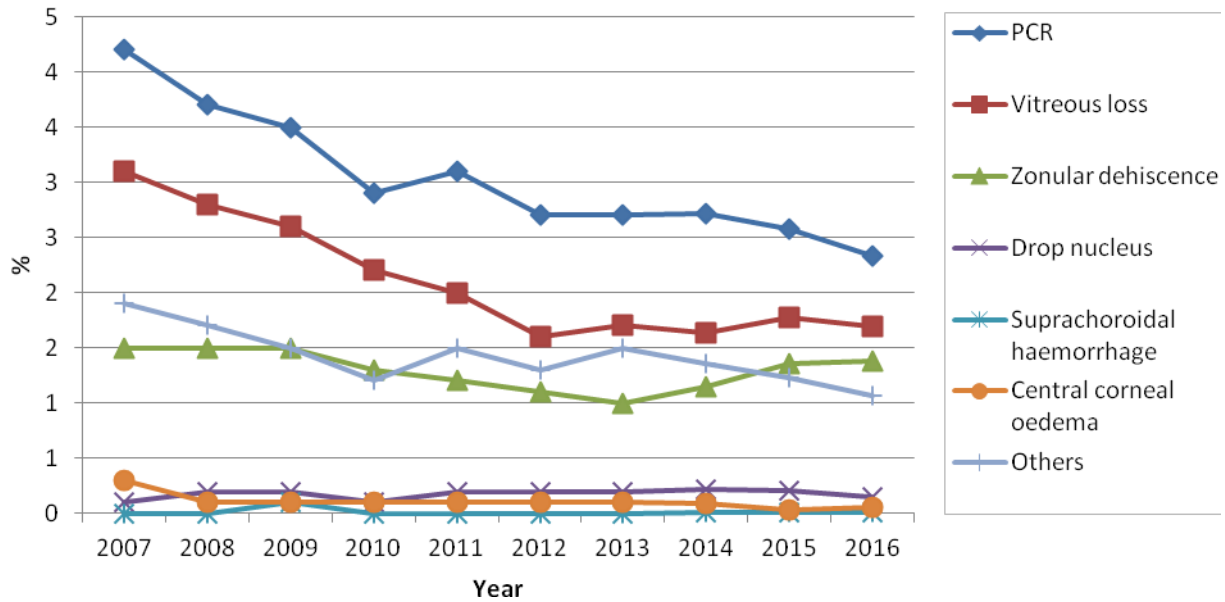


Figure 1.4.1-1: Distribution of Specific Type of Intra-operative Complications, CSR 2007-2016

1.4.2 Intra-operative Complication by Type of Cataract Surgery

Similar to previous years, phacoemulsification resulted in the lowest percentage of intra-operative complications in 2016. It was followed by lens aspiration and ECCE.

Table 1.4.2-1: Intra-operative Complications by Types of Cataract Surgery, CSR 2007-2016

Year	2007		2008		2009			2010			2011			2012		
	n	%	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	969	8.1	753	5.1	17717	787	4.4	21810	798	3.7	23872	927	3.9	26345	930	3.5
ECCE	691	12.5	532	9.5	5457	460	8.4	5363	442	8.2	5291	404	7.6	4784	359	7.5
Lens Aspiration	51	15.8	31	9.1	400	38	9.5	451	34	7.5	460	29	6.3	444	26	5.9
ICCE	63	44.7	60	46.5	134	64	47.8	143	64	44.8	123	53	43.1	136	58	42.6
Phaco → ECCE	225	52.1	240	45.8	573	276	48.2	586	249	42.5	652	316	48.5	621	300	48.3
Others	-	-	16	25.8	74	8	10.8	104	20	19.2	132	21	15.9	110	27	24.5
Missing	9	20.0	4	12.1	83	12	14.5	49	3	6.1	81	37	45.7	33	2	6.1

Year	2013			2014			2015			2016		
	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	31625	1112	3.5	35429	1282	3.6	39131	1194	3.1	45346	1260	2.8
ECCE	4086	373	9.1	3613	340	9.4	3677	405	11.0	3439	370	10.8
Lens Aspiration	364	31	8.5	370	23	6.2	521	35	6.7	527	23	4.4
ICCE	173	68	39.3	176	70	39.8	223	104	46.6	275	137	49.8
Phaco → ECCE	769	383	49.8	805	402	49.9	833	444	53.3	870	493	56.7
Others	84	20	23.8	118	37	31.4	144	40	27.8	168	51	30.4
Missing	49	11	22.4	21	5	23.8	5	2	40.0	0	0	0.0

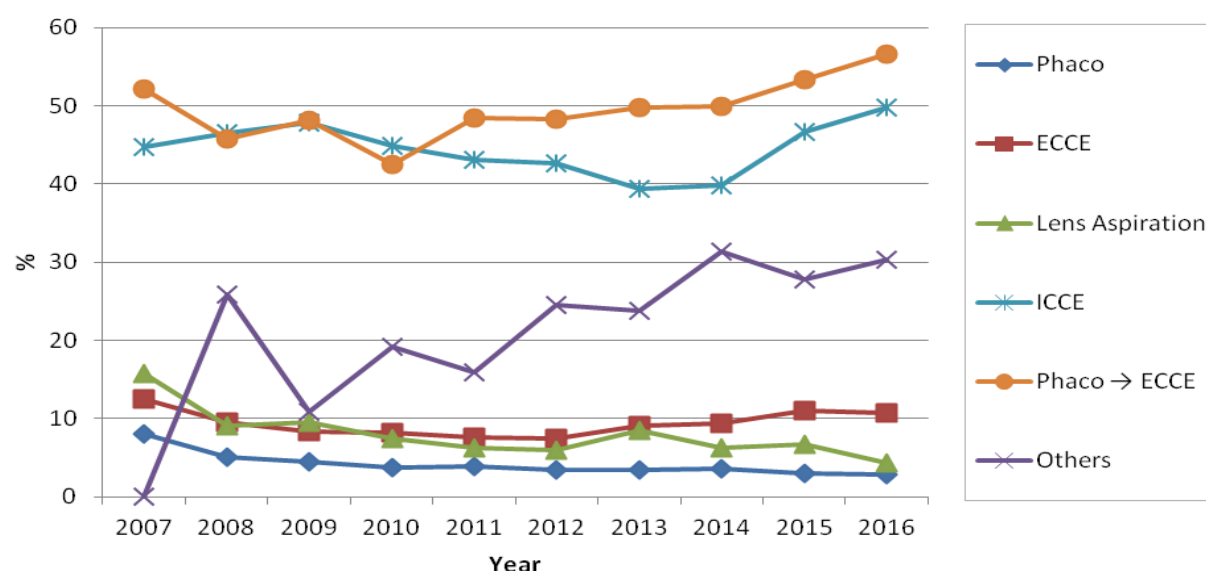


Figure 1.4.2-1: Intra-operative Complications by Type of Cataract Surgery, CSR 2007-2016

Table 1.4.2-2: Types Intra-operative Complications by Types of Cataract Surgery, CSR 2016

	All Surgeries		Phaco		ECCE		Lens Aspiration		ICCE		Phaco converted to ECCE		Others	
Number of patients (N)	50625		45346		3439		527		275		870		168	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-op complication	2334	4.6	1260	2.8	370	10.8	23	4.4	137	49.8	493	56.7	51	30.4
Types of complications:														
Posterior capsule rupture	1183	2.3	709	1.6	173	5.0	17	3.2	37	13.5	235	27.0	12	7.1
Vitreous loss	855	1.7	352	0.8	134	3.9	9	1.7	90	32.7	243	27.9	27	16.1
Zonular dehiscence	696	1.4	244	0.5	115	3.3	3	0.6	90	32.7	211	24.3	33	19.6
Dropped nucleus	75	0.1	59	0.1	2	0.1	0	0.0	1	0.4	10	1.1	3	1.8
Suprachoroidal haemorrhage	4	0.0	1	0.0	2	0.1	0	0.0	0	0.0	1	0.1	0	0.0
Central corneal oedema	26	0.1	18	0.0	4	0.1	1	0.2	0	0.0	3	0.3	0	0.0
Others	541	1.1	322	0.7	96	2.8	6	1.1	24	8.7	79	9.1	14	8.3

Table 1.4.2-3: Distribution of the Types Intra-operative Complications by SDP (All Cataract Surgeries), CSR 2016

Hospital	N	Any intra-op complication		PCR		Vitreous loss		Zonular Dehiscence		Dropped Nucleus		Suprachoroidal Haemorrhage		Central Corneal Edema		Others	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All centre	50625	2334	4.6	1183	2.3	855	1.7	696	1.4	75	0.1	4	0.0	26	0.1	541	1.1
Alor Setar	2616	61	2.3	37	1.4	19	0.7	22	0.8	4	0.2	0	0.0	0	0.0	6	0.2
Ampang	750	60	8.0	32	4.3	40	5.3	22	2.9	2	0.3	0	0.0	0	0.0	9	1.2
Batu Pahat	666	25	3.8	11	1.7	10	1.5	13	2.0	1	0.2	0	0.0	0	0.0	1	0.2
Bintulu	197	18	9.1	9	4.6	4	2.0	6	3.0	1	0.5	0	0.0	0	0.0	2	1.0
Bukit Mertajam	1379	50	3.6	19	1.4	11	0.8	13	0.9	0	0.0	0	0.0	0	0.0	19	1.4

Ipoh	3123	121	3.9	68	2.2	66	2.1	49	1.6	7	0.2	2	0.1	0	0.0	9	0.3
Kangar	652	34	5.2	24	3.7	7	1.1	10	1.5	3	0.5	0	0.0	1	0.2	2	0.3
Kemaman	28	6	21.4	3	10.7	0	0.0	1	3.6	0	0.0	0	0.0	0	0.0	3	10.7
Keningau	370	14	3.8	7	1.9	2	0.5	7	1.9	0	0.0	0	0.0	0	0.0	0	0.0
Klang	2227	107	4.8	67	3.0	32	1.4	33	1.5	2	0.1	0	0.0	0	0.0	10	0.4
Kota Bharu	1113	91	8.2	50	4.5	38	3.4	30	2.7	4	0.4	0	0.0	2	0.2	10	0.9
Kuala Krai	344	11	3.2	8	2.3	5	1.5	2	0.6	0	0.0	0	0.0	0	0.0	2	0.6
Kuala Lumpur	1556	51	3.3	24	1.5	8	0.5	7	0.4	0	0.0	0	0.0	0	0.0	24	1.5
Kuala Pilah	600	51	8.5	26	4.3	34	5.7	22	3.7	1	0.2	0	0.0	0	0.0	6	1.0
Kuala Terengganu	1321	170	12.9	54	4.1	25	1.9	29	2.2	5	0.4	0	0.0	1	0.1	92	7.0
Kuantan	1225	65	5.3	36	2.9	24	2.0	15	1.2	2	0.2	0	0.0	2	0.2	15	1.2
Kulim	569	17	3.0	4	0.7	4	0.7	6	1.1	0	0.0	0	0.0	0	0.0	7	1.2
Langkawi	89	4	4.5	4	4.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Likas	23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Melaka	2549	106	4.2	66	2.6	38	1.5	31	1.2	1	0.0	0	0.0	1	0.0	14	0.5
Miri	1045	33	3.2	13	1.2	7	0.7	5	0.5	0	0.0	0	0.0	2	0.2	19	1.8
Muar	1085	22	2.0	18	1.7	11	1.0	4	0.4	0	0.0	0	0.0	0	0.0	0	0.0
Pulau Pinang	2591	92	3.6	46	1.8	44	1.7	31	1.2	6	0.2	0	0.0	2	0.1	17	0.7
Putrajaya	429	18	4.2	8	1.9	10	2.3	9	2.1	0	0.0	0	0.0	0	0.0	2	0.5
Queen Elizabeth KK	1397	106	7.6	66	4.7	49	3.5	37	2.6	5	0.4	0	0.0	1	0.1	16	1.1
Sandakan	414	19	4.6	9	2.2	9	2.2	8	1.9	0	0.0	0	0.0	0	0.0	2	0.5
Sarawak	1879	76	4.0	50	2.7	36	1.9	22	1.2	4	0.2	0	0.0	0	0.0	6	0.3
Sarikei	694	12	1.7	6	0.9	2	0.3	3	0.4	0	0.0	0	0.0	0	0.0	3	0.4
Segamat	121	8	6.6	5	4.1	3	2.5	1	0.8	0	0.0	0	0.0	1	0.8	1	0.8
Selayang	1287	85	6.6	31	2.4	25	1.9	33	2.6	5	0.4	0	0.0	0	0.0	24	1.9
Serdang	536	25	4.7	11	2.1	7	1.3	8	1.5	0	0.0	0	0.0	0	0.0	6	1.1
Seremban	1832	76	4.1	38	2.1	40	2.2	29	1.6	2	0.1	0	0.0	1	0.1	14	0.8
Shah Alam	353	14	4.0	6	1.7	1	0.3	1	0.3	0	0.0	0	0.0	1	0.3	7	2.0
Sibu	796	36	4.5	21	2.6	23	2.9	12	1.5	0	0.0	0	0.0	0	0.0	4	0.5
Sri Manjung	684	44	6.4	19	2.8	6	0.9	9	1.3	2	0.3	0	0.0	1	0.1	16	2.3
Sultan Ismail	885	32	3.6	25	2.8	9	1.0	5	0.6	0	0.0	0	0.0	0	0.0	5	0.6
Sultanah Aminah JB	1575	87	5.5	46	2.9	34	2.2	35	2.2	2	0.1	0	0.0	1	0.1	8	0.5
Sungai Buloh	818	38	4.6	16	2.0	11	1.3	15	1.8	2	0.2	0	0.0	0	0.0	6	0.7
Sungei Petani	1138	67	5.9	25	2.2	20	1.8	17	1.5	3	0.3	0	0.0	6	0.5	25	2.2
Taiping	1575	36	2.3	23	1.5	25	1.6	14	0.9	2	0.1	0	0.0	0	0.0	0	0.0
Tanah Merah	18	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	681	35	5.1	23	3.4	25	3.7	13	1.9	1	0.1	1	0.1	1	0.1	3	0.4
Teluk Intan	1327	57	4.3	34	2.6	30	2.3	20	1.5	2	0.2	0	0.0	0	0.0	6	0.5
Temerloh	1009	117	11.6	22	2.2	15	1.5	13	1.3	1	0.1	1	0.1	1	0.1	86	8.5
KK1M Johor	93	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1
KK1M Kedah	339	11	3.2	5	1.5	4	1.2	3	0.9	1	0.3	0	0.0	1	0.3	2	0.6
KK1M Kelantan	62	1	1.6	1	1.6	1	1.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	220	19	8.6	7	3.2	9	4.1	6	2.7	0	0.0	0	0.0	0	0.0	7	3.2
KK1M Pahang	119	4	3.4	3	2.5	2	1.7	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
KK1M Pulau Pinang	84	2	2.4	2	2.4	1	1.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Terengganu	50	4	8.0	2	4.0	2	4.0	1	2.0	0	0.0	0	0.0	0	0.0	1	2.0
KK1M Sabah	275	14	5.1	5	1.8	3	1.1	4	1.5	0	0.0	0	0.0	0	0.0	5	1.8
KK1M Sarawak	917	28	3.1	18	2.0	4	0.4	9	1.0	0	0.0	0	0.0	0	0.0	4	0.4
MAIWP	2900	53	1.8	30	1.0	20	0.7	11	0.4	4	0.1	0	0.0	0	0.0	13	0.4

Table 1.4.2-4: Distribution of the Types Intra-operative Complications by SDP (Phaco converted to ECCE), CSR 2016

Hospital	N	Any intra-op complication		PCR		Vitreous loss		Zonular Dehiscence		Dropped nucleus		Suprachoroidal Haemorrhage		Central Corneal Edema		Others	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
All centre	870	493	56.7	235	27.0	243	27.9	211	24.3	10	1.1	1	0.1	3	0.3	79	9.1
Alor Setar	21	13	61.9	5	23.8	5	23.8	7	33.3	0	0.0	0	0.0	0	0.0	1	4.8
Ampang	34	15	44.1	6	17.6	12	35.3	8	23.5	0	0.0	0	0.0	0	0.0	1	2.9
Batu Pahat	13	5	38.5	2	15.4	2	15.4	3	23.1	0	0.0	0	0.0	0	0.0	0	0.0
Bintulu	8	6	75.0	4	50.0	2	25.0	2	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Bukit Mertajam	8	7	87.5	5	62.5	2	25.0	1	12.5	0	0.0	0	0.0	0	0.0	1	12.5
Ipoh	47	28	59.6	12	25.5	20	42.6	18	38.3	1	2.1	1	2.1	0	0.0	0	0.0
Kangar	4	2	50.0	1	25.0	0	0.0	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Kemaman	2	2	100.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	2	100.0
Keningau	3	1	33.3	0	0.0	0	0.0	1	33.3	0	0.0	0	0.0	0	0.0	0	0.0
Klang	35	27	77.1	14	40.0	7	20.0	14	40.0	1	2.9	0	0.0	0	0.0	2	5.7
Kota Bharu	33	17	51.5	5	15.2	12	36.4	11	33.3	0	0.0	0	0.0	0	0.0	2	6.1
Kuala Krai	7	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	41	25	61.0	9	22.0	5	12.2	5	12.2	0	0.0	0	0.0	0	0.0	13	31.7
Kuala Pilah	17	14	82.4	9	52.9	12	70.6	6	35.3	1	5.9	0	0.0	0	0.0	0	0.0
Kuala Terengganu	33	21	63.6	8	24.2	5	15.2	7	21.2	1	3.0	0	0.0	1	3.0	5	15.2
Kuantan	50	18	36.0	11	22.0	12	24.0	6	12.0	0	0.0	0	0.0	0	0.0	2	4.0
Kulim	5	5	100.0	1	20.0	2	40.0	1	20.0	0	0.0	0	0.0	0	0.0	3	60.0
Langkawi	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
Likas	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
Melaka	30	20	66.7	13	43.3	8	26.7	4	13.3	0	0.0	0	0.0	1	3.3	4	13.3
Miri	7	3	42.9	2	28.6	2	28.6	2	28.6	0	0.0	0	0.0	0	0.0	2	28.6
Muar	21	7	33.3	5	23.8	5	23.8	2	9.5	0	0.0	0	0.0	0	0.0	0	0.0
Pulau Pinang	26	13	50.0	5	19.2	9	34.6	6	23.1	0	0.0	0	0.0	0	0.0	3	11.5
Putrajaya	15	7	46.7	2	13.3	6	40.0	5	33.3	0	0.0	0	0.0	0	0.0	0	0.0
Queen Elizabeth KK	34	18	52.9	9	26.5	7	20.6	8	23.5	0	0.0	0	0.0	0	0.0	4	11.8
Sandakan	8	3	37.5	1	12.5	2	25.0	2	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Sarawak	26	14	53.8	2	7.7	6	23.1	9	34.6	0	0.0	0	0.0	0	0.0	3	11.5
Sarikei	2	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	50.0
Segamat	10	4	40.0	3	30.0	2	20.0	1	10.0	0	0.0	0	0.0	0	0.0	0	0.0
Selayang	20	15	75.0	4	20.0	9	45.0	9	45.0	0	0.0	0	0.0	0	0.0	4	20.0
Serdang	13	11	84.6	5	38.5	6	46.2	5	38.5	0	0.0	0	0.0	0	0.0	1	7.7
Seremban	15	12	80.0	5	33.3	9	60.0	8	53.3	0	0.0	0	0.0	0	0.0	0	0.0
Shah Alam	4	3	75.0	1	25.0	1	25.0	1	25.0	0	0.0	0	0.0	0	0.0	1	25.0
Sibu	11	7	63.6	4	36.4	5	45.5	3	27.3	0	0.0	0	0.0	0	0.0	1	9.1
Sri Manjung	2	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0
Sultan Ismail	15	8	53.3	7	46.7	1	6.7	2	13.3	0	0.0	0	0.0	0	0.0	0	0.0
Sultanah Aminah JB	34	27	79.4	17	50.0	15	44.1	8	23.5	2	5.9	0	0.0	1	2.9	2	5.9
Sungai Buloh	33	17	51.5	7	21.2	5	15.2	7	21.2	1	3.0	0	0.0	0	0.0	3	9.1
Sungei Petani	29	16	55.2	5	17.2	8	27.6	10	34.5	1	3.4	0	0.0	0	0.0	3	10.3
Taiping	10	6	60.0	5	50.0	5	50.0	1	10.0	1	10.0	0	0.0	0	0.0	0	0.0
Tanah Merah	2	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	14	6	42.9	5	35.7	5	35.7	2	14.3	0	0.0	0	0.0	0	0.0	0	0.0
Teluk Intan	20	13	65.0	9	45.0	7	35.0	5	25.0	0	0.0	0	0.0	0	0.0	1	5.0
Temerloh	38	18	47.4	6	15.8	3	7.9	4	10.5	1	2.6	0	0.0	0	0.0	11	28.9
KK1M Johor	2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Kedah	5	3	60.0	0	0.0	1	20.0	3	60.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Kelantan	2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	11	7	63.6	5	45.5	5	45.5	1	9.1	0	0.0	0	0.0	0	0.0	2	18.2
KK1M Pahang	3	1	33.3	1	33.3	1	33.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Pulau Pinang	2	1	50.0	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Terengganu	2	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Sabah	5	3	60.0	1	20.0	2	40.0	2	40.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Sarawak	13	6	46.2	2	15.4	1	7.7	4	30.8	0	0.0	0	0.0	0	0.0	0	0.0
MAIWP	25	15	60.0	11	44.0	8	32.0	3	12.0	0	0.0	0	0.0	0	0.0	1	4.0

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 1.4.3-1: Distribution of Intra-operative Complications by Any Combined Surgery, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of combined surgery (N)	891	664	871	1082	1194	1221	1026	1028	1458	1490
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
Any intra-operative complication	131 14.7	89 10.0	113 13.0	121 11.2	222 18.6	240 19.7	149 14.5	175 17.0	213 14.6	208 14.0
Types of complications:										
PCR	56 6.3	54 6.1	62 7.1	61 5.6	140 11.7	146 12.0	85 8.3	111 10.8	129 8.8	127 8.5
Vitreous loss	41 4.6	40 4.5	51 5.9	53 4.9	101 8.5	123 10.1	75 7.3	83 8.1	99 6.8	102 6.8
Zonular dehiscence	21 2.4	15 1.7	21 2.4	28 2.6	49 4.1	61 5.0	37 3.6	46 4.5	65 4.5	71 4.8
Dropped nucleus	4 0.4	3 0.3	8 0.9	10 0.9	20 1.7	16 1.3	12 1.2	18 1.8	15 1.0	13 0.9
Suprachoroidal haemorrhage	0 0.0	0 0.0	4 0.5	1 0.1	2 0.2	2 0.2	0 0.0	1 0.1	1 0.1	0 0.0
Central corneal oedema	7 0.8	3 0.3	1 0.1	2 0.2	0 0.0	2 0.2	1 0.1	2 0.2	1 0.1	0 0.0
Others	30 3.4	14 1.6	21 2.4	24 2.2	29 2.4	38 3.1	25 2.4	22 2.1	34 2.3	24 1.6

Table 1.4.3-2: Distribution of Intra-operative Complications by Specific Combined Surgery, CSR 2016

	All Surgeries	Any Combined Surgery	Pterygium Surgery	Filtering Surgery	Vitreo-Retinal Surgery	Penetrating Keratoplasty	Others
No. of patients (N)	50625	1490	135	75	890	0	437
	n %	n %	n %	n %	n %	n %	n %
Any intra-op complication	2334 4.6	208 14.0	8 5.9	5 6.7	54 6.1	0 0.0	143 32.7

Types of complications:														
PCR	1183	2.3	127	8.5	4	3.0	3	4.0	29	3.3	0	0.0	92	21.1
Vitreous loss	855	1.7	102	6.8	2	1.5	3	4.0	14	1.6	0	0.0	85	19.5
Zonular dehiscence	696	1.4	71	4.8	3	2.2	2	2.7	15	1.7	0	0.0	52	11.9
Dropped nucleus	75	0.1	13	0.9	0	0.0	0	0.0	8	0.9	0	0.0	5	1.1
Suprachoroidal haemorrhage	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal oedema	26	0.1	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Others	541	1.1	24	1.6	1	0.7	0	0.0	10	1.1	0	0.0	13	3.0

Table 1.4.3-3: Distribution of Intra-operative Complications when Combined with Filtering Surgery, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
N	131		142		132		121		64		71		114		95		102		75	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-op complication	24	18.3	9	6.3	16	12.1	8	6.6	5	7.8	3	4.2	8	7.0	4	4.2	5	4.9	5	6.7
Types of complications:																				
Posterior capsule rupture	9	6.9	3	2.1	4	3.0	3	2.5	1	1.6	2	2.8	3	2.6	3	3.2	1	1.0	3	4.0
Vitreous loss	7	5.3	5	3.5	7	5.3	2	1.7	3	4.7	1	1.4	1	0.9	1	1.1	2	2.0	3	4.0
Zonular dehiscence	4	3.1	3	2.1	5	3.8	1	0.8	3	4.7	0	0.0	5	4.4	1	1.1	2	2.0	2	2.7
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	0	0.0	0	0.0
Suprachoroidal haemorrhage	0	0.0	0	0.0	2	1.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal oedema	3	2.3	2	1.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	5	3.8	1	0.7	3	2.3	3	2.5	0	0.0	0	0.0	1	0.9	0	0.0	1	1.0	0	0.0

Table 1.4.3-4: Distribution of Intra-operative Complications when Combined with Vitreoretinal Surgery, CSR 2007-2016

Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
N	435		237		402		601		672		585		536		532		893		890	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-op complication	45	10.3	21	8.9	32	8.0	35	5.8	69	10.3	45	7.7	32	6.0	41	7.7	65	7.3	54	6.1
Types of complications:																				
Posterior capsule rupture	18	4.1	17	7.2	18	4.5	22	3.7	41	6.1	23	3.9	16	3.0	21	3.9	43	4.8	29	3.3
Vitreous loss	11	2.5	6	2.5	5	1.2	9	1.5	10	1.5	8	1.4	9	1.7	5	0.9	19	2.1	14	1.6
Zonular dehiscence	6	1.4	1	0.4	2	0.5	5	0.8	13	1.9	6	1.0	4	0.7	13	2.4	16	1.8	15	1.7
Dropped nucleus	3	0.7	2	0.8	6	1.5	6	1.0	15	2.2	7	1.2	6	1.1	11	2.1	6	0.7	8	0.9
Suprachoroidal haemorrhage	0	0.0	0	0.0	2	0.5	0	0.0	2	0.3	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal oedema	3	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.1
Others	12	2.8	3	1.3	5	1.2	4	0.7	10	1.5	15	2.6	5	0.9	7	1.3	8	0.9	10	1.1

1.4.4 Intra-operative Complications by Types of Local Anaesthesia

Table 1.4.4-1: Intra-operative Complications by Types of Local Anaesthesia, CSR 2016

	All local anaesthesia		Retrobulbar		Peribulbar		Subtenon		Sub-Conjunctival		Facial Block		Topical		Intracameral	
N	47349		623		203		8973		1240		13		34825		11155	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-op complication	2147	4.5	32	5.1	17	8.4	948	10.6	71	5.7	0	0.0	1324	3.8	403	3.6
Types of complications:																
Posterior capsule rupture	1099	2.3	11	1.8	7	3.4	479	5.3	43	3.5	0	0.0	686	2.0	218	2.0
Vitreous loss	793	1.7	7	1.1	4	2.0	418	4.7	28	2.3	0	0.0	469	1.3	173	1.6
Zonular dehiscence	620	1.3	12	1.9	4	2.0	318	3.5	21	1.7	0	0.0	363	1.0	128	1.1
Dropped nucleus	65	0.1	2	0.3	1	0.5	26	0.3	0	0.0	0	0.0	40	0.1	15	0.1
Suprachoroidal haemorrhage	4	0.0	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	3	0.0	2	0.0
Central corneal oedema	22	0.0	0	0.0	0	0.0	8	0.1	2	0.2	0	0.0	13	0.0	3	0.0
Other	509	1.1	12	1.9	6	3.0	196	2.2	9	0.7	0	0.0	328	0.9	74	0.7

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

In 2016, intra-operative complications were highest in surgeries performed by the gazetted specialists. The complications were mainly PCR and vitreous loss.

Table 1.4.5-1: Intra-operative Complications by Surgeon Status (All Surgery), CSR 2007-2016

(1) Specialist

Year	2007		2008*		2009		2010		2011		2012		2013		2014		2015		2016	
N	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-operative complication	1485	10.4	1144	6.8	1218	6.3	1248	5.2	1368	5.3	1323	4.8	1649	5.0	1758	4.9	1791	4.5	1866	4.1
Type of complications:																				
PCR	546	3.8	538	3.2	610	3.1	649	2.7	706	2.8	642	2.3	803	2.4	864	2.4	864	2.2	893	2.0
Vitreous loss	405	2.8	417	2.5	474	2.4	473	2.0	438	1.7	382	1.4	513	1.6	504	1.4	590	1.5	669	1.5
Zonular dehiscence	204	1.4	232	1.4	293	1.5	300	1.2	285	1.1	282	1.0	337	1.0	391	1.1	510	1.3	594	1.3

Dropped nucleus	20	0.1	24	0.1	30	0.2	33	0.1	49	0.2	43	0.2	52	0.2	71	0.2	77	0.2	59	0.1
Suprachoroidal hemorrhage	5	0.0	3	0.0	10	0.1	6	0.0	7	0.0	7	0.0	6	0.0	4	0.0	3	0.0	4	0.0
Central corneal edema	50	0.4	19	0.1	13	0.1	19	0.1	33	0.1	23	0.1	20	0.1	29	0.1	14	0.0	22	0.0
Others	261	1.8	279	1.7	289	1.5	254	1.0	347	1.4	371	1.3	499	1.5	466	1.3	468	1.2	439	1.0

(2) Gazetting Specialist

Year	2007		2008*		2009		2010		2011		2012		2013		2014		2015		2016	
N	1276		1399		2053		1405		2487		2411		2014		2034		2251		2282	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-operative complication	175	13.7	167	11.9	171	8.3	98	7.0	182	7.3	190	7.9	147	7.3	208	10.2	206	9.2	207	9.1
Type of complications:																				
PCR	85	6.7	91	6.5	96	4.7	44	3.1	113	4.5	125	5.2	90	4.5	116	5.7	127	5.6	127	5.6
Vitreous loss	54	4.2	76	5.4	73	3.6	35	2.5	84	3.4	72	3.0	45	2.2	72	3.5	107	4.8	85	3.7
Zonular dehiscence	24	1.9	32	2.3	33	1.6	30	2.1	33	1.3	34	1.4	24	1.2	41	2.0	48	2.1	41	1.8
Dropped nucleus	0	0.0	3	0.2	3	0.1	2	0.1	4	0.2	8	0.3	6	0.3	5	0.2	9	0.4	9	0.4
Suprachoroidal hemorrhage	1	0.1	1	0.1	2	0.1	1	0.1	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
Central corneal edema	5	0.4	5	0.4	7	0.3	3	0.2	0	0.0	2	0.1	2	0.1	5	0.2	1	0.0	3	0.1
Others	37	2.9	37	2.9	28	1.4	27	1.9	27	1.1	31	1.3	32	1.6	49	2.4	42	1.9	56	2.5

(3) Medical Officer

Year	2007		2008*		2009		2010		2011		2012		2013		2014		2015		2016	
N	2690		2697		2750		2871		2478		2354		2244		2249		2558		3090	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-operative complication	330	12.3	264	9.8	242	8.8	263	9.2	202	8.2	189	8.0	199	8.9	189	8.4	220	8.6	254	8.2
Type of complications:																				
PCR	126	4.7	148	5.5	139	5.1	147	5.1	116	4.7	103	4.4	124	5.5	117	5.2	150	5.9	158	5.1
Vitreous loss	105	3.9	105	3.9	92	3.3	131	4.6	89	3.6	75	3.2	86	3.8	82	3.6	92	3.6	100	3.2
Zonular dehiscence	43	1.6	46	1.7	45	1.6	47	1.6	43	1.7	43	1.8	30	1.3	35	1.6	41	1.6	60	1.9
Dropped nucleus	1	0.0	4	0.2	7	0.3	3	0.1	5	0.2	5	0.2	5	0.2	11	0.5	4	0.2	7	0.2
Suprachoroidal hemorrhage	3	0.1	4	0.2	1	0.0	2	0.1	1	0.0	1	0.0	1	0.0	0	0.0	1	0.0	0	0.0
Central corneal edema	2	0.1	3	0.1	2	0.1	4	0.1	3	0.1	5	0.2	1	0.0	2	0.1	0	0.0	1	0.0
Others	51	1.9	51	1.9	56	2.0	56	2.0	42	1.7	37	1.6	38	1.7	34	1.5	35	1.4	45	1.5

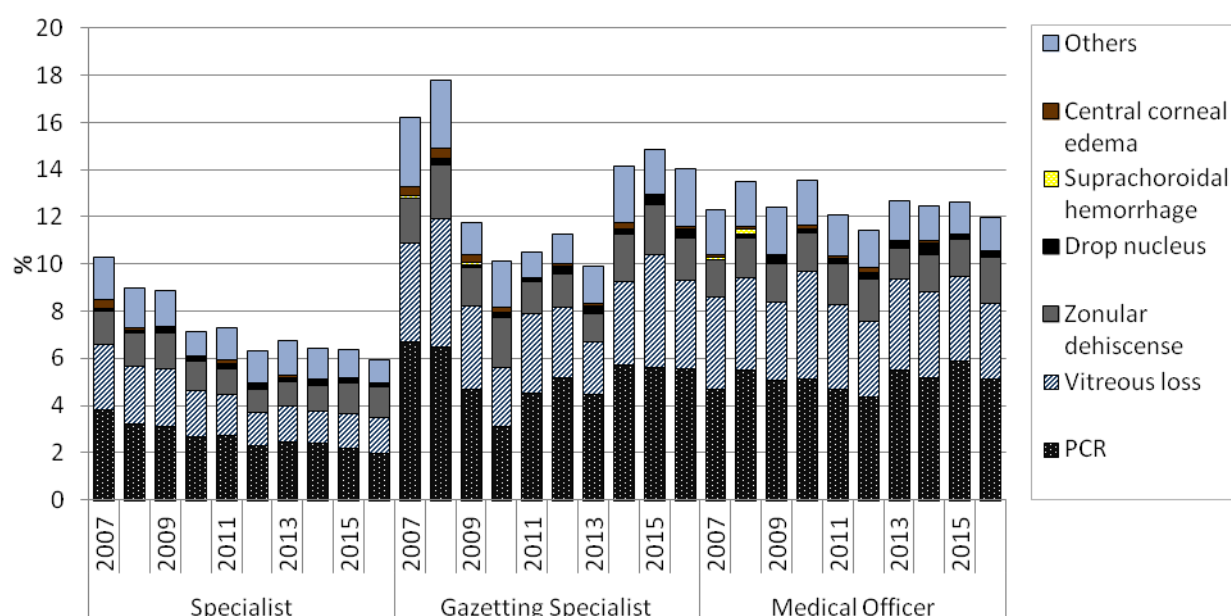


Figure 1.4.5-1: Percentage Distribution of Intra-operative Complications by Surgeon Status (All Surgery), CSR 2007-2016

Table 1.4.5-2: Intra-operative Complications by Surgeon Status (Phaco), CSR 2009-2016

(1) Specialist

Year	2009		2010		2011		2012		2013		2014		2015		2016	
N	15206		19797		20963		23291		28774		32417		35766		41212	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-operative complication	627	4.1	680	3.4	780	3.7	755	3.2	977	3.4	1065	3.3	1021	2.9	1037	2.5
Type of complications:																
PCR	354	2.3	408	2.1	453	2.2	413	1.8	534	1.9	575	1.8	560	1.6	554	1.3
Vitreous loss	201	1.3	211	1.1	202	1.0	168	0.7	230	0.8	223	0.7	243	0.7	276	0.7
Zonular dehiscense	118	0.8	113	0.6	116	0.6	121	0.5	160	0.6	179	0.6	216	0.6	214	0.5
Dropped nucleus	24	0.2	26	0.1	37	0.2	29	0.1	42	0.1	57	0.2	55	0.2	48	0.1
Suprachoroidal hemorrhage	3	0.0	3	0.0	1	0.0	4	0.0	2	0.0	0	0.0	0	0.0	1	0.0
Central corneal edema	10	0.1	13	0.1	24	0.1	14	0.1	8	0.0	18	0.1	11	0.0	16	0.0
Others	153	1.0	136	0.7	195	0.9	201	0.9	284	1.0	291	0.9	261	0.7	274	0.7

(2) Gazetting Specialist

Year	2009		2010		2011		2012		2013		2014		2015		2016	
N	1422		929		1845		1850		1694		1776		1899		2021	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-operative complication	86	6.0	39	4.2	86	4.7	102	5.5	74	4.4	132	7.4	96	5.1	136	6.7
Type of complications:																
PCR	60	4.2	23	2.5	67	3.6	72	3.9	54	3.2	89	5.0	70	3.7	85	4.2
Vitreous loss	36	2.5	10	1.1	35	1.9	31	1.7	21	1.2	41	2.3	40	2.1	46	2.3

Zonular dehiscence	12	0.8	8	0.9	10	0.5	10	0.5	4	0.2	14	0.8	8	0.4	17	0.8
Dropped nucleus	2	0.1	2	0.2	1	0.1	7	0.4	4	0.2	4	0.2	7	0.4	5	0.2
Suprachoroidal hemorrhage	0	0.0	0	0.0	0	0.0	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	3	0.2	1	0.1	2	0.1
Others	12	0.8	9	1.0	9	0.5	17	0.9	17	1.0	28	1.6	20	1.1	41	2.0

(3) Medical Officer

Year	2009		2010		2011		2012		2013		2014		2015		2016	
N	923		1078		1050		1182		1132		1189		1372		1862	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Any intra-operative complication	64	6.9	79	7.3	61	5.8	73	6.2	61	5.4	83	7.0	75	5.5	84	4.5
Type of complications:																
PCR	47	5.1	58	5.4	48	4.6	53	4.5	45	4.0	65	5.5	59	4.3	68	3.7
Vitreous loss	27	2.9	41	3.8	33	3.1	27	2.3	28	2.5	35	2.9	22	1.6	30	1.6
Zonular dehiscence	7	0.8	12	1.1	4	0.4	13	1.1	9	0.8	10	0.8	9	0.7	13	0.7
Dropped nucleus	2	0.2	3	0.3	4	0.4	3	0.3	5	0.4	11	0.9	2	0.1	6	0.3
Suprachoroidal hemorrhage	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	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	0	0.0	0	0.0	0	0.0
Others	12	1.3	8	0.7	9	0.9	5	0.4	4	0.4	7	0.6	8	0.6	6	0.3

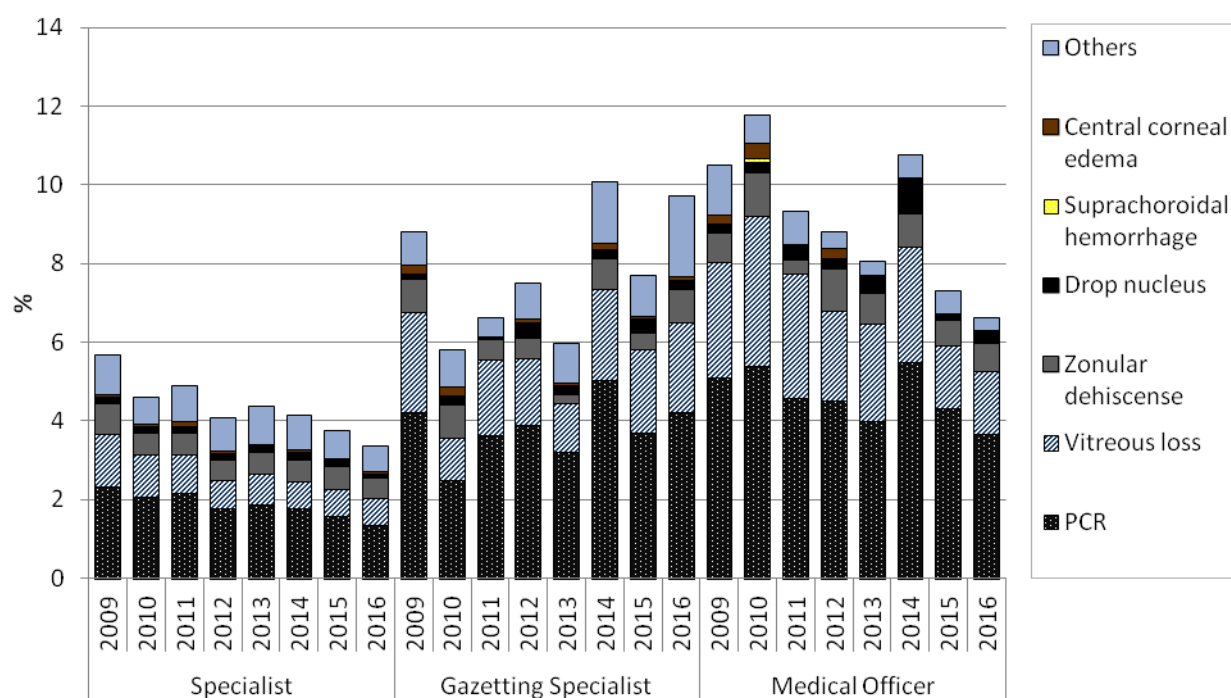


Figure 1.4.5-2: Percentage Distribution of Intra-operative Complications by Surgeon Status (Phaco), CSR 2007-2016

1.4.6 Posterior Capsular Rupture (PCR)

Table 1.4.6-1: PCR by SDP, CSR 2007-2016

Hospital	2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	N	n	%	N	n	%	N	n	%	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	2106	53	2.5	2336	50	2.1	2616	37	1.4
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	946	37	3.9	880	45	5.1	750	32	4.3
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	467	22	4.7	561	15	2.7	666	11	1.7
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	374	0	0.0	350	5	1.4	197	9	4.6
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	998	24	2.4	1265	14	1.1	1379	19	1.4
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	2759	62	2.2	2547	87	3.4	3123	68	2.2
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	426	24	5.6	576	31	5.4	652	24	3.7
Kemaman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	0	0.0	72	0	0.0	3	0	0.0	28	3	10.7
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	133	7	5.3	82	0	0.0	370	7	1.9
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	1461	13	0.9	1978	39	2.0	2227	67	3.0
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	285	1	0.4	921	40	4.3	1113	50	4.5
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	365	27	7.4	389	16	4.1	344	8	2.3
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	1932	39	2.0	1609	18	1.1	1556	24	1.5
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	493	5	1.0	452	15	3.3	600	26	4.3
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	900	36	4.0	987	42	4.3	1321	54	4.1
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	576	21	3.6	1079	44	4.1	1225	36	2.9
Kulim	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265	3	1.1	418	8	1.9	569	4	0.7	
Langkawi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	0	0.0	89	4	4.5	
Likas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	0	0.0	23	0	0.0	
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	2139	86	4.0	2389	72	3.0	2549	66	2.6
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	949	5	0.5	903	10	1.1	1045	13	1.2
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	729	48	6.6	928	26	2.8	1085	18	1.7

Hospital	2007			2008			2009			2010			2011			2012			2013			2014			2015			2016			
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	
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	1791	27	1.5	2240	35	1.6	2591	46	1.8	
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	367	9	2.5	463	17	3.7	429	8	1.9	
Queen Elizabeth KK	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	1040	56	5.4	1133	44	3.9	1397	66	4.7	
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	237	4	1.7	499	5	1.0	414	9	2.2	
Sarawak	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	2068	84	4.1	2019	63	3.1	1879	50	2.7	
Sarikei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	286	7	2.4	555	9	1.6	647	4	0.6	694	6	0.9	
Segamat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	5	4.1
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	899	38	4.2	1353	35	2.6	1287	31	2.4	
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	1265	51	4.0	982	17	1.7	536	11	2.1	
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	1585	41	2.6	1726	39	2.3	1832	38	2.1	
Shah Alam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	353	6	1.7	
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	866	9	1.0	581	23	4.0	796	21	2.6	
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	625	17	2.7	666	13	2.0	684	19	2.8	
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	609	16	2.6	827	26	3.1	885	25	2.8	
Sultanah Aminah JB	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	1381	47	3.4	1643	47	2.9	1575	46	2.9	
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	693	11	1.6	774	12	1.6	818	16	2.0	
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	1022	29	2.8	1006	27	2.7	1138	25	2.2	
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	1233	16	1.3	1320	19	1.4	1575	23	1.5	
Tanah Merah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	0	0.0	18	0	0.0		
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	540	38	7.0	607	22	3.6	681	23	3.4	
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	1013	10	1.0	932	30	3.2	1327	34	2.6	
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	1047	18	1.7	851	15	1.8	1009	22	2.2	
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	0	0.0		
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	209	2	1.0	339	5	1.5		
KK1M Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	186	8	4.3	2	0	0.0	62	1	1.6		
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	0	0.0	220	7	3.2		

Hospital	2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
KK1M Pahang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	2	3.1	-	-	-	187	7	3.7	119	3	2.5
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84	2	2.4	
KK1M Terengganu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	0	0.0	40	0	0.0	50	2	4.0
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131	2	1.5	275	5	1.8
KK1M Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	0	0.0	831	20	2.4	1131	36	3.2	917	18	2.0
MAIWP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1583	2	0.1	2266	29	1.3	1824	28	1.5	2900	30	1.0

Table 1.4.6-2: PCR by Surgeon Status and SDP (Phacoemulsification), CSR 2016

(N= total no. of phacoemulsification; n= no. of PCR cases during phacoemulsification)

Hospital	2016 Phaco			By surgeon status:								
				Specialist			Gazetting Specialist			Medical Officer		
	N	n	%	N	n	%	N	n	%	N	n	%
Alor Setar	2336	23	1.0	2248	18	0.8	4	0	0.0	84	5	6.0
Ampang	578	22	3.8	412	8	1.9	51	8	15.7	115	6	5.2
Batu Pahat	588	9	1.5	588	9	1.5	0	0	0.0	0	0	0.0
Bintulu	176	4	2.3	176	4	2.3	0	0	0.0	0	0	0.0
Bukit Mertajam	1094	6	0.5	1084	5	0.5	0	0	0.0	10	1	10.0
Ipoh	2893	50	1.7	2564	38	1.5	172	4	2.3	157	8	5.1
Kangar	518	9	1.7	516	9	1.7	0	0	0.0	2	0	0.0
Kemaman	19	3	15.8	12	2	16.7	7	1	14.3	0	0	0.0
Keningau	340	6	1.8	12	0	0.0	0	0	0.0	328	6	1.8
Klang	2027	29	1.4	2011	29	1.4	11	0	0.0	5	0	0.0
Kota Bharu	793	29	3.7	752	22	2.9	3	2	66.7	38	5	13.2
Kuala Krai	255	4	1.6	255	4	1.6	0	0	0.0	0	0	0.0
Kuala Lumpur	1290	9	0.7	1246	8	0.6	27	1	3.7	17	0	0.0
Kuala Pilah	542	12	2.2	469	10	2.1	57	1	1.8	16	1	6.3
Kuala Terengganu	1067	30	2.8	938	15	1.6	127	15	11.8	2	0	0.0
Kuantan	980	16	1.6	847	12	1.4	61	1	1.6	72	3	4.2
Kulim	492	0	0.0	492	0	0.0	0	0	0.0	0	0	0.0
Langkawi	75	3	4.0	73	2	2.7	0	0	0.0	2	1	50.0
Likas	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Melaka	2377	45	1.9	2141	32	1.5	174	9	5.2	62	4	6.5
Miri	998	10	1.0	725	1	0.1	240	7	2.9	33	2	6.1
Muar	1021	11	1.1	1021	11	1.1	0	0	0.0	0	0	0.0
Pulau Pinang	2487	36	1.4	2252	31	1.4	73	2	2.7	162	3	1.9
Putrajaya	350	5	1.4	350	5	1.4	0	0	0.0	0	0	0.0
Queen Elizabeth KK	1177	48	4.1	923	33	3.6	242	13	5.4	12	2	16.7
Sandakan	358	4	1.1	347	3	0.9	0	0	0.0	11	1	9.1
Sarawak	1807	47	2.6	1562	35	2.2	150	7	4.7	95	5	5.3
Sarikei	674	6	0.9	669	6	0.9	0	0	0.0	5	0	0.0
Segamat	100	2	2.0	100	2	2.0	0	0	0.0	0	0	0.0
Selayang	1131	22	1.9	953	16	1.7	31	1	3.2	147	5	3.4
Serdang	483	6	1.2	481	6	1.2	0	0	0.0	2	0	0.0
Seremban	1662	26	1.6	1322	19	1.4	41	3	7.3	299	4	1.3
Shah Alam	340	5	1.5	340	5	1.5	0	0	0.0	0	0	0.0
Sibu	752	11	1.5	724	10	1.4	0	0	0.0	28	1	3.6
Sri Manjung	659	17	2.6	476	12	2.5	183	5	2.7	0	0	0.0
Sultan Ismail	815	12	1.5	815	12	1.5	0	0	0.0	0	0	0.0
Sultanah Aminah JB	1468	25	1.7	1176	18	1.5	240	5	2.1	52	2	3.8
Sungai Buloh	739	8	1.1	738	8	1.1	0	0	0.0	1	0	0.0
Sungei Petani	1006	16	1.6	1000	16	1.6	0	0	0.0	6	0	0.0
Taiping	1346	11	0.8	1346	11	0.8	0	0	0.0	0	0	0.0
Tanah Merah	9	0	0.0	9	0	0.0	0	0	0.0	0	0	0.0

Tawau	574	6	1.0	563	5	0.9	9	0	0.0	2	1	50.0
Teluk Intan	1191	9	0.8	1190	9	0.8	0	0	0.0	1	0	0.0
Temerloh	863	7	0.8	795	7	0.9	68	0	0.0	0	0	0.0
KK1M Johor	90	0	0.0	90	0	0.0	0	0	0.0	0	0	0.0
KK1M Kedah	332	5	1.5	332	5	1.5	0	0	0.0	0	0	0.0
KK1M Kelantan	34	1	2.9	34	1	2.9	0	0	0.0	0	0	0.0
KK1M Neg. Sembilan	206	2	1.0	178	2	1.1	27	0	0.0	1	0	0.0
KK1M Pahang	108	2	1.9	103	2	1.9	5	0	0.0	0	0	0.0
KK1M Pulau Pinang	80	1	1.3	76	0	0.0	3	0	0.0	1	1	100.0
KK1M Terengganu	45	2	4.4	45	2	4.4	0	0	0.0	0	0	0.0
KK1M Sabah	262	2	0.8	262	2	0.8	0	0	0.0	0	0	0.0
KK1M Sarawak	898	16	1.8	889	16	1.8	9	0	0.0	0	0	0.0
MAIWP	2841	19	0.7	2490	16	0.6	6	0	0.0	94	1	1.1

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

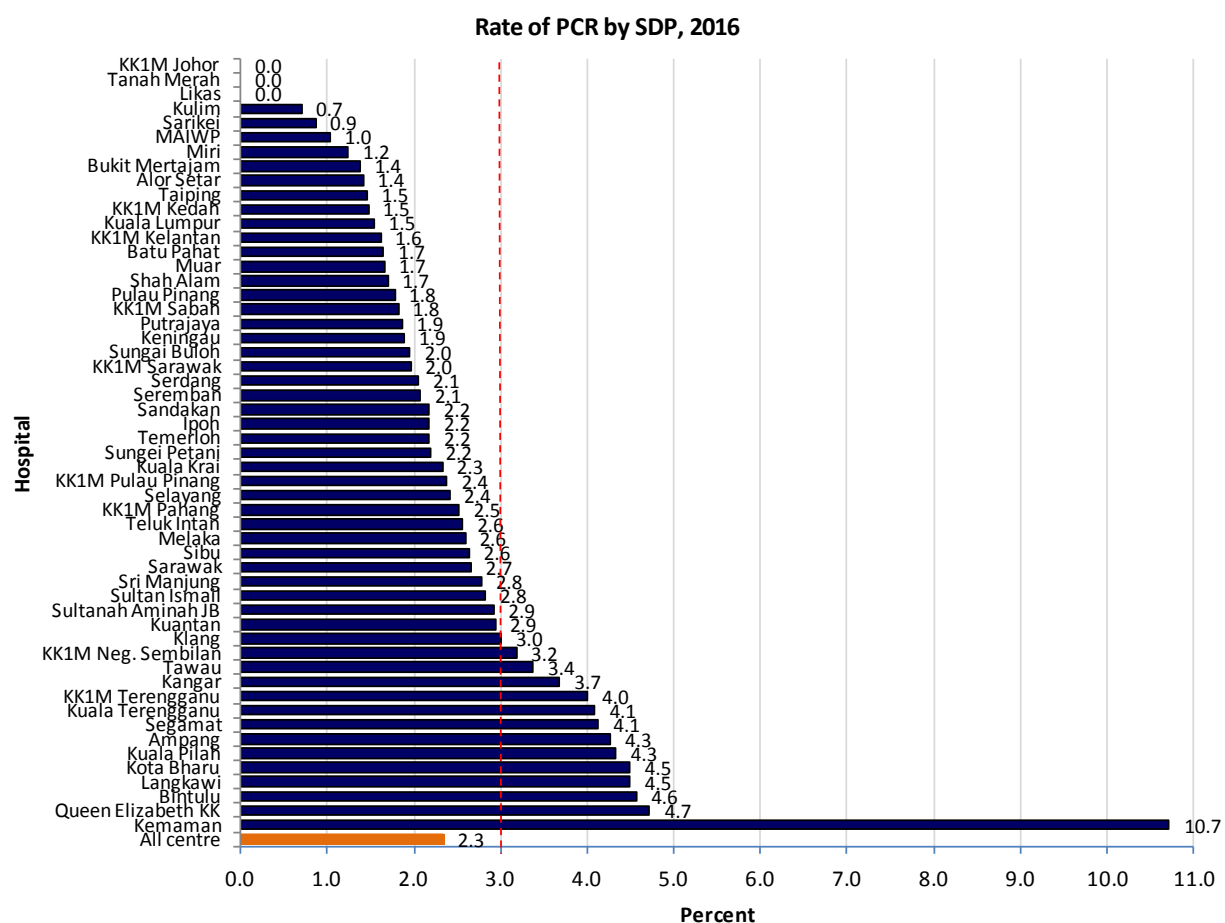


Figure 1.4.6-1: PCR by SDP, Bar Chart (All Surgery), CSR 2016

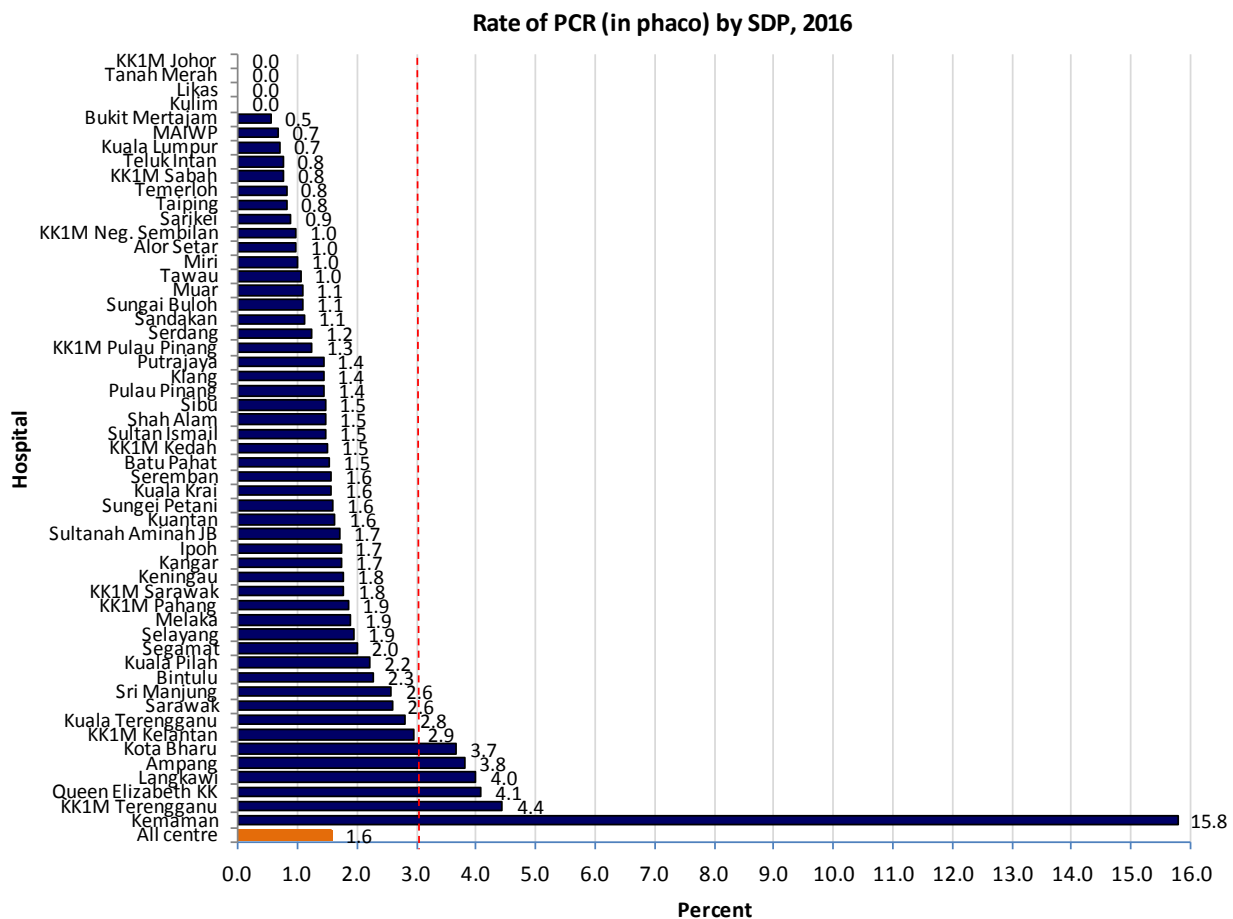


Figure 1.4.6-2: PCR by SDP, Bar Chart (Phacoemulsification), CSR 2016

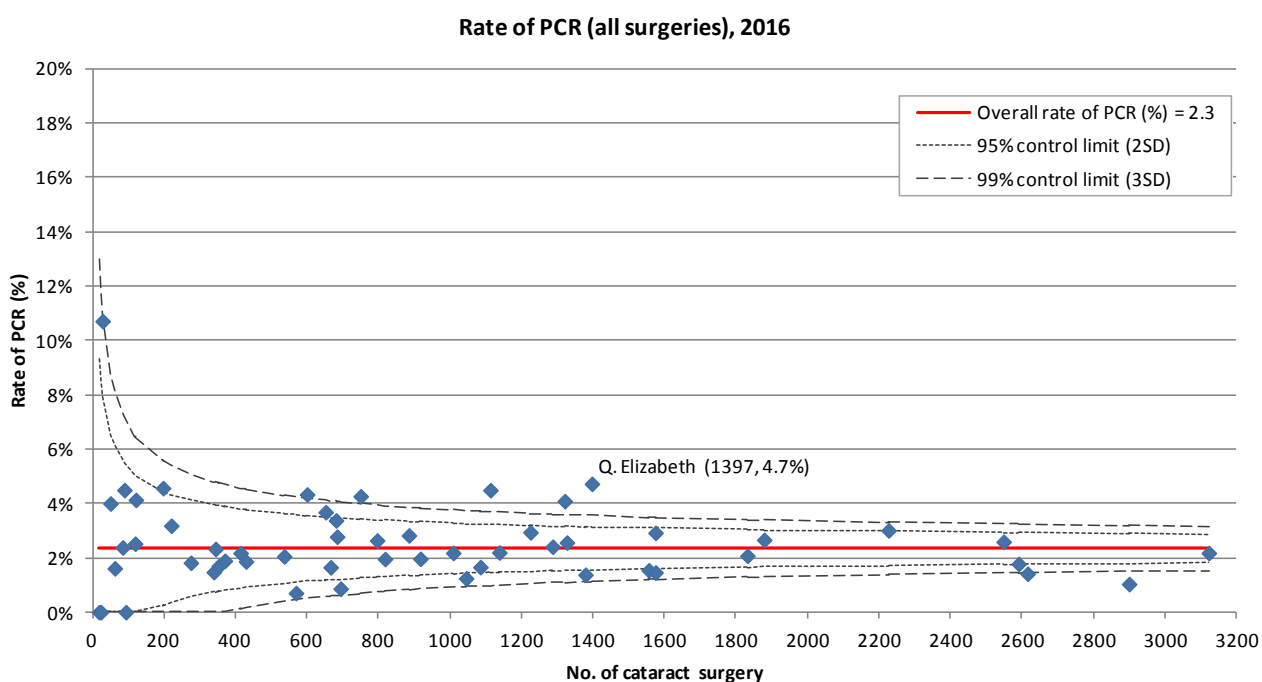


Figure 1.4.6-3: PCR by SDP, Funnel Plot (All Surgery), CSR 2016

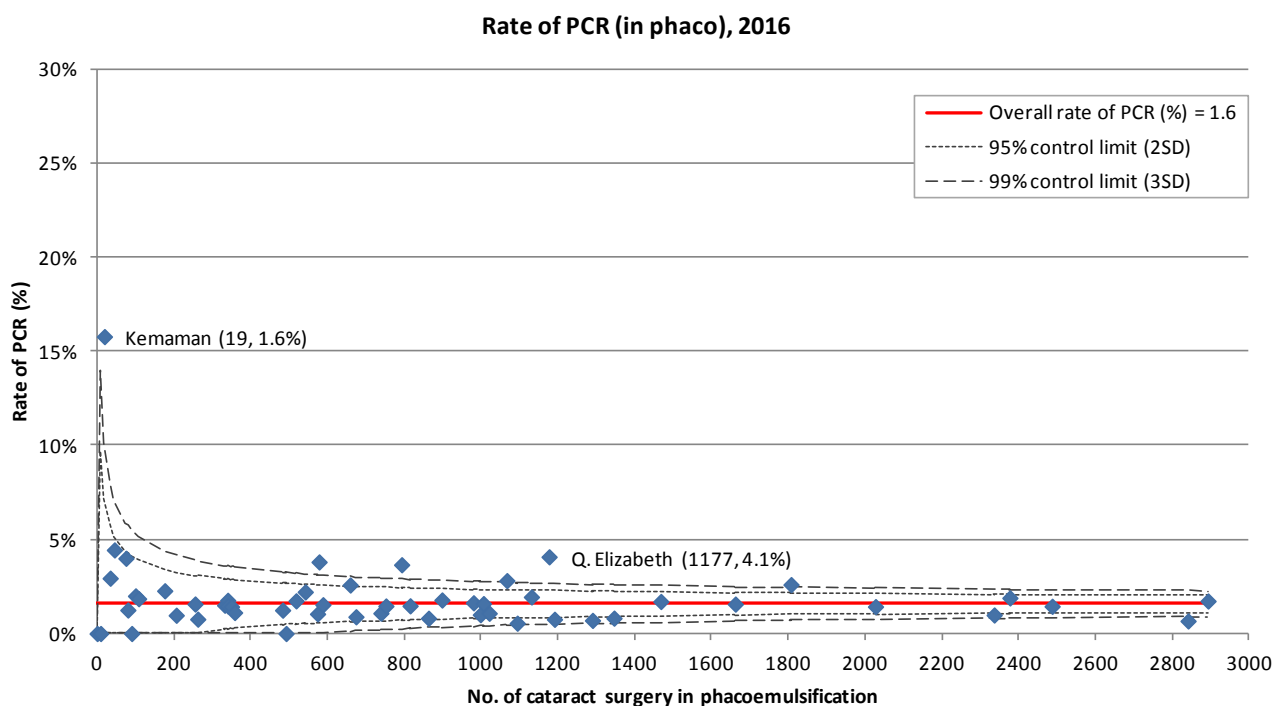


Figure 1.4.6-4: PCR by SDP, Funnel Plot (Phacoemulsification), CSR 2016

1.4.7 Posterior Capsular Rupture (PCR) by Type of Cataract Surgery

From the year 2002-2004, the percentage of PCR during phaco was higher than ECCE (figure not displayed). From 2007 onwards, the figures were reversed with ECCE having a higher percentage of PCR than phaco.

Table 1.4.7-1: PCR by Type of Cataract Surgery, CSR 2007-2016

Year	2007			2008			2009			2010			2011		
No. of patients	18380			21496			24438			28506			30611		
Total PCR	764			790			858			840			936		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	11960	393	3.3	14781	432	2.9	17717	471	2.7	21810	489	2.2	23872	568	2.4
ECCE	5524	239	4.3	5627	210	3.7	5457	216	4.0	5363	195	3.6	5291	181	3.4
Lens Aspiration	323	18	5.6	340	17	5.0	400	22	5.5	451	20	4.4	460	11	2.4
ICCE	141	15	10.6	129	7	5.4	134	8	6.0	143	9	6.3	123	6	4.9
Phaco converted to ECCE	432	99	22.9	524	124	23.7	573	135	23.6	586	119	20.3	652	162	24.8

Year	2012			2013			2014			2015			2016		
No. of patients	32473			37150			40532			44564			50625		
Total PCR	870			1017			1100			1145			1183		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	26345	538	2.0	31625	633	2.0	35429	731	2.1	39131	690	1.8	45346	709	1.6
ECCE	4784	145	3.0	4086	160	3.9	3613	133	3.7	3677	173	4.7	3439	173	5.0

Lens Aspiration	444	13	2.9	364	12	3.3	370	10	2.7	521	21	4.0	527	17	3.2
ICCE	136	6	4.4	173	8	4.6	176	9	5.1	223	21	9.4	275	37	13.5
Phaco converted to ECCE	621	161	25.9	769	196	25.5	805	205	25.5	833	228	27.4	870	235	27.0

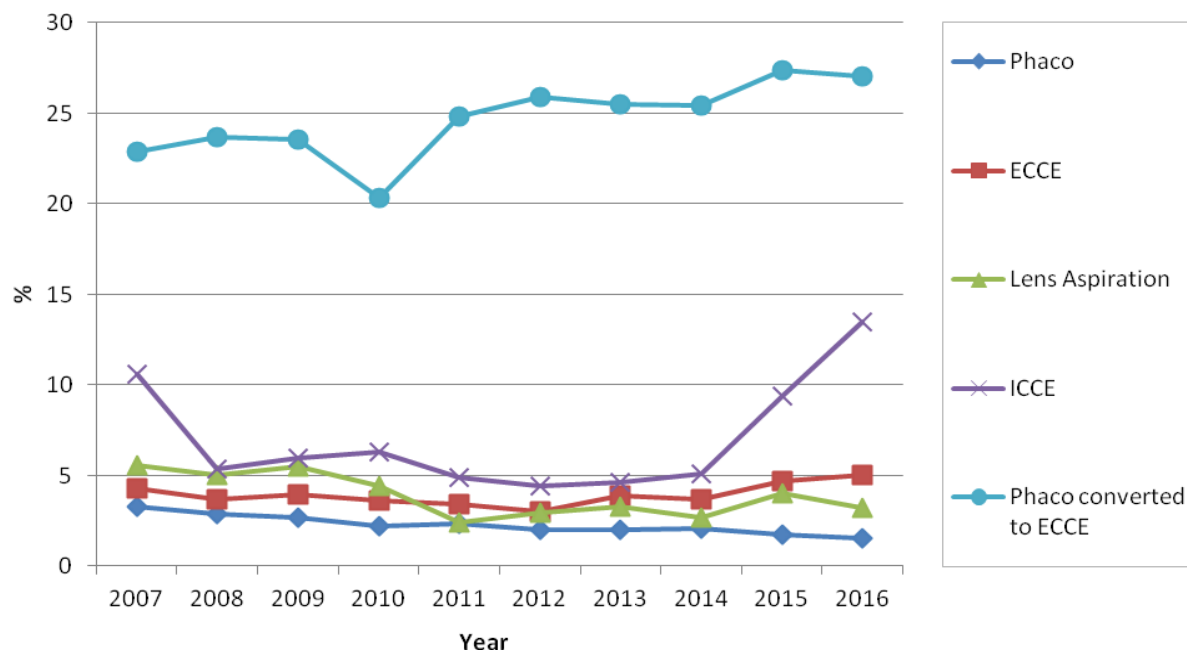


Figure 1.4.7-1: PCR by Type of Cataract Surgery, CSR 2007-2016

1.5 Cataract Surgery Outcome

1.5.1 Post-operative Complications Record and Ascertainment

In general, the ascertainment was above 80.0%.

Table 1.5.1-1: Distribution of Cataract Surgery with Post-operative Complication Record, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total number of cataract surgery registered to CSR	18426	21496	24438	28506	30611	32473	37150	40532	44534	50625
Cataract surgery with post-operative complication record	15430	19274	18621	24293	28746	30011	33596	36138	40088	46011
Ascertainment on post-operative complication (%)	83.7	89.7	76.2	85.2	93.9	92.4	90.4	89.2	90.0	90.9
Cataract surgery with visual outcome record	15786	19048	20590	24522	27219	28589	33067	36257	39077	44788
Ascertainment on visual outcome (%)	85.7	88.6	84.3	86.0	88.9	88.0	89.0	89.5	87.7	88.5

1.5.2 Post-operative Infectious Endophthalmitis

The occurrence of post-operative infectious endophthalmitis appeared to be decreasing over the years.

Table 1.5.2-1: Post-operative Infectious Endophthalmitis, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Eyes with post-operative complication records (N)	15430	19274	18621	24293	28746	30011	33596	36138	40088	46011
Eyes with post-operative infectious endophthalmitis (n)	29	22	19	24	11	13	27	19	21	16
Percentage of eyes with post-operative endophthalmitis (%)	0.19	0.11	0.10	0.10	0.04	0.04	0.08	0.05	0.05	0.03

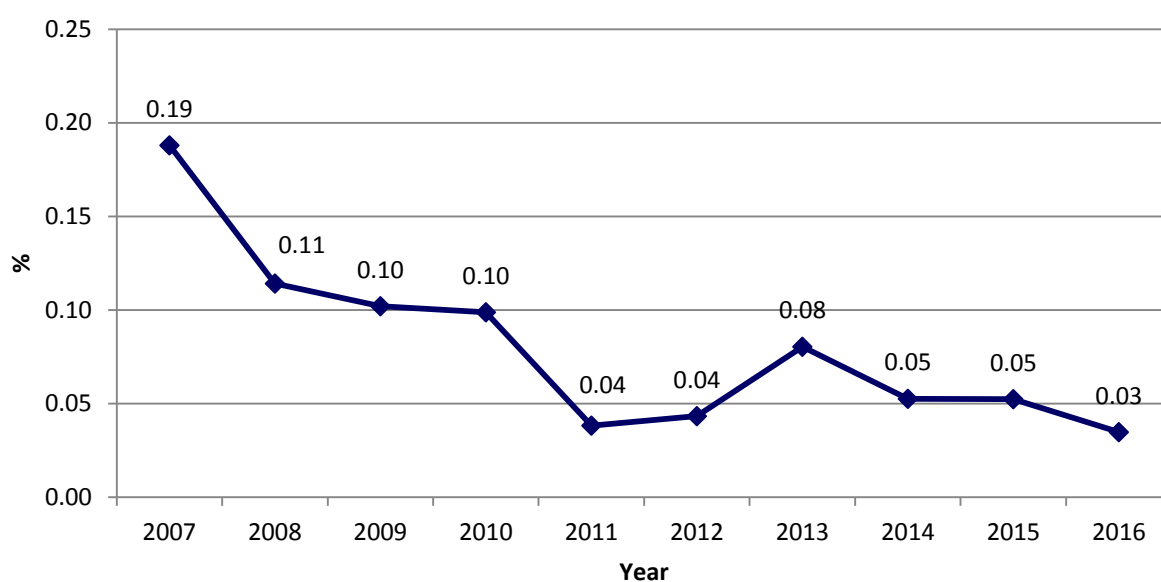


Figure 1.5.2-1: Percentage of Post-operative Infectious Endophthalmitis, CSR 2007-2016

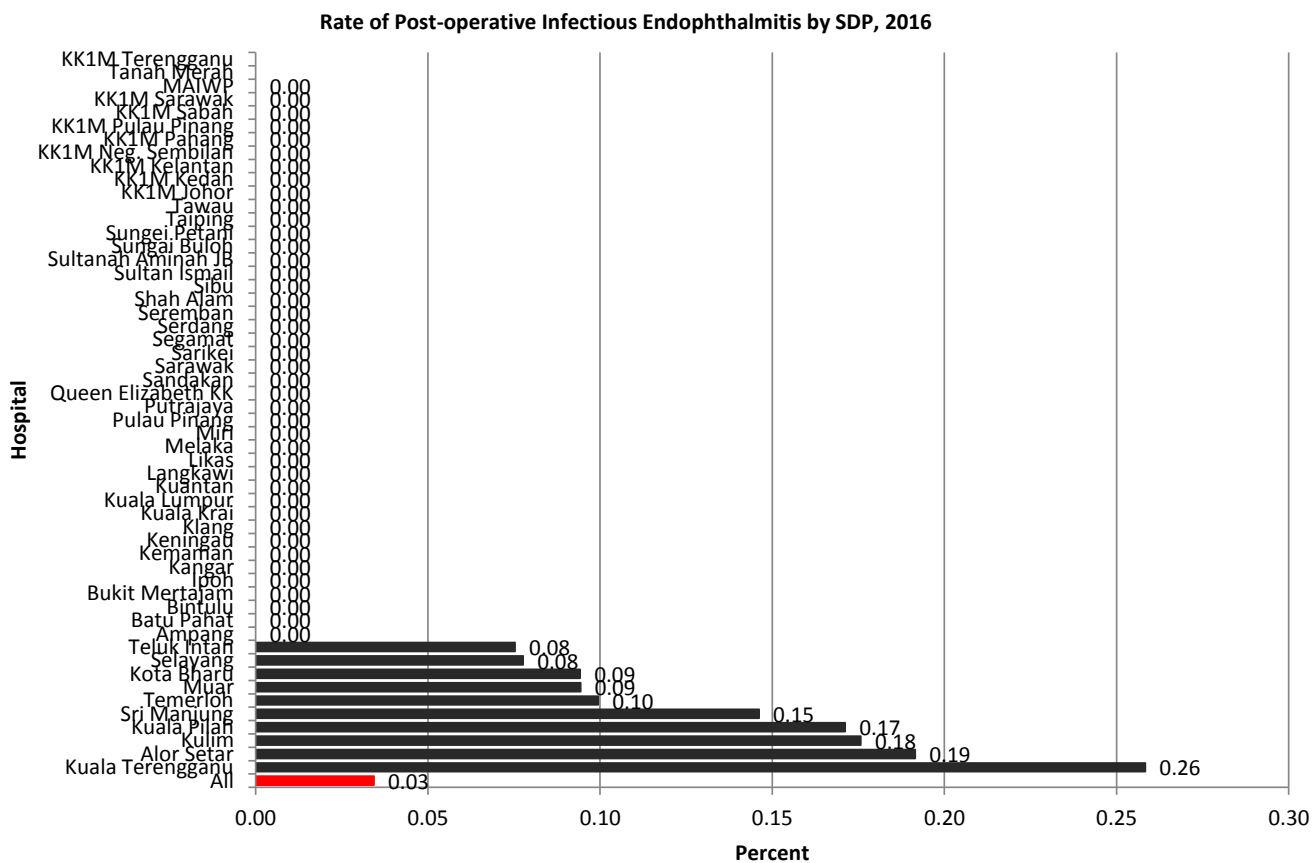


Figure 1.5.2-2: Percentage of Post-operative Infectious Endophthalmitis in Bar Chart, CSR 2016

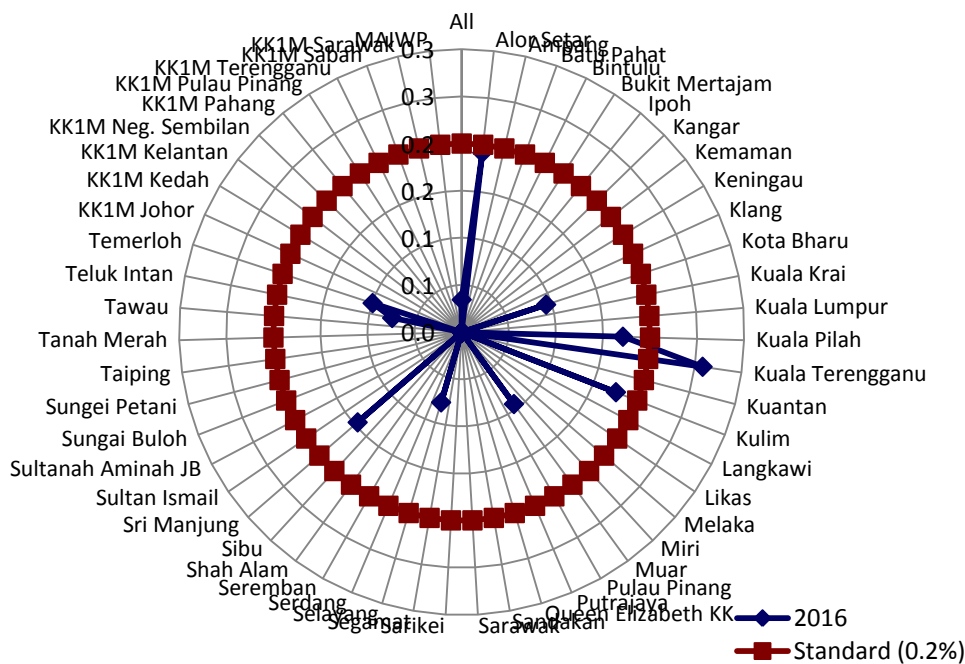


Figure 1.5.2-3: Percentage of Post-operative Infectious Endophthalmitis in Radar Chart, CSR 2016

Table 1.5.2-2: Time from Surgery to Diagnosis, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of patients with post-operative infective endophthalmitis	29	22	19	24	11	13	27	19	21	16
Time from surgery to diagnosis of infection (day)	Days									
Minimum, maximum	1, 376	1, 76	1, 103	0, 141	0, 391	2, 59	1, 162	2, 90	1, 367	2, 79
Median	14.5	12	9	8	6	13	7	7	5	17
25 th percentile–75 th percentile	7–36	3–31.5	2–21	3–35	3–14	5.5–29.5	3–20	4–28	3–22	9–46.5
Distribution of patients	Number of Patients									
Less than 3 days	2	5	5	4	2	1	6	2	5	1
3-5 days	4	1	1	5	3	2	4	5	6	0
6-14 days	8	5	5	4	4	4	8	4	4	7
More than 14 days	14	9	7	10	2	5	8	8	6	8
Missing	1	2	1	1	0	1	1	0	0	0

1.5.3 Unplanned Return to Operating Theatre (OT)

Table 1.5.3-1: Unplanned Return to OT, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Patients with outcome records (N)	15430	19274	18621	24293	28746	30011	33596	36138	40088	46011
	n	%	n	%	n	%	n	%	n	%
	87	0.56	88	0.46	116	0.62	123	0.51	122	0.42
	103	0.34	105	0.31	97	0.27	137	0.34	109	0.24

Table 1.5.3-2: Reasons for Unplanned Return to OT, CSR 2007-2016

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Patients with unplanned return to OT	87	88	116	123	122	103	105	97	137	109
	n	%	n	%	n	%	n	%	n	%
Iris prolapse	20	23.0	12	13.6	18	15.5	20	16.3	24	19.7
Wound dehiscence	13	14.9	7	8.0	22	19.0	20	16.3	18	14.8
High IOP	5	5.7	2	2.3	9	7.8	3	2.4	4	3.3
IOL related	10	11.5	14	15.9	15	12.9	22	17.9	18	14.8
Infective endophthalmitis	12	13.8	6	6.8	6	5.2	9	7.3	2	1.6
Others	38	43.7	48	54.5	53	45.7	56	45.5	68	55.7
	52	50.5	55	52.4	53	54.6	92	67.2	73	67.0

Total percentage may be more than 100% as patient might have multiple reasons for unplanned return to OT.

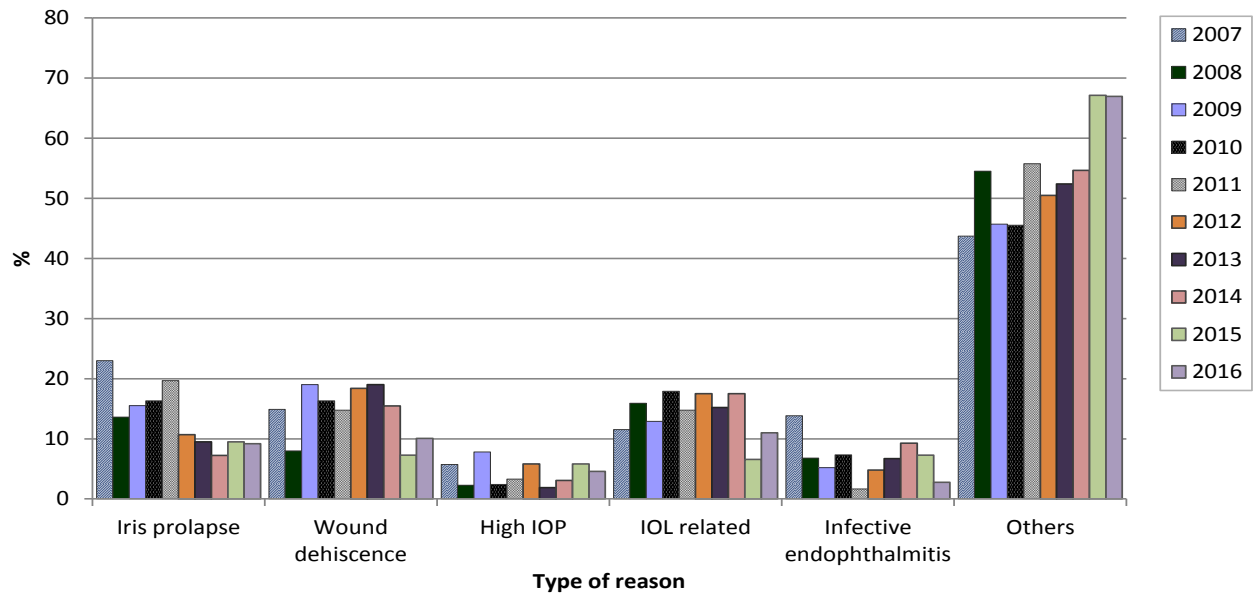


Figure 1.5.3-1: Reasons for Unplanned Return to Operating Theatre, CSR 2007-2016

Table 1.5.3-3: Time from Surgery to Unplanned Return to OT, CSR 2016

Post-operative period (day)	N	n	Median	25 th percentile–75 th percentile	Minimum, maximum
Iris prolapse	10	8	3	1.5–6.5	1, 30
Wound dehiscence	11	11	7	1–16	1, 30
High IOP	5	5	4	2–6	0, 10
IOL related	12	12	6	1–44	0, 151
Infective endophthalmitis	3	3	13	7–21	7, 21
Others	73	68	4.5	1–19	0, 78

n = No. of available information.

1.5.4 Post-operative Follow-up Period

Most patients were followed up until 7 weeks post-operatively.

Table 1.5.4-1: Median Follow-up Period by Types of Cataract Surgery (Eyes with Unaided Vision in Weeks), CSR 2016

Types of surgery	N	n	Median	25 th percentile	75 th percentile
All surgeries	44788	44776	7	6	9
Phaco	40413	40403	7	5	8
ECCE	2890	2888	8	6	11
Phaco converted to ECCE	720	720	8	6	11
ICCE	213	213	7	5	10
Lens aspiration	421	421	6	5	8

n = No. of available information.

Table 1.5.4-2: Median Follow-up Period by Types of Cataract Surgery (Eyes with Refracted Vision) in Weeks, CSR 2016

Types of surgery	N	n	Median	25 th percentile	75 th percentile
All surgeries	41798	41788	7	6	9
Phaco	37875	37866	7	6	8
ECCE	2622	2621	9	7	11
Phaco converted to ECCE	666	666	9	6	11
ICCE	180	180	7	6	11
Lens aspiration	359	359	7	5	8

n = No. of available information.

1.5.5 Post-operative Visual Acuity (All Eyes)

The percentage of eye with unaided vision, VA 6/12 or better i.e. good VA outcome appears to be increasing over the years (from 40.6% in 2007 to 53.4% in 2015).

Table 1.5.5-1: Post-operative Visual Acuity (All Eyes), CSR 2007-2016

Year	2007 (N=18426)				2008 (N=21496)				2009 (N=24438)				2010 (N=28506)				2011 (N=30611)			
	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
VA	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	3	0.0	35	0.2	9	0.0	51	0.3	10	0.0	46	0.2	12	0.0	119	0.5	15	0.1	124	0.5
6/6	878	5.6	4409	30.5	1126	5.9	6072	35.2	1100	5.3	6555	34.7	1568	6.4	8362	37.0	1776	6.5	9239	37.4
6/9	2806	17.8	4961	34.3	3040	15.9	5714	33.1	3649	17.7	6550	34.7	4523	18.4	7369	32.6	5040	18.5	8162	33.0
6/12	2717	17.2	2100	14.6	3351	17.6	2577	14.9	3837	18.6	2762	14.6	5054	20.6	3332	14.8	5499	20.2	3585	14.5
≤6/12	6404	40.6	11505	79.6	7526	39.4	14414	83.5	8596	41.7	15913	84.3	11157	45.5	19182	85.0	12330	45.3	21110	85.4
6/18	2893	18.3	1055	7.3	3792	19.9	1012	5.9	4052	19.7	1050	5.6	4727	19.3	1131	5.0	5209	19.1	1218	4.9
<6/12– 6/18	2893	18.3	1055	7.3	3792	19.9	1012	5.9	4052	19.7	1050	5.6	4727	19.3	1131	5.0	5209	19.1	1218	4.9
6/24	2315	14.7	573	4.0	2978	15.6	607	3.5	2958	14.4	616	3.3	3232	13.2	666	2.9	3689	13.6	738	3.0
6/36	1687	10.7	444	3.1	2018	10.6	421	2.4	2095	10.2	416	2.2	2211	9.0	497	2.2	2528	9.3	503	2.0
6/60	1126	7.1	266	1.9	1300	6.8	261	1.5	1323	6.4	276	1.5	1456	5.9	350	1.6	1558	5.7	388	1.6
<6/18– 6/60	5128	32.5	1283	9.0	6296	33.0	1289	7.4	6376	31.0	1308	7.0	6899	28.1	1513	6.7	7775	28.6	1629	6.6
5/60	92	0.6	23	0.2	116	0.6	37	0.2	93	0.5	27	0.1	119	0.5	37	0.2	111	0.4	28	0.1
4/60	87	0.6	35	0.2	97	0.5	30	0.2	103	0.5	31	0.2	112	0.5	31	0.1	109	0.4	32	0.1
3/60	207	1.3	80	0.6	266	1.4	112	0.6	331	1.6	118	0.6	378	1.5	151	0.7	435	1.6	155	0.6
<6/60– 3/60	386	2.5	138	1.0	479	2.5	179	1.0	527	2.6	176	0.9	609	2.5	219	1.0	655	2.4	215	0.9
2/60	158	1.0	73	0.5	186	1.0	70	0.4	199	1.0	77	0.4	227	0.9	97	0.4	249	0.9	113	0.5
1/60	155	1.0	76	0.5	159	0.8	60	0.3	168	0.8	66	0.3	196	0.8	93	0.4	213	0.8	99	0.4
CF	300	1.9	121	0.8	295	1.5	85	0.5	315	1.5	127	0.7	345	1.4	147	0.7	400	1.5	135	0.5
HM	253	1.6	149	1.0	230	1.2	84	0.5	269	1.3	126	0.7	280	1.1	155	0.7	294	1.1	150	0.6
PL	75	0.5	46	0.3	53	0.3	22	0.1	58	0.3	31	0.2	47	0.2	24	0.1	52	0.2	20	0.1
NPL	34	0.2	0	0.0	32	0.2	0	0.0	30	0.1	12	0.1	35	0.1	18	0.1	42	0.2	18	0.1
<3/60	975	6.2	465	3.1	955	5.0	321	1.8	1039	5.0	439	2.3	1130	4.6	534	2.4	1250	4.6	535	2.2
TOTAL	15786	100	14446	100	19048	100	17215	100	20590	100	18886	100	24522	100	22579	100	27219	100	24707	100

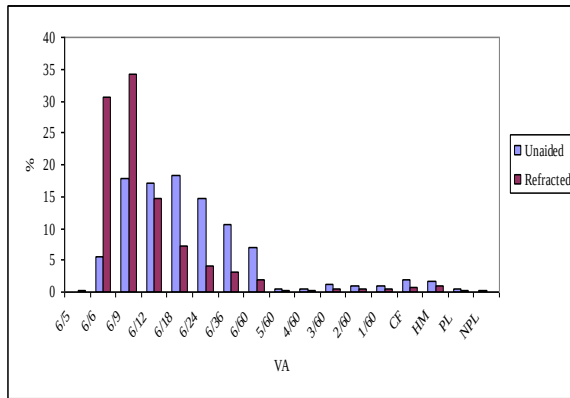
WHO classification:																				
Good: ≥6/18	9297	58.9	12560	86.9	11318	59.4	15426	89.6	12648	61.4	16963	89.8	15884	64.8	20313	90.0	17539	64.4	22328	90.4
Borderline: <6/18–6/60	5128	32.5	1283	8.9	6296	33.1	1289	7.5	6376	31.0	1308	6.9	6899	28.1	1513	6.7	7775	28.6	1629	6.6
Poor: <6/60	1361	8.6	603	4.2	1434	7.5	500	2.9	1566	7.6	615	3.3	1739	7.1	753	3.3	1905	7.0	750	3.0

Year	2012 (N=32473)				2013 (N=37150)				2014 (N=40532)				2015 (N=44534)				2016 (N=50625)			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	14	0.0	102	0.4	20	0.1	104	0.3	25	0.1	123	0.4	23	0.1	87	0.2	22	0.0	89	0.2
6/6	2011	7.0	9732	38.2	2664	8.1	11743	39.2	3165	8.7	13487	40.2	3585	9.2	15244	41.9	4078	9.1	16967	40.6
6/9	5498	19.2	8254	32.4	7101	21.5	9901	33.0	7765	21.4	10961	32.7	8771	22.4	11757	32.3	10050	22.4	12961	31.0
6/12	5925	20.7	3723	14.6	7122	21.5	4272	14.3	7870	21.7	4700	14.0	8478	21.7	4736	13.0	9099	20.3	5638	13.5
$\leq 6/12$	13448	47.0	21811	85.5	16907	51.1	26020	86.8	18825	51.9	29271	87.3	20857	53.4	31824	87.6	23249	51.9	35655	85.3
6/18	5285	18.5	1327	5.2	5923	17.9	1381	4.6	6638	18.3	1475	4.4	7314	18.7	1627	4.5	8106	18.1	2142	5.1
$< 6/12 - 6/18$	5285	18.5	1327	5.2	5923	17.9	1381	4.6	6638	18.3	1475	4.4	7314	18.7	1627	4.5	8106	18.1	2142	5.1
6/24	3728	13.0	746	2.9	4062	12.3	820	2.7	4421	12.2	938	2.8	4297	11.0	877	2.4	4637	10.4	1141	2.7
6/36	2713	9.5	531	2.1	2592	7.8	552	1.8	2724	7.5	617	1.8	2577	6.6	625	1.7	3118	7.0	839	2.0
6/60	1468	5.1	361	1.4	1606	4.9	390	1.3	1701	4.7	425	1.3	1750	4.5	473	1.3	2138	4.8	611	1.5
$< 6/18 - 6/60$	7909	27.7	1638	6.4	8260	25.0	1762	5.9	8846	24.4	1980	5.9	8624	22.1	1975	5.4	9893	22.1	2591	6.2
5/60	130	0.5	38	0.1	135	0.4	33	0.1	122	0.3	33	0.1	135	0.3	31	0.1	182	0.4	44	0.1
4/60	119	0.4	26	0.1	103	0.3	43	0.1	104	0.3	35	0.1	94	0.2	38	0.1	162	0.4	64	0.2
3/60	469	1.6	168	0.7	479	1.4	167	0.6	447	1.2	199	0.6	505	1.3	198	0.5	704	1.6	264	0.6
$< 6/60 - 3/60$	718	2.5	232	0.9	717	2.2	243	0.8	673	1.9	267	0.8	734	1.9	267	0.7	1048	2.3	372	0.9
2/60	257	0.9	94	0.4	291	0.9	124	0.4	303	0.8	131	0.4	330	0.8	118	0.3	514	1.1	175	0.4
1/60	211	0.7	79	0.3	239	0.7	111	0.4	237	0.7	86	0.3	312	0.8	141	0.4	549	1.2	186	0.4
CF	371	1.3	125	0.5	352	1.1	138	0.5	353	1.0	128	0.4	390	1.0	138	0.4	594	1.3	255	0.6
HM	291	1.0	154	0.6	279	0.8	138	0.5	291	0.8	158	0.5	362	0.9	186	0.5	560	1.3	296	0.7
PL	61	0.2	28	0.1	64	0.2	34	0.1	59	0.2	24	0.1	90	0.2	48	0.1	152	0.3	64	0.2
NPL	38	0.1	17	0.1	35	0.1	17	0.1	32	0.1	12	0.0	64	0.2	24	0.1	123	0.3	62	0.1
$< 3/60$	1229	4.3	497	1.9	1260	3.8	562	1.9	1275	3.5	539	1.6	1548	4.0	655	1.8	2492	5.6	1038	2.5
TOTAL	28589	100	25505	100	33067	100	29968	100	36257	100	33532	100	39077	100	36348	100	44788	100	41798	100

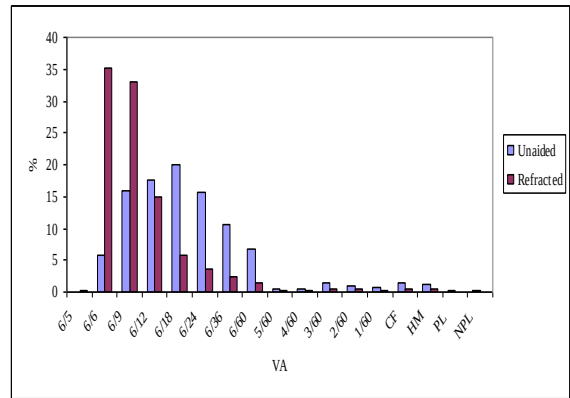
WHO classification:																				
Good: ≥6/18	18733	65.5	23138	90.7	22830	69.0	27401	91.4	25463	70.2	30746	91.7	28171	72.1	33451	92.0	31355	70.0	37797	90.4
Borderline: <6/18– 6/60	7909	27.7	1638	6.4	8260	25.0	1762	5.9	8846	24.4	1980	5.9	8624	22.1	1975	5.4	9893	22.1	2591	6.2
Poor: <6/60	1947	6.8	729	2.9	1977	6.0	805	2.7	1948	5.4	806	2.4	2282	5.8	922	2.5	3540	7.9	1410	3.4

Number and percentage (%) are based on available information.

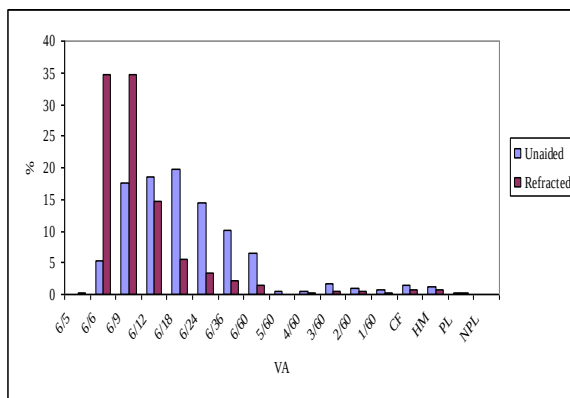
2007



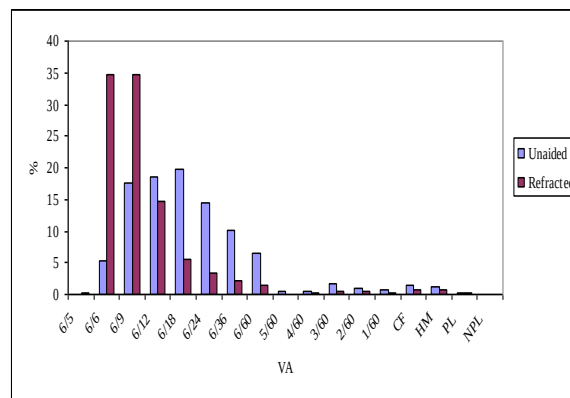
2008



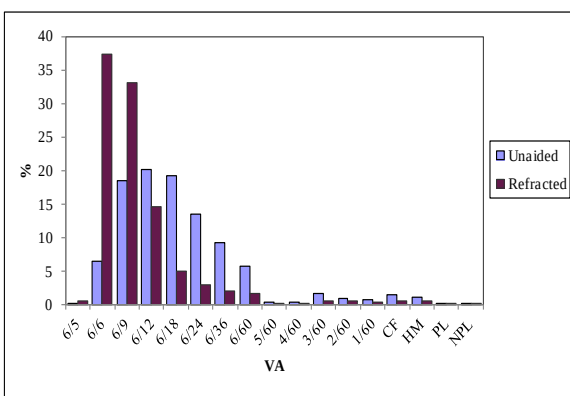
2009



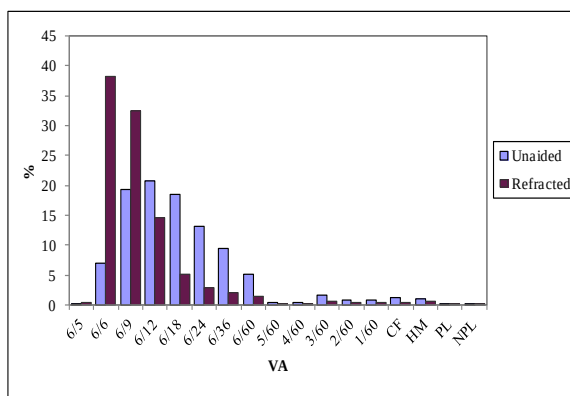
2010



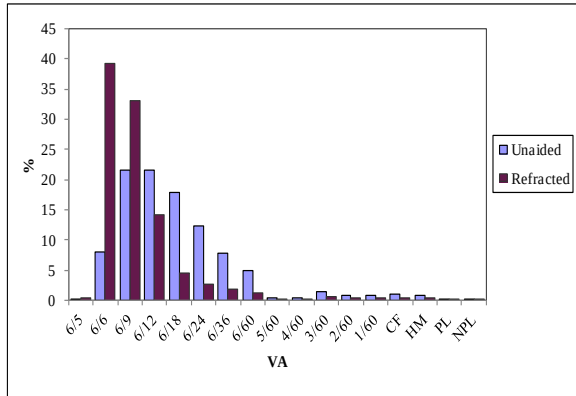
2011



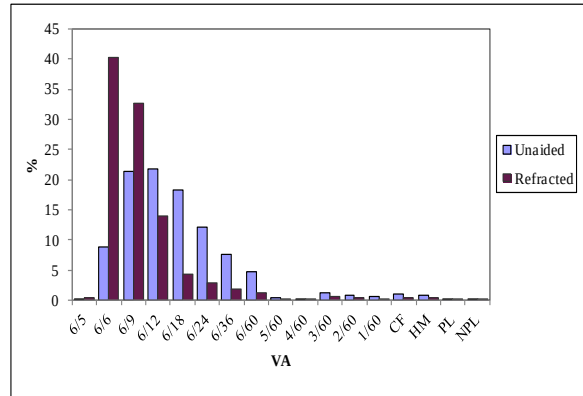
2012



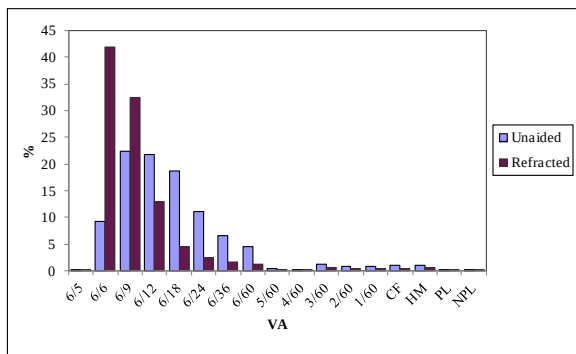
2013



2014



2015



2016

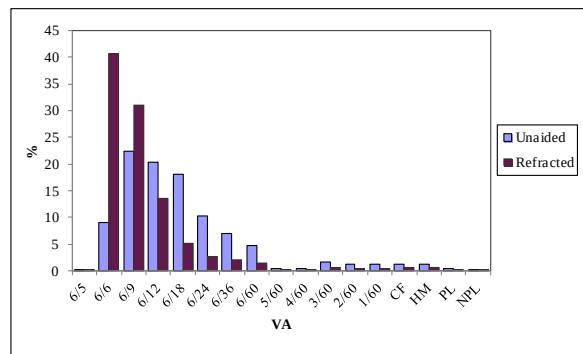


Figure 1.5.5-1: Percentage Distribution of Post-operative Unaided and Refracted Visual Acuity, CSR 2007-2016

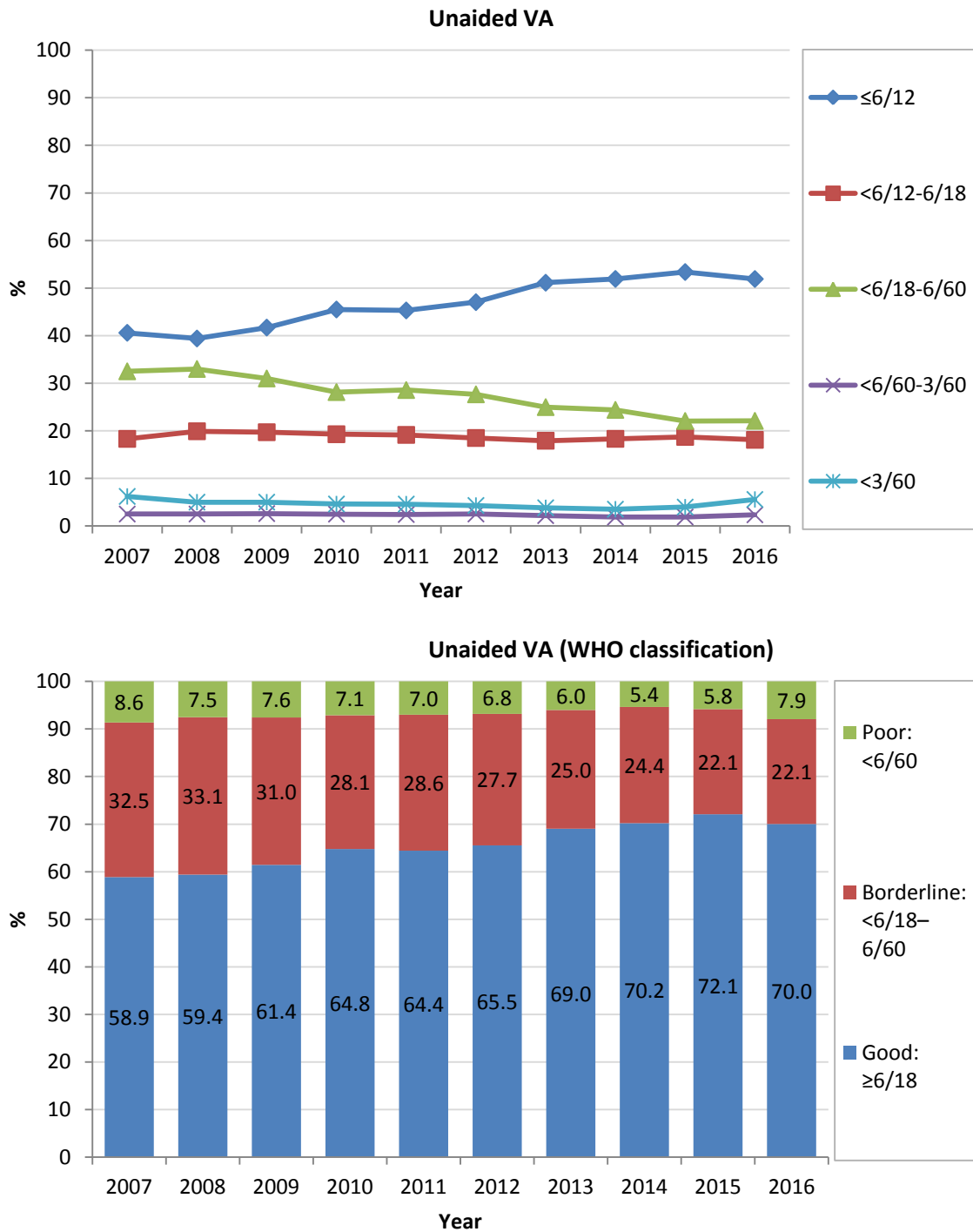


Figure 1.5.5-2: Post-operative Unaided Visual Acuity by Vision Category (All Eyes), CSR 2007-2016

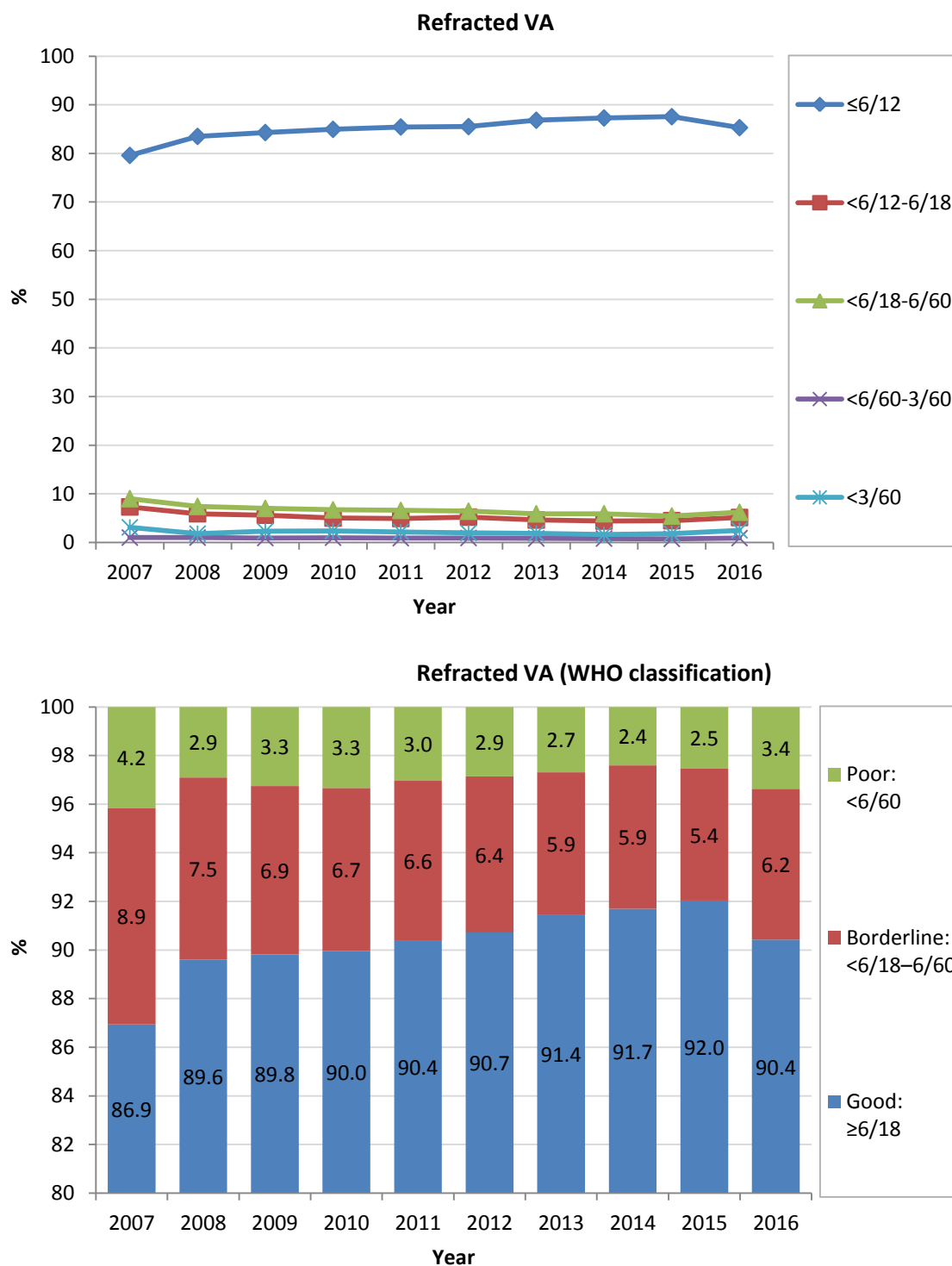


Figure 1.5.5-3: Post-operative Best Corrected Visual Acuity by Vision Category (All Eyes), CSR 2007-2016

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

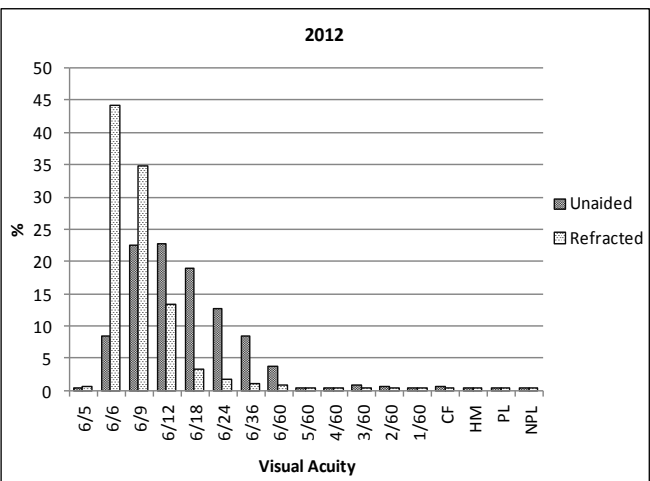
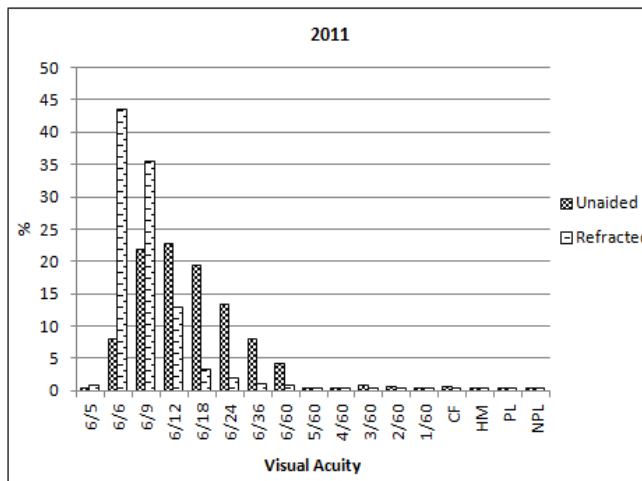
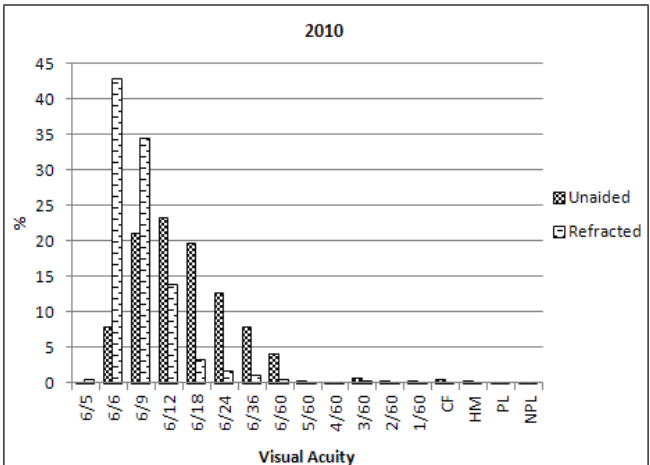
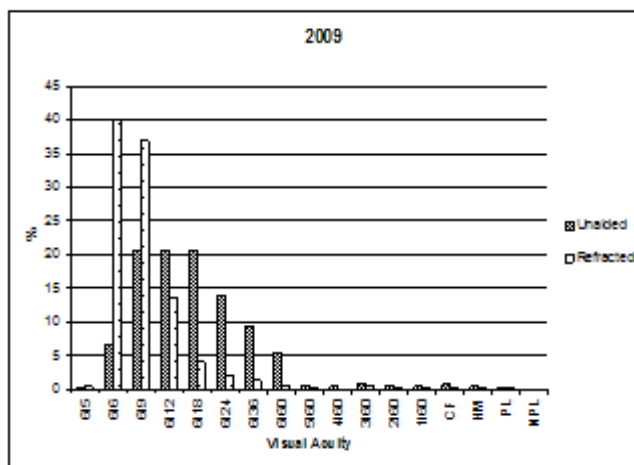
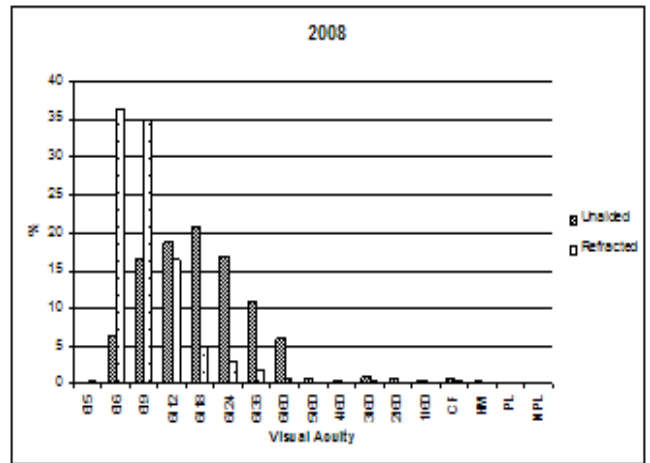
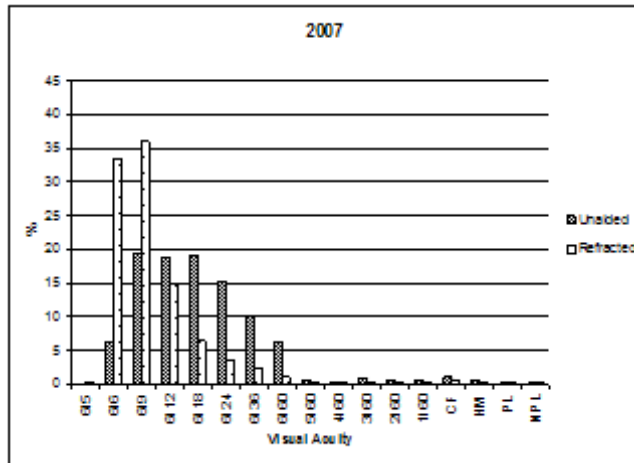
Table 1.5.6-1: Post-operative Visual Acuity (Eyes without Ocular Co-morbidity), CSR 2007-2016

Year	2007				2008				2009				2010				2011			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	3	0.0	25	0.3	2	0.0	23	0.3	8	0.1	37	0.3	7	0.0	83	0.6	14	0.1	105	0.7
6/6	667	6.2	3326	33.5	561	6.2	3061	36.4	802	6.4	4717	40.0	1127	8.0	5640	42.8	1249	7.9	6314	43.3
6/9	2061	19.3	3574	36.0	1477	16.4	2939	35.0	2595	20.6	4348	36.9	2989	21.1	4550	34.5	3447	21.8	5167	35.4
6/12	2021	18.9	1473	14.8	1683	18.7	1377	16.4	2585	20.5	1602	13.6	3311	23.4	1842	14.0	3587	22.6	1882	12.9
≤6/12	4752	44.4	8398	84.6	3723	41.3	7400	88.1	5990	47.6	10704	90.8	7434	52.6	12115	92.0	8297	52.4	13468	92.4
6/18	2037	19.1	634	6.4	1882	20.9	411	4.9	2599	20.6	479	4.1	2777	19.6	445	3.4	3061	19.3	480	3.3
<6/12–6/18	2037	19.1	634	6.4	1882	20.9	411	4.9	2599	20.6	479	4.1	2777	19.6	445	3.4	3061	19.3	480	3.3
6/24	1619	15.1	351	3.5	1518	16.9	254	3.0	1772	14.0	251	2.1	1805	12.8	242	1.8	2098	13.2	267	1.8
6/36	1087	10.2	234	2.4	975	10.8	151	1.8	1170	9.3	152	1.3	1113	7.9	139	1.1	1253	7.9	132	0.9
6/60	650	6.1	113	1.1	536	6.0	71	0.8	651	5.2	61	0.5	586	4.1	83	0.6	651	4.1	107	0.7
<6/18–6/60	3356	31.4	698	7.0	3029	33.7	476	5.6	3593	28.5	464	3.9	3504	24.8	464	3.5	4002	25.3	506	3.5
5/60	52	0.5	8	0.1	52	0.6	10	0.1	38	0.3	8	0.1	50	0.4	11	0.1	40	0.3	5	0.0
4/60	48	0.4	13	0.1	25	0.3	7	0.1	33	0.3	5	0.0	31	0.2	6	0.0	39	0.2	8	0.1
3/60	94	0.9	26	0.3	79	0.9	29	0.3	114	0.9	37	0.3	105	0.7	33	0.3	131	0.8	26	0.2
<6/60–3/60	194	1.8	47	0.5	156	1.8	46	0.5	185	1.5	50	0.4	186	1.3	50	0.4	210	1.3	39	0.3
2/60	62	0.6	25	0.3	54	0.6	16	0.2	60	0.5	15	0.1	56	0.4	16	0.1	71	0.4	22	0.2
1/60	68	0.6	23	0.2	33	0.4	8	0.1	46	0.4	16	0.1	40	0.3	18	0.1	51	0.3	15	0.1
CF	120	1.1	47	0.5	73	0.8	23	0.3	87	0.7	27	0.2	87	0.6	31	0.2	93	0.6	19	0.1
HM	69	0.6	42	0.4	31	0.3	12	0.1	46	0.4	20	0.2	48	0.3	26	0.2	46	0.3	23	0.2
PL	23	0.2	13	0.1	7	0.1	4	0.0	9	0.1	6	0.1	7	0.0	5	0.0	9	0.1	3	0.0
NPL	8	0.1	7	0.1	7	0.1	0	0.0	3	0.0	1	0.0	3	0.0	1	0.0	6	0.0	1	0.0
<3/60	350	3.2	157	1.6	205	2.3	63	0.7	251	2.1	85	0.7	241	1.7	97	0.7	276	1.7	83	0.6
TOTAL	10689	100	9934	100	8995	100	8396	100	12618	100	11782	100	14142	100	13171	100	15846	100	14576	100
WHO classification:																				
Good: ≥6/18	6789	63.5	9032	90.9	5605	62.3	7811	93.0	8589	68.1	11183	94.9	10211	72.2	12560	95.4	11358	71.7	13948	95.7
Borderline: <6/18–6/60	3356	31.4	698	7.0	3029	33.7	476	5.7	3593	28.5	464	3.9	3504	24.8	464	3.5	4002	25.3	506	3.5
Poor: <6/60	544	5.1	204	2.1	361	4.0	109	1.3	436	3.5	135	1.1	427	3.0	147	1.1	486	3.1	122	0.8

Year	2012				2013				2014				2015				2016			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	11	0.1	82	0.5	15	0.1	80	0.4	14	0.1	87	0.4	15	0.1	63	0.3	17	0.1	62	0.2
6/6	1422	8.3	6779	44.0	1922	9.9	8110	45.2	2214	10.3	9296	45.5	2500	10.6	10794	47.9	3006	10.6	12585	46.7
6/9	3845	22.5	5358	34.8	4846	24.9	6281	35.0	5369	24.9	7111	34.8	6124	25.9	7734	34.3	7265	25.6	8809	32.7
6/12	3870	22.7	2060	13.4	4502	23.1	2273	12.7	5036	23.3	2677	13.1	5554	23.5	2634	11.7	6257	22.0	3286	12.2

≤6/12	9148 53.6	14279 92.6	11285 58.0	16744 93.3	12633 58.5	19171 93.8	14193 59.9	21225 94.1	16545 58.2	24742 91.9
6/18	3212 18.8	501 3.3	3508 18.0	508 2.8	4004 18.5	548 2.7	4547 19.2	578 2.6	5200 18.3	926 3.4
<6/12– 6/18	3212 18.8	501 3.3	3508 18.0	508 2.8	4004 18.5	548 2.7	4547 19.2	578 2.6	5200 18.3	926 3.4
6/24	2154 12.6	248 1.6	2235 11.5	288 1.6	2482 11.5	305 1.5	2459 10.4	275 1.2	2723 9.6	449 1.7
6/36	1419 8.3	159 1.0	1268 6.5	160 0.9	1284 5.9	164 0.8	1213 5.1	179 0.8	1610 5.7	281 1.0
6/60	640 3.7	100 0.6	683 3.5	90 0.5	685 3.2	98 0.5	704 3.0	132 0.6	986 3.5	167 0.6
<6/18– 6/60	4213 24.7	507 3.3	4186 21.5	538 3.0	4451 20.6	567 2.8	4376 18.5	586 2.6	5319 18.7	897 3.3
5/60	41 0.2	4 0.0	41 0.2	7 0.0	38 0.2	11 0.1	45 0.2	4 0.0	86 0.3	18 0.1
4/60	31 0.2	3 0.0	34 0.2	12 0.1	25 0.1	4 0.0	27 0.1	10 0.0	75 0.3	20 0.1
3/60	142 0.8	33 0.2	139 0.7	33 0.2	152 0.7	44 0.2	156 0.7	36 0.2	325 1.1	78 0.3
<6/60– 3/60	214 1.3	40 0.3	214 1.1	52 0.3	215 1.0	59 0.3	228 1.0	50 0.2	486 1.7	116 0.4
2/60	78 0.5	18 0.1	72 0.4	23 0.1	83 0.4	20 0.1	94 0.4	20 0.1	231 0.8	56 0.2
1/60	60 0.4	22 0.1	55 0.3	21 0.1	75 0.3	19 0.1	88 0.4	24 0.1	231 0.8	54 0.2
CF	102 0.6	26 0.2	93 0.5	30 0.2	84 0.4	27 0.1	73 0.3	22 0.1	202 0.7	65 0.2
HM	37 0.2	15 0.1	46 0.2	21 0.1	43 0.2	19 0.1	51 0.2	27 0.1	134 0.5	48 0.2
PL	11 0.1	3 0.0	6 0.0	2 0.0	8 0.0	6 0.0	14 0.1	10 0.0	37 0.1	12 0.0
NPL	3 0.0	2 0.0	7 0.0	5 0.0	3 0.0	1 0.0	12 0.1	4 0.0	28 0.1	15 0.1
<3/60	291 1.7	86 0.6	279 1.4	102 0.6	296 1.4	92 0.5	332 1.4	107 0.5	863 3.0	250 0.9
TOTAL	17078 100	15413 100	19472 100	17944 100	21599 100	20437 100	23676 100	22546 100	28413 100	26931 100
WHO classification:										
Good: ≥6/18	12360 72.4	14780 95.9	14793 76.0	17252 96.1	16637 77.0	19719 96.5	18740 79.2	21803 96.7	21745 76.5	25668 95.3
Borderline: <6/18– 6/60	4213 24.7	507 3.3	4186 21.5	538 3.0	4451 20.6	567 2.8	4376 18.5	586 2.6	5319 18.7	897 3.3
Poor: ≤6/60	505 3.0	126 0.8	493 2.5	154 0.9	511 2.4	151 0.7	560 2.4	157 0.7	1349 4.7	366 1.4

Number and percentage (%) are based on available information.



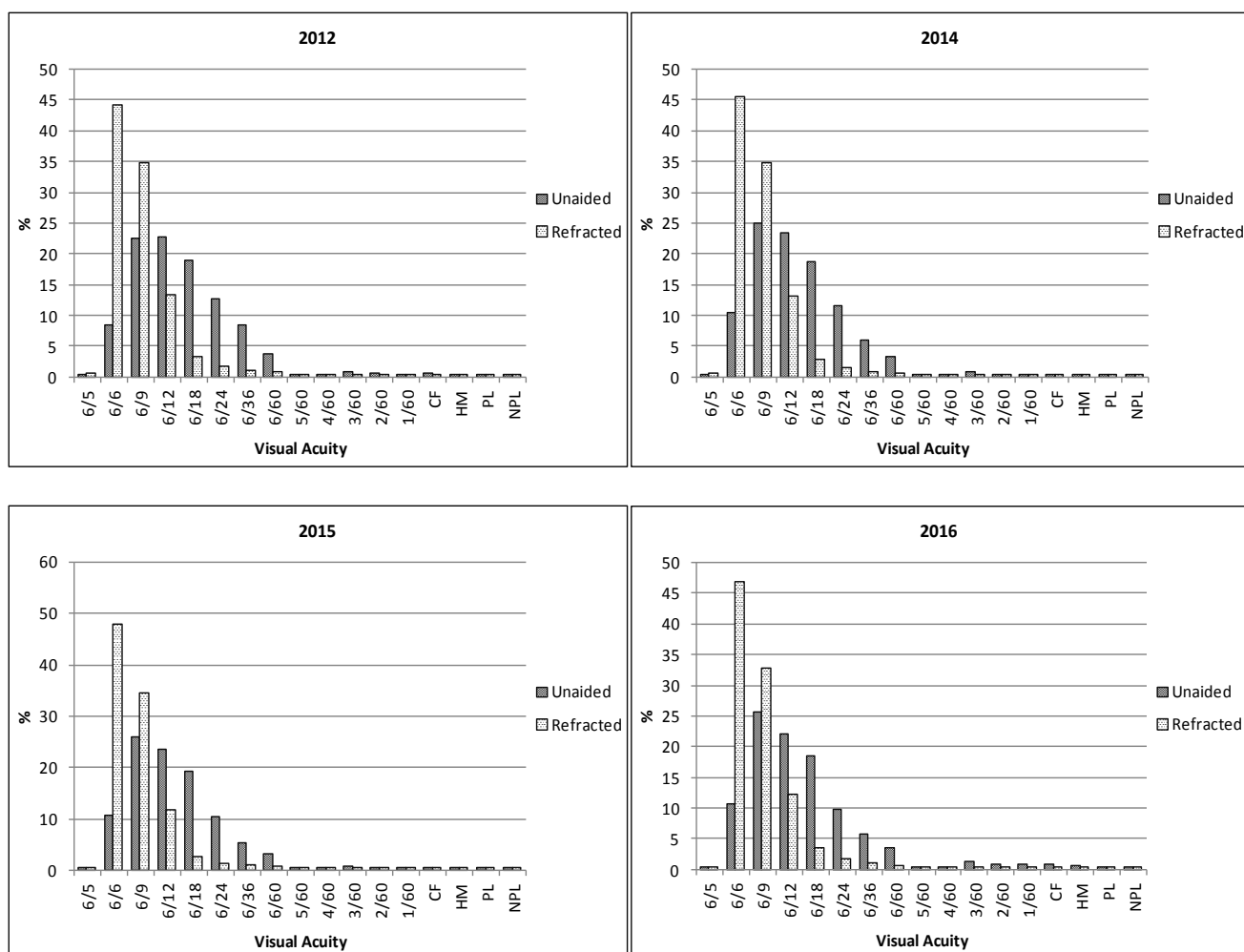


Figure 1.5.6-1: Post-operative Visual Acuity for Eyes Without Ocular Co-morbidity, CSR 2007-2016

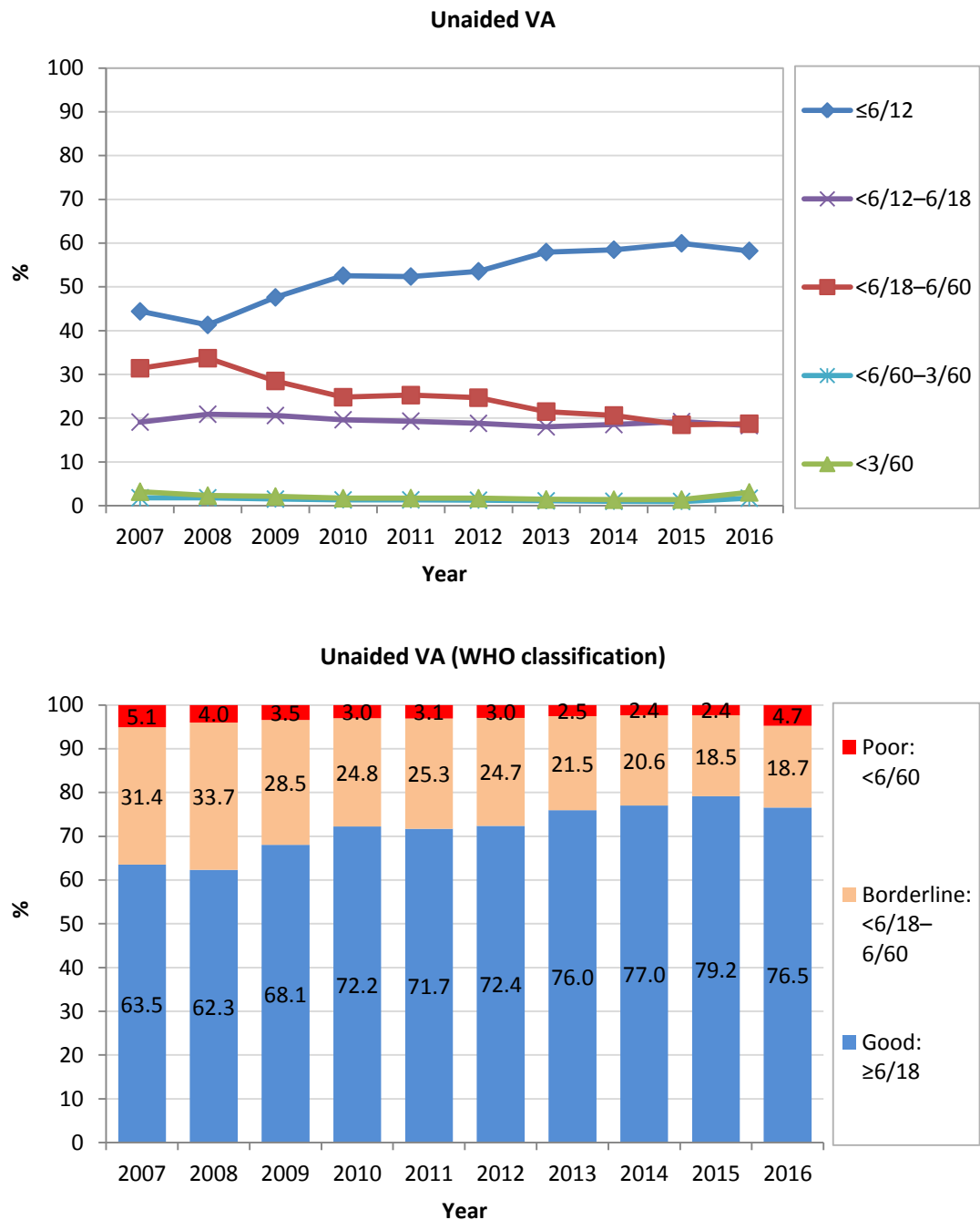


Figure 1.5.6-2: Post-operative Unaided Visual Acuity by Vision Category (No Ocular Co-morbidity), CSR 2007-2016

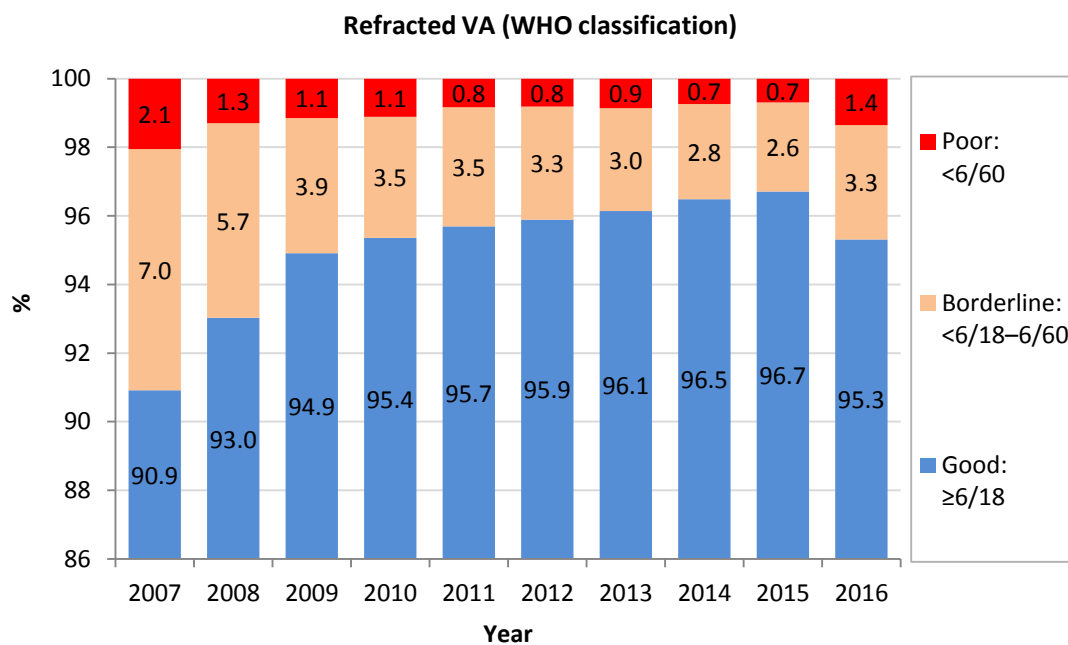
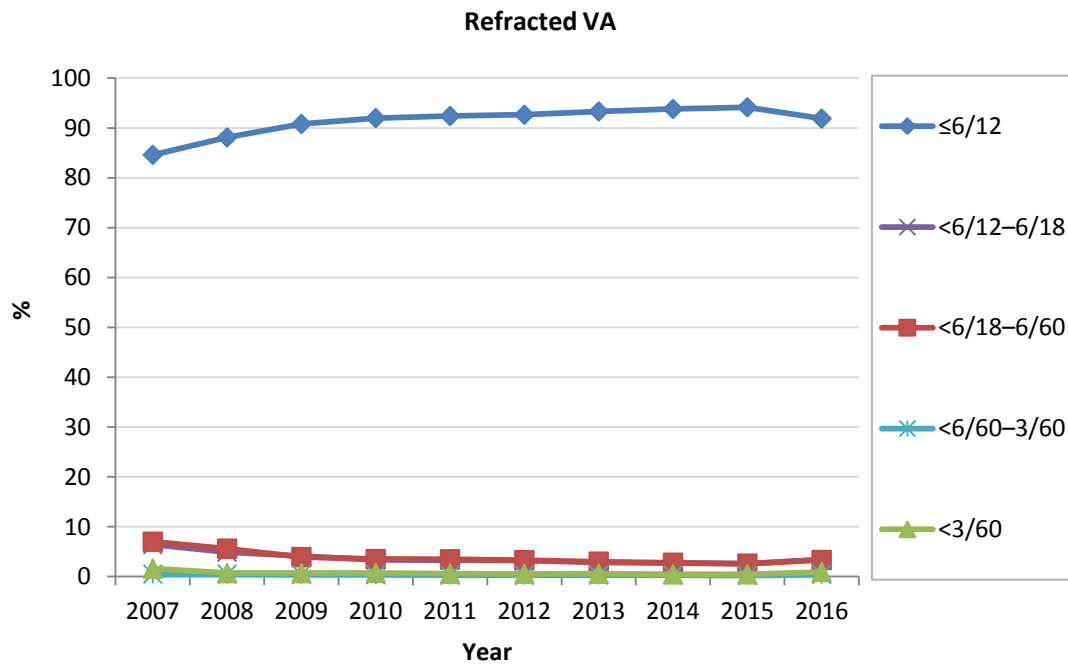


Figure 1.5.6-3: Post-operative Best Corrected Visual Acuity by Vision Category (No Ocular Co-morbidity), CSR 2007-2016

1.5.7 Post-operative Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidity

The patients who had undergone phacoemulsification showed the highest proportion of achieving good visual outcome when compared to other types of surgery. However, the visual outcome became less favorable with the conversion to ECCE when complication occurred during phacoemulsification

Table 1.5.7-1: Post-operative Visual Acuity in Eyes without Ocular Co-morbidity by Types of Surgery, CSR 2007-2016

Year	2007						2008						2009					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	10672	4747	44.5	9920	8390	84.6	12585	5435	43.2	11646	10267	88.2	12599	5979	47.5	11763	10687	90.9
Phaco	7263	3604	49.6	6720	5893	87.7	9043	4418	48.9	8357	7647	91.5	9511	5038	53.0	9001	8397	93.3
ECCE	2989	1021	34.2	2818	2247	79.7	3034	879	29.0	2844	2301	80.9	2607	816	31.3	2329	1967	84.5
Phaco → ECCE	239	60	25.1	222	146	65.8	297	70	23.6	267	199	74.5	270	53	19.6	259	200	77.2
Lens Aspiration	145	55	37.9	129	90	69.8	152	56	36.8	132	96	72.7	160	57	35.6	128	89	69.5
ICCE	36	7	19.4	31	14	45.2	38	7	18.4	32	17	53.1	29	7	24.1	25	15	60.0

Year	2010						2011						2012					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	14132	7428	52.6	13162	12107	92.0	15835	8290	52.4	14568	13460	92.4	17067	9143	53.6	15404	14271	92.6
Phaco	11520	6589	57.2	10818	10151	93.8	13036	7454	57.2	12155	11465	94.3	14540	8439	58.0	13344	12564	94.2
ECCE	2089	672	32.2	1866	1596	85.5	2238	689	30.8	1901	1628	85.6	2044	570	27.9	1633	1373	84.1
Phaco → ECCE	268	67	25.0	253	198	78.3	311	59	19.0	291	210	72.2	261	41	15.7	239	176	73.6
Lens Aspiration	192	86	44.8	168	126	75.0	200	79	39.5	175	131	74.9	163	84	51.5	141	124	87.9
ICCE	28	4	14.3	25	13	52.0	20	3	15.0	19	10	52.6	24	2	8.3	20	13	65.0

Year	2013						2014						2015					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	19441	11264	57.9	17915	16716	93.3	21585	12624	58.5	20425	19160	93.8	23674	14191	59.9	22544	21223	94.1
Phaco	17505	10710	61.2	16159	15275	94.5	19937	12128	60.8	18914	17924	94.8	21804	13636	62.5	20818	19793	95.1
ECCE	1403	386	27.5	1269	1053	83.0	1139	335	29.4	1051	886	84.3	1271	382	30.1	1181	1018	86.2
Phaco → ECCE	306	69	22.5	281	219	77.9	301	81	26.9	283	211	74.6	353	71	20.1	323	231	71.5
Lens Aspiration	164	84	51.2	151	129	85.4	145	66	45.5	125	107	85.6	184	90	48.9	168	142	84.5
ICCE	38	8	21.1	35	28	80.0	30	8	26.7	28	16	57.1	32	5	15.6	29	19	65.5

Year	2016					
	Unaided			Refracted		
	N	n	%	N	n	%
All Surgeries	28413	16545	58.2	26931	24742	91.9
Phaco	26342	15876	60.3	25030	23242	92.9
ECCE	1411	443	31.4	1298	1056	81.4
Phaco → ECCE	358	79	22.1	337	240	71.2
Lens Aspiration	231	122	52.8	206	168	81.6
ICCE	41	12	29.3	34	19	55.9

Number and percentage (%) are based on available information.

Table 1.5.7-2: Post-operative Visual Acuity (6/18 or Better) in Eyes without Ocular Co-morbidity by Types of Surgery, CSR 2007-2016

Year	2007						2008						2009					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	10672	6781	63.5	9920	9021	90.9	12585	8018	63.7	11646	10842	93.1	12599	8575	68.1	11763	11166	94.9
Phaco	7263	4968	68.4	6720	6255	93.1	9043	6312	69.8	8357	7967	95.3	9511	7034	74.0	9001	8674	96.4
ECCE	2989	1614	54.0	2818	2478	87.9	3034	1477	48.7	2844	2514	88.4	2607	1334	51.2	2329	2121	91.1
Phaco → ECCE	239	103	43.1	222	171	77.0	297	121	40.7	267	223	83.5	270	100	37.0	259	231	89.2
Lens Aspiration	145	82	56.6	129	99	76.7	152	85	55.9	132	105	79.5	160	83	51.9	128	99	77.3
ICCE	36	14	38.9	31	18	58.1	38	14	36.8	32	23	71.9	29	11	37.9	25	20	80.0

Year	2010						2011						2012					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	14132	10203	72.2	13162	12552	95.4	15835	11349	71.7	14568	13940	95.7	17067	12353	72.4	15404	14772	95.9
Phaco	11520	8847	76.8	10818	10460	96.7	13036	9933	76.2	12155	11775	96.9	14540	11180	76.9	13344	12908	96.7
ECCE	2089	1093	52.3	1866	1695	90.8	2238	1173	52.4	1901	1751	92.1	2044	950	46.5	1633	1498	91.7
Phaco → ECCE	268	116	43.3	253	220	87.0	311	122	39.2	291	237	81.4	261	93	35.6	239	199	83.3
Lens Aspiration	192	122	63.5	168	136	81.0	200	109	54.5	175	143	81.7	163	114	69.9	141	129	91.5
ICCE	28	10	35.7	25	15	60.0	20	5	25.0	19	13	68.4	24	5	20.8	20	15	75.0

Year	2013						2014						2015					
	Unaided			Refracted			Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	19441	14769	76.0	17915	17223	96.1	21585	16624	77.0	20425	19708	96.5	23674	18738	79.2	22544	21801	96.7
Phaco	17505	13854	79.1	16159	15666	96.9	19937	15818	79.3	18914	18364	97.1	21804	17827	81.8	20818	20264	97.3
ECCE	1403	647	46.1	1269	1138	89.7	1139	559	49.1	1051	963	91.6	1271	633	49.8	1181	1079	91.4
Phaco → ECCE	306	127	41.5	281	240	85.4	301	130	43.2	283	235	83.0	353	131	37.1	323	265	82.0
Lens Aspiration	164	116	70.7	151	135	89.4	145	98	67.6	125	112	89.6	184	127	69.0	168	151	89.9
ICCE	38	17	44.7	35	29	82.9	30	11	36.7	28	17	60.7	32	8	25.0	29	22	75.9

Year	2016					
	Unaided			Refracted		
	N	n	%	N	n	%
All Surgeries	28413	21745	76.5	26931	25668	95.3
Phaco	26342	20722	78.7	25030	24037	96.0
ECCE	1411	678	48.1	1298	1141	87.9
Phaco → ECCE	358	150	41.9	337	274	81.3
Lens Aspiration	231	167	72.3	206	178	86.4
ICCE	41	14	34.1	34	20	58.8

Number and percentage (%) are based on available information.

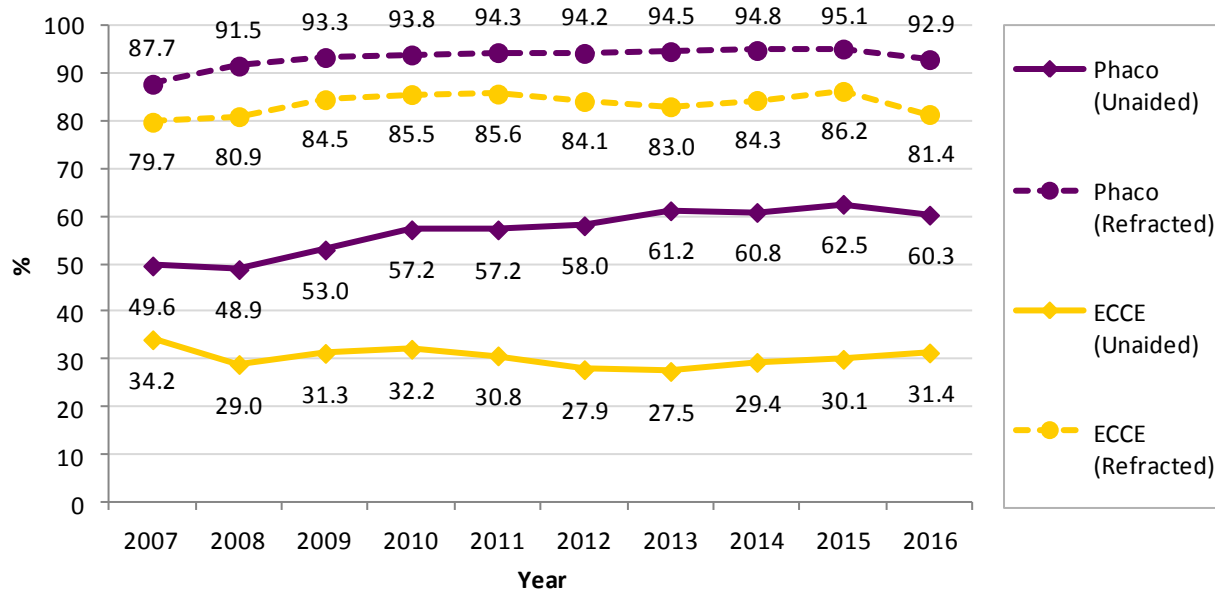


Figure 1.5.7-1: Post-operative Visual Acuity 6/12 or Better in Eyes Without Ocular Co-morbidity (ECCE and Phacoemulsification), CSR 2007-2016

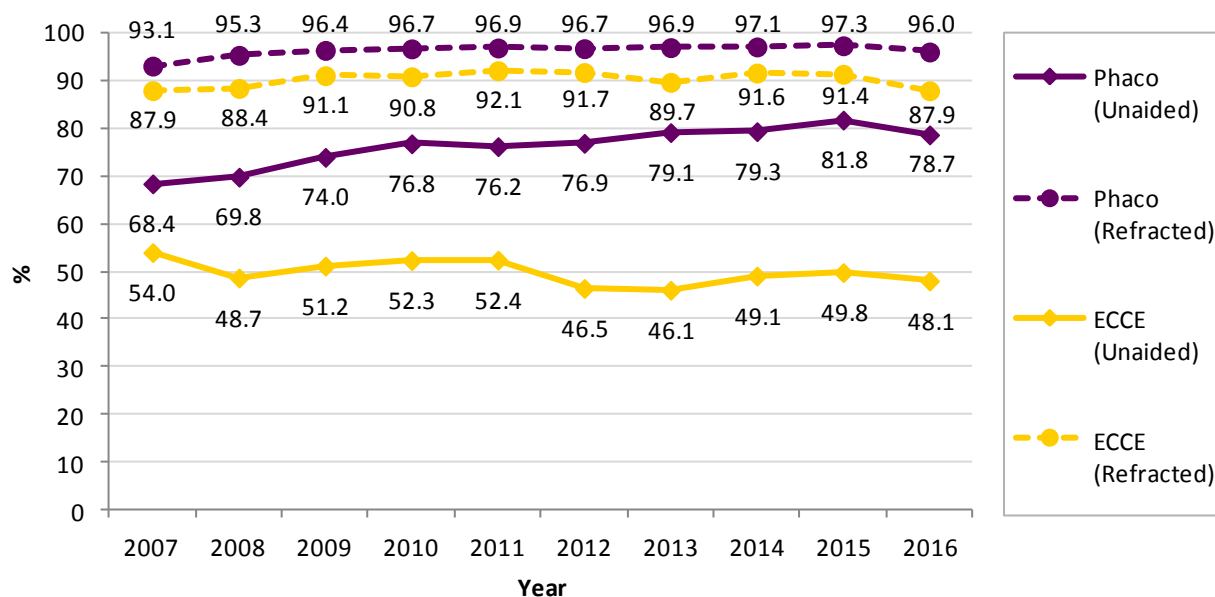


Figure 1.5.7-2: Post-operative Visual Acuity 6/18 or Better for Eyes Without Ocular Co-morbidity (ECCE and Phacoemulsification), CSR 2007-2016

Table 1.5.7-3: Post-operative Best Corrected Visual Acuity in Eyes without Ocular Co-morbidity by Intra-operative Complications and Types of Surgery, CSR 2016

	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	%
With intra-op complications No intra-op complications	26931	24742	91.9	206	168	81.6	1298	1056	81.4	25030	23242	92.9	337	240	71.2	34	19	55.9
	952	709	74.5	9	6	66.7	147	109	74.1	586	469	80.0	177	107	60.5	21	12	57.1
	25979	24033	92.5	197	162	82.2	1151	947	82.3	24444	22773	93.2	160	133	83.1	13	7	53.8

Number and percentage (%) are based on available information.

Table 1.5.7-4: Post-operative Best Corrected Visual Acuity (6/18 or better) in Eyes without Ocular Co-morbidity by Intra-operative Complications and Types of Surgery, CSR 2016

	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	%
With intra-op complications No intra-op complications	26931	25668	95.3	206	178	86.4	1298	1141	87.9	25030	24037	96.0	337	274	81.3	34	20	58.8
	952	794	83.4	9	7	77.8	147	123	83.7	586	514	87.7	177	132	74.6	21	12	57.1
	25979	24874	95.7	197	171	86.8	1151	1018	88.4	24444	23523	96.2	160	142	88.8	13	8	61.5

Number and percentage (%) are based on available information.

Table 1.5.7-5: Post-operative Best Corrected Visual Acuity in Eyes without Ocular Co-morbidity by Surgeon Status and Types of Surgery, CSR 2016

	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	%
Specialist Gazetting Specialist Medical Officer	26931	24742	91.9	206	168	81.6	1298	1056	81.4	25030	23242	92.9	337	240	71.2	34	19	55.9
	23885	21990	92.1	195	157	80.5	825	675	81.8	22524	20921	92.9	291	204	70.1	29	18	62.1
	1259	1143	90.8	7	7	100.0	45	36	80.0	1177	1079	91.7	25	19	76.0	2	1	50.0
	1607	1433	89.2	4	4	100.0	428	345	80.6	1151	1068	92.8	19	15	78.9	3	0	0.0

Number and percentage (%) are based on available information.

Table 1.5.7-6: Post-operative Best Corrected Visual Acuity (6/18 or better) in Eyes without Ocular Co-morbidity by Surgeon Status and Types of Surgery, CSR 2016

	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	%
Specialist Gazetting Specialist Medical Officer	26931	25668	95.3	206	178	86.4	1298	1141	87.9	25030	24037	96.0	337	274	81.3	34	20	58.8
	23885	22791	95.4	195	167	85.6	825	723	87.6	22524	21630	96.0	291	236	81.1	29	19	65.5
	1259	1199	95.2	7	7	100.0	45	39	86.7	1177	1131	96.1	25	20	80.0	2	1	50.0
	1607	1500	93.3	4	4	100.0	428	379	88.6	1151	1100	95.6	19	16	84.2	3	0	0.0

Number and percentage (%) are based on available information.

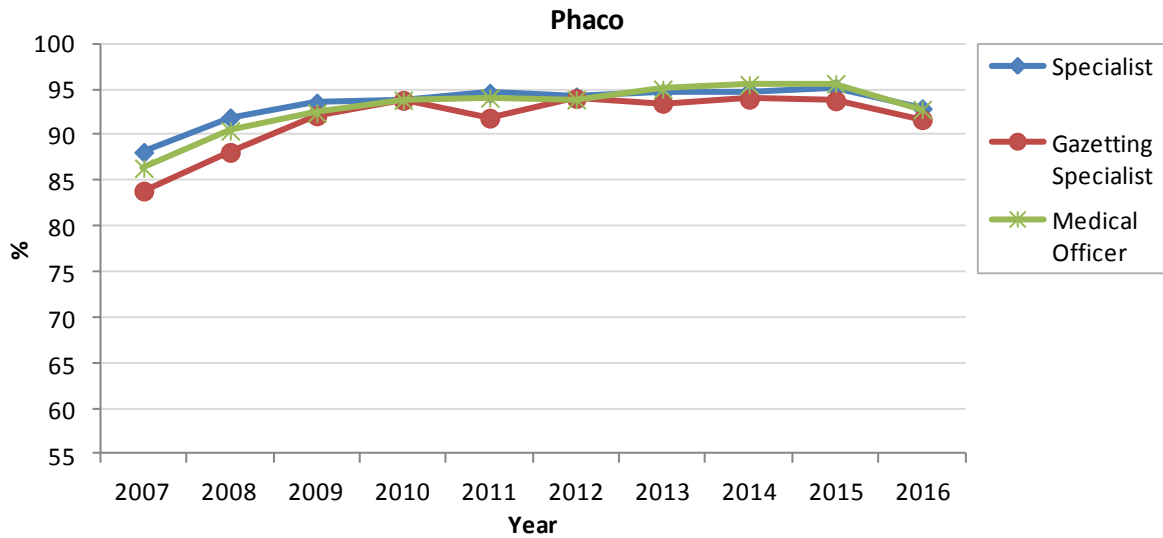


Figure 1.5.7-3: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes Without Ocular Comorbidity by Surgeon Status in Phacoemulsification, CSR 2007-2016

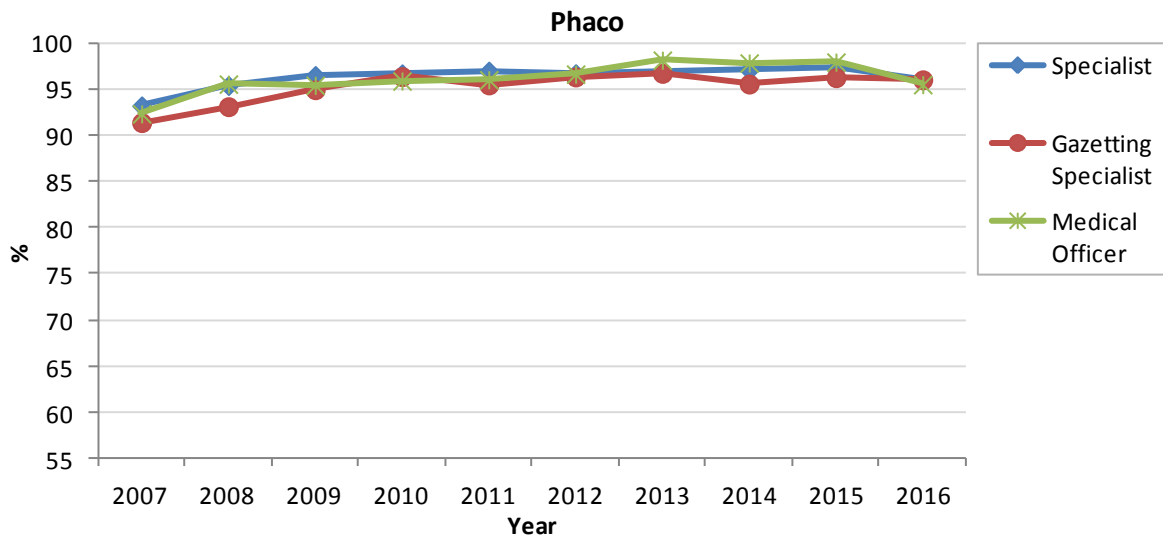


Figure 1.5.7-4: Post-operative Best Corrected Visual Acuity 6/18 or Better in Eyes Without Ocular Comorbidity by Surgeon Status in Phacoemulsification, CSR 2007-2016

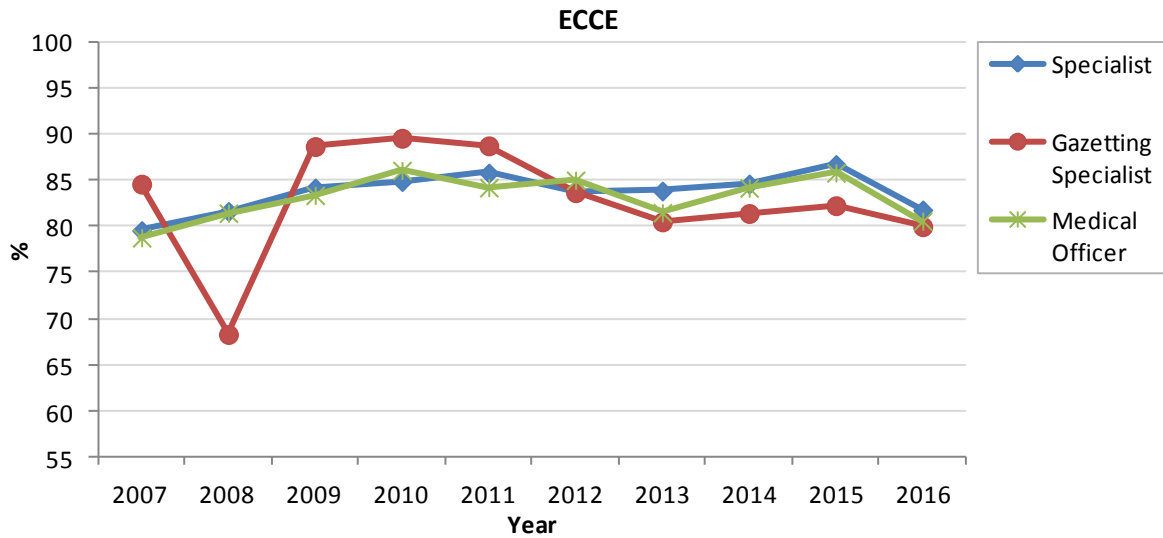


Figure 1.5.7-5: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes Without Ocular Comorbidity by Surgeon Status in ECCE, CSR 2007-2016

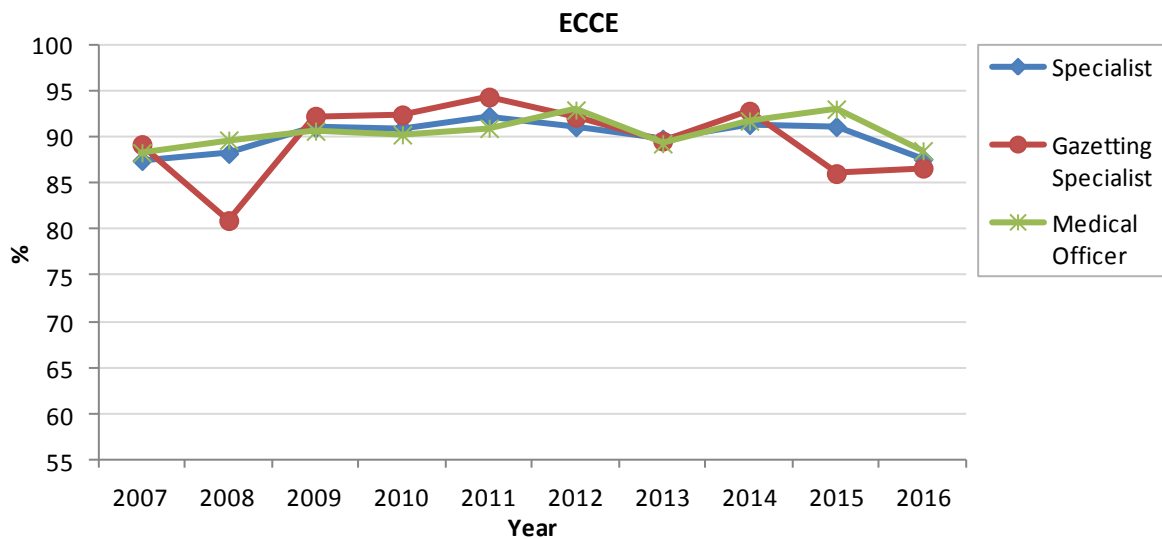


Figure 1.5.7-6: Post-operative Best Corrected Visual Acuity 6/18 or Better in Eyes Without Ocular Comorbidity by Surgeon Status in ECCE, CSR 2007-2016

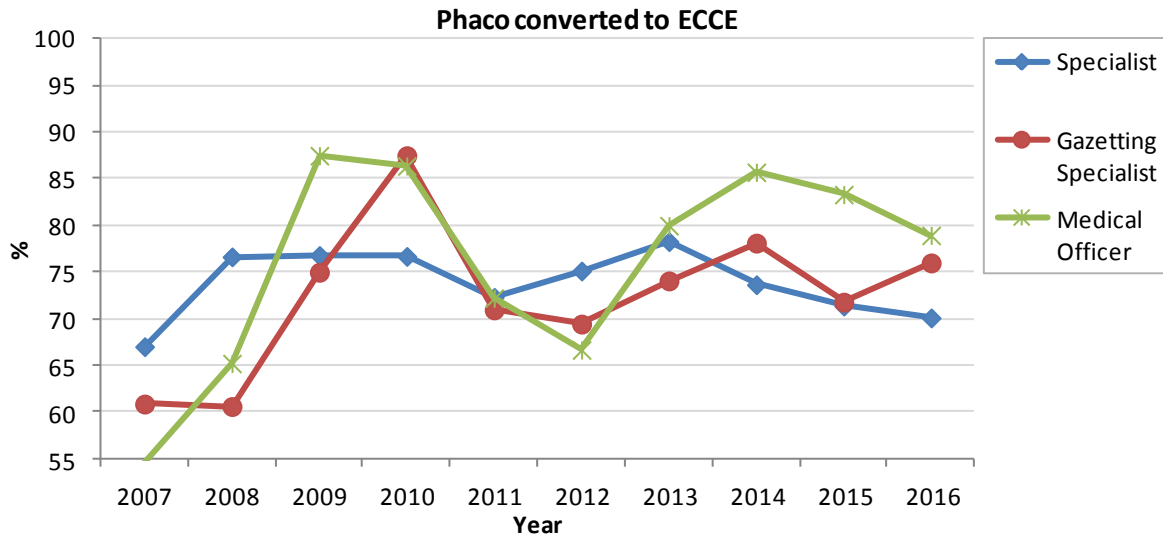


Figure 1.5.7-7: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes Without Ocular Co-morbidity by Surgeon Status in Phacoemulsification Converted to ECCE, CSR 2007-2016

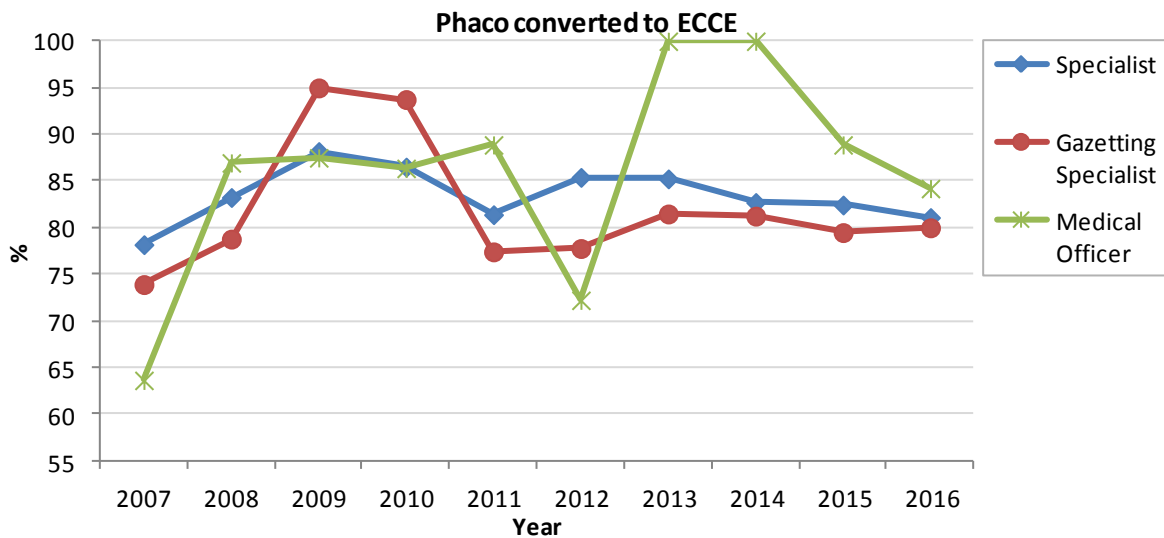


Figure 1.5.7-8: Post-operative Best Corrected Visual Acuity 6/18 or Better in Eyes Without Ocular Co-morbidity by Surgeon Status in Phacoemulsification Converted to ECCE, CSR 2007-2016

Table 1.5.7-7: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidity by SDP and Types of Surgery, CSR 2016

Hospital	All Patients	All Surgeries				Type of Cataract Surgery														
						Lens Aspiration			ECCE			Phaco			Phaco → ECCE			ICCE		
	N	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%				
All centre	26931	26931	24742	91.9	206	168	81.6	1298	1056	81.4	25030	23242	92.9	337	240	71.2	34	19	55.9	
Alor Setar	1219	1219	1084	88.9	5	5	100.0	88	64	72.7	1116	1007	90.2	9	7	77.8	1	1	100.0	
Ampang	395	395	367	92.9	2	2	100.0	37	30	81.1	342	324	94.7	13	10	76.9	1	1	100.0	
Batu Pahat	297	297	282	94.9	5	5	100.0	5	5	100.0	282	269	95.4	4	3	75.0	1	0	0.0	
Bintulu	76	76	63	82.9	0	0	0.0	2	0	0.0	73	63	86.3	1	0	0.0	0	0	0.0	
Bukit Mertajam	610	610	607	99.5	0	0	0.0	63	62	98.4	546	544	99.6	1	1	100.0	0	0	0.0	
Ipoh	1656	1656	1531	92.5	13	10	76.9	42	25	59.5	1581	1482	93.7	15	10	66.7	4	3	75.0	
Kangar	420	420	364	86.7	3	3	100.0	57	46	80.7	356	312	87.6	2	2	100.0	1	0	0.0	
Kemaman	11	11	6	54.5	0	0	0.0	2	1	50.0	9	5	55.6	0	0	0.0	0	0	0.0	
Keningau	229	229	217	94.8	0	0	0.0	5	4	80.0	221	211	95.5	1	1	100.0	0	0	0.0	
Klang	1278	1278	1185	92.7	9	6	66.7	39	29	74.4	1217	1141	93.8	9	5	55.6	2	2	100.0	
Kota Bharu	709	709	658	92.8	12	10	83.3	168	147	87.5	508	486	95.7	20	15	75.0	1	0	0.0	
Kuala Krai	216	216	172	79.6	4	3	75.0	37	28	75.7	169	137	81.1	4	2	50.0	2	2	100.0	
Kuala Lumpur	362	362	340	93.9	1	1	100.0	37	32	86.5	312	298	95.5	11	9	81.8	1	0	0.0	
Kuala Pilah	282	282	250	88.7	0	0	0.0	2	2	100.0	268	241	89.9	6	3	50.0	1	1	100.0	
Kuala Terengganu	617	617	536	86.9	14	12	85.7	80	63	78.8	503	446	88.7	17	13	76.5	0	0	0.0	
Kuantan	567	567	530	93.5	9	9	100.0	47	38	80.9	496	471	95.0	14	12	85.7	0	0	0.0	
Kulim	266	266	250	94.0	0	0	0.0	16	15	93.8	247	232	93.9	3	3	100.0	0	0	0.0	
Langkawi	63	63	54	85.7	0	0	0.0	10	9	90.0	53	45	84.9	0	0	0.0	0	0	0.0	
Likas	6	6	0	0.0	6	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	
Melaka	1242	1242	1195	96.2	7	7	100.0	20	17	85.0	1204	1161	96.4	10	9	90.0	0	0	0.0	
Miri	624	624	597	95.7	3	3	100.0	8	8	100.0	608	582	95.7	4	3	75.0	1	1	100.0	
Muar	523	523	485	92.7	4	2	50.0	3	2	66.7	511	477	93.3	5	4	80.0	0	0	0.0	
Pulau Pinang	1644	1644	1440	87.6	3	3	100.0	24	15	62.5	1603	1414	88.2	10	6	60.0	3	1	33.3	
Putrajaya	241	241	214	88.8	4	4	100.0	22	15	68.2	211	192	91.0	3	2	66.7	1	1	100.0	
Queen Elizabeth KK	488	488	482	98.8	2	2	100.0	16	13	81.3	459	456	99.3	10	10	100.0	0	0	0.0	
Sandakan	240	240	222	92.5	0	0	0.0	17	16	94.1	219	204	93.2	4	2	50.0	0	0	0.0	
Sarawak	1234	1234	1121	90.8	8	4	50.0	4	4	100.0	1206	1105	91.6	14	7	50.0	2	1	50.0	
Sarikei	311	311	300	96.5	0	0	0.0	0	0	0.0	309	298	96.4	0	0	0.0	0	0	0.0	
Segamat	102	102	93	91.2	2	2	100.0	4	4	100.0	87	82	94.3	8	5	62.5	1	0	0.0	
Selayang	489	489	425	86.9	23	15	65.2	12	7	58.3	444	399	89.9	8	4	50.0	0	0	0.0	
Serdang	338	338	285	84.3	3	3	100.0	20	14	70.0	307	263	85.7	8	5	62.5	0	0	0.0	
Seremban	833	833	779	93.5	7	5	71.4	24	20	83.3	796	750	94.2	3	3	100.0	2	1	50.0	
Shah Alam	226	226	218	96.5	1	1	100.0	3	3	100.0	221	214	96.8	1	0	0.0	0	0	0.0	
Sibu	215	215	205	95.3	0	0	0.0	2	2	100.0	213	203	95.3	0	0	0.0	0	0	0.0	
Sri Manjung	463	463	380	82.1	4	4	100.0	11	5	45.5	446	370	83.0	2	1	50.0	0	0	0.0	
Sultan Ismail	632	632	510	80.7	6	5	83.3	23	16	69.6	589	478	81.2	12	10	83.3	1	0	0.0	
Sultanah Aminah JB	548	548	488	89.1	9	6	66.7	6	4	66.7	522	474	90.8	10	4	40.0	1	0	0.0	
Sungai Buloh	515	515	487	94.6	2	2	100.0	12	11	91.7	485	462	95.3	16	12	75.0	0	0	0.0	
Sungei Petani	585	585	536	91.6	5	5	100.0	40	34	85.0	525	485	92.4	15	12	80.0	0	0	0.0	
Taiping	996	996	980	98.4	6	6	100.0	122	122	100.0	860	844	98.1	6	6	100.0	2	2	100.0	
Tanah Merah	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	
Tawau	364	364	317	87.1	1	1	100.0	34	25	73.5	325	289	88.9	3	2	66.7	1	0	0.0	

Teluk Intan	819	819	751	91.7	5	5	100.0	50	39	78.0	759	703	92.6	4	4	100.0	1	0	0.0
Temerloh	763	763	693	90.8	10	9	90.0	49	36	73.5	679	634	93.4	22	12	54.5	2	1	50.0
KK1M Johor	50	50	48	96.0	0	0	0.0	1	1	100.0	48	46	95.8	1	1	100.0	0	0	0.0
KK1M Kedah	178	178	163	91.6	0	0	0.0	2	1	50.0	174	161	92.5	2	1	50.0	0	0	0.0
KK1M Kelantan	46	46	39	84.8	0	0	0.0	20	15	75.0	25	23	92.0	1	1	100.0	0	0	0.0
KK1M Neg. Sembilan	104	104	91	87.5	0	0	0.0	0	0	0.0	98	86	87.8	5	4	80.0	1	1	100.0
KK1M Pahang	64	64	62	96.9	0	0	0.0	2	2	100.0	62	60	96.8	0	0	0.0	0	0	0.0
KK1M Pulau Pinang	41	41	39	95.1	0	0	0.0	0	0	0.0	40	38	95.0	1	1	100.0	0	0	0.0
KK1M Terengganu	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
KK1M Sabah	157	157	133	84.7	0	0	0.0	5	1	20.0	150	130	86.7	2	2	100.0	0	0	0.0
KK1M Sarawak	745	745	680	91.3	0	0	0.0	3	2	66.7	735	675	91.8	6	3	50.0	0	0	0.0
MAIWP	1832	1832	1788	97.6	8	8	100.0	2	2	100.0	1811	1770	97.7	11	8	72.7	0	0	0.0

Number and percentage (%) are based on available information.

Table 1.5.7-8: Post-operative Best Corrected Visual Acuity 6/18 or Better (WHO classification) in Eyes without Ocular Co-morbidity by SDP and Types of Surgery, CSR 2016

Hospital	All Patient s	All Surgeries			Type of Cataract Surgery														
					Lens Aspiration			ECCE			Phaco			Phaco → ECCE			ICCE		
		N	n	%	N	n	%	N	n	%	N	n	%	N	n	%	N	n	%
All centre	26931	26931	25668	95.3	206	178	86.4	1298	1141	87.9	25030	24037	96.0	337	274	81.3	34	20	58.8
Alor Setar	1219	1219	1138	93.4	5	5	100.0	88	73	83.0	1116	1051	94.2	9	8	88.9	1	1	100.0
Ampang	395	395	374	94.7	2	2	100.0	37	31	83.8	342	330	96.5	13	10	76.9	1	1	100.0
Batu Pahat	297	297	291	98.0	5	5	100.0	5	5	100.0	282	276	97.9	4	4	100.0	1	1	100.0
Bintulu	76	76	66	86.8	0	0	0.0	2	0	0.0	73	65	89.0	1	1	100.0	0	0	0.0
Bukit Mertajam	610	610	610	100.0	0	0	0.0	63	63	100.0	546	546	100.0	1	1	100.0	0	0	0.0
Ipoh	1656	1656	1606	97.0	13	12	92.3	42	32	76.2	1581	1545	97.7	15	13	86.7	4	3	75.0
Kangar	420	420	381	90.7	3	3	100.0	57	48	84.2	356	327	91.9	2	2	100.0	1	0	0.0
Kemaman	11	11	8	72.7	0	0	0.0	2	1	50.0	9	7	77.8	0	0	0.0	0	0	0.0
Keningau	229	229	220	96.1	0	0	0.0	5	4	80.0	221	214	96.8	1	1	100.0	0	0	0.0
Klang	1278	1278	1235	96.6	9	9	100.0	39	33	84.6	1217	1183	97.2	9	6	66.7	2	2	100.0
Kota Bharu	709	709	681	96.1	12	11	91.7	168	155	92.3	508	498	98.0	20	17	85.0	1	0	0.0
Kuala Krai	216	216	190	88.0	4	3	75.0	37	31	83.8	169	151	89.3	4	3	75.0	2	2	100.0
Kuala Lumpur	362	362	347	95.9	1	1	100.0	37	33	89.2	312	303	97.1	11	10	90.9	1	0	0.0
Kuala Pilah	282	282	260	92.2	0	0	0.0	2	2	100.0	268	250	93.3	6	4	66.7	1	1	100.0
Kuala Terengganu	617	617	570	92.4	14	12	85.7	80	69	86.3	503	473	94.0	17	14	82.4	0	0	0.0
Kuantan	567	567	549	96.8	9	9	100.0	47	43	91.5	496	483	97.4	14	13	92.9	0	0	0.0
Kulim	266	266	257	96.6	0	0	0.0	16	15	93.8	247	239	96.8	3	3	100.0	0	0	0.0
Langkawi	63	63	59	93.7	0	0	0.0	10	10	100.0	53	49	92.5	0	0	0.0	0	0	0.0
Likas	6	6	0	0.0	6	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Melaka	1242	1242	1215	97.8	7	7	100.0	20	18	90.0	1204	1180	98.0	10	9	90.0	0	0	0.0
Miri	624	624	609	97.6	3	3	100.0	8	8	100.0	608	594	97.7	4	3	75.0	1	1	100.0
Muar	523	523	498	95.2	4	2	50.0	3	2	66.7	511	489	95.7	5	5	100.0	0	0	0.0
Pulau Pinang	1644	1644	1517	92.3	3	3	100.0	24	15	62.5	1603	1491	93.0	10	6	60.0	3	1	33.3
Putrajaya	241	241	223	92.5	4	4	100.0	22	16	72.7	211	200	94.8	3	2	66.7	1	1	100.0
Queen	488	488	484	99.2	2	2	100.0	16	14	87.5	459	457	99.6	10	10	100.0	0	0	0.0

Elizabeth KK																			
Sandakan	240	240	227	94.6	0	0	0.0	17	17	100.0	219	208	95.0	4	2	50.0	0	0	0.0
Sarawak	1234	1234	1155	93.6	8	5	62.5	4	4	100.0	1206	1136	94.2	14	9	64.3	2	1	50.0
Sarikei	311	311	307	98.7	0	0	0.0	0	0	0.0	309	305	98.7	0	0	0.0	0	0	0.0
Segamat	102	102	98	96.1	2	2	100.0	4	4	100.0	87	85	97.7	8	7	87.5	1	0	0.0
Selayang	489	489	443	90.6	23	18	78.3	12	8	66.7	444	413	93.0	8	4	50.0	0	0	0.0
Serdang	338	338	313	92.6	3	3	100.0	20	16	80.0	307	288	93.8	8	6	75.0	0	0	0.0
Seremban	833	833	807	96.9	7	5	71.4	24	22	91.7	796	776	97.5	3	3	100.0	2	1	50.0
Shah Alam	226	226	222	98.2	1	1	100.0	3	3	100.0	221	218	98.6	1	0	0.0	0	0	0.0
Sibu	215	215	210	97.7	0	0	0.0	2	2	100.0	213	208	97.7	0	0	0.0	0	0	0.0
Sri Manjung	463	463	417	90.1	4	4	100.0	11	8	72.7	446	404	90.6	2	1	50.0	0	0	0.0
Sultan Ismail	632	632	553	87.5	6	5	83.3	23	18	78.3	589	518	87.9	12	11	91.7	1	0	0.0
Sultanah Aminah JB	548	548	519	94.7	9	6	66.7	6	6	100.0	522	500	95.8	10	7	70.0	1	0	0.0
Sungai Buloh	515	515	504	97.9	2	2	100.0	12	12	100.0	485	476	98.1	16	14	87.5	0	0	0.0
Sungei Petani	585	585	566	96.8	5	5	100.0	40	37	92.5	525	509	97.0	15	15	100.0	0	0	0.0
Taiping	996	996	990	99.4	6	6	100.0	122	122	100.0	860	854	99.3	6	6	100.0	2	2	100.0
Tanah Merah	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
Tawau	364	364	331	90.9	1	1	100.0	34	27	79.4	325	301	92.6	3	2	66.7	1	0	0.0
Teluk Intan	819	819	775	94.6	5	5	100.0	50	46	92.0	759	720	94.9	4	4	100.0	1	0	0.0
Temerloh	763	763	722	94.6	10	9	90.0	49	40	81.6	679	655	96.5	22	16	72.7	2	1	50.0
KK1M Johor	50	50	49	98.0	0	0	0.0	1	1	100.0	48	47	97.9	1	1	100.0	0	0	0.0
KK1M Kedah	178	178	172	96.6	0	0	0.0	2	2	100.0	174	169	97.1	2	1	50.0	0	0	0.0
KK1M Kelantan	46	46	41	89.1	0	0	0.0	20	16	80.0	25	24	96.0	1	1	100.0	0	0	0.0
KK1M Neg. Sembilan	104	104	95	91.3	0	0	0.0	0	0	0.0	98	90	91.8	5	4	80.0	1	1	100.0
KK1M Pahang	64	64	63	98.4	0	0	0.0	2	2	100.0	62	61	98.4	0	0	0.0	0	0	0.0
KK1M Pulau Pinang	41	41	40	97.6	0	0	0.0	0	0	0.0	40	39	97.5	1	1	100.0	0	0	0.0
KK1M Terengganu	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
KK1M Sabah	157	157	144	91.7	0	0	0.0	5	3	60.0	150	139	92.7	2	2	100.0	0	0	0.0
KK1M Sarawak	745	745	708	95.0	0	0	0.0	3	2	66.7	735	702	95.5	6	4	66.7	0	0	0.0
MAIWP	1832	1832	1809	98.7	8	8	100.0	2	2	100.0	1811	1791	98.9	11	8	72.7	0	0	0.0

Number and percentage (%) are based on available information.

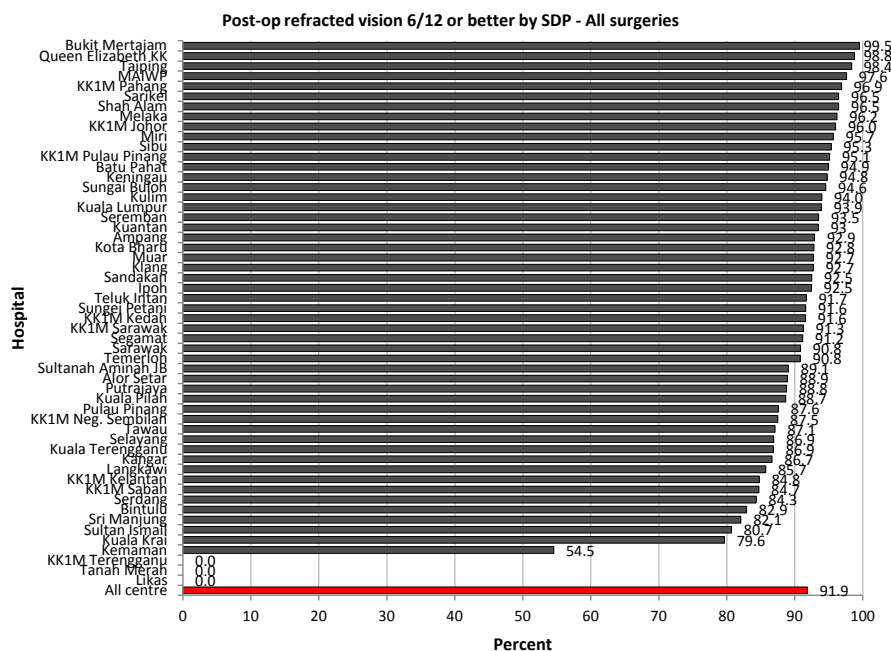


Figure 1.5.7-9: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes Without Ocular Co-morbidity by SDP (All Surgery), CSR 2016

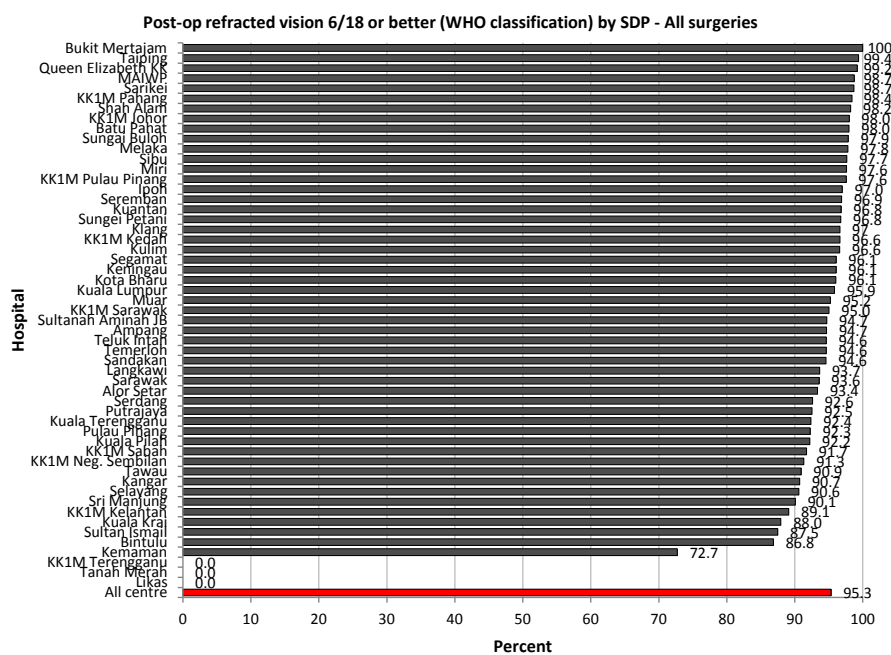


Figure 1.5.7-10: Post-operative Best Corrected Visual Acuity 6/18 or Better (WHO classification) in Eyes Without Ocular Co-morbidity by SDP (All Surgery), CSR 2016

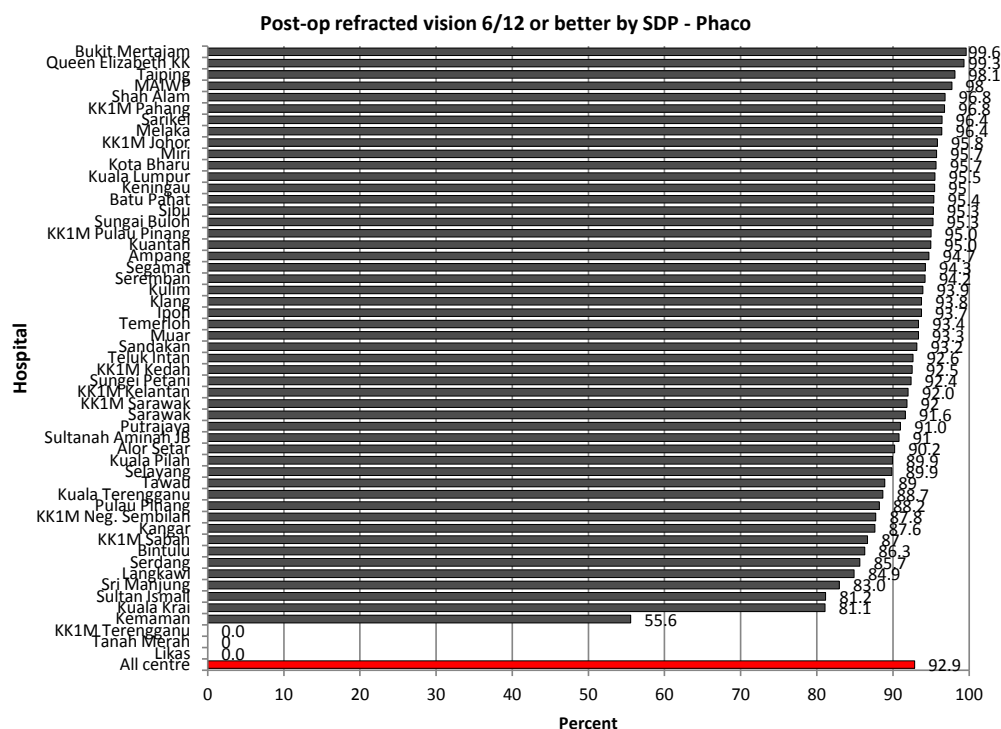


Figure 1.5.7-11: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes Without Ocular Co-morbidity by SDP (Phaco), CSR 2016

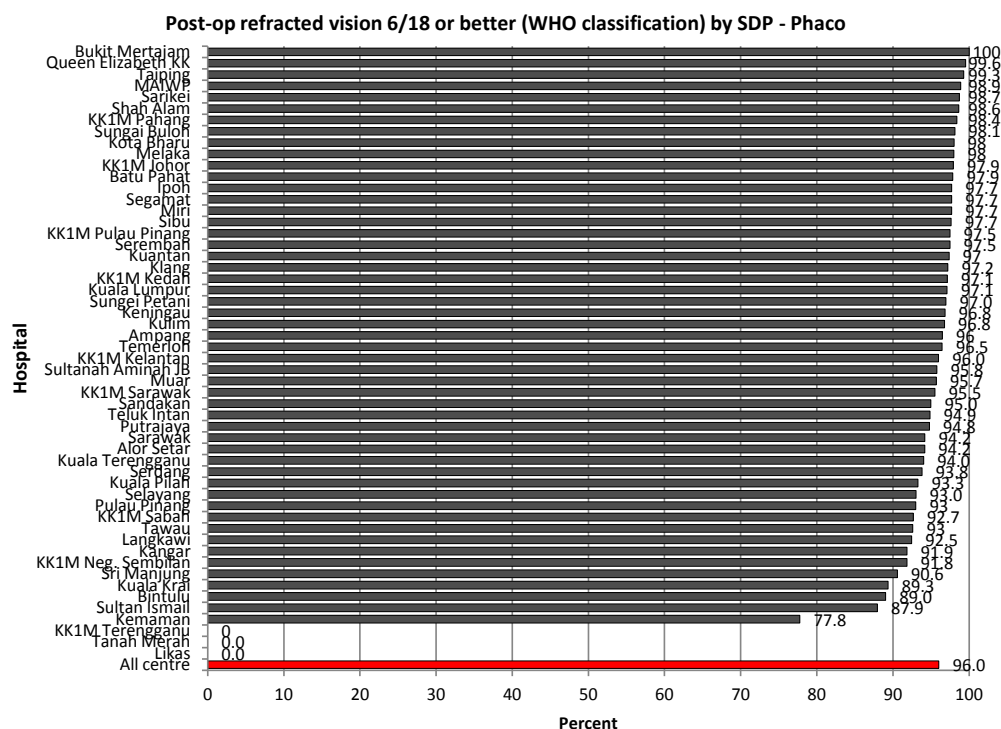


Figure 1.5.7-12: Post-operative Best Corrected Visual Acuity 6/18 or Better (WHO classification) in Eyes Without Ocular Co-morbidity by SDP (Phaco), CSR 2016

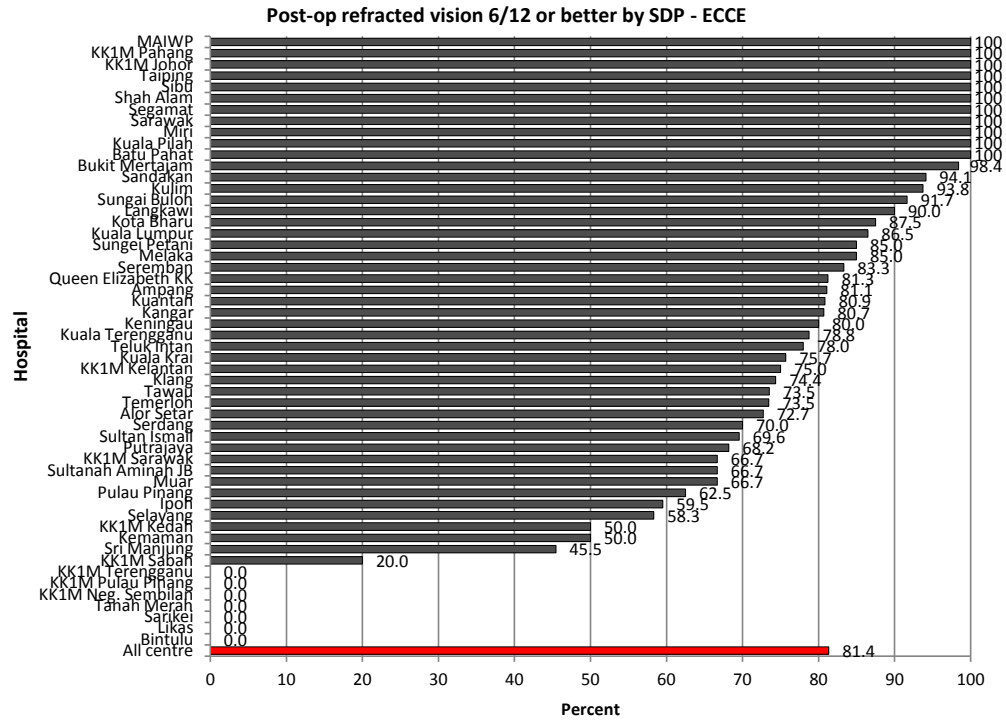


Figure 1.5.7-13: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes Without Ocular Co-morbidity by SDP (ECCE), CSR 2016

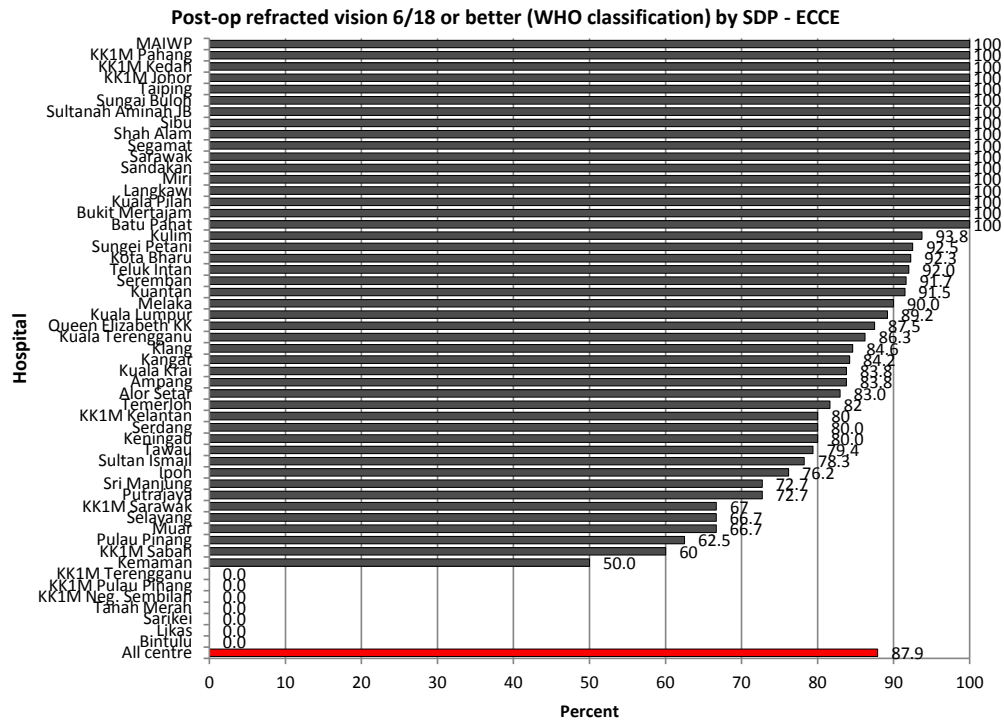


Figure 1.5.7-14: Post-operative Best Corrected Visual Acuity 6/18 or Better (WHO classification) in Eyes Without Ocular Co-morbidity by SDP (ECCE), CSR 2016

1.5.8 Reasons for No Record of Visual Acuity

Table 1.5.8-1: Reasons for No Records of Visual Acuity, CSR 2007-2016

Reasons	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
All cases	1428	100	1535	100	1805	100	1659	100	2036	100	2022	100	2333	100	2247	100	2984	100	2468	100
Loss to follow-up	1018	71.3	1230	80.1	1261	69.9	1078	65.0	1362	66.9	1451	71.8	1697	72.7	1698	75.6	2024	67.8	1644	66.6
Discharged by doctor	31	2.2	13	0.8	44	2.4	38	2.3	32	1.6	22	1.1	36	1.5	21	0.9	32	1.1	37	1.5
Unable to take vision	47	3.3	26	1.7	30	1.7	33	2.0	27	1.3	33	1.6	26	1.1	15	0.7	24	0.8	14	0.6
Others	269	18.8	194	12.6	222	12.3	210	12.7	186	9.1	281	13.9	260	11.1	238	10.6	301	10.1	275	11.1

Number and percentage (%) are based on available information.

1.5.9 Factors Contributing to Post-operative Best Corrected Visual Acuity of Worse than 6/12

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

Table 1.5.9-1: Factors Contributing to Post-operative Best Corrected Visual Acuity of Worse than 6/12 (All Eyes), CSR 2007-2016

Factors	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N (total no. of post-op refracted vision worse than 6/12)	2971		2815		2973		3397		3597		3694		3948		4261		4524		6143	
Preexisting ocular co-morbidity	864	29.1	800	28.4	1016	34.2	1364	40.2	1412	39.3	1544	41.8	1571	39.8	1715	40.2	1942	42.9	2084	33.9
High astigmatism	471	15.9	460	16.3	395	13.3	378	11.1	397	11.0	438	11.9	435	11.0	364	8.5	366	8.1	375	6.1
Posterior capsular opacity	130	4.4	112	4.0	136	4.6	112	3.3	111	3.1	114	3.1	91	2.3	94	2.2	107	2.4	83	1.4
Cystoid macular oedema	68	2.3	64	2.3	82	2.8	94	2.8	96	2.7	88	2.4	80	2.0	110	2.6	84	1.9	97	1.6
Endophthalmitis	11	0.4	6	0.2	6	0.2	5	0.1	2	0.1	4	0.1	2	0.1	10	0.2	8	0.2	5	0.1
Corneal decompensation	19	0.6	31	1.1	61	2.1	33	1.0	36	1.0	42	1.1	50	1.3	84	2.0	125	2.8	83	1.4
Decentered IOL	3	0.1	6	0.2	5	0.2	5	0.1	8	0.2	9	0.2	15	0.4	7	0.2	17	0.4	11	0.2
Retinal detachment	64	2.2	50	1.8	56	1.9	44	1.3	35	1.0	69	1.9	29	0.7	36	0.8	23	0.5	12	0.2
Others	421	14.2	603	21.3	794	26.7	857	25.2	927	25.8	1072	29.0	1111	28.1	1098	25.8	1083	23.9	987	16.1

Using WHO classification																				
N (total no. of post-op refracted vision worse than 6/18)	1916		1803		1923		2266		2379		2367		2567		2786		2897		4001	
Preexisting ocular co-morbidity	634	33.1	601	33.3	750	39.0	1028	45.4	1062	44.6	1077	45.5	1113	43.4	1242	44.6	1353	46.7	1521	38.0
High astigmatism	235	12.3	261	14.5	212	11.0	202	8.9	195	8.2	242	10.2	243	9.5	215	7.7	195	6.7	216	5.4
Posterior capsular opacity	68	3.5	75	4.2	83	4.3	65	2.9	70	2.9	68	2.9	46	1.8	43	1.5	63	2.2	44	1.1
Cystoid macular oedema	68	3.5	47	2.6	59	3.1	55	2.4	65	2.7	60	2.5	43	1.7	75	2.7	53	1.8	60	1.5
Endophthalmitis	11	0.6	5	0.3	4	0.2	3	0.1	2	0.1	4	0.2	2	0.1	8	0.3	8	0.3	5	0.1
Corneal decompensation	19	1.0	25	1.4	45	2.3	26	1.1	29	1.2	32	1.4	42	1.6	54	1.9	89	3.1	55	1.4
Decentered IOL	3	0.2	5	0.3	4	0.2	3	0.1	4	0.2	6	0.3	12	0.5	5	0.2	11	0.4	9	0.2
Retinal detachment	64	3.3	49	2.7	49	2.5	41	1.8	34	1.4	63	2.7	25	1.0	27	1.0	18	0.6	10	0.2
Others	421	22.0	408	22.6	530	27.6	589	26.0	636	26.7	690	29.2	757	29.5	719	25.8	711	24.5	622	15.5

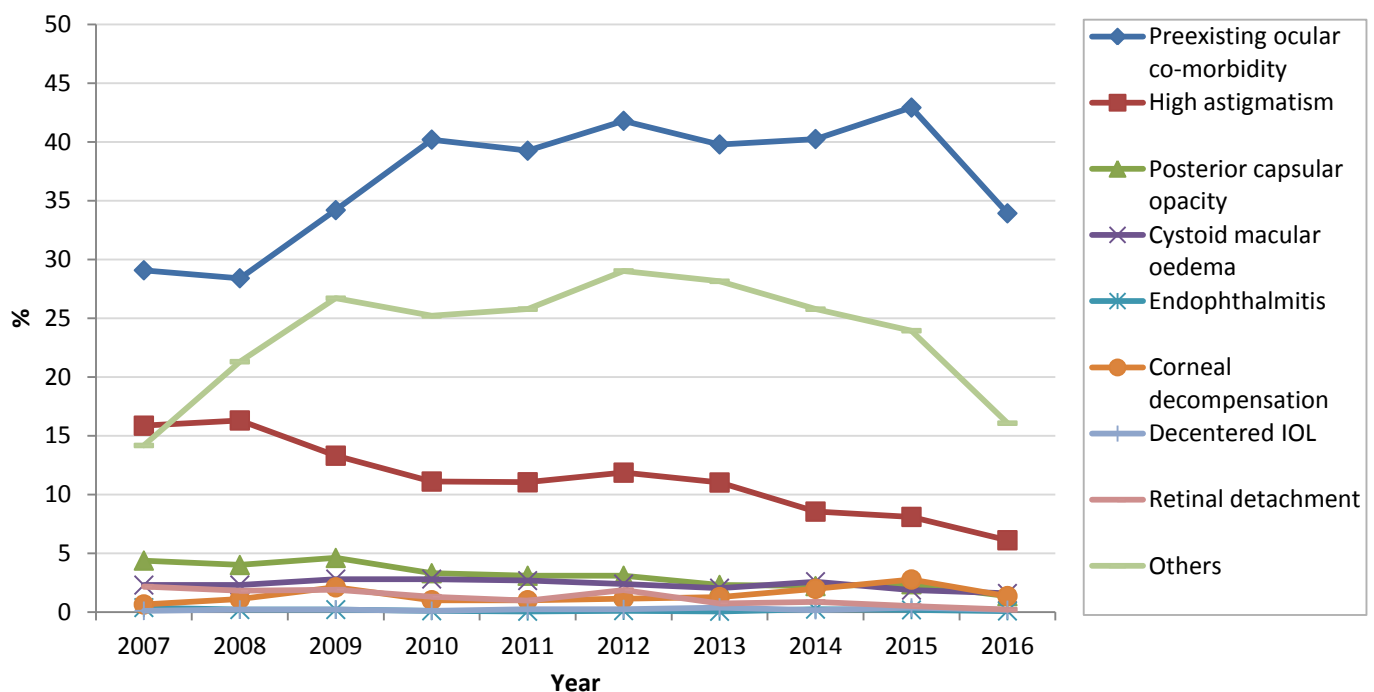


Figure 1.5.9-1: Factors Contributing to Post-operative Best Corrected Visual Acuity worse than 6/12 (All Eyes), CSR 2007-2016

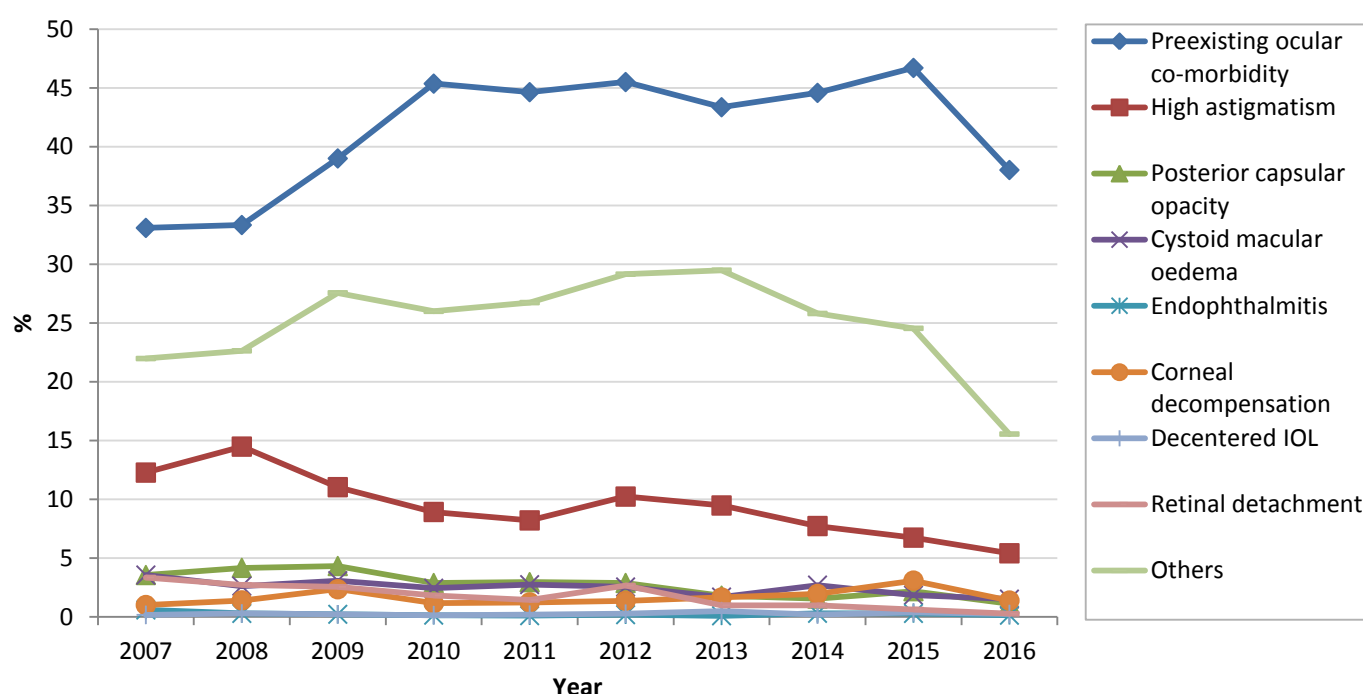


Figure 1.5.9-2: Factors Contributing to Post-operative Best Corrected Visual Acuity worse than 6/18 (All Eyes), CSR 2007-2016

Table 1.5.9-2: Factors Contributing to Post-operative Best Corrected Visual Acuity of Worse than 6/12 (Eyes without Ocular Co-morbidity), CSR 2007-2016

	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Factors (not detected pre-operatively)	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N (worse than 6/12)	1536		1382		1078		1056		1108		1134		1200		1266		1321		2189	
Preexisting ocular co-morbidity	271	17.6	228	16.5	121	11.2	92	8.7	66	6.0	98	8.6	70	5.8	112	8.8	96	7.3	95	4.3
High astigmatism	303	19.7	286	20.6	178	16.5	180	17.0	175	15.8	193	17.0	167	13.9	162	12.8	178	13.5	203	9.3
Posterior capsular opacity	83	5.4	61	4.4	87	8.1	65	6.2	50	4.5	51	4.5	39	3.3	39	3.1	45	3.4	39	1.8
Cystoid macular oedema	52	3.4	26	1.9	32	3.0	42	4.0	38	3.4	38	3.4	29	2.4	45	3.6	29	2.2	43	2.0
Endophthalmitis	9	0.6	4	0.3	4	0.4	2	0.2	1	0.1	2	0.2	0	0.0	4	0.3	3	0.2	1	0.0
Corneal decompensation	15	1.0	13	0.9	36	3.3	21	2.0	18	1.6	18	1.6	18	1.5	36	2.8	75	5.7	52	2.4
Decentered IOL	4	0.3	2	0.1	1	0.1	0	0.0	4	0.4	5	0.4	6	0.5	1	0.1	5	0.4	5	0.2
Retinal detachment	18	1.2	11	0.8	11	1.0	6	0.6	1	0.1	6	0.5	3	0.3	3	0.2	4	0.3	2	0.1
Others	320	20.8	323	23.3	368	34.1	389	36.8	453	40.9	506	44.6	521	43.4	501	39.6	533	40.3	476	21.7
Missing/Unavailable	461	30.0	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-
Using WHO classification																				
N (worse than 6/18)	902		805		599		611		628		633		692		718		743		1263	
Preexisting ocular co-morbidity	186	20.6	165	20.5	84	14.0	64	10.5	41	6.5	74	11.7	55	7.9	78	10.9	67	9.0	54	4.3

High astigmatism	147	16.3	158	19.6	83	13.9	98	16.0	86	13.7	98	15.5	87	12.6	86	12.0	96	12.9	114	9.0
Posterior capsular opacity	44	4.9	34	4.2	54	9.0	39	6.4	32	5.1	23	3.6	20	2.9	15	2.1	23	3.1	20	1.6
Cystoid macular oedema	35	3.9	18	2.2	19	3.2	24	3.9	21	3.3	27	4.3	14	2.0	31	4.3	19	2.6	21	1.7
Endophthalmitis	6	0.7	3	0.4	3	0.5	1	0.2	1	0.2	2	0.3	0	0.0	2	0.3	3	0.4	1	0.1
Corneal decompensation	11	1.2	10	1.2	24	4.0	18	2.9	13	2.1	13	2.1	14	2.0	19	2.6	51	6.9	32	2.5
Decentered IOL	3	0.3	2	0.2	1	0.2	0	0.0	1	0.2	3	0.5	4	0.6	1	0.1	4	0.5	3	0.2
Retinal detachment	18	2.0	11	1.4	8	1.3	6	1.0	1	0.2	4	0.6	2	0.3	3	0.4	4	0.5	2	0.2
Others	206	22.8	215	26.7	226	37.7	257	42.1	293	46.7	300	47.4	316	45.7	308	42.9	320	43.1	284	22.5

1.5.10 Actual or Residual Refractive Power (Spherical Equivalent)

Targeted refractive power is the refractive power aimed for a patient by the surgeon, while the actual or residual refractive power or spherical equivalent (SE) is the post-operative refraction result of the same eye. Myopic shift is the shift of the refractive status (actual refraction) post-operatively towards a more negative value as compared to the targeted refraction pre-operatively. It could be the result from a more anteriorly placed IOL in the bag or surgically induced astigmatism. It could also be due to the indentation of eyeball during biometry, resulting in shorter axial length.

Data from 2007 to 2016 demonstrated that ECCE produced more myopic shift as compared to phacoemulsification. The difference between targeted and actual refraction revealed a broad-based distribution curve, which indicated a large percentage of eyes did not achieve the targeted refractive status post-operatively.

Table 1.5.10-1: Distribution of Target and Actual Refractive Power in ECCE and Phaco, CSR 2007-2016

Year	Target Refraction									
	All Patient									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
N	11876	15083	20279	24528	25887	26061	28693	32260	36706	43840
Mean	-0.5	-0.1	-0.4	-0.4	-0.4	-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	+0.3	0.3	0.3
Median	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Min	-9.0	-9.9	-9.9	-9.1	-9.1	-8.0	-8.5	-8.1	-9.9	-9.9
Max	+5.0	+9.5	+5.9	+6.0	+4.8	+9.0	+9.0	+6.0	+6.1	+6.2

Year	Actual Refraction									
	ECCE									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
N	3624	4400	4014	3853	3714	3153	2809	2429	2477	2355
Mean	-1.1	-0.2	-1.1	-1.0	-1.0	-0.9	-0.9	-0.9	-0.8	-0.8
SD	+1.4	+1.2	+1.3	+1.4	+1.3	+1.4	+1.4	+1.2	1.3	1.4
Median	-1.0	-0.2	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9
Min	-10.0	-8.4	-10.0	-9.2	-7.3	-8.5	-10.0	-6.7	-8.3	-8.3
Max	+9.8	+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

Year	Actual Refraction									
	Phaco									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
N	8343	12085	12891	15485	17197	17931	22173	25325	27467	31587
Mean	-0.8	0.0	-0.8	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.5
SD	+1.1	1.03	+1.0	+0.9	+0.9	+0.9	+0.8	+0.8	+0.8	+0.8
Median	-0.7	0.0	-0.7	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-0.5
Min	-10.0	-10.0	-9.0	-10.0	-10.0	-9.9	-9.7	-10.0	-9.8	-9.0
Max	+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

Year	Actual-Target Refraction									
	All Patient									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
N	8738	12295	14670	17697	18813	17964	20457	23180	25888	30744
Mean	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2
SD	+1.1	+1.2	+1.1	+1.1	+1.0	+1.0	+0.9	+0.9	+0.9	+0.9
Median	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1
Min	-9.5	-9.9	-8.8	-9.8	-9.2	-9.9	-9.7	-9.4	-8.0	-8.6
Max	+5.0	+9.0	+10.7	+10.7	+10.7	+10.6	+10.7	+10.6	+11.3	+10.6

Note: Eyes with actual refractive power (SE) of more than +10.0D and -10.0D were excluded from analysis.
Number and percentage (%) are based on available information.

Table 1.5.10-2: Distribution of Targeted and Actual Refractive Power in ECCE and Phaco by Diopter, CSR 2007-2016

Year	Target Refraction																			
	All Patients																			
	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Dioptre (D)	n	%	n	%	n	%	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	0	0.0	1	0.0	2	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	0	0.0	1	0.0	2	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	0	0.0	1	0.0	2	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	1	0.0	2	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	1	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	0	0.0	1	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	1	0.0	0	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	10	0.0	4	0.0	7	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	1	0.0	4	0.0	4	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	0.0	3	0.0	6	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	5	0.0	5	0.0	3	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	5	0.0	10	0.0	5	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	9	0.0	13	0.0	20	0.0
-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	27	0.1	31	0.1	33	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	52	0.2	61	0.2	65	0.1
-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	209	0.6	236	0.6	237	0.5
-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	6840	21.2	8908	24.3	12309	28.1
-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	24210	75.0	26887	73.2	30773	70.2
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	793	2.5	463	1.3	309	0.7
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	73	0.2	36	0.1	32	0.1
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	4	0.0	13	0.0	15	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	5	0.0	8	0.0	3	0.0
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	6	0.0	3	0.0	3	0.0
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	2	0.0	2	0.0	0	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	0	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	1	0.0	4	0.0	3	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	0	0.0	2	0.0	2	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	0	0.0	0	0.0	1	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	0	0.0	2	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	0	0.0	1	0.0	1	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	1	0.0	2	0.0	1	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	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	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	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	0	0.0	0	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	0	0.0	0	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	0	0.0	0	0.0	0	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	0	0.0	0	0.0	0	0.0

Number and percentage (%) are based on available information.

Year	Actual Refraction - ECCE																			
	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Dioptr (D)	n	%	n	%	n	%	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	0	0.0	0	0.0	0	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	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	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	0	0.0	1	0.0	3	0.1
-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	0	0.0	1	0.0	0	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	0	0.0	0	0.0	0	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	1	0.0	1	0.0	0	0.0
-6.5-<(-5.0)	0	0.0	3	0.1	10	0.2	10	0.3	16	0.4	4	0.1	2	0.1	6	0.2	7	0.3	3	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	0.2	4	0.2	4	0.2
-4.5-<(-4.0)	3	0.1	5	0.1	16	0.4	16	0.4	20	0.5	20	0.6	5	0.2	8	0.3	1	0.0	9	0.4
-4.0-<(-3.5)	8	0.2	7	0.2	52	1.3	42	1.1	30	0.8	26	0.8	27	1.0	21	0.9	9	0.4	14	0.6
-3.5-<(-3.0)	19	0.5	15	0.3	75	1.9	71	1.8	63	1.7	51	1.6	45	1.6	29	1.2	39	1.6	20	0.8
-3.0-<(-2.5)	26	0.6	41	0.9	184	4.6	137	3.6	131	3.5	128	4.1	93	3.3	75	3.1	64	2.6	74	3.1
-2.5-<(-2.0)	65	1.6	76	1.7	323	8.0	256	6.6	236	6.4	204	6.5	164	5.8	152	6.3	136	5.5	132	5.6
-2.0-<(-1.5)	149	3.6	203	4.6	515	12.8	464	12.0	464	12.5	377	12.0	303	10.8	260	10.7	257	10.4	256	10.9
-1.5-<(-1.0)	360	8.7	431	9.7	723	18.0	721	18.7	665	17.9	530	16.8	492	17.5	424	17.5	445	18.0	420	17.8
-1.0-<(-0.5)	722	17.5	763	17.2	771	19.2	817	21.2	776	20.9	667	21.2	636	22.6	547	22.5	525	21.2	525	22.3
-0.5-<0.0	956	23.2	956	21.6	657	16.4	616	16.0	640	17.2	544	17.3	485	17.3	443	18.2	499	20.1	425	18.0
0.0-<0.5	860	20.8	983	22.2	391	9.7	375	9.7	372	10.0	297	9.4	296	10.5	264	10.9	268	10.8	275	11.7
0.5-<1.0	444	10.8	460	10.4	147	3.7	157	4.1	146	3.9	144	4.6	136	4.8	110	4.5	114	4.6	99	4.2
1.0-<1.5	236	5.7	228	5.1	54	1.3	77	2.0	66	1.8	65	2.1	46	1.6	39	1.6	41	1.7	39	1.7
1.5-<2.0	129	3.1	98	2.2	31	0.8	26	0.7	30	0.8	33	1.0	21	0.7	20	0.8	25	1.0	16	0.7
2.0-<2.5	50	1.2	48	1.1	18	0.4	13	0.3	17	0.5	9	0.3	10	0.4	9	0.4	12	0.5	11	0.5
2.5-<3.0	24	0.6	22	0.5	5	0.1	6	0.2	3	0.1	6	0.2	4	0.1	2	0.1	6	0.2	4	0.2
3.0-<3.5	15	0.4	16	0.4	1	0.0	5	0.1	4	0.1	4	0.1	3	0.1	2	0.1	1	0.0	2	0.1
3.5-<4.0	10	0.2	8	0.2	2	0.0	1	0.0	0	0.0	3	0.1	2	0.1	2	0.1	2	0.1	2	0.1
4.0-<4.5	3	0.1	3	0.1	0	0.0	2	0.1	0	0.0	3	0.1	3	0.1	2	0.1	1	0.0	1	0.0

4.5-<5.0	3	0.1	2	0.0	1	0.0	1	0.0	1	0.0	2	0.1	0	0.0	0	0.0	2	0.1	0	0.0
5.0-<5.5	3	0.1	2	0.0	1	0.0	1	0.0	1	0.0	0	0.0	2	0.1	2	0.1	2	0.1	0	0.0
5.5-<6.0	2	0.0	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.0	0	0.0	0	0.0
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	0	0.0	0	0.0	0	0.0
6.5-<7.0	2	0.0	1	0.0	0	0.0	2	0.1	2	0.1	1	0.0	0	0.0	0	0.0	1	0.0	1	0.0
7.0-<7.5	1	0.0	3	0.1	1	0.0	0	0.0	0	0.0	3	0.1	0	0.0	0	0.0	1	0.0	1	0.0
7.5-<8.0	2	0.0	1	0.0	2	0.0	1	0.0	1	0.0	1	0.0	1	0.0	0	0.0	1	0.0	2	0.1
8.0-<8.5	1	0.0	3	0.1	1	0.0	1	0.0	2	0.1	1	0.0	1	0.0	0	0.0	1	0.0	1	0.0
8.5-<9.0	5	0.1	1	0.0	0	0.0	1	0.0	3	0.1	0	0.0	1	0.0	2	0.1	5	0.2	2	0.1
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	2	0.1	0	0.0	3	0.1
9.5-<10.0	5	0.1	2	0.0	10	0.2	11	0.3	6	0.2	7	0.2	13	0.5	2	0.1	5	0.2	11	0.5

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

Number and percentage (%) are based on available information.

	Actual Refraction - Phaco																			
Years	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Dioptre (D)	n	%	n	%	n	%	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	4	0.0	1	0.0	0	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	0	0.0	0	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	1	0.0	0	0.0	2	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	2	0.0	1	0.0	0	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	1	0.0	2	0.0	3	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	3	0.0	1	0.0	4	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	2	0.0	1	0.0	3	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	21	0.1	17	0.1	16	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	8	0.0	6	0.0	9	0.0
-4.5-<(-4.0)	3	0.0	15	0.1	14	0.1	17	0.1	19	0.1	21	0.1	15	0.1	16	0.1	18	0.1	13	0.0
-4.0-<(-3.5)	5	0.1	19	0.2	44	0.3	41	0.3	35	0.2	37	0.2	31	0.1	35	0.1	29	0.1	37	0.1
-3.5-<(-3.0)	2	0.0	29	0.2	80	0.6	81	0.5	74	0.4	74	0.4	69	0.3	74	0.3	50	0.2	69	0.2
-3.0-<(-2.5)	7	0.1	58	0.5	212	1.6	190	1.2	163	0.9	164	0.9	169	0.8	172	0.7	160	0.6	149	0.5
-2.5-<(-2.0)	27	0.3	80	0.7	448	3.5	436	2.8	450	2.6	451	2.5	383	1.7	451	1.8	372	1.4	403	1.3
-2.0-<(-1.5)	88	1.0	147	1.2	1067	8.3	1067	6.9	1138	6.6	1100	6.1	1079	4.9	1187	4.7	1211	4.4	1271	4.0
-1.5-<(-1.0)	277	3.1	393	3.2	2115	16.4	2390	15.4	2701	15.7	2700	15.1	2993	13.5	3280	13.0	3474	12.6	3801	12.0
-1.0-<(-0.5)	1022	11.4	1370	11.3	3232	25.1	3870	25.0	4461	25.9	4716	26.3	5735	25.9	6776	26.8	7640	27.8	8683	27.5
-0.5-<0.0	2602	29.1	3152	26.0	3143	24.4	3941	25.5	4570	26.6	4753	26.5	6610	29.8	7865	31.1	8768	31.9	10415	33.0
0.0-<0.5	2551	28.5	3568	29.5	1680	13.0	2177	14.1	2350	13.7	2562	14.3	3403	15.3	3761	14.9	3988	14.5	4698	14.9
0.5-<1.0	1273	14.2	1738	14.3	513	4.0	772	5.0	762	4.4	844	4.7	1081	4.9	1130	4.5	1158	4.2	1364	4.3
1.0-<1.5	546	6.1	780	6.4	168	1.3	265	1.7	249	1.4	277	1.5	317	1.4	320	1.3	338	1.2	368	1.2
1.5-<2.0	268	3.0	367	3.0	66	0.5	99	0.6	90	0.5	85	0.5	123	0.6	98	0.4	97	0.4	118	0.4
2.0-<2.5	117	1.3	160	1.3	21	0.2	38	0.2	42	0.2	44	0.2	44	0.2	47	0.2	40	0.1	63	0.2
2.5-<3.0	59	0.7	56	0.5	10	0.1	14	0.1	17	0.1	17	0.1	18	0.1	19	0.1	18	0.1	30	0.1
3.0-<3.5	28	0.3	32	0.3	8	0.1	10	0.1	13	0.1	11	0.1	11	0.0	9	0.0	17	0.1	10	0.0
3.5-<4.0	17	0.2	23	0.2	4	0.0	5	0.0	4	0.0	7	0.0	4	0.0	8	0.0	12	0.0	7	0.0
4.0-<4.5	12	0.1	12	0.1	3	0.0	5	0.0	2	0.0	6	0.0	11	0.0	7	0.0	10	0.0	12	0.0
4.5-<5.0	11	0.1	4	0.0	2	0.0	2	0.0	4	0.0	1	0.0	6	0.0	3	0.0	6	0.0	7	0.0
5.0-<5.5	3	0.0	1	0.0	2	0.0	4	0.0	4	0.0	1	0.0	3	0.0	2	0.0	9	0.0	2	0.0

5.5-<6.0	1	0.0	3	0.0	1	0.0	1	0.0	2	0.0	1	0.0	1	0.0	2	0.0	1	0.0	3	0.0
6.0-<6.5	4	0.0	2	0.0	2	0.0	3	0.0	1	0.0	2	0.0	1	0.0	2	0.0	3	0.0	3	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	2	0.0	0	0.0	1	0.0
7.0-<7.5	0	0.0	1	0.0	0	0.0	2	0.0	2	0.0	2	0.0	4	0.0	0	0.0	0	0.0	2	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	0	0.0	5	0.0	1	0.0
8.0-<8.5	3	0.0	1	0.0	1	0.0	1	0.0	0	0.0	0	0.0	2	0.0	3	0.0	2	0.0	4	0.0
8.5-<9.0	0	0.0	0	0.0	2	0.0	1	0.0	1	0.0	1	0.0	1	0.0	4	0.0	2	0.0	3	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	5	0.0	3	0.0	5	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	5	0.0	7	0.0	8	0.0

Eyes with actual refractive power (SE) of more than +10.0D and -10.0D were excluded from analysis.
Number and percentage (%) are based on available information.

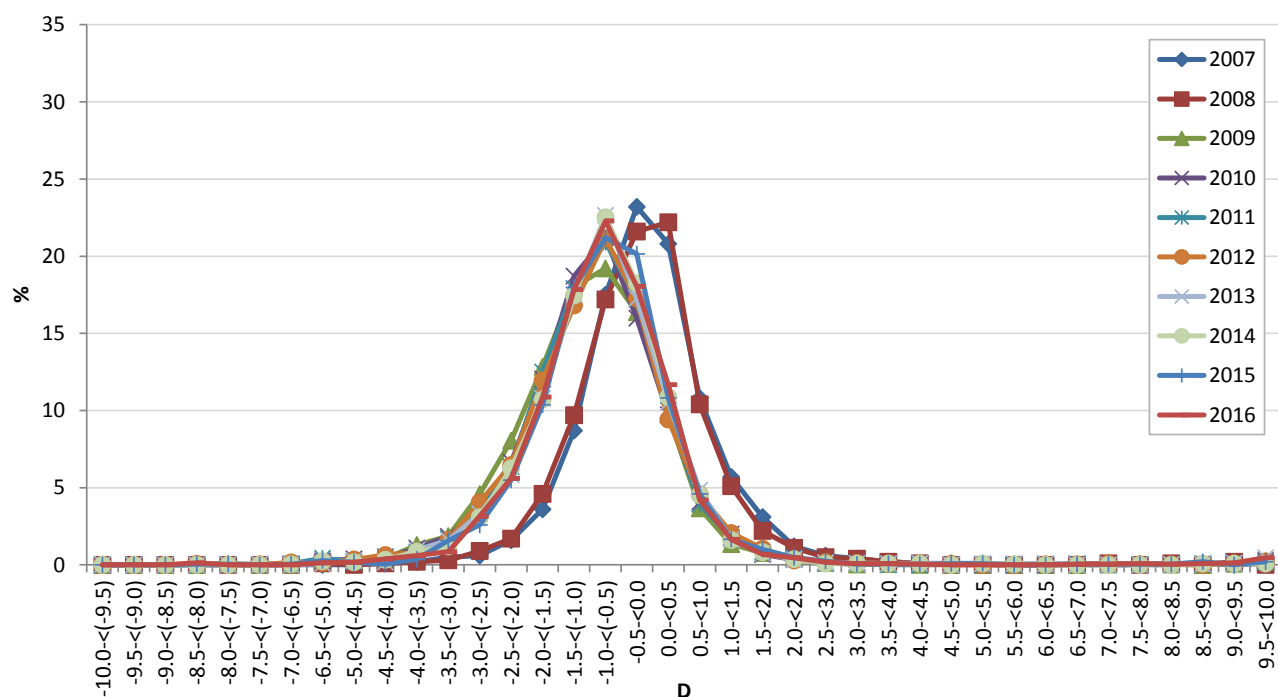


Figure 1.5.10-1: Percentage Distribution of Actual Refractive Power (ECCE), CSR 2007-2016

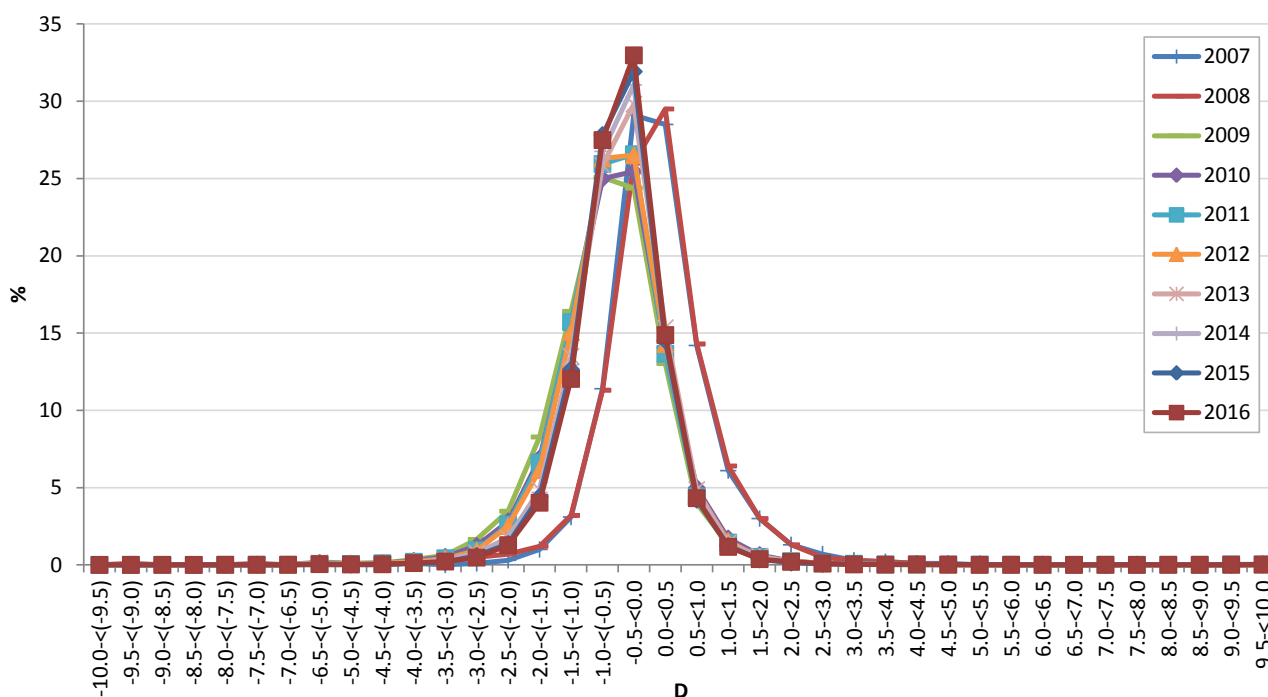


Figure 1.5.10-2: Percentage Distribution of Actual Refractive Power (Phaco), CSR 2007-2016

Table 1.5.10-3: Difference Between Targeted and Actual Refractive Power by Diopter in Phaco, CSR 2007-2016

Year	Target Refraction - Phaco																			
	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Power (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N	7975	100	10660	100	14976	100	18938	100	20321	100	21328	100	24306	100	28256	100	32235	100	39425	100
-5.0-<(-4.5)	2	0.0	4	0.0	7	0.0	2	0.0	2	0.0	5	0.0	4	0.0	1	0.0	3	0.0	3	0.0
-4.5-<(-4.0)	1	0.0	3	0.0	5	0.0	9	0.0	2	0.0	4	0.0	3	0.0	4	0.0	3	0.0	2	0.0
-4.0-<(-3.5)	5	0.1	7	0.1	7	0.0	5	0.0	8	0.0	5	0.0	1	0.0	4	0.0	4	0.0	2	0.0
-3.5-<(-3.0)	5	0.1	6	0.1	9	0.1	12	0.1	10	0.0	4	0.0	8	0.0	3	0.0	8	0.0	4	0.0
-3.0-<(-2.5)	10	0.1	20	0.2	14	0.1	23	0.1	12	0.1	13	0.1	14	0.1	8	0.0	12	0.0	14	0.0
-2.5-<(-2.0)	18	0.2	16	0.2	19	0.1	27	0.1	19	0.1	30	0.1	30	0.1	23	0.1	28	0.1	31	0.1
-2.0-<(-1.5)	51	0.6	35	0.3	44	0.3	32	0.2	38	0.2	49	0.2	43	0.2	44	0.2	49	0.2	58	0.1
-1.5-<(-1.0)	239	3.0	288	2.7	184	1.2	195	1.0	158	0.8	164	0.8	149	0.6	180	0.6	206	0.6	211	0.5
-1.0-<(-0.5)	2473	31.0	4065	38.1	5602	37.4	5672	30.0	5567	27.4	5709	26.8	5031	20.7	5642	20.0	7432	23.1	10663	27.0
-0.5-<0.0	4512	56.6	5498	51.6	8201	54.8	12144	64.1	13864	68.2	14653	68.7	18302	75.3	21641	76.6	24058	74.6	28146	71.4
0.0-<0.5	583	7.3	563	5.3	663	4.4	601	3.2	470	2.3	345	1.6	461	1.9	635	2.2	381	1.2	245	0.6
0.5-<1.0	45	0.6	107	1.0	129	0.9	147	0.8	143	0.7	160	0.8	144	0.6	52	0.2	28	0.1	24	0.1
1.0-<1.5	6	0.1	23	0.2	9	0.1	9	0.0	7	0.0	16	0.1	5	0.0	3	0.0	8	0.0	6	0.0
1.5-<2.0	2	0.0	7	0.1	11	0.1	7	0.0	1	0.0	43	0.2	23	0.1	2	0.0	3	0.0	0	0.0
2.0-<2.5	9	0.1	6	0.1	63	0.4	42	0.2	10	0.0	106	0.5	65	0.3	3	0.0	1	0.0	2	0.0
2.5-<3.0	1	0.0	4	0.0	2	0.0	1	0.0	2	0.0	6	0.0	10	0.0	0	0.0	1	0.0	0	0.0
3.0-<3.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	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	0	0.0	1	0.0	0	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	0	0.0	0	0.0	0	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	0	0.0	0	0.0	0	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	0	0.0	0	0.0	0	0.0

Number and percentage (%) are based on available information.

	Actual Refraction - Phaco																			
Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Power (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N	8342	100	12154	100	12891	100	15485	100	17197	100	17931	100	22173	100	25325	100	27467	100	31587	100
-5.0-<(-4.5)	15	0.2	13	0.1	14	0.1	13	0.1	11	0.1	13	0.1	11	0.0	8	0.0	6	0.0	9	0.0
-4.5-<(-4.0)	30	0.4	19	0.2	14	0.1	17	0.1	19	0.1	21	0.1	15	0.1	16	0.1	18	0.1	13	0.0
-4.0-<(-3.5)	49	0.6	17	0.1	44	0.3	41	0.3	35	0.2	37	0.2	31	0.1	35	0.1	29	0.1	37	0.1
-3.5-<(-3.0)	97	1.2	20	0.2	80	0.6	81	0.5	74	0.4	74	0.4	69	0.3	74	0.3	50	0.2	69	0.2
-3.0-<(-2.5)	200	2.4	55	0.5	212	1.6	190	1.2	163	0.9	164	0.9	169	0.8	172	0.7	160	0.6	149	0.5
-2.5-<(-2.0)	405	4.9	85	0.7	448	3.5	436	2.8	450	2.6	451	2.5	383	1.7	451	1.8	372	1.4	403	1.3
-2.0-<(-1.5)	746	8.9	164	1.3	1067	8.3	1067	6.9	1138	6.6	1100	6.1	1079	4.9	1187	4.7	1211	4.4	1271	4.0
-1.5-<(-1.0)	1382	16.6	423	3.5	2115	16.4	2390	15.4	2701	15.7	2700	15.1	2993	13.5	3280	13.0	3474	12.6	3801	12.0
-1.0-<(-0.5)	1771	21.2	1408	11.6	3232	25.1	3870	25.0	4461	25.9	4716	26.3	5735	25.9	6776	26.8	7640	27.8	8683	27.5
-0.5-<0.0	1884	22.6	3167	26.1	3143	24.4	3941	25.5	4570	26.6	4753	26.5	6610	29.8	7865	31.1	8768	31.9	10415	33.0
0.0-<0.5	1069	12.8	3534	29.1	1680	13.0	2177	14.1	2350	13.7	2562	14.3	3403	15.3	3761	14.9	3988	14.5	4698	14.9
0.5-<1.0	399	4.8	1740	14.3	513	4.0	772	5.0	762	4.4	844	4.7	1081	4.9	1130	4.5	1158	4.2	1364	4.3
1.0-<1.5	142	1.7	786	6.5	168	1.3	265	1.7	249	1.4	277	1.5	317	1.4	320	1.3	338	1.2	368	1.2
1.5-<2.0	55	0.7	365	3.0	66	0.5	99	0.6	90	0.5	85	0.5	123	0.6	98	0.4	97	0.4	118	0.4
2.0-<2.5	14	0.2	156	1.3	21	0.2	38	0.2	42	0.2	44	0.2	44	0.2	47	0.2	40	0.1	63	0.2
2.5-<3.0	15	0.2	55	0.5	10	0.1	14	0.1	17	0.1	17	0.1	18	0.1	19	0.1	18	0.1	30	0.1
3.0-<3.5	13	0.2	30	0.2	8	0.1	10	0.1	13	0.1	11	0.1	11	0.0	9	0.0	17	0.1	10	0.0
3.5-<4.0	4	0.0	22	0.2	4	0.0	5	0.0	4	0.0	7	0.0	4	0.0	8	0.0	12	0.0	7	0.0
4.0-<4.5	3	0.0	10	0.1	3	0.0	5	0.0	2	0.0	6	0.0	11	0.0	7	0.0	10	0.0	12	0.0
4.5-<5.0	4	0.0	4	0.0	2	0.0	2	0.0	4	0.0	1	0.0	6	0.0	3	0.0	6	0.0	7	0.0
5.0-<5.5	1	0.0	1	0.0	2	0.0	4	0.0	4	0.0	1	0.0	3	0.0	2	0.0	9	0.0	2	0.0

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

Number and percentage (%) are based on available information.

	Difference between Target and Actual Refraction - Phaco																			
Year	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016	
Power (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
N	5782	100	8803	100	10842	100	13653	100	14906	100	14738	100	17438	100	20484	100	22948	100	27791	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	5	0.0	5	0.0	4	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	10	0.0	6	0.0	5	0.0
-4.0-<(-3.5)	28	0.5	18	0.2	24	0.2	28	0.2	14	0.1	18	0.1	10	0.1	16	0.1	15	0.1	16	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	35	0.2	24	0.1	37	0.1
-3.0-<(-2.5)	93	1.6	103	1.2	95	0.9	110	0.8	81	0.5	100	0.7	92	0.5	84	0.4	66	0.3	69	0.2
-2.5-<(-2.0)	176	3.0	245	2.8	243	2.2	198	1.5	192	1.3	204	1.4	184	1.1	223	1.1	167	0.7	163	0.6
-2.0-<(-1.5)	311	5.4	541	6.1	475	4.4	520	3.8	532	3.6	533	3.6	473	2.7	568	2.8	472	2.1	516	1.9
-1.5-<(-1.0)	595	10.3	1052	12.0	1149	10.6	1294	9.5	1391	9.3	1300	8.8	1366	7.8	1534	7.5	1511	6.6	1541	5.5
-1.0-<(-0.5)	994	17.2	1984	22.5	2151	19.8	2685	19.7	3081	20.7	3005	20.4	3424	19.6	3847	18.8	4269	18.6	4768	17.2
-0.5-<0.0	1367	23.6	2278	25.9	2877	26.5	3712	27.2	4411	29.6	4269	29.0	5382	30.9	6538	31.9	7435	32.4	8948	32.2
0.0-<0.5	1179	20.4	1434	16.3	2246	20.7	3054	22.4	3276	22.0	3258	22.1	4129	23.7	4974	24.3	5819	25.4	7625	27.4
0.5-<1.0	573	9.9	558	6.3	977	9.0	1312	9.6	1250	8.4	1341	9.1	1545	8.9	1813	8.9	2239	9.8	2898	10.4
1.0-<1.5	225	3.9	214	2.4	310	2.9	398	2.9	399	2.7	401	2.7	484	2.8	506	2.5	581	2.5	793	2.9
1.5-<2.0	73	1.3	97	1.1	125	1.2	156	1.1	99	0.7	144	1.0	167	1.0	168	0.8	184	0.8	196	0.7
2.0-<2.5	32	0.6	46	0.5	43	0.4	56	0.4	61	0.4	45	0.3	46	0.3	58	0.3	51	0.2	77	0.3
2.5-<3.0	14	0.2	26	0.3	14	0.1	20	0.1	19	0.1	19	0.1	22	0.1	29	0.1	27	0.1	43	0.2

3.0-<3.5	13	0.2	15	0.2	5	0.0	10	0.1	12	0.1	10	0.1	6	0.0	12	0.1	15	0.1	27	0.1
3.5-<4.0	8	0.1	15	0.2	8	0.1	10	0.1	4	0.0	6	0.0	7	0.0	6	0.0	8	0.0	5	0.0
4.0-<4.5	3	0.0	12	0.1	3	0.0	4	0.0	3	0.0	2	0.0	4	0.0	6	0.0	7	0.0	6	0.0
4.5-<5.0	3	0.0	12	0.1	2	0.0	3	0.0	0	0.0	2	0.0	7	0.0	6	0.0	7	0.0	9	0.0
5.0-<5.5	9	0.2	9	0.1	1	0.0	2	0.0	1	0.0	0	0.0	2	0.0	3	0.0	8	0.0	7	0.0

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

Number and percentage (%) are based on available information.

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

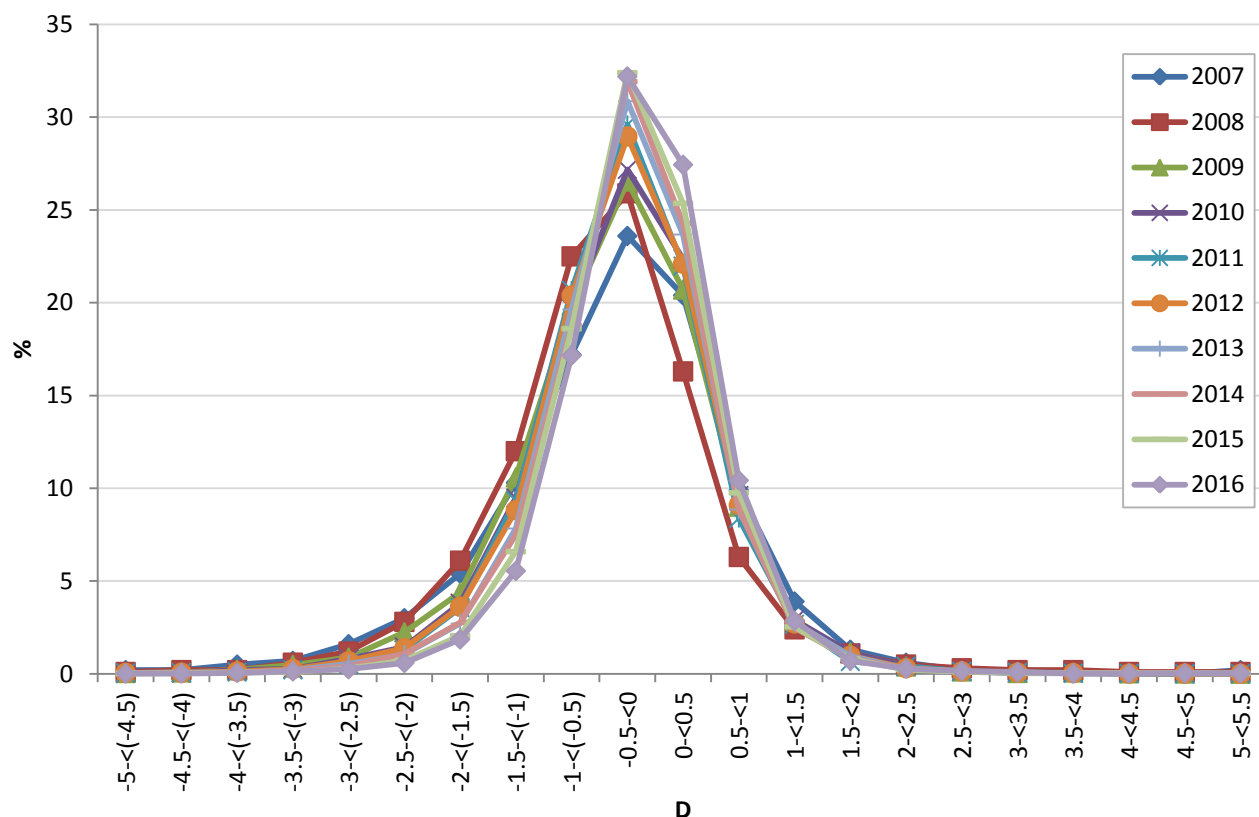


Figure 1.5.10-3: Difference in Target and Actual Refractive Power (Phaco), CSR 2007-2016

Table 1.5.10-4: Difference Between Target and Actual Refractive Power within $\pm 1.0D$ by SDP in Phaco and ECCE, CSR 2016

Hospital	All			By Phacoemulsification			By ECCE		
	No. of patient with available difference	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with available difference	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with available difference	Difference between Target and Actual Refraction within $\pm 1.0D$	
	N	n	%	N	n	%	N	n	%
All centre	30744	26186	85.2	27791	24239	87.2	2073	1407	67.9
Alor Setar	1941	1640	84.5	1739	1515	87.1	172	108	62.8
Ampang	427	329	77.0	334	267	79.9	71	49	69.0
Batu Pahat	263	218	82.9	240	203	84.6	13	11	84.6
Bintulu	0	0	0.0	0	0	0.0	0	0	0.0
Bukit Mertajam	1039	904	87.0	857	766	89.4	173	135	78.0

Ipoh	2237	1918	85.7	2073	1824	88.0	105	66	62.9
Kangar	594	530	89.2	472	430	91.1	110	90	81.8
Kemaman	15	14	93.3	10	10	100.0	4	3	75.0
Keningau	252	198	78.6	236	191	80.9	14	6	42.9
Klang	188	153	81.4	165	138	83.6	15	12	80.0
Kota Bharu	645	529	82.0	449	388	86.4	161	118	73.3
Kuala Krai	217	173	79.7	162	142	87.7	47	25	53.2
Kuala Lumpur	387	334	86.3	333	298	89.5	37	26	70.3
Kuala Pilah	399	328	82.2	357	302	84.6	15	9	60.0
Kuala Terengganu	702	596	84.9	566	506	89.4	100	69	69.0
Kuantan	721	623	86.4	592	526	88.9	88	66	75.0
Kulim	488	418	85.7	429	379	88.3	53	36	67.9
Langkawi	18	12	66.7	15	11	73.3	3	1	33.3
Likas	6	3	50.0	0	0	0.0	0	0	0.0
Melaka	1812	1636	90.3	1697	1565	92.2	73	46	63.0
Miri	649	603	92.9	619	582	94.0	19	15	78.9
Muar	895	747	83.5	855	722	84.4	15	8	53.3
Pulau Pinang	2285	1930	84.5	2207	1888	85.5	39	21	53.8
Putrajaya	378	324	85.7	311	281	90.4	47	30	63.8
Queen Elizabeth KK	470	379	80.6	422	346	82.0	35	23	65.7
Sandakan	244	202	82.8	210	177	84.3	28	21	75.0
Sarawak	1288	1116	86.6	1251	1094	87.5	7	5	71.4
Sarikei	233	200	85.8	224	194	86.6	4	2	50.0
Segamat	80	56	70.0	64	47	73.4	6	3	50.0
Selayang	621	542	87.3	574	516	89.9	12	6	50.0
Serdang	296	249	84.1	274	233	85.0	13	10	76.9
Seremban	1159	933	80.5	1051	867	82.5	77	49	63.6
Shah Alam	134	121	90.3	126	114	90.5	3	3	100.0
Sibu	568	495	87.1	545	478	87.7	5	5	100.0
Sri Manjung	528	406	76.9	511	395	77.3	10	6	60.0
Sultan Ismail	648	521	80.4	608	495	81.4	22	16	72.7
Sultanah Aminah JB	975	787	80.7	904	742	82.1	25	14	56.0
Sungai Buloh	155	110	71.0	135	104	77.0	6	2	33.3
Sungei Petani	827	697	84.3	732	639	87.3	66	37	56.1
Taiping	1391	1256	90.3	1198	1118	93.3	173	124	71.7
Tanah Merah	0	0	0.0	0	0	0.0	0	0	0.0
Tawau	360	295	81.9	310	266	85.8	39	25	64.1
Teluk Intan	955	844	88.4	856	770	90.0	72	53	73.6
Temerloh	728	591	81.2	625	531	85.0	63	34	54.0
KK1M Johor	38	32	84.2	37	31	83.8	1	1	100.0
KK1M Kedah	220	196	89.1	216	194	89.8	2	1	50.0
KK1M Kelantan	33	23	69.7	17	14	82.4	14	7	50.0
KK1M Neg. Sembilan	148	103	69.6	139	97	69.8	1	1	100.0
KK1M Pahang	91	76	83.5	83	69	83.1	5	4	80.0
KK1M Pulau Pinang	60	51	85.0	57	50	87.7	1	0	0.0
KK1M Terengganu	0	0	0.0	0	0	0.0	0	0	0.0
KK1M Sabah	117	93	79.5	114	92	80.7	3	1	33.3
KK1M Sarawak	508	428	84.3	497	421	84.7	3	2	66.7
MAIWP	1311	1224	93.4	1293	1211	93.7	3	2	66.7

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

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

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

Table 1.5.10-5: Post-operative Visual Acuity and Week of Outcome Notification, CSR 2016

Post op week	Unaided VA*									
	6/12 and better		<6/12-6/18		<6/18-6/60		<6/60-3/60		<3/60	
	n	%	n	%	n	%	n	%	n	%
1 week	447	1.9	202	2.5	322	3.3	33	3.1	110	4.4
2–4 weeks	1635	7.0	638	7.9	710	7.2	87	8.3	231	9.3
5–12 weeks	19926	85.7	6854	84.6	8141	82.3	855	81.6	1969	79.0
13–20 weeks	717	3.1	219	2.7	318	3.2	36	3.4	61	2.4
21–30 weeks	79	0.3	25	0.3	48	0.5	0	0.0	10	0.4
31–60 weeks	28	0.1	12	0.1	16	0.2	4	0.4	4	0.2
>60 weeks	2	0.0	1	0.0	0	0.0	0	0.0	1	0.0
(Missing)	415	1.8	155	1.9	338	3.4	33	3.1	106	4.3
Total	23249		8106		9893		1048		2492	

*Missing of unaided VA = 5837cases.

Post op week	Refracted VA*									
	6/12 and better		<6/12-6/18		<6/18-6/60		<6/60-3/60		<3/60	
	n	%	n	%	n	%	n	%	n	%
1 week	213	0.6	18	0.8	30	1.2	4	1.1	29	2.8
2–4 weeks	2,512	7.0	158	7.4	179	6.9	39	10.5	86	8.3
5–12 weeks	31459	88.2	1851	86.4	2241	86.5	306	82.3	854	82.3
13–20 weeks	1070	3.0	74	3.5	94	3.6	16	4.3	26	2.5
21–30 weeks	136	0.4	6	0.3	11	0.4	0	0.0	5	0.5
31–60 weeks	44	0.1	8	0.4	4	0.2	4	1.1	3	0.3
>60 weeks	3	0.0	0	0.0	1	0.0	0	0.0	0	0.0
(Missing)	218	0.6	27	1.3	31	1.2	3	0.8	35	3.4
Total	35655		2142		2591		372		1038	

*Missing of refracted VA = 8827 cases.

Additional:

Post op week	Unaided VA*						Refracted VA**					
	Good (≤6/18)		Borderline (<6/18–6/60)		Poor (<6/60)		Good (≤6/18)		Borderline (<6/18–6/60)		Poor (<6/60)	
	n	%	n	%	n	%	n	%	n	%	n	%
1 week	649	2.1	322	3.3	143	4.0	231	0.6	30	1.2	33	2.3
2–4 weeks	2273	7.2	710	7.2	318	9.0	2670	7.1	179	6.9	125	8.9
5–12 weeks	26780	85.4	8141	82.3	2824	79.8	33310	88.1	2241	86.5	1160	82.3
13–20 weeks	936	3.0	318	3.2	97	2.7	1144	3.0	94	3.6	42	3.0
21–30 weeks	104	0.3	48	0.5	10	0.3	142	0.4	11	0.4	5	0.4
31–60 weeks	40	0.1	16	0.2	8	0.2	52	0.1	4	0.2	7	0.5
>60 weeks	3	0.0	0	0.0	1	0.0	3	0.0	1	0.0	0	0.0
(Missing)	570	1.8	338	3.4	139	3.9	245	0.6	31	1.2	38	2.7
Total	31355		9893		3540		37797		2591		1410	

*Missing of unaided VA = 5837cases.

**Missing of refracted VA = 8827 cases.

CHAPTER 2

KLINIK KATARAK 1MALAYSIA 2016

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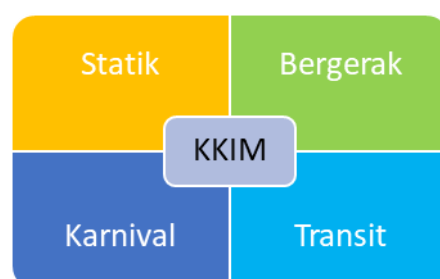
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CHAPTER 2: KLINIK KATARAK 1MALAYSIA

Klinik Katarak 1Malaysia (KK1M) is the outreach arm of the MOH Cataract Surgical Services which consists of KK1M mobile, transit, static and carnival. These services were categorised by state and named after the hospital where the surgery was performed. KK1M Static is designated for *Pusat Pembedahan Katarak Majlis Agama Islam Wilayah Persekutuan-Hospital Selayang (PPKM-HS)* and reported separately. This chapter focused on the calculation and analysis for KK1M mobile, transit and carnival.



Note:

KK1M Mobile = Surgery at hospitals without Ophthalmologists with involvement of a mobile unit to transport surgical equipment

KK1M Transit = Surgery at hospitals without Ophthalmologists without involvement of a mobile unit to transport surgical equipment

KK1M Carnival = Surgery at hospitals with Ophthalmologists (mass surgery during weekends)

2.1 Stock and Flow

The number of SDP varies, depending on location and period of service. The operational KK1M mobiles are KK1M Sarawak and KK1M Eastern Zone (consists of KK1M Kelantan, KK1M Terengganu and KK1M Pahang). KK1M transit can be organized in any hospitals throughout the country.

2.1.1 Stock and Flow

Table 2.1.1-1: Stock and Flow, CSR 2013-2016

Year	2013	2014	2015	2016
No. of SDP	6	18	25	24
Total no. of cataract surgery registered to CSR	140	1055	1704	2159
	n %	n %	n %	n %
Cataract surgery with visual outcome records	98 70.0	863 81.8	1455 85.4	1765 81.8

Excluding KK1M Static

2.2 Characteristics of Patients

2.2.1 Demography

Table 2.2.1-1: Age Distribution, CSR 2013-2016

The mean age for patients presenting for cataract surgery in KK1M was older than those presenting in a hospital setting

Year	2013		2014		2015		2016	
Total number of cataract surgery	140		1055		1704		2159	
Age								
Mean (years)	67.4		68.6		68.4		67.5	
Median (years)	69		69		69		68	
Minimum (years)	47		34		33		25	
Maximum (years)	89		95		97		98	
% Distribution								
Age group, years	n	%	n	%	n	%	n	%
0-4	0	0.0	0	0.0	0	0.0	0	0.0
5-9	0	0.0	0	0.0	0	0.0	0	0.0
10-14	0	0.0	0	0.0	0	0.0	0	0.0
15-19	0	0.0	0	0.0	0	0.0	0	0.0
20-24	0	0.0	0	0.0	0	0.0	0	0.0
25-29	0	0.0	0	0.0	0	0.0	1	0.1
30-34	0	0.0	1	0.1	2	0.1	3	0.1
35-39	0	0.0	1	0.1	1	0.1	2	0.1
40-44	0	0.0	10	1.0	6	0.4	13	0.6
45-49	5	3.6	19	1.8	23	1.4	40	1.9
50-54	10	7.1	31	2.9	54	3.2	106	4.9
55-59	10	7.1	92	8.7	166	9.7	214	9.9
60-64	22	15.7	164	15.6	308	18.1	379	17.6
65-69	28	20.0	241	22.8	350	20.5	503	23.3
70-74	35	25.0	217	20.6	371	21.8	455	21.1
75-79	22	15.7	159	15.1	255	15.0	258	12.0
≥80	8	5.7	120	11.4	168	9.9	185	8.6
Missing	0	0.0	0	0.0	0	0.0	0	0.0
Gender								
Male	59	42.1	495	46.9	832	48.8	1073	49.7
Female	81	57.9	560	53.1	872	51.2	1086	50.3
Missing	0	0.0	0	0.0	0	0.0	0	0.0

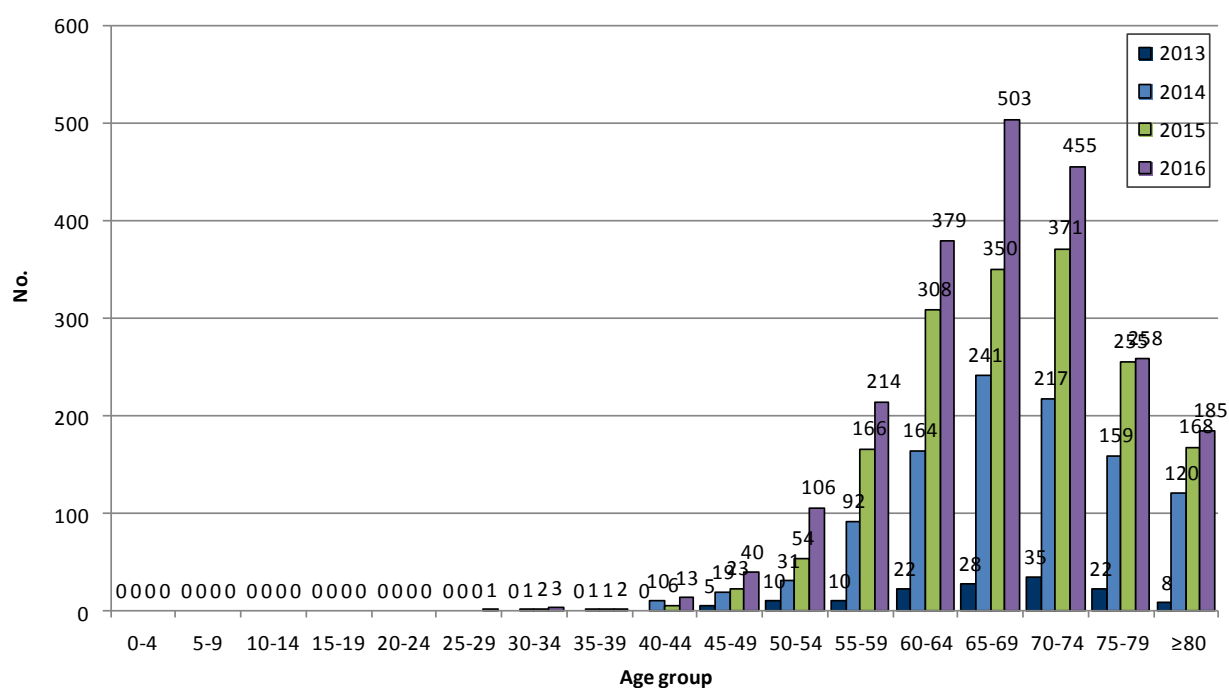


Figure 2.2.1-1: Age Distribution, CSR 2013-2016

2.2.2 Systemic Co-Morbidity

Table 2.2.2-1: Distribution of Systemic Co-morbidity, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
Percentage of patients with any systemic co-morbidity	65.7		57.3		65.6		72.0	
Percentage of patients with specific systemic co-morbidity								
	n	%	n	%	n	%	n	%
1. Hypertension	72	51.4	500	47.4	980	57.5	1339	78.6
2. Diabetes Mellitus	45	32.1	259	24.5	510	29.9	781	45.8
3. Ischaemic Heart Disease	2	1.4	11	1.0	43	2.5	79	4.6
4. Renal Failure	0	0.0	6	0.6	16	0.9	32	1.9
5. Cerebrovascular accident	1	0.7	3	0.3	7	0.4	16	0.9
6. COAD/Asthma	2	1.4	24	2.3	31	1.8	53	3.1
7. Others	12	8.6	55	5.2	112	6.6	250	14.7

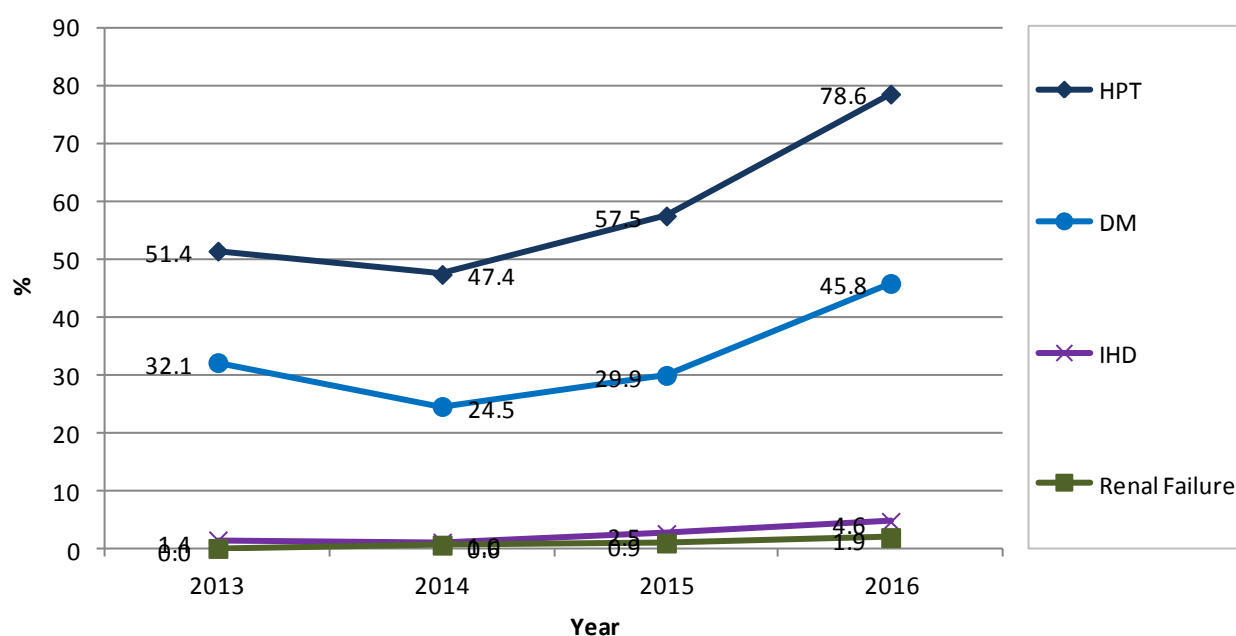


Figure 2.2.2-1: Percentage of Patients with Specific Systemic Co-morbidity, CSR 2013-2016

2.2.3 Causes of Cataract

Table 2.2.3-1: Causes of Cataract, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Primary cataract	139	99.3	1043	98.9	1693	99.4	2148	99.5
Secondary cataract	1	0.7	3	0.3	2	0.1	5	0.2
Missing value	0	0.0	9	0.9	9	0.5	6	0.3
Primary Cataract (N)	139		1043		1693		2148	
	n	%	n	%	n	%	n	%
Senile/age related	136	97.8	1039	99.6	1672	98.8	2135	99.4
Congenital	0	0.0	0	0.0	0	0.0	0	0.0
Development	0	0.0	0	0.0	0	0.0	4	0.2
Others	3	2.2	4	0.4	21	1.2	9	0.4
Secondary Cataract (N)	1		3		2		5	
	n	%	n	%	n	%	n	%
Trauma	1	100.0	3	100.0	2	100.0	3	60.0
Drug induced	0	0.0	0	0.0	0	0.0	0	0.0
Surgery induced	0	0.0	0	0.0	0	0.0	1	20.0
Others	0	0.0	0	0.0	0	0.0	1	20.0

2.2.4 First or Second Eye Surgery

The percentage of patients presented for the second eye surgeries was 28.3% (as compared to total MOH 35.9% in 2016). The value was expected for KK1M as it was operational in rural settings.

Table 2.2.4-1: First or Second Eye Surgery, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
First eye surgery	132	94.3	850	80.6	1305	76.6	1547	71.7
Fellow eye surgery	8	5.7	205	19.4	399	23.4	611	28.3
Missing	0	0.0	0	0.0	0	0.0	1	0.0
Patients who had second surgery in the same year	2	1.4	58	5.5	111	6.5	151	7.0
Period of time between first and fellow eye surgery (months)								
N	8		205		396		610	
Mean	36.7		75.9		48.1		48.4	
SD	21.8		68.6		64.1		65.2	
Median	43.0		50.1		12.0		13.0	
Patients who had cataract surgery before	620		205		399		611	
	n	%	n	%	n	%	n	%
Eyes with intra-operative complications during surgery in the first eye	0	0.0	2	1.0	4	1.0	15	2.5

2.2.5 Past Ocular Surgery of the Operated Eye

Table 2.2.5-1: Past Ocular Surgery of the Operated Eye, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients	104		1055		1704		2159	
No. of eyes with past ocular surgery record (N)	129		1042		1649		2122	
	n	%	n	%	n	%	n	%
Patients with no past ocular surgery	129	100.0	1037	99.5	1634	99.1	2105	99.2
Vitreoretinal surgery	0	0.0	1	0.1	1	0.1	3	0.1
Pterygium excision	0	0.0	3	0.3	13	0.8	11	0.5
Filtering surgery	0	0.0	0	0.0	0	0.0	1	0.0
Penetrating keratoplasty	0	0.0	0	0.0	0	0.0	0	0.0
Others	0	0.0	1	0.1	1	0.1	2	0.1

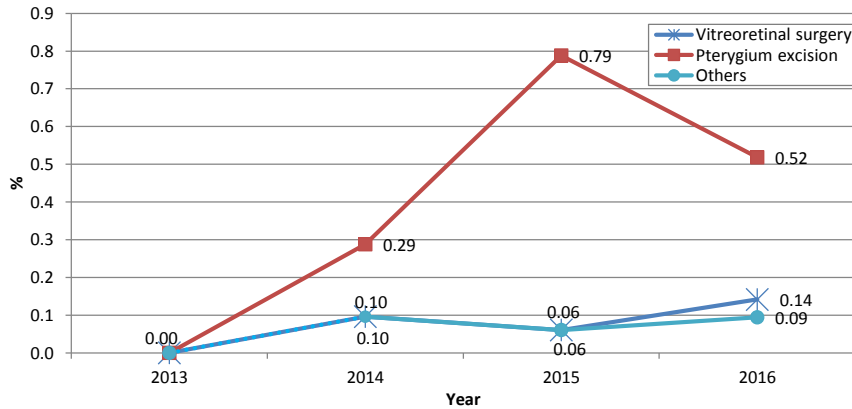


Figure 2.2.5-1: Distribution of Past Ocular Surgery of the Operated Eye, CSR 2013-2016

2.2.6 Pre-existing Ocular Co-morbidity

Table 2.2.6-1: Distribution of Pre-existing Ocular Co-morbidity, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Patients with any ocular co-morbidity	47	33.6	256	24.3	239	14.0	417	19.3
Patients with specific ocular co-morbidity								
<u>Anterior segment</u>								
1. Glaucoma	2	1.4	9	0.9	32	1.9	54	2.5
2. Pterygium involving the cornea	4	2.9	17	1.6	5	0.3	24	1.1
3. Pseudoexfoliation	1	0.7	3	0.3	4	0.2	11	0.5
4. Corneal opacity	0	0.0	2	0.2	5	0.3	14	0.6
5. Chronic uveitis	0	0.0	0	0.0	0	0.0	0	0.0
<u>Len related complication</u>								
1. Phacomorphic	0	0.0	0	0.0	0	0.0	0	0.0
2. Phacolytic	0	0.0	0	0.0	0	0.0	0	0.0
3. Subluxated/Disclosed	0	0.0	0	0.0	0	0.0	0	0.0
<u>Posterior segment</u>								
1. Diabetic Retinopathy: Non Proliferative	1	0.7	9	0.9	45	2.6	97	4.5
2. Diabetic Retinopathy: Proliferative	0	0.0	0	0.0	7	0.4	22	1.0
3. Diabetic Retinopathy: CSME*	0	0.0	1	0.1	10	0.6	22	1.0
4. Diabetic Retinopathy: Vitreous haemorrhage	0	0.0	0	0.0	0	0.0	0	0.0
5. ARMD	3	2.1	4	0.4	8	0.5	21	1.0
6. Other macular disease (includes hole or	0	0.0	2	0.2	5	0.3	10	0.5

scar)								
7. Optic nerve disease, any type	0	0.0	0	0.0	5	0.3	7	0.3
8. Retinal detachment	0	0.0	0	0.0	0	0.0	3	0.1
9. Cannot be assessed	34	24.3	204	19.3	121	7.1	136	6.3
Miscellaneous								
1. Amblyopia	0	0.0	1	0.1	1	0.1	0	0.0
2. Significant previous eye trauma	0	0.0	1	0.1	0	0.0	1	0.0
3. Pre-existing non glaucoma field defect	0	0.0	0	0.0	0	0.0	0	0.0
4. Others	8	5.7	11	1.0	29	1.7	44	2.0

*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

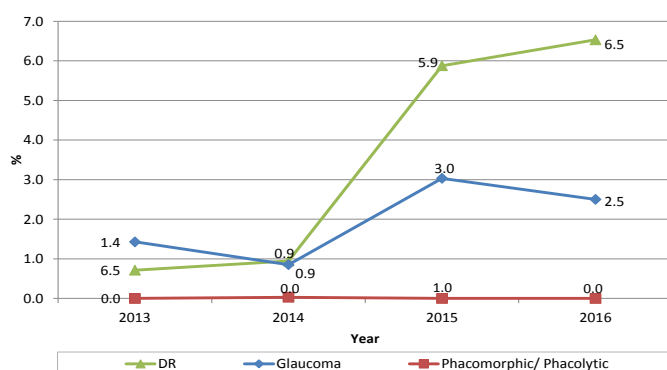


Figure 2.2.6-1: Distribution of Eyes with Specific Ocular Co-morbidity, CSR 2013-2016

2.2.7 Pre-operative Vision

Most patients presented with blindness, VA <3/60 (47.4% in 2014) as compared to total MOH (41.4% at same level of VA)

Table 2.2.7-1: Distribution of Pre-Operative Vision, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Patients with unaided VA	136	97.1	1048	99.3	1669	97.9	2146	99.4
Patients with pinhole VA	78	55.7	313	29.7	482	28.3	1691	78.3
Patients with refracted VA	29	20.7	56	5.3	262	15.4	577	26.7
Patients with no refraction	108	77.1	992	94.0	1410	82.7	1570	72.7

6/12 and better	Unaided	3	2.2	16	1.5	39	2.3	58	2.7
	Pinhole	5	6.4	39	12.5	80	16.6	203	12.0
	Refracted	1	3.4	6	10.7	52	19.8	125	21.7
<6/12 - 6/18	Unaided	1	0.7	42	4.0	106	6.4	115	5.4
	Pinhole	6	7.7	45	14.4	110	22.8	247	14.6
	Refracted	5	17.2	12	21.4	55	21.0	102	17.7
<6/18 - 6/60	Unaided	46	33.8	325	31.0	589	35.3	818	38.1
	Pinhole	34	43.6	139	44.4	193	40.0	549	32.5
	Refracted	13	44.8	16	28.6	85	32.4	192	33.3
<6/60 - 3/60	Unaided	5	3.7	45	4.3	112	6.7	138	6.4
	Pinhole	3	3.8	10	3.2	21	4.4	71	4.2
	Refracted	3	10.3	1	1.8	13	5.0	21	3.6
<3/60	Unaided	81	59.6	620	59.2	823	49.3	1017	47.4
	Pinhole	30	38.5	80	25.6	78	16.2	621	36.7
	Refracted	7	24.1	21	37.5	57	21.8	137	23.7
Unaided VA for patient with no refraction									
n		108		992		1410		1570	
6/12 and better		2	1.9	14	1.4	23	1.6	26	1.7
<6/12 - 6/18		0	0.0	35	3.5	75	5.3	56	3.6
<6/18 - 6/60		30	27.8	303	30.5	462	32.8	556	35.4
<6/60 - 3/60		3	2.8	44	4.4	99	7.0	86	5.5
<3/60		73	67.6	596	60.1	751	53.3	846	53.8

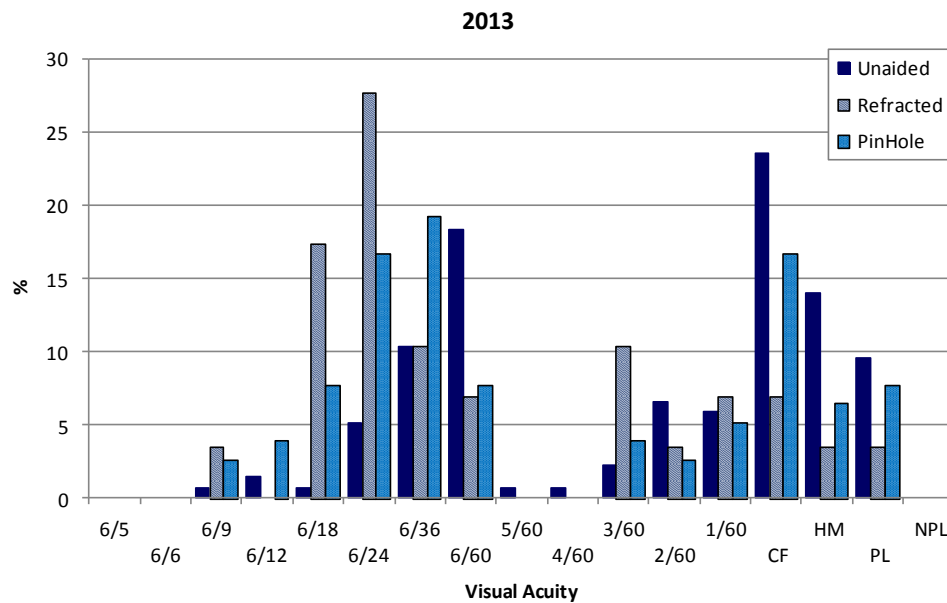


Figure 2.2.7-1: Distribution of Pre-Operative Vision (Unaided/presenting and refracted), CSR 2013

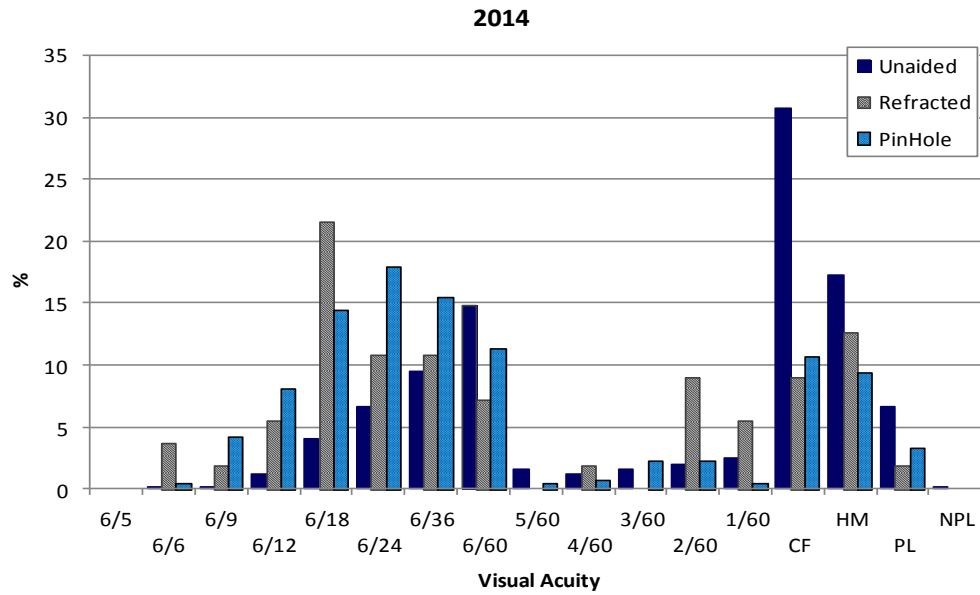


Figure 2.2.7-2: Distribution of Pre-Operative Vision (Unaided/presenting and refracted), CSR 2014

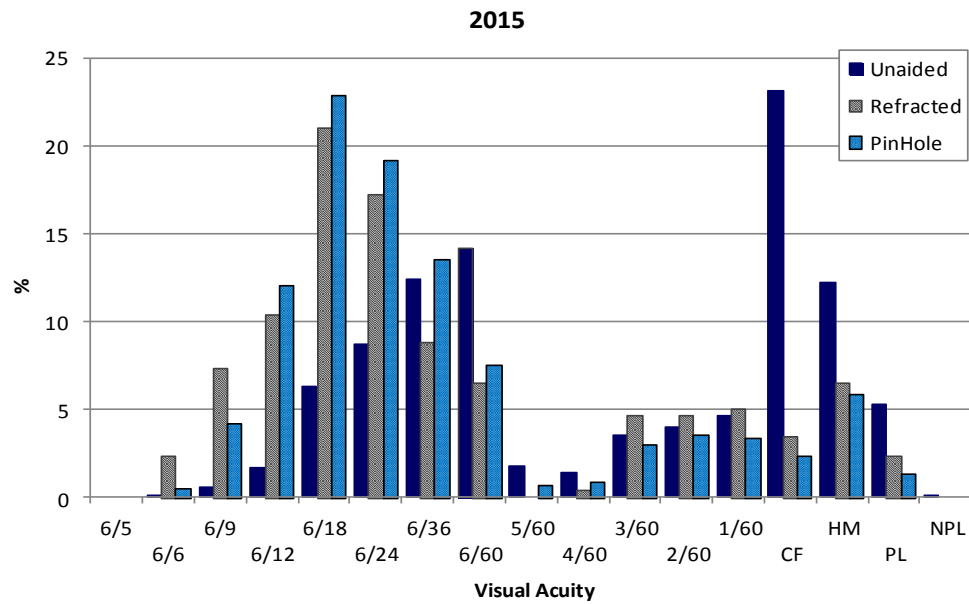


Figure 2.2.7-3: Distribution of Pre-Operative Vision (Unaided/presenting and refracted), CSR 2015

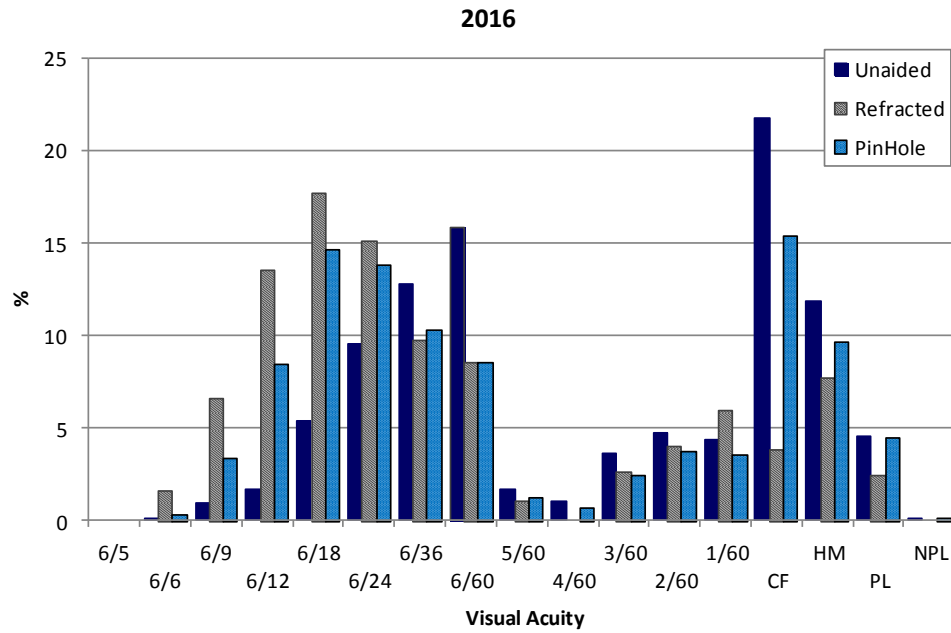


Figure 2.2.7-4: Distribution of Pre-Operative Vision (Unaided/presenting and refracted), CSR 2016

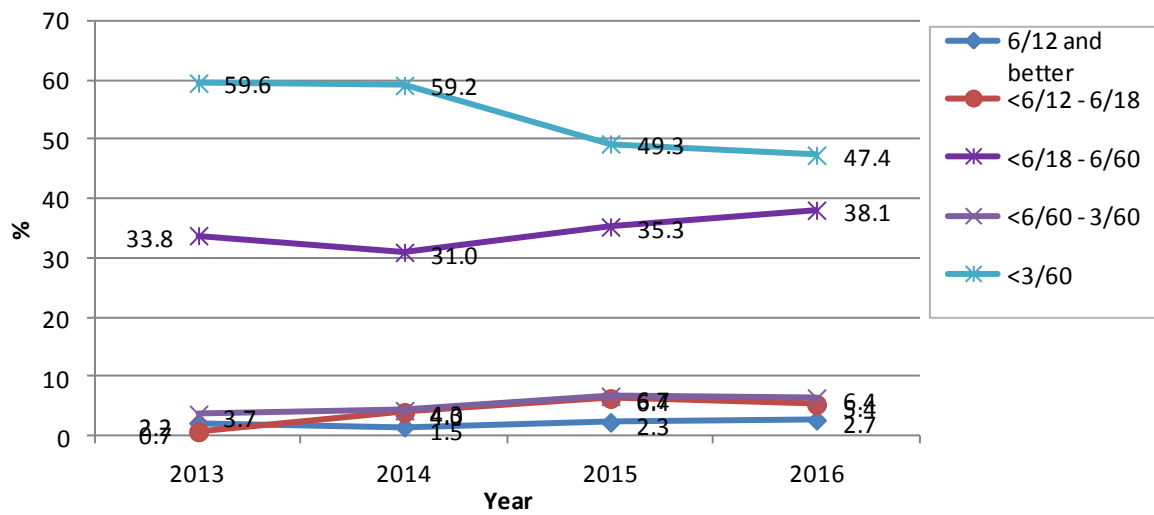


Figure 2.2.7-5: Distribution of Pre-Operative Vision (Unaided/presenting), CSR 2013-2016

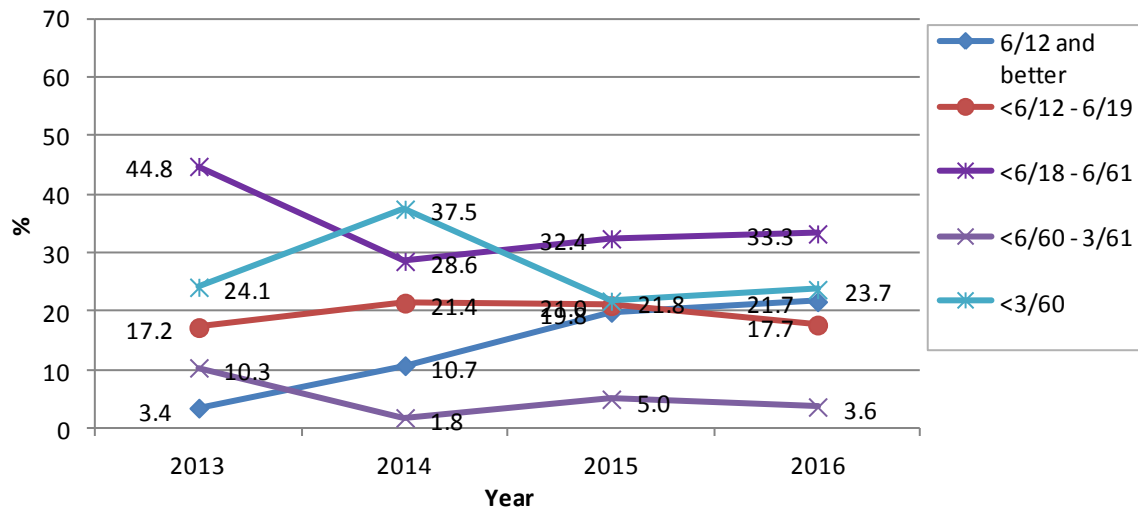


Figure 2.2.7-6: Distribution of Pre-Operative Vision (Refracted), CSR 2013-2016

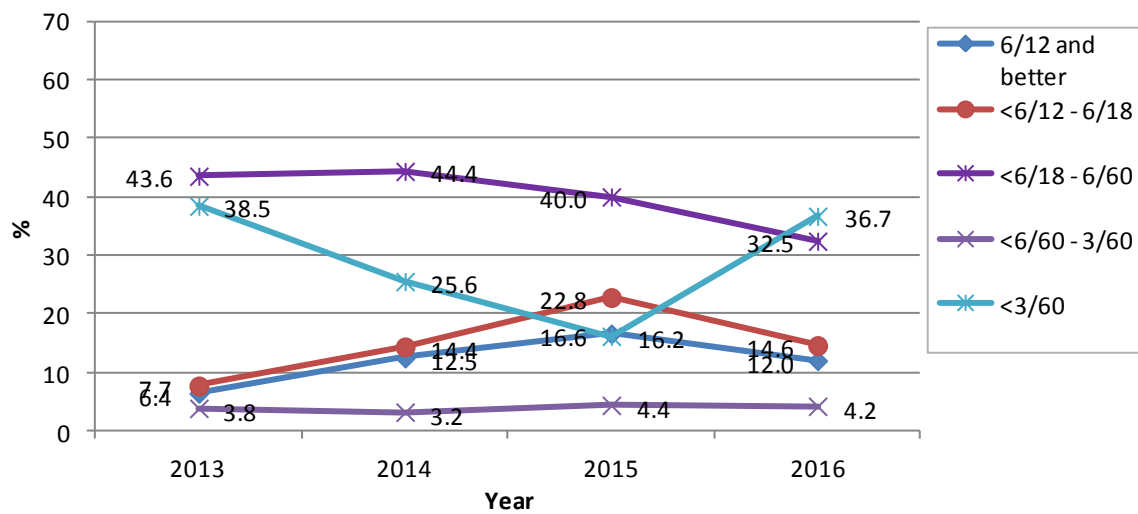


Figure 2.2.7-7: Distribution of Pre-Operative Vision (Pin Hole), CSR 2013-2016

2.2.8 Targeted Refractive Power

Table 2.2.8-1: Distribution of Targeted Refractive Power, CSR 2013-2016

Year	2013	2014	2015	2016
Operated eye (N)	139	894	1598	2090
Mean	-0.3	-0.3	-0.3	-0.4
SD	0.2	0.2	0.2	0.2
Median	-0.3	-0.2	-0.3	-0.4
Minimum	-0.8	-1.6	-2.1	-3.2
Maximum	0.0	0.5	1.3	0.7

Table 2.2.8-2: Distribution of Targeted Refractive Power, CSR 2013-2016

Year	2013		2014		2015		2016	
Target refractive power (Dioptres)	Operated eye N=139		Operated eye N=894		Operated eye N=1598		Operated eye N=2090	
	n	%	n	%	n	%	n	%
-10-<(-9.5)	0	0.0	0	0.0	0	0.0	0	0.0
-9.5-<(-9)	0	0.0	0	0.0	0	0.0	0	0.0
-9-<(-8.5)	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	0.0
-8-<(-7.5)	0	0.0	0	0.0	0	0.0	0	0.0
-7.5-<(-7)	0	0.0	0	0.0	0	0.0	0	0.0
-7-<(-6.5)	0	0.0	0	0.0	0	0.0	0	0.0
-6.5-<(-5)	0	0.0	0	0.0	0	0.0	0	0.0
-5-<(-4.5)	0	0.0	0	0.0	0	0.0	0	0.0
-4.5-<(-4)	0	0.0	0	0.0	0	0.0	0	0.0
-4-<(-3.5)	0	0.0	0	0.0	0	0.0	0	0.0
-3.5-<(-3)	0	0.0	0	0.0	0	0.0	1	0.1
-3-<(-2.5)	0	0.0	0	0.0	0	0.0	0	0.0
-2.5-<(-2)	0	0.0	0	0.0	1	0.1	0	0.0
-2-<(-1.5)	0	0.0	1	0.1	1	0.1	3	0.1
-1.5-<(-1)	0	0.0	0	0.0	2	0.1	4	0.2
-1-<(-0.5)	18	13.0	67	7.5	130	8.1	404	19.3
-0.5-<0	120	86.3	822	92.0	1454	91.0	1666	79.7
0-<0.5	1	0.7	3	0.3	5	0.3	8	0.4
0.5-<1	0	0.0	1	0.1	2	0.1	4	0.2
1-<1.5	0	0.0	0	0.0	3	0.2	0	0.0
1.5-<2	0	0.0	0	0.0	0	0.0	0	0.0
2-<2.5	0	0.0	0	0.0	0	0.0	0	0.0
2.5-<3	0	0.0	0	0.0	0	0.0	0	0.0
3-<3.5	0	0.0	0	0.0	0	0.0	0	0.0
3.5-<4	0	0.0	0	0.0	0	0.0	0	0.0
4-<4.5	0	0.0	0	0.0	0	0.0	0	0.0
4.5-<5	0	0.0	0	0.0	0	0.0	0	0.0

5-<5.5	0	0.0	0	0.0	0	0.0	0	0.0
5.5-<6	0	0.0	0	0.0	0	0.0	0	0.0
6-<6.5	0	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
7-<7.5	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
8-<8.5	0	0.0	0	0.0	0	0.0	0	0.0
8.5-<9	0	0.0	0	0.0	0	0.0	0	0.0
9-<9.5	0	0.0	0	0.0	0	0.0	0	0.0
9.5-10	0	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.

2.3 Cataract Surgical Practices

2.3.1 Number of Cataract Surgery Registered to CSR by State

Table 2.3.1-1: Number of Cataract Surgery Registered to CSR by State, CSR 2013-2016

State	2013	2014	2015	2016
Johor	-	-	-	93
Kedah	-	-	209	339
Kelantan	-	186	2	62
Negeri Sembilan	-	-	4	220
Pahang	64	-	187	119
Pulau Pinang	-	-	-	84
Sabah	-	-	131	275
Sarawak	76	831	1131	917
Terengganu	-	38	40	50

2.3.2 Surgeon Status

Table 2.3.2-1: Surgeon Status, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Specialist	135	96.43	1016	96.3	1670	98.0	2106	97.5
Gazetting Specialist	5	3.57	35	3.32	26	1.5	46	2.1
Medical Officer	0	0	4	0.38	8	0.5	7	0.3
Missing/NA	0	0	0	0	0	0.0	0	0.0

2.3.3 Duration of Surgery

Table 2.3.3-1: Duration of Surgery by Types of Cataract Surgery in minutes, CSR 2013-2016

Year	2013*		2014*		2015*		2016*	
	Median	IQR	Median	IQR	Median	IQR	Median	IQR
All eyes	25	(19-35)	20	(17-30)	20	(17-30)	21	(18-29)
Phaco	22	(18-30)	20	(16-25)	20	(17-26)	21	(18-27)
ECCE	55	(42-70)	35	(30-47)	45	(35-60)	35	(30-45)
Phaco → ECCE	50	(38-52)	41	(35-58)	50	(39-66)	46.5	(39-56)
ICCE	50	-	32	-	49.5	(46.5-62.5)	40	(38-60)
Lens Aspiration	-	-	-	-	-	-	55	-

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

2.3.4 Distribution of Cataract Surgery Performed Under Day Care Setting

Table 2.3.4-1: Distribution of Cataract Surgery Performed Under Day Care Setting, CSR 2013-2016

Year	2013		2014		2015		2016	
Number of SDPs	2		4		7		9	
Total number of cataract surgery registered to CSR	140		1055		1704		2159	
Number of surgery excluding children and combined surgery	137		1051		1692		2151	
	n	%	n	%	n	%	n	%
Number and % of day care surgery excluding children and combined surgery	76	55.5	1000	95.1	1536	90.8	1912	88.9

2.3.5 Distribution of Types of Cataract Surgery

Table 2.3.5-1 Distribution of Types of Cataract Surgery, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Phacoemulsification	121	86.4	934	88.5	1608	94.4	2055	95.2
ECCE	12	8.6	100	9.5	57	3.3	54	2.5
Lens Aspiration	0	0.0	0	0.0	0	0.0	1	0.0
Phaco converted to ECCE	6	4.3	18	1.7	35	2.1	45	2.1
ICCE	1	0.7	1	0.1	4	0.2	3	0.1

Table 2.3.5-2: Distribution of Types of Cataract Surgery by SDP, CSR 2013-2016

Type of Cataract Surgery												
2013	All Surgeries		Phaco		ECCE		Lens Aspiration		Phaco Converted to ECCE		ICCE	
	N	%	n	%	n	%	n	%	n	%	n	%
All Centres	140	100.0	121	86.4	12	8.6	0	0.0	6	4.3	1	0.7
KK1M Pahang	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

Type of Cataract Surgery												
2014	All Surgeries		Phaco		ECCE		Lens Aspiration		Phaco Converted to ECCE		ICCE	
	N	%	n	%	n	%	n	%	n	%	n	%
All Centres	1055	100.0	934	88.5	100	9.5	0	0.0	18	1.7	1	0.1
KK1M Terengganu	38	100.0	28	84.2	10	15.8	0	0.0	0	0.0	0	0.0
KK1M Kelantan	186	100.0	94	50.5	82	44.1	0	0.0	9	4.8	0	0.0
KK1M Sarawak	831	100.0	812	97.2	8	1.4	0	0.0	9	1.1	1	0.1

Type of Cataract Surgery												
2015	All Surgeries		Phaco		ECCE		Lens Aspiration		Phaco Converted to ECCE		ICCE	
	N	%	n	%	n	%	n	%	n	%	n	%
All Centres	1704	100.0	1608	94.4	57	3.3	0	0.0	35	2.1	4	0.2
KK1M Kedah	209	100.0	209	100.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Kelantan	2	100.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	4	100.0	3	75.0	0	0.0	0	0.0	1	25.0	0	0.0
KK1M Pahang	187	100.0	161	86.1	17	9.1	0	0.0	8	4.3	1	0.5
KK1M Sabah	131	100.0	107	81.7	18	13.7	0	0.0	6	4.6	0	0.0
KK1M Sarawak	1,131	100.0	1,096	96.9	13	1.1	0	0.0	19	1.7	3	0.3
KK1M Terengganu	40	100.0	30	75.0	9	22.5	0	0.0	1	2.5	0	0.0

Type of Cataract Surgery												
2016	All Surgeries		Phaco		ECCE		Lens Aspiration		Phaco Converted to ECCE		ICCE	
	N	%	n	%	n	%	n	%	n	%	n	%
All Centres	2159	100.0	2055	95.2	54	2.5	1	0.0	45	2.1	3	0.1
KK1M Johor	93	100.0	90	96.8	1	1.1	0	0.0	2	2.2	0	0.0
KK1M Kedah	339	100.0	332	97.9	2	0.6	0	0.0	5	1.5	0	0.0
KK1M Kelantan	62	100.0	34	54.8	26	41.9	0	0.0	2	3.2	0	0.0
KK1M Neg. Sembilan	220	100.0	206	93.6	1	0.5	1	0.5	11	5.0	1	0.5
KK1M Pahang	119	100.0	108	90.8	8	6.7	0	0.0	3	2.5	0	0.0
KK1M Pulau Pinang	84	100.0	80	95.2	2	2.4	0	0.0	2	2.4	0	0.0
KK1M Sabah	275	100.0	262	95.3	7	2.5	0	0.0	5	1.8	1	0.4
KK1M Sarawak	917	100.0	898	97.9	4	0.4	0	0.0	13	1.4	1	0.1
KK1M Terengganu	50	100.0	45	90.0	3	6.0	0	0.0	2	4.0	0	0.0

Table 2.3.5-3: Distribution of Phacoemulsification by SDP, CSR 2013-2016

Years	2013		2014		2015		2016	
	n	%	n	%	n	%	n	%
All Centres	121	86.4	934	94.2	1608	94.4	2055	95.2
KK1M Johor	-	-	-	-	-	-	90	96.8
KK1M Kedah	-	-	-	-	209	100.0	332	97.9
KK1M Kelantan	-	-	94	50.5	2	100.0	34	54.8
KK1M Neg. Sembilan	-	-	-	-	3	75.0	206	93.6
KK1M Pahang	47	73.4	-	-	161	86.1	108	90.8
KK1M Pulau Pinang	-	-	-	-	-	-	80	95.2
KK1M Sabah	-	-	-	-	107	81.7	262	95.3
KK1M Sarawak	74	97.4	812	97.2	1096	96.9	898	97.9
KK1M Terengganu	-	-	28	84.2	30	75.0	45	90.0

Table 2.3.5-4: Distribution of ECCE by SDP, CSR 2013-2016

Years	2013		2014		2015		2016	
	n	%	n	%	n	%	n	%
All Centres	12	8.6	100	3.6	57	3.3	54	2.5
KK1M Johor	-	-	-	-	-	-	1	1.1
KK1M Kedah	-	-	-	-	0	0.0	2	0.6
KK1M Kelantan	-	-	82	44.1	0	0.0	26	41.9
KK1M Neg. Sembilan	-	-	-	-	0	0.0	1	0.5
KK1M Pahang	11	17.2	-	-	17	9.1	8	6.7
KK1M Pulau Pinang	-	-	-	-	-	-	2	2.4
KK1M Sabah	-	-	-	-	18	13.7	7	2.5
KK1M Sarawak	1	1.3	8	1.4	13	1.1	4	0.4
KK1M Terengganu	-	-	10	15.8	9	22.5	3	6.0

2.3.6 Anaesthesia in Cataract Surgery

Table 2.3.6-1: Types of Anaesthesia, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
General Anesthesia	0	0.0	4	0.4	4	0.2	4	0.2
Local Anesthesia	139	99.3	1042	98.8	1689	99.1	2149	99.5
Type of local anaesthesia								
Subtenon	52	37.4	153	14.7	150	8.9	254	11.8
Topical	90	64.7	879	84.4	1549	91.7	1903	88.6
Peribulbar	0	0.0	0	0.0	0	0.0	0	0.0
Retrobulbar	3	2.2	0	0.0	0	0.0	2	0.1
Intracameral	3	2.2	5	0.5	38	2.2	148	6.9

Subconjunctival	0	0.0	2	0.2	0	0.0	19	0.9
Facial block	0	0.0	0	0.0	0	0.0	0	0.0
Others	NA	NA	NA	NA	NA	NA	NA	NA
Combined local anaesthesia	13	9.4	6	0.6	99	5.9	181	8.4
Types of sedation for patients under local anaesthesia								
No sedation	39	28.1	582	55.9	924	54.7	1194	55.6
Oral sedation alone	9	6.5	0	0.0	1	0.1	34	1.6
Intravenous alone	1	0.7	0	0.0	1	0.1	1	0.0
Intravenous plus oral	0	0.0	0	0.0	0	0.0	0	0.0
Intramuscular alone	17	12.2	0	0.0	0	0.0	0	0.0

Table 2.3.6-2: Types of Anaesthesia in Patients 50 years and above, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	135		1024		1672		2100	
	n	%	n	%	n	%	n	%
General Anesthesia	0	0.0	4	0.4	4	0.2	4	0.2
Local Anesthesia	134	99.3	1011	98.7	1658	99.2	2090	99.5
Type of local anaesthesia								
Subtenon	49	36.6	148	14.6	148	8.9	249	11.9
Topical	89	66.4	855	84.6	1520	91.7	1852	88.6
Peribulbar	0	0.0	0	0.0	0	0.0	0	0.0
Retrobulbar	2	1.5	0	0.0	0	0.0	2	0.1
Intracameral	3	2.2	5	0.5	36	2.2	142	6.8
Subconjunctival	0	0.0	2	0.2	0	0.0	19	0.9
Facial block	0	0.0	0	0.0	0	0.0	0	0.0
Others	NA	NA	NA	NA	NA	NA	NA	NA
Combined local anaesthesia	13	9.7	6	0.6	97	5.9	178	8.5
Types of sedation for patients under local anaesthesia								
No sedation	38	28.4	566	56.0	905	54.6	1162	55.6
Oral sedation alone	9	6.7	0	0.0	1	0.1	32	1.5
Intravenous alone	1	0.7	0	0.0	1	0.1	1	0.0
Intravenous plus oral	0	0.0	0	0.0	0	0.0	0	0.0
Intramuscular alone	16	11.9	0	0.0	0	0.0	0	0.0

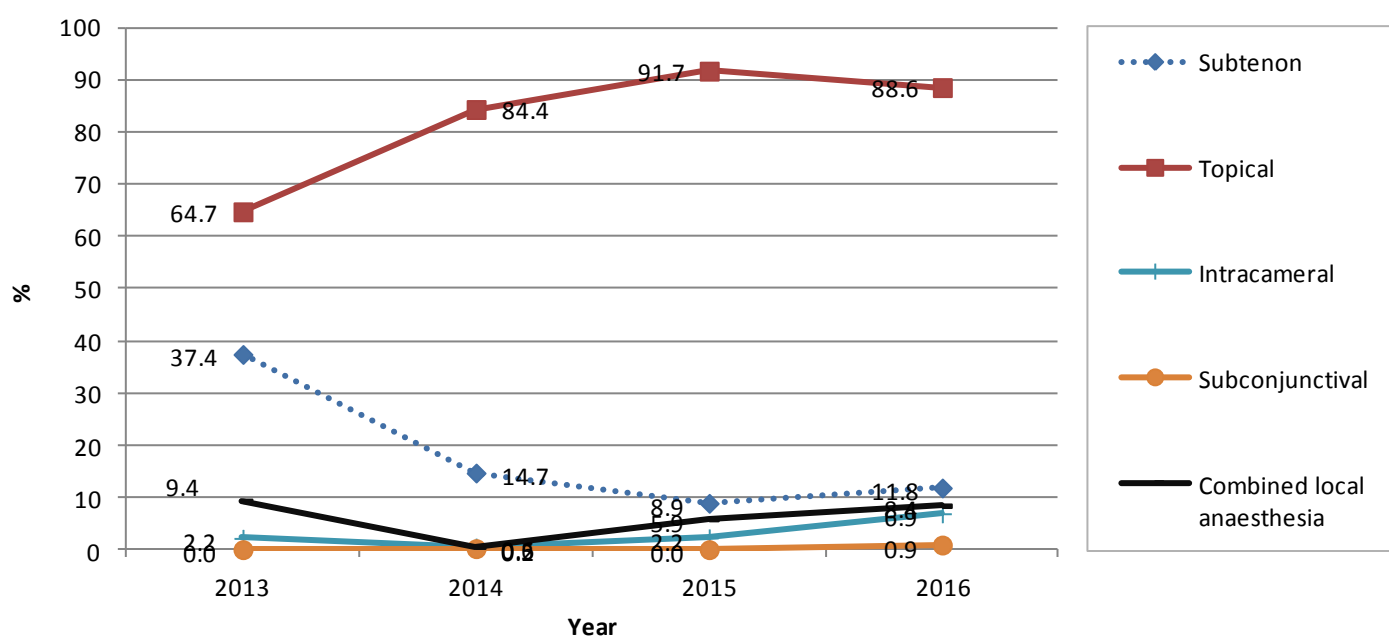


Figure 2.3.6-1: Types of Anaesthesia, CSR 2013-2016

2.3.7 Intraocular Lens Implantation

Table 2.3.7-1: Intraocular Lens Implantation, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
With IOL	139	99.3	1026	97.3	1678	98.5	2133	98.8
Without IOL	1	0.7	29	2.7	26	1.5	26	1.2
Not Available	0	0.0	0	0.0	0	0.0	0	0.0
IOL Placement								
No of IOL	139		1026		1678		2133	
PCIOL	131	94.2	974	94.9	1628	97.0	2092	98.1
ACIOL	4	2.9	4	0.4	23	1.4	21	1.0
Scleral Fixated IOL	0	0.0	0	0.0	0	0.0	0	0.0
Others	0	0.0	3	0.3	0	0.0	3	0.1
Not Available /missing	4	2.9	45	4.4	27	1.6	17	0.8
Materials of IOL								
No of IOL	139		1026		1678		2133	
1. Acrylic	123	88.5	987	96.2	1598	95.2	2078	97.4
2. PMMA	16	11.5	23	2.2	63	3.8	41	1.9
3. Silicone	0	0.0	1	0.1	1	0.1	1	0.0
4. Others	0	0.0	0	0.0	0	0.0	0	0.0
Not Available/ missing	0	0.0	15	1.5	16	1.0	13	0.6

Types of IOL								
No of IOL	139		1026		1678		2133	
1. Foldable	121	87.1	1008	98.2	1623	96.7	2092	98.1
2. Non-foldable	18	12.9	14	1.4	50	3.0	38	1.8
Not Available/ missing	0	0.0	4	0.4	5	0.3	3	0.1

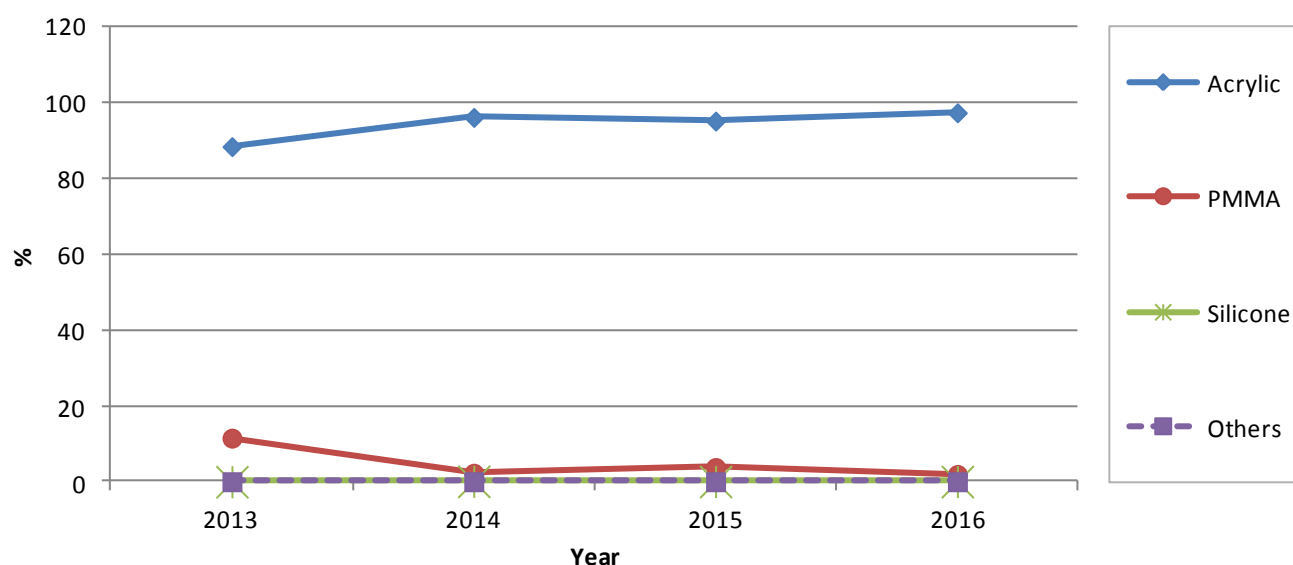


Figure 2.3.7-1: Intraocular Lens Implantation, CSR 2013-2016

Table 2.3.7-2: Distribution of IOL Placement, CSR 2013-2016

Cataract Surgery With IOL														
	2013							2014						
	N	Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL		N	Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL	
		n	%	n	%	n	%		n	%	n	%	n	%
All Centres	139	131	94.2	4	2.9	0	0.0	1026	974	94.9	4	0.4	0	0.0
KK1M Johor	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Kedah	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Kelantan	-	-	-	-	-	-	-	185	174	94.1	4	2.2	0	0.0
KK1M Neg. Sembilan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Pahang	64	58	90.6	3	4.7	0	0.0	-	-	-	-	-	-	-
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KK1M Sarawak	75	73	97.3	1	1.3	0	0.0	805	766	95.2	0	0.0	0	0.0
KK1M Terengganu	-	-	-	-	-	-	-	36	34	94.4	0	0.0	0	0.0

Cataract Surgery With IOL														
	2015							2016						
	N	Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL		N	Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL	
		n	%	n	%	n	%		n	%	n	%	n	%
All Centres	1678	1628	97.0	23	1.4	0	0.0	2133	2092	98.1	21	1.0	0	0.0
KK1M Johor	-	-	-	-	-	-	-	93	92	98.9	1	1.1	0	0.0
KK1M Kedah	209	206	98.6	1	0.5	0	0.0	334	332	99.4	2	0.6	0	0.0
KK1M Kelantan	2	2	100.0	0	0.0	0	0.0	61	60	98.4	1	1.6	0	0.0
KK1M Neg. Sembilan	4	4	100.0	0	0.0	0	0.0	217	207	95.4	4	1.8	0	0.0
KK1M Pahang	184	175	95.1	6	3.3	0	0.0	119	110	92.4	5	4.2	0	0.0
KK1M Pulau Pinang	-	-	-	-	-	-	-	83	83	100.0	0	0.0	0	0.0
KK1M Sabah	129	115	89.1	3	2.3	0	0.0	274	268	97.8	2	0.7	0	0.0
KK1M Sarawak	1110	1089	98.1	12	1.1	0	0.0	903	895	99.1	6	0.7	0	0.0
KK1M Terengganu	40	37	92.5	1	2.5	0	0.0	49	45	91.8	0	0.0	0	0.0

2.4 Intra-operative Complications

2.4.1 Intra-operative Complications

Table 2.4.1-1: Distribution of Type of Intra-operative Complications, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Patient with intra-op complication	10	7.1	52	4.9	84	4.9	84	3.9
Types of complications								
PCR	2	1.4	28	2.7	47	2.8	43	2.0
Vitreous loss	3	2.1	11	1.0	17	1.0	26	1.2
Zonular dehiscence	2	1.4	7	0.7	15	0.9	23	1.1
Drop nucleus	0	0.0	4	0.4	3	0.2	1	0.0
Suprachoroidal haemorrhage	0	0.0	1	0.1	0	0.0	0	0.0
Central corneal oedema	0	0.0	0	0.0	2	0.1	1	0.0
Others	6	4.3	12	1.1	22	1.3	21	1.0

Table 2.4.1-2: Distribution of Type of Intra-operative Complications – Posterior Capsule Rupture, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	140		1055		1704		2159	
	n	%	n	%	n	%	n	%
Patient with intra-op complication	10	7.1	52	4.9	84	4.9	84	3.9
Types of complications								
PCR and Others	1	0.7	7	0.7	12	0.7	19	0.9
PCR Only	1	0.7	21	2.0	35	2.1	24	1.1

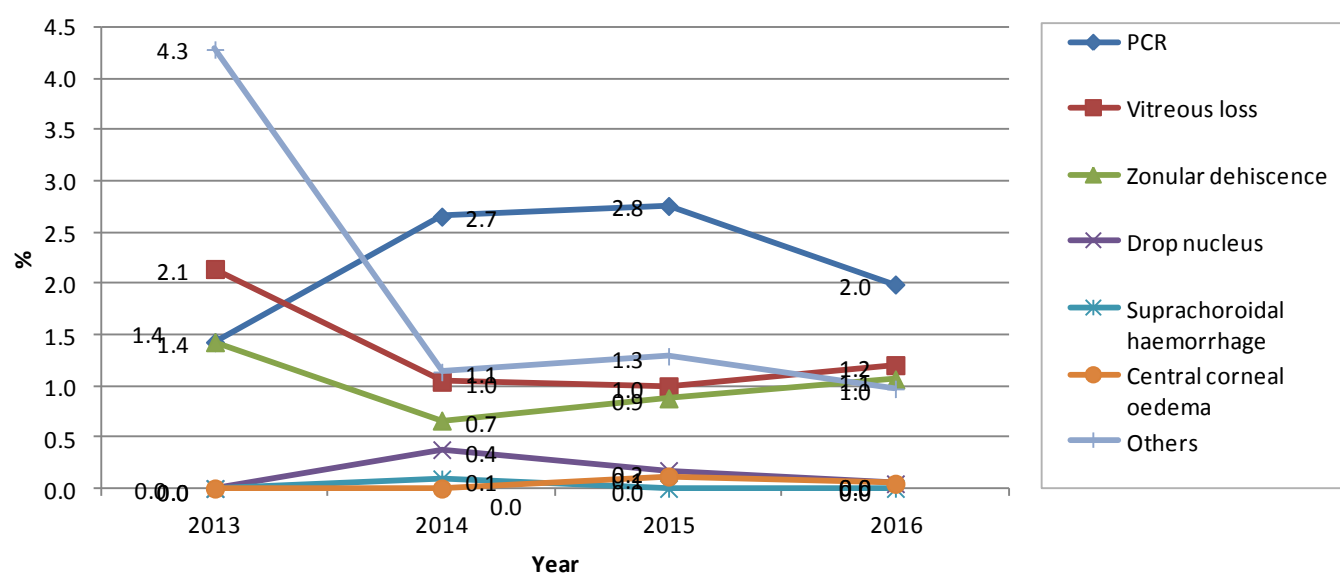


Figure 2.4.1-1: Distribution of Specific Type of Intra-operative Complications, CSR 2013-2016

Table 2.4.1-3: Distribution of Types of Intra-operative Complications, CSR 2013-2016

Year	No. of patients (N)	Any intra-op complication		PCR		Vitreous loss		Zonular Dehiscence		Nucleus drop (or dropped nucleus)		Suprachoroida Haemorrhage		Central Corneal Edema		Others	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
2013																	
KK1M Pahang	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
2014																	
KK1M Kelantan	186	13	7.0	8	4.3	6	3.2	1	0.5	0	0.0	0	0.0	0	0.0	4	2.2
KK1M Sarawak	831	35	4.2	20	2.4	5	0.6	5	0.6	4	0.5	1	0.1	0	0.0	5	0.6
KK1M Terengganu	38	4	10.5	0	0.0	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	3	7.9
2015																	
KK1M Kedah	209	4	1.9	2	1.0	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	3	1.4
KK1M Kelantan	2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

KK1M Neg. Sembilan	4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Pahang	187	15	8.0	7	3.7	1	0.5	0	0.0	0	0.0	0	0.0
KK1M Sabah	131	12	9.2	2	1.5	5	3.8	6	4.6	1	0.8	0	0.0
KK1M Sarawak	1131	51	4.5	36	3.2	10	0.9	8	0.7	3	0.3	0	0.0
KK1M Terengganu	40	2	5.0	0	0.0	0	0.0	1	2.5	0	0.0	0	0.0
2016													
KK1M Johor	93	1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
KK1M Kedah	339	11	3.2	5	1.5	4	1.2	3	0.9	0	0.0	0	0.0
KK1M Kelantan	62	1	1.6	1	1.6	1	1.6	0	0.0	0	0.0	0	0.0
KK1M Neg. Sembilan	220	19	8.6	7	3.2	9	4.1	6	2.7	0	0.0	0	0.0
KK1M Pahang	119	4	3.4	3	2.5	2	1.7	0	0.0	0	0.0	0	0.0
KK1M Pulau Pinang	84	2	2.4	2	2.4	1	1.2	0	0.0	0	0.0	0	0.0
KK1M Sabah	275	14	5.1	5	1.8	3	1.1	4	1.5	0	0.0	0	0.0
KK1M Sarawak	917	28	3.1	18	2.0	4	0.4	9	1.0	0	0.0	0	0.0
KK1M Terengganu	50	4	8.0	2	4.0	2	4.0	1	2.0	0	0.0	0	0.0

2.4.2 PCR

Table 2.4.2-1: PCR, CSR 2013-2016

Hospital	2013			2014			2015			2016		
	N	n	%	N	n	%	N	n	%	N	n	%
KK1M Johor	-	-	-	-	-	-	-	-	-	93	0	0.0
KK1M Kedah	-	-	-	-	-	-	209	2	1.0	339	5	1.5
KK1M Kelantan	-	-	-	186	8	4.3	2	0	0.0	62	1	1.6
KK1M Neg. Sembilan	-	-	-	-	-	-	4	0	0.0	220	7	3.2
KK1M Pahang	64	2	3.1	-	-	-	187	7	3.7	119	3	2.5
KK1M Pulau Pinang	-	-	-	-	-	-	-	-	-	84	2	2.4
KK1M Sabah	-	-	-	-	-	-	131	2	1.5	275	5	1.8
KK1M Sarawak	76	0	0.0	831	20	2.4	1131	36	3.2	917	18	2.0
KK1M Terengganu	-	-	-	38	0	0.0	40	0	0.0	50	2	4.0

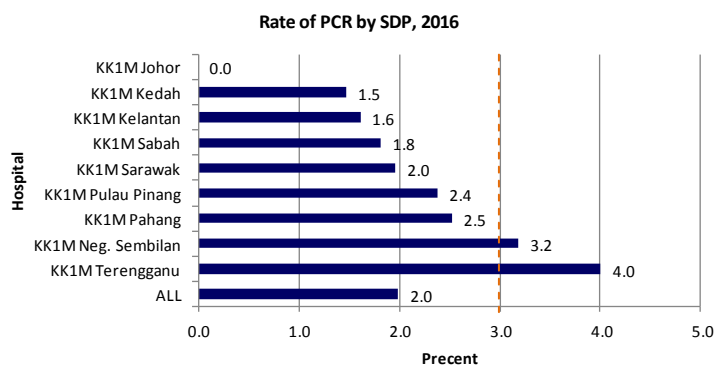
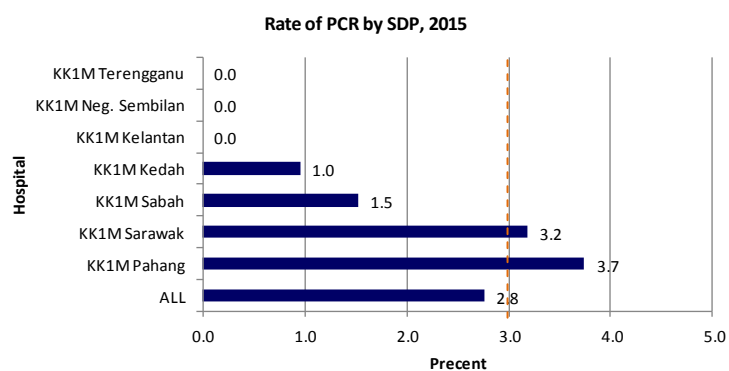
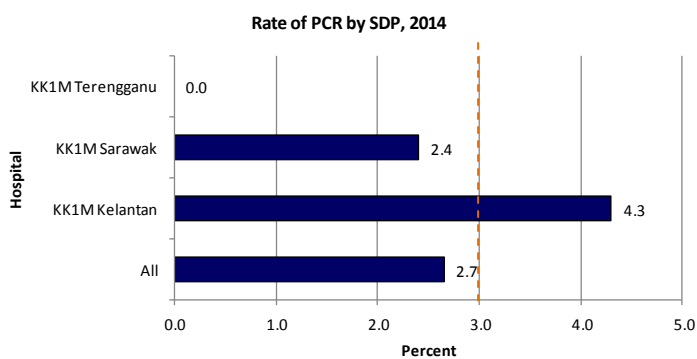
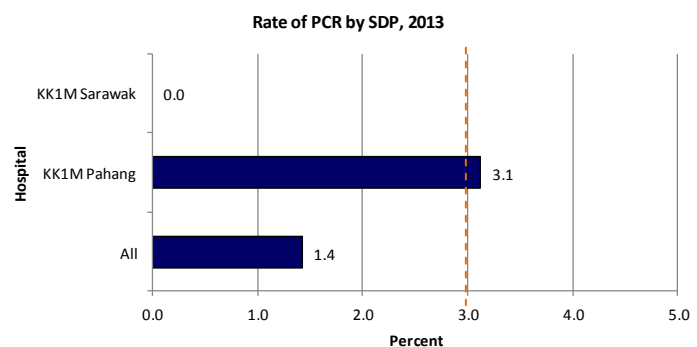


Figure 2.4.2-1: PCR (all surgeries) (National standard set at <3.0%), CSR 2013-2016

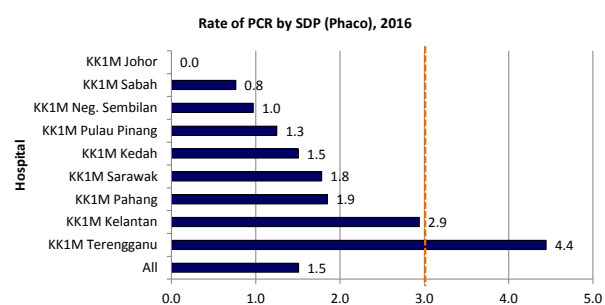
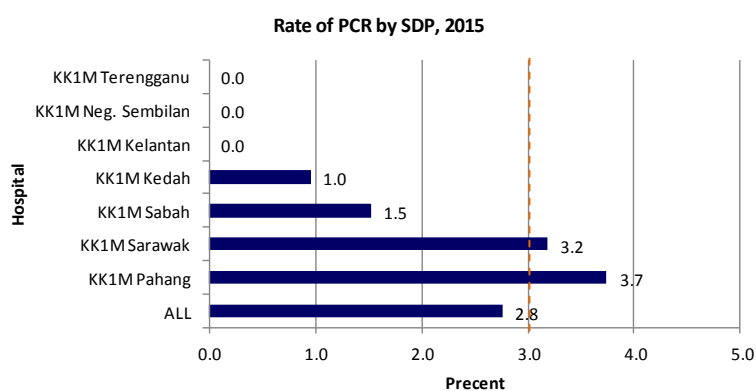
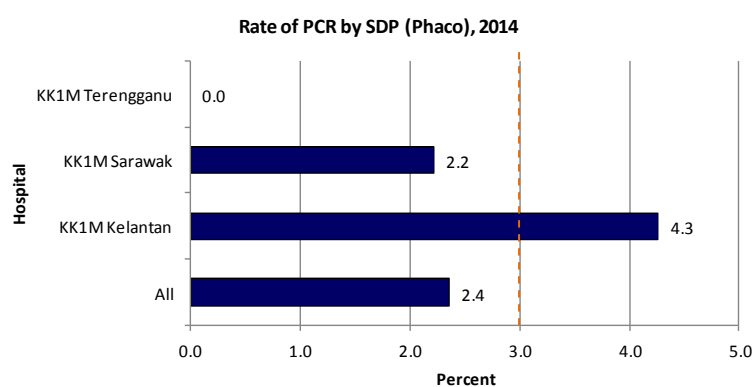
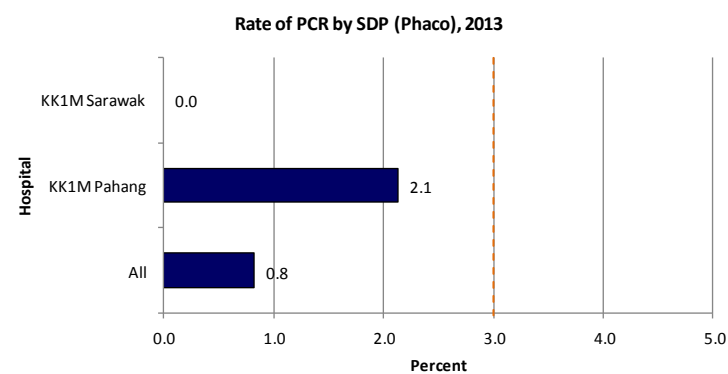


Figure 2.4.2-2: PCR (Phaco only) (National standard set at <3.0%), CSR 2013-2016

2.4.3 PCR by Type of Cataract Surgery

Table 2.4.3-1: PCR by Type of Cataract Surgery, CSR 2013-2016

Year	2013			2014			2015			2016		
No. of patients	140			1055			1704			2159		
Total PCR	2			28			47			43		
	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	121	1	0.8	934	22	2.4	1608	36	2.2	2055	31	1.5
ECCE	12	0	0.0	100	3	3.0	57	2	3.5	54	2	3.7
Lens Aspiration	0	0	0.0	0	0	0.0	0	0	0.0	1	0	0.0
ICCE	1	0	0.0	1	0	0.0	4	0	0.0	3	0	0.0
Phaco converted to ECCE	6	1	16.7	18	3	16.7	35	9	25.7	45	10	22.2

2.5 Cataract Surgery Outcome

2.5.1 Post-operative Complications Record and Ascertainment

Table 2.5.1-1: Distribution of Cataract Surgery with Post-operative Complication Record, CSR 2013-2016

Year	2013	2014	2015	2016
Total number of cataract surgery registered to CSR	140	1055	1704	2159
Cataract surgery with post-operative complication record	115	981	1650	1935
Ascertainment on post-operative complication (%)	(82.1)	(93.0)	(96.8)	(89.6)
Cataract surgery with visual outcome record	98	863	1455	1765
Ascertainment on visual outcome (%)	(70.0)	(81.8)	(85.4)	(81.8)

2.5.2 Post-operative Infectious Endophthalmitis

Table 2.5.2-1: Post-operative Infectious Endophthalmitis, CSR 2013-2016

Year	2013	2014	2015	2016
Eyes with post-operative complication records (N)	115	981	1650	1935
Eyes with post-operative infectious endophthalmitis (n)	0	0	0	0
Percentage of eyes with post-operative endophthalmitis (%)	0.0	0.0	0.0	0.0

2.5.3 Post-operative Follow-up Period

Table 2.5.3-1: Median Follow-up Period for Eyes with Unaided Vision (in weeks) by Types of Surgery, CSR 2013-2016

Types of surgery	2013					2014				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	98	98	5	5	6	863	861	5	5	6
Phaco	88	88	5	4	6	799	797	5	5	6
ECCE	4	4	6	5.5	6	55	55	8	6	13
Phaco □ ECCE	6	6	6	6	7	8	8	8.5	6.5	12
ICCE	0	0	-	-	-	0	0	-	-	-
Lens aspiration	0	0	-	-	-	0	0	-	-	-

Types of surgery	2015					2016				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	1455	1453	6	5	7	1769	1769	5	5	7
Phaco	1383	1381	6	5	7	1694	1694	5	4	6
ECCE	38	38	9	6	12	42	42	8.5	5	11
Phaco □ ECCE	30	30	6.5	5	12	30	30	6	5	11
ICCE	4	4	8	5	11.5	1	1	11	-	--
Lens aspiration	0	0	-	-	-	1	1	3	-	-

n = No. of available information

Table 2.5.3-2: Median Follow-up Period for Eyes with Best Corrected Visual Acuity (in weeks) by Types of Surgery, CSR 2013-2016

Types of surgery	2013					2014				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	99	99	6	5	6	843	841	5	5	6
Phaco	88	88	5	4	6	787	785	5	5	6
ECCE	4	4	6	5.5	6	48	48	9	6	13
Phaco □ ECCE	6	6	6	6	7	7	7	9	6	12
ICCE	1	1	6	-	-	0	0	-	-	-
Lens aspiration	0	0	-	-	-	0	0	-	-	-

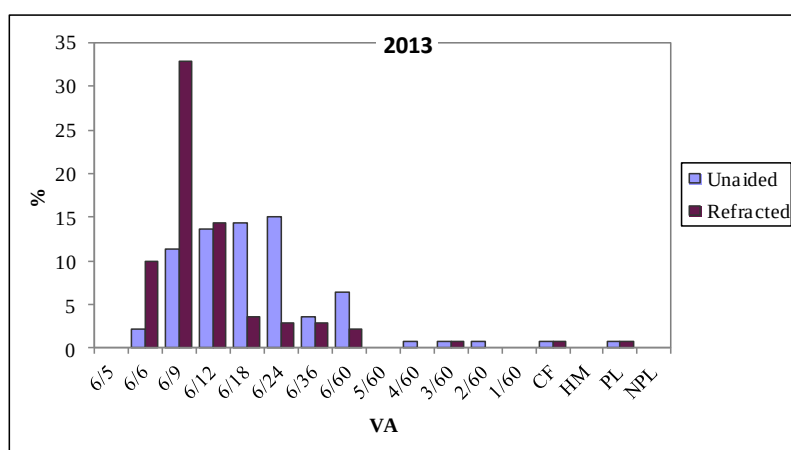
Types of surgery	2015					2016				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	1397	1395	6	5	7	1708	1708	5	5	7
Phaco	1330	1328	6	5	7	1634	1634	5	5	6
ECCE	35	35	9	6	12	42	42	8.5	5	11
Phaco □ ECCE	28	28	6.5	5	12	29	29	6	5	11
ICCE	4	4	8	5	11.5	1	1	11	-	-
Lens aspiration	0	0	-	-	-	1	1	3	-	-

n = No. of available information

2.5.4 Post-operative Visual Acuity

Table 2.5.4-1: Post-operative Visual Acuity, All Eyes, CSR 2013-2016

Year	2013				2014				2015				2016			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	1	0.0	2	0.1
6/6	3	2.1	14	10.0	54	5.1	315	29.9	101	5.9	597	35.0	160	7.4	682	31.6
6/9	16	11.4	46	32.9	128	12.1	268	25.4	310	18.2	458	26.9	410	19.0	584	27.0
6/12	19	13.6	20	14.3	182	17.3	161	15.3	367	21.5	214	12.6	396	18.3	243	11.3
6/18	20	14.3	5	3.6	189	17.9	42	4.0	273	16.0	44	2.6	319	14.8	78	3.6
6/24	21	15.0	4	2.9	151	14.3	22	2.1	195	11.4	34	2.0	199	9.2	40	1.9
6/36	5	3.6	4	2.9	81	7.7	17	1.6	105	6.2	18	1.1	117	5.4	28	1.3
6/60	9	6.4	3	2.1	51	4.8	8	0.8	66	3.9	15	0.9	76	3.5	16	0.7
5/60	0	0.0	0	0.0	6	0.6	0	0.0	2	0.1	0	0.0	9	0.4	2	0.1
4/60	1	0.7	0	0.0	2	0.2	0	0.0	3	0.2	3	0.2	5	0.2	2	0.1
3/60	1	0.7	1	0.7	5	0.5	2	0.2	5	0.3	2	0.1	21	1.0	6	0.3
2/60	1	0.7	0	0.0	1	0.1	0	0.0	4	0.2	0	0.0	15	0.7	3	0.1
1/60	0	0.0	0	0.0	5	0.5	3	0.3	6	0.4	4	0.2	14	0.6	6	0.3
CF	1	0.7	1	0.7	5	0.5	2	0.2	11	0.6	4	0.2	12	0.6	7	0.3
HM	0	0.0	0	0.0	3	0.3	2	0.2	4	0.2	2	0.1	9	0.4	6	0.3
PL	1	0.7	1	0.7	0	0.0	0	0.0	2	0.1	1	0.1	5	0.2	3	0.1
NPL	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	1	0.1	1	0.0	0	0.0
Missing	42	30.0	41	29.3	192	18.2	212	20.1	249	14.6	307	18.0	390	18.1	451	20.9
Total	140	100	140	100	1055	100	1055	100	1704	100	1704	100	2159	100	2159	100



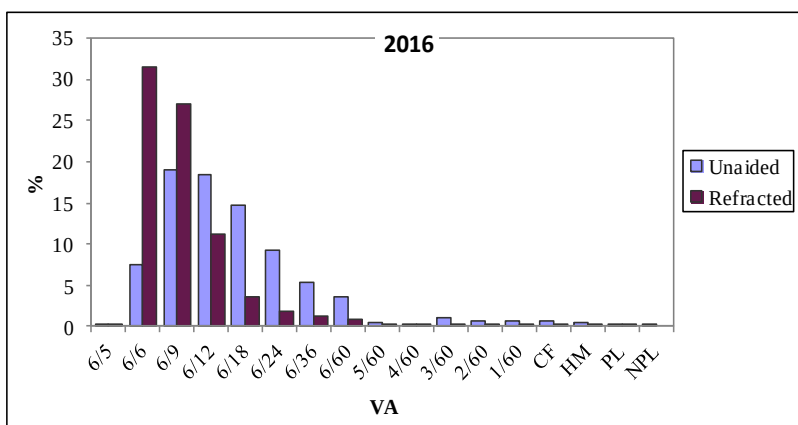
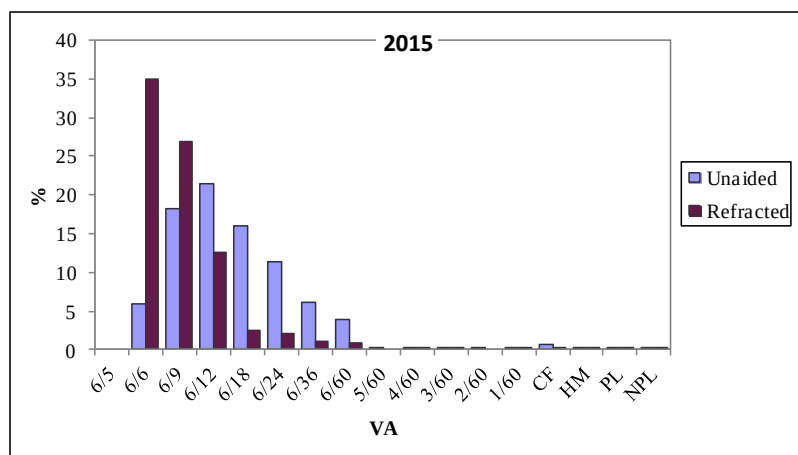
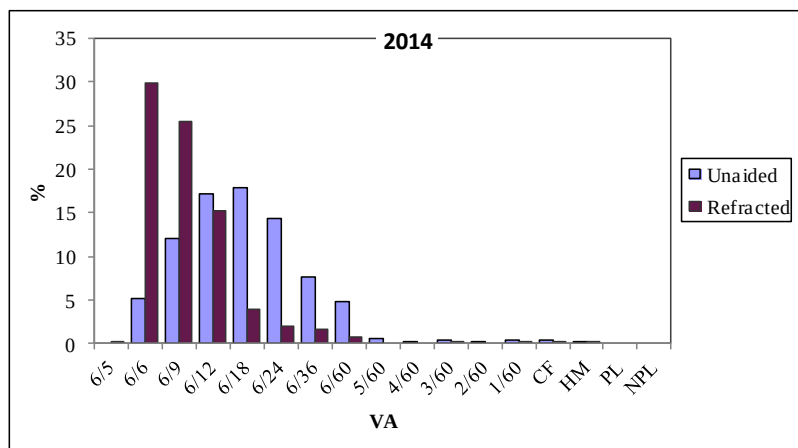
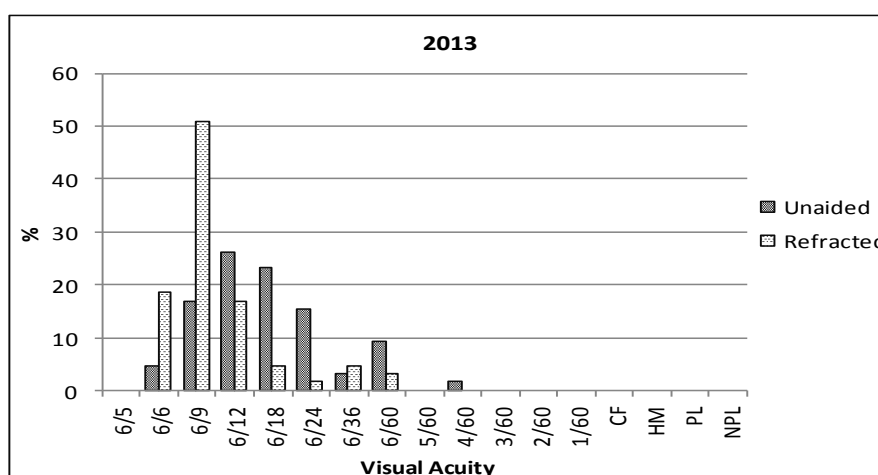


Figure 2.5.4-1: Distribution of Post-operative Unaided and Best Corrected Visual Acuity, All Eyes, CSR 2013-2016

Table 2.5.4-2: Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2013-2016

Year	2013				2014				2015				2016			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.1
6/6	3	4.6	12	18.5	45	6.7	254	39.0	94	7.5	536	44.4	135	9.5	590	42.6
6/9	11	16.9	33	50.8	105	15.7	212	32.6	273	21.9	402	33.3	336	23.5	465	33.6
6/12	17	26.2	11	16.9	158	23.7	122	18.7	321	25.7	173	14.3	333	23.3	199	14.4
6/18	15	23.1	3	4.6	142	21.3	27	4.1	239	19.2	32	2.7	256	17.9	57	4.1
6/24	10	15.4	1	1.5	117	17.5	17	2.6	161	12.9	30	2.5	161	11.3	29	2.1
6/36	2	3.1	3	4.6	52	7.8	6	0.9	85	6.8	14	1.2	95	6.7	19	1.4
6/60	6	9.2	2	3.1	32	4.8	6	0.9	52	4.2	10	0.8	54	3.8	7	0.5
5/60	0	0.0	0	0.0	3	0.4	0	0.0	2	0.2	0	0.0	7	0.5	2	0.1
4/60	1	1.5	0	0.0	1	0.1	0	0.0	3	0.2	2	0.2	3	0.2	0	0.0
3/60	0	0.0	0	0.0	2	0.3	1	0.2	2	0.2	0	0.0	16	1.1	4	0.3
2/60	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	11	0.8	1	0.1
1/60	0	0.0	0	0.0	3	0.4	2	0.3	3	0.2	1	0.1	6	0.4	4	0.3
CF	0	0.0	0	0.0	4	0.6	2	0.3	10	0.8	4	0.3	11	0.8	5	0.4
HM	0	0.0	0	0.0	2	0.3	1	0.2	1	0.1	1	0.1	3	0.2	2	0.1
PL	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
NPL	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	1	0.1	1	0.1	0	0.0
Total	65	100	65	100	667	100	651	100	1248	100	1206	100	1428	100	1385	100



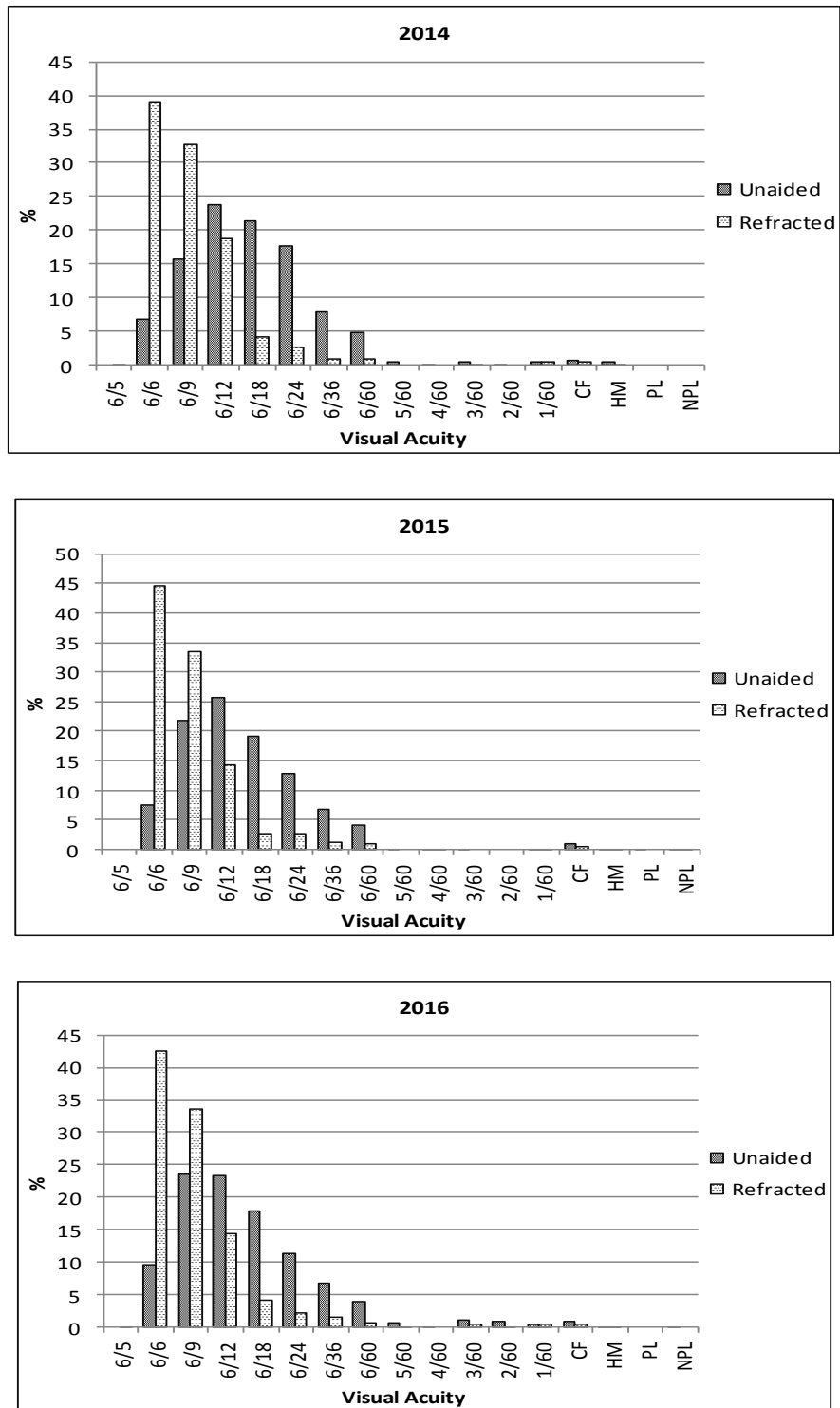


Figure 2.5.4-2: Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2013-2016

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

Table 2.5.5-1: Post-operative Visual Acuity 6/12 or Better for Eyes without Ocular Co-morbidities by Types of Surgery, CSR 2013-2016

	2013						2014					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	65	31	47.7	65	56	86.2	667	308	46.2	651	589	90.5
Phaco	60	30	50.0	60	54	90.0	622	292	46.9	612	555	90.7
ECCE	2	1	50.0	2	1	50.0	40	13	32.5	35	31	88.6
Phaco → ECCE	3	0	0.0	3	1	33.3	4	2	50.0	3	2	66.7
Lens Aspiration	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
ICCE	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0

	2015						2016					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	1248	688	55.1	1206	1111	92.1	1428	804	56.3	1385	1255	90.6
Phaco	1189	679	57.1	1150	1072	93.2	1375	786	57.2	1332	1219	91.5
ECCE	30	8	26.7	28	21	75.0	33	12	36.4	33	22	66.7
Phaco → ECCE	26	1	3.8	28	16	57.1	18	5	27.8	18	13	72.2
Lens Aspiration	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
ICCE	3	0	0.0	3	2	66.7	1	1	100.0	1	1	100.0

Table 2.5.5-2: Post-operative Visual Acuity 6/18 or Better for Eyes without Ocular Co-morbidities by Types of Surgery, CSR 2013-2016 (WHO classification)

	2013						2014					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	65	46	70.8	65	59	90.8	667	450	67.5	651	616	94.6
Phaco	60	45	75.0	60	56	93.3	622	425	68.3	612	580	94.8
ECCE	2	1	50.0	2	2	100.0	40	22	55.0	35	33	94.3
Phaco → ECCE	3	0	0.0	3	1	33.3	4	2	50.0	3	2	66.7
Lens Aspiration	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
ICCE	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0

	2015						2016					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	1248	927	74.3	1206	1143	94.8	1428	1060	74.2	1385	1312	94.7
Phaco	1189	909	76.5	1150	1097	95.4	1375	1037	75.4	1332	1271	95.4
ECCE	30	13	43.3	28	23	82.1	33	17	51.5	33	26	78.8
Phaco → ECCE	26	4	15.4	28	20	71.4	18	5	27.8	18	14	77.8
Lens Aspiration	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
ICCE	3	1	33.3	3	3	100.0	1	1	100.0	1	1	100.0

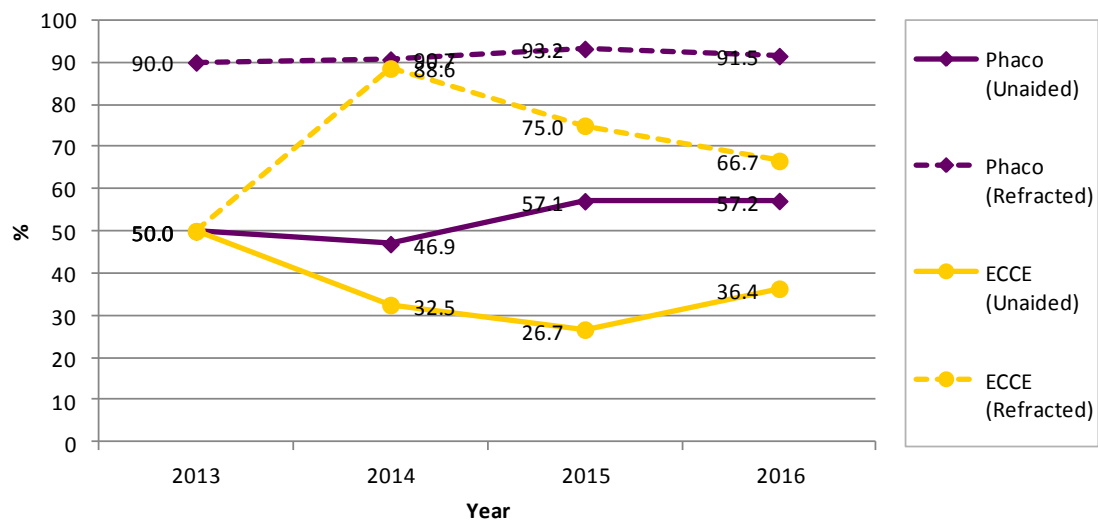


Figure 2.5.5-1: Post-operative Visual Acuity 6/12 or Better for Eyes without Ocular Co-morbidities by ECCE and Phaco, CSR 2013-2016

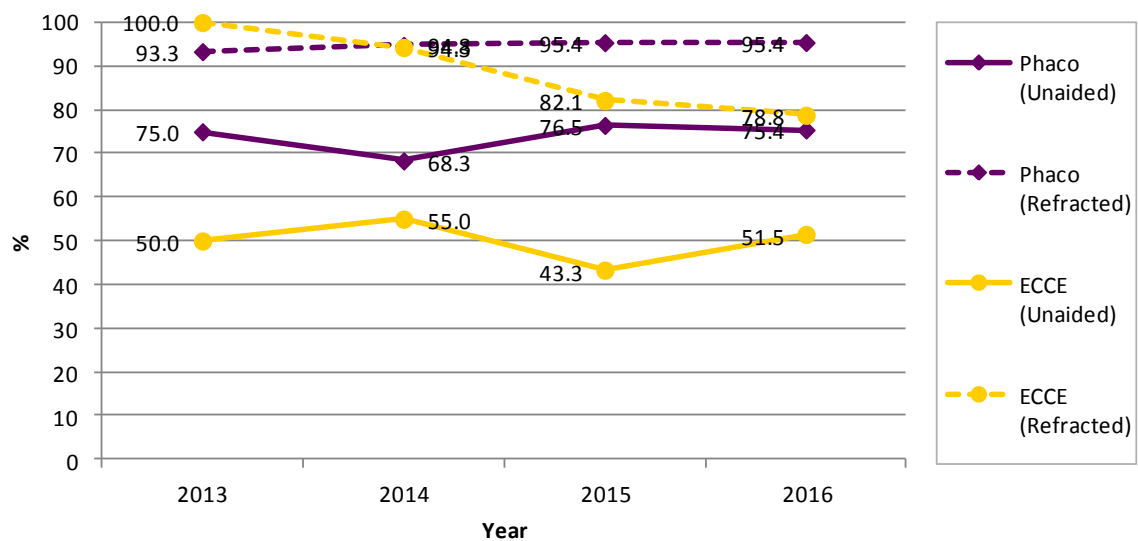


Figure 2.5.5-2: Post-operative Visual Acuity 6/18 or Better for Eyes without Ocular Co-morbidities by ECCE and Phaco (WHO Classification) CSR 2013-2016

Table 2.5.5-3: Post-operative Best Corrected Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidities by Complications and Types of Surgery, CSR 2013-2016

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	%
With intra-op complications	5	2	40.0	0	0	0.0	0	0	0.0	3	2	66.7	2	0	0.0	0	0	0.0
No intra-op complications	60	54	90.0	0	0	0.0	2	1	50.0	57	52	91.2	1	1	100.0	0	0	0.0

2014	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	%
With intra-op complications	21	17	81.0	0	0	0.0	4	4	100.0	15	12	80.0	2	1	50.0	0	0	0.0
No intra-op complications	630	572	90.8	0	0	0.0	31	27	87.1	597	543	91.0	1	1	100.0	0	0	0.0

2015	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	%
With intra-op complications	46	33	71.7	0	0	0.0	5	2	40.0	31	26	83.9	9	4	44.4	1	1	100.0
No intra-op complications	1160	1078	92.9	0	0	0.0	23	19	82.6	1119	1046	93.5	16	12	75.0	2	1	50.0

2016	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	%
With intra-op complications	42	29	69.0	0	0	0.0	3	0	0.0	30	24	80.0	7	4	57.1	1	1	100.0
No intra-op complications	1343	1226	91.3	0	0	0.0	30	22	73.3	1302	1195	91.8	11	9	81.8	0	0	0.0

Table 2.5.5-4: Post-operative Refracted Visual Acuity 6/18 or Better in Eyes without Ocular Co-morbidities by Complications and Types of Surgery, CSR 2013-2016 (WHO Classification)

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	%
With intra-op complications	5	2	40.0	0	0	0.0	0	0	0.0	3	2	66.7	2	0	0.0	0	0	0.0
No intra-op complications	60	57	95.0	0	0	0.0	2	2	100.0	57	54	94.7	1	1	100.0	0	0	0.0

2014	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	%
With intra-op complications	21	18	85.7	0	0	0.0	4	4	100.0	15	13	86.7	2	1	50.0	0	0	0.0
No intra-op complications	630	598	94.9	0	0	0.0	31	29	93.5	597	567	95.0	1	1	100.0	0	0	0.0

2015	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	%
With intra-op complications	46	36	78.3	0	0	0.0	5	3	60.0	31	27	87.1	9	5	55.6	1	1	100.0
No intra-op complications	1160	1107	95.4	0	0	0.0	23	20	87.0	1119	1070	95.6	16	15	93.8	2	2	100.0

2016	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	%
With intra-op complications	42	33	78.6	0	0	0.0	3	2	66.7	30	26	86.7	7	4	57.1	1	1	100.0
No intra-op complications	1343	1279	95.2	0	0	0.0	30	24	80.0	1302	1245	95.6	11	10	90.9	0	0	0.0

2.5.6 Factors Contributing to Post-operative Best Corrected Visual Acuity of Worse than 6/12

Table 2.5.6-1: Factors Contributing to Post-operative Best Corrected VA of Worse than 6/12 in All Eyes, CSR 2013-2016

Year	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N (total no. of post-op refracted vision worse than 6/12)	19		98		128		197	
Preexisting ocular co-morbidity	3	15.8	12	12.2	20	15.6	44	22.3
High astigmatism	5	26.3	15	15.3	15	11.7	18	9.1
Posterior capsular opacity	0	0.0	1	1.0	4	3.1	3	1.5
Cystoid macular oedema	0	0.0	0	0.0	1	0.8	4	2.0
Endophthalmitis	0	0.0	0	0.0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0.0	1	0.8	2	1.0
Decentered IOL	1	5.3	0	0.0	0	0.0	0	0.0
Retinal detachment	0	0.0	1	1.0	0	0.0	0	0.0
Others	11	57.9	28	28.6	50	39.1	41	20.8

Table 2.5.6-2: Factors Contributing to Post-operative Best Corrected VA of Worse than 6/18 in All Eyes, CSR 2013-2016

Year	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N (total no. of post-op refracted vision worse than 6/12)	14		56		84		119	
Preexisting ocular co-morbidity	2	14.3	10	17.9	12	14.3	31	26.1
High astigmatism	4	28.6	8	14.3	10	11.9	12	10.1
Posterior capsular opacity	0	0.0	1	1.8	2	2.4	0	0.0
Cystoid macular oedema	0	0.0	0	0.0	1	1.2	2	1.7
Endophthalmitis	0	0.0	0	0.0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0.0	0	0.0	2	1.7
Decentered IOL	1	7.1	0	0.0	0	0.0	0	0.0
Retinal detachment	0	0.0	1	1.8	0	0.0	0	0.0
Others	9	64.3	17	30.4	38	45.2	30	25.2

Table 2.5.6-3: Factors Contributing to Post-operative Best Corrected VA of Worse than 6/12 in Eyes without Preexisting Ocular co-morbidity, CSR 2013-2016

	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N	9		62		95		130	
Preexisting ocular co-morbidity (not detected pre-operatively)	0	0.0	6	9.7	6	6.3	9	6.9
High astigmatism	2	22.2	5	8.1	13	13.7	14	10.8
Posterior capsular opacity	0	0.0	1	1.6	2	2.1	3	2.3
Cystoid macular oedema	0	0.0	0	0.0	1	1.1	3	2.3
Endophthalmitis	0	0.0	0	0.0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0.0	1	1.1	2	1.5
Decentered IOL	1	11.1	0	0.0	0	0.0	0	0.0
Retinal detachment	0	0.0	0	0.0	0	0.0	0	0.0
Others	5	55.6	20	32.3	41	43.2	36	27.7

Table 2.5.6-4: Factors Contributing to Post-operative Refracted VA of Worse than 6/18 in Eyes without Preexisting Ocular co-morbidity, CSR 2013-2016 (WHO Classification)

	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N	6		35		63		73	
Preexisting ocular co-morbidity (not detected pre-operatively)	0	0.0	5	14.3	4	6.3	5	6.8
High astigmatism	1	16.7	1	2.9	8	12.7	9	12.3
Posterior capsular opacity	0	0.0	1	2.9	0	0.0	0	0.0
Cystoid macular oedema	0	0.0	0	0.0	1	1.6	1	1.4
Endophthalmitis	0	0.0	0	0.0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0.0	0	0.0	2	2.7
Decentered IOL	1	16.7	0	0.0	0	0.0	0	0.0
Retinal detachment	0	0.0	0	0.0	0	0.0	0	0.0
Others	4	66.7	13	37.1	30	47.6	26	35.6

2.5.7 Actual or Residual Refractive Power (in Spherical Equivalent)

Table 2.5.7-1: Distribution of Targeted and Actual Refractive Power in ECCE and Phaco, CSR 2013-2016

	Target Refraction				Actual-Target Refraction				Actual Refraction							
	All Patient				All Patient				ECCE				Phaco			
	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016
N	139	894	1598	2090	86	649	1039	1244	4	41	29	35	76	705	1060	1184
Mean	-0.3	-0.3	-0.3	-0.4	-0.4	-0.8	-0.3	-0.5	-0.4	-1.2	-1.1	-0.9	-0.7	-1.0	-0.6	-0.5
SD	0.2	0.2	0.2	0.2	0.9	1.0	0.9	0.9	1.4	1.1	1.1	1.1	0.9	0.9	0.8	0.9
Median	-0.3	-0.2	-0.3	-0.4	-0.5	-0.7	-0.3	-0.5	-0.4	-1.3	-1.0	-1.0	-0.8	-0.9	-0.5	-0.5
Minimum	-0.8	-1.6	-2.1	-3.2	-3.2	-4.5	-3.6	-6.5	-2.0	-4.0	-3.0	-3.0	-3.3	-5.4	-3.8	-6.5
Maximum	0.0	0.5	1.3	0.7	1.8	3.3	8.3	8.8	0.0	0.8	2.5	1.0	1.6	3.0	7.5	8.8

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

Table 2.5.7-2: Percentage Distribution of Target and Actual Refractive Power in ECCE and Phaco, CSR 2013-2016

	Target Refraction				Actual Refraction							
	All Patients				ECCE				Phaco			
	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016
Dioptr (D)	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
-10.0-(-9.5)	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 0.0	0 0.0	0 0.0	0 0.0
-9.5-(-9.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 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	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	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 0.0
-8.0-(-7.5)	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 0.0	0 0.0	0 0.0	0 0.0
-7.5-(-7.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
-7.0-(-6.5)	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 0.0	0 0.0	0 0.0	0 0.0
-6.5-(-5.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	1 0.1
-5.0-(-4.5)	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 0.0	0 0.0	0 0.0	0 0.0
-4.5-(-4.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	2 0.3	0 0.0	0 0.0
-4.0-(-3.5)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	2 4.9	0 0.0	0 0.0	0 0.0	5 0.7	1 0.1	2 0.2
-3.5-(-3.0)	0 0.0	0 0.0	0 0.0	1 0.0	0 0.0	1 2.4	0 0.0	0 0.0	1 1.3	8 1.1	1 0.1	4 0.3
-3.0-(-2.5)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 2.4	2 6.9	3 8.6	1 1.3	25 3.5	4 0.4	7 0.6
-2.5-(-2.0)	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	3 7.3	3 10.3	1 2.9	3 3.9	46 6.5	13 1.2	10 0.8
-2.0-(-1.5)	0 0.0	1 0.1	1 0.1	3 0.1	1 25.0	7 17.1	3 10.3	5 14.3	5 6.6	72 10.2	54 5.1	52 4.4
-1.5-(-1.0)	0 0.0	0 0.0	2 0.1	4 0.2	1 25.0	8 19.5	6 20.7	6 17.1	12 15.8	120 17.0	133 12.5	139 11.7
-1.0-(-0.5)	18 12.9	67 7.5	130 8.1	404 19.3	1 25.0	7 17.1	4 13.8	5 14.3	21 27.6	179 25.4	307 29.0	307 25.9
-0.5-<0.0	120 86.3	822 91.9	1454 91.0	1665 79.7	0 0.0	4 9.8	8 27.6	6 17.1	16 21.1	126 17.9	331 31.2	359 30.3
0.0-<0.5	1 0.7	3 0.3	5 0.3	9 0.4	0 0.0	7 17.1	2 6.9	4 11.4	7 9.2	80 11.3	146 13.8	186 15.7
0.5-<1.0	0 0.0	1 0.1	2 0.1	4 0.2	0 0.0	1 2.4	0 0.0	4 11.4	6 7.9	32 4.5	45 4.2	65 5.5
1.0-<1.5	0 0.0	0 0.0	3 0.2	0 0.0	1 25.0	0 0.0	0 0.0	1 2.9	2 2.6	6 0.9	16 1.5	21 1.8
1.5-<2.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	2 2.6	1 0.1	2 0.2	11 0.9
2.0-<2.5	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 0.0	0 0.0	3 0.3	10 0.8

2.5-<3.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 3.4	0 0.0	0 0.0	1 0.1	0 0.0	9 0.8
3.0-<3.5	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 0.0	0 0.0	1 0.1	1 0.1	0 0.0
3.5-<4.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0
4.0-<4.5	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 0.0	0 0.0	0 0.0	0 0.0	0 0.0
4.5-<5.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0
5.0-<5.5	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 0.0	0 0.0	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 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
6.0-<6.5	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 0.0	0 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	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	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	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0
8.0-<8.5	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 0.0	0 0.0	0 0.0	0 0.0	0 0.0
8.5-<9.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1
9.0-<9.5	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 0.0	0 0.0	0 0.0	0 0.0	0 0.0
9.5-<10.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	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

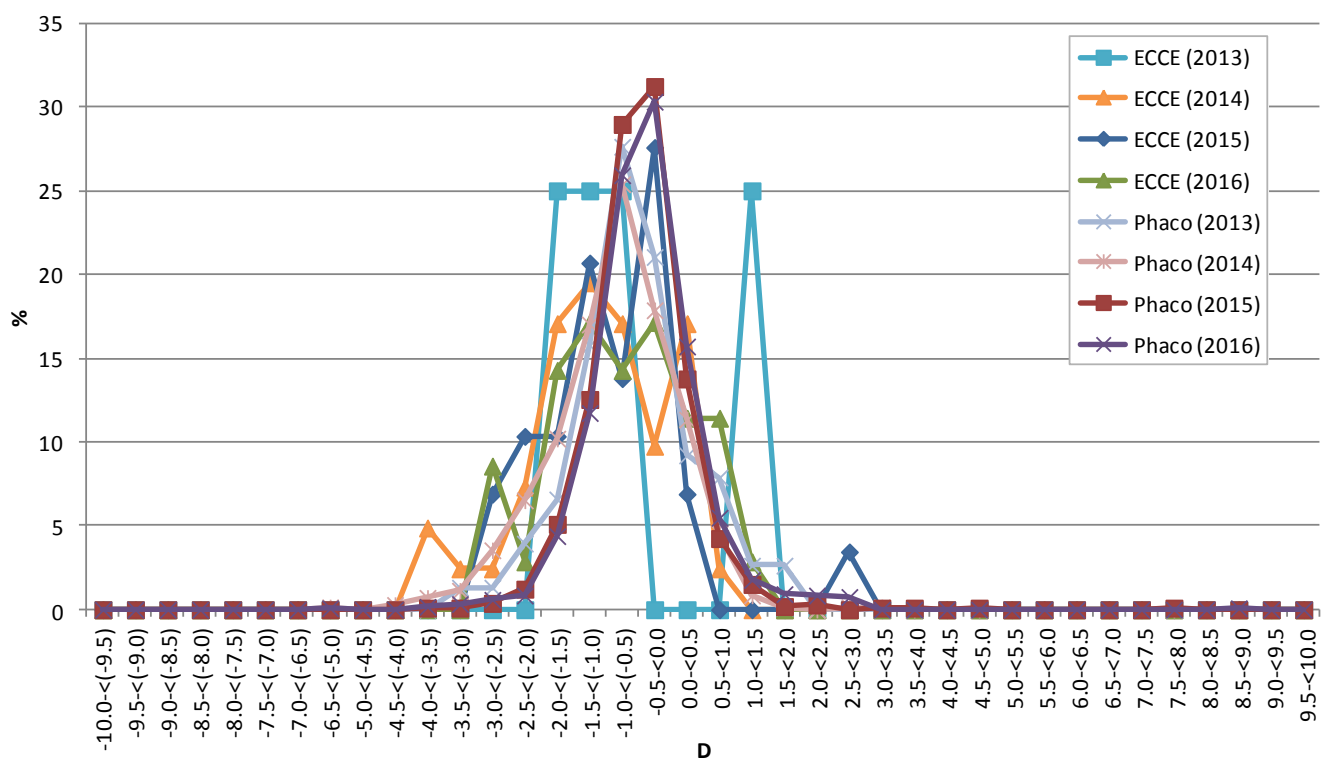


Figure 2.5.7-1: Distribution of Actual Refractive Power in ECCE and Phaco, CSR 2013-2016

Table 2.5.7-3: Difference in Target and Actual Refractive Power for Patients who had Phacoemulsification Only, CSR 2013-2016

Power (D)	Target Refraction				Actual Refraction				Difference between Target and Actual Refraction			
	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
N	120 100	807 100	1507 100	1998 100	76 100	705 100	1060 100	1184 100	75 100	614 100	985 100	1160 100
-10.0-<(-9.5)	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 0.0	0 0.0	0 0.0	0 0.0
-9.5-<(-9.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 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	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	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 0.0
-8.0-<(-7.5)	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 0.0	0 0.0	0 0.0	0 0.0
-7.5-<(-7.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
-7.0-<(-6.5)	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 0.0	0 0.0	0 0.0	0 0.0
-6.5-<(-5.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	1 0.1
-5.0-<(-4.5)	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 0.0	0 0.0	0 0.0	0 0.0
-4.5-<(-4.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	2 0.3	0 0.0	0 0.0	0 0.0	1 0.2	0 0.0	0 0.0
-4.0-<(-3.5)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	5 0.7	1 0.1	2 0.2	0 0.0	5 0.8	1 0.1	1 0.1
-3.5-<(-3.0)	0 0.0	0 0.0	0 0.0	1 0.1	1 1.3	8 1.1	1 0.1	4 0.3	1 1.3	5 0.8	1 0.1	1 0.1
-3.0-<(-2.5)	0 0.0	0 0.0	0 0.0	0 0.0	1 1.3	25 3.5	4 0.4	7 0.6	1 1.3	16 2.6	1 0.1	5 0.4
-2.5-<(-2.0)	0 0.0	0 0.0	1 0.1	0 0.0	3 3.9	46 6.5	13 1.2	10 0.8	2 2.7	36 5.9	9 0.9	6 0.5
-2.0-<(-1.5)	0 0.0	0 0.0	0 0.0	3 0.2	5 6.6	72 10.2	54 5.1	52 4.4	4 5.3	72 11.7	25 2.5	26 2.2
-1.5-<(-1.0)	0 0.0	0 0.0	1 0.1	3 0.2	12 15.8	120 17.0	133 12.5	139 11.7	8 10.7	87 14.2	93 9.4	69 5.9
-1.0-<(-0.5)	9 7.5	40 5.0	117 7.8	371 18.6	21 27.6	179 25.4	307 29.0	307 25.9	20 26.7	140 22.8	227 23.0	227 19.6
-0.5-<0.0	110 91.7	764 94.7	1379 91.5	1610 80.6	16 21.1	126 17.9	331 31.2	359 30.3	15 20.0	133 21.7	321 32.6	344 29.7
0.0-<0.5	1 0.8	3 0.4	5 0.3	7 0.4	7 9.2	80 11.3	146 13.8	186 15.7	13 17.3	67 10.9	206 20.9	269 23.2
0.5-<1.0	0 0.0	0 0.0	2 0.1	3 0.2	6 7.9	32 4.5	45 4.2	65 5.5	7 9.3	42 6.8	66 6.7	128 11.0
1.0-<1.5	0 0.0	0 0.0	2 0.1	0 0.0	2 2.6	6 0.9	16 1.5	21 1.8	1 1.3	8 1.3	21 2.1	44 3.8
1.5-<2.0	0 0.0	0 0.0	0 0.0	0 0.0	2 2.6	1 0.1	2 0.2	11 0.9	3 4.0	0 0.0	7 0.7	9 0.8
2.0-<2.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	3 0.3	10 0.8	0 0.0	0 0.0	3 0.3	13 1.1
2.5-<3.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	9 0.8	0 0.0	1 0.2	0 0.0	9 0.8
3.0-<3.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	1 0.1	0 0.0	0 0.0	1 0.2	1 0.1	7 0.6
3.5-<4.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0
4.0-<4.5	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 0.0	0 0.0	0 0.0	0 0.0
4.5-<5.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
5.0-<5.5	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 0.0	0 0.0	1 0.1	0 0.0
5.5-<6.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	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	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 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	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	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	1 0.1	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0
8.0-<8.5	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 0.0	0 0.0	0 0.0	0 0.0
8.5-<9.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	0 0.0
9.0-<9.5	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 0.0	0 0.0	0 0.0	1 0.1
9.5-<10.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0

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

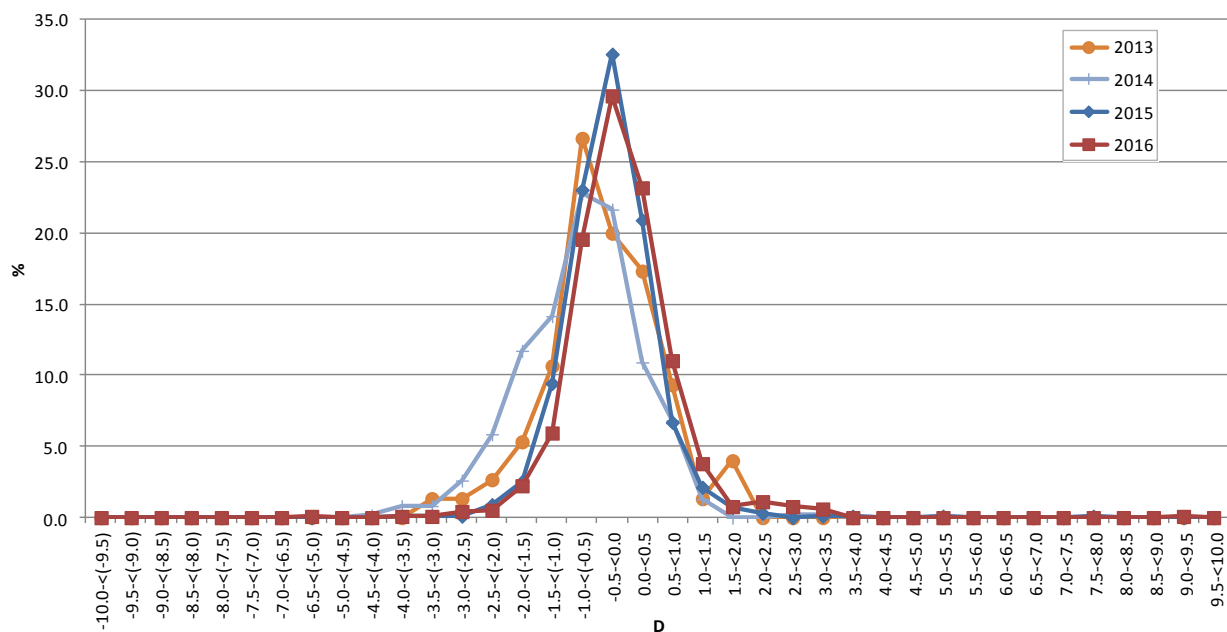


Figure 2.5.7-2: Difference in Target and Actual Refractive Power for Patients who had Phacoemulsification Only, CSR 2013-2016

Table 2.5.7-4: Percentage of Difference in Target and Actual Refractive Power within $\pm 1.0D$ by SDP, CSR 2013-2016

2013	All			By Phacoemulsification			By ECCE		
	No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$	
	N	n	%	N	n	%	N	n	%
All Centres	86	61	70.9	75	55	73.3	4	1	25.0
KK1M Pahang	34	24	70.6	25	19	76.0	3	1	33.3
KK1M Sarawak	52	37	71.2	50	36	72.0	1	0	0.0

2014	All			By Phacoemulsification			By ECCE		
	No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$	
	N	n	%	N	n	%	N	n	%
All Centres	649	402	61.9	614	382	62.2	29	18	62.1
KK1M Terengganu	22	16	72.7	15	13	86.7	7	3	42.9
KK1M Kelantan	62	47	75.8	41	35	85.4	18	11	61.1
KK1M Sarawak	565	339	60.0	558	334	59.9	4	4	100.0

2015	All			By Phacoemulsification			By ECCE		
	No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$	
	N	n	%	N	n	%	N	n	%
All Centres	1039	845	81.3	985	820	83.2	26	15	57.7
KK1M Kedah	134	123	91.8	134	123	91.8	0	0	0.0
KK1M Neg. Sembilan	3	2	66.7	2	1	50.0	0	0	0.0
KK1M Pahang	113	82	72.6	96	75	78.1	10	6	60.0
KK1M Sabah	53	39	73.6	40	34	85.0	9	5	55.6
KK1M Sarawak	735	598	81.4	712	586	82.3	7	4	57.1
KK1M Terengganu	1	1	100.0	1	1	100.0	0	0	0.0

2016	All			By Phacoemulsification			By ECCE		
	No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$	
	N	n	%	N	n	%	N	n	%
All Centres	1215	1002	82.5	1160	968	83.4	30	17	56.7
KK1M Johor	38	32	84.2	37	31	83.8	1	1	100.0
KK1M Kedah	220	196	89.1	216	194	89.8	2	1	50.0
KK1M Kelantan	33	23	69.7	17	14	82.4	14	7	50.0
KK1M Neg. Sembilan	148	103	69.6	139	97	69.8	1	1	100.0
KK1M Pahang	91	76	83.5	83	69	83.1	5	4	80.0
KK1M Pulau Pinang	60	51	85.0	57	50	87.7	1	0	0.0
KK1M Sabah	117	93	79.5	114	92	80.7	3	1	33.3
KK1M Sarawak	508	428	84.3	497	421	84.7	3	2	66.7

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

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

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

CHAPTER 3

PUSAT PEMBEDAHAN KATARAK MAIWP- HOSPITAL SELAYANG 2016

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CHAPTER 3: PUSAT PEMBEDAHAN KATARAK MAIWP-HOSPITAL SELAYANG (PPKM-HS)

PPKM-HS forms the “static” component of the KK1M Strategy to address issue of cataract blindness within the urban population. It is a community based one-stop centre for cataract surgery, has two fully functioning operating theatres and includes all cataract care pathways under one roof. Sessions for clinic and surgery opens daily from Monday to Friday.

Consistent with its aim to maximise output while producing high quality surgical outcome, the scheduled surgical cases are low risk and performed by fully certified surgeons from hospitals within the Klang Valley. Its location within the commercial area facilitates population access to the centre. Cataract surgical data are entered into the local Eye Clinic Management System (ECMS) which synchronises with the NED database at regular intervals.

3.1 Stock and Flow

PPKM-HS receives feeder from hospitals within the Central Zone (Selangor, Wilayah Persekutuan and Negeri Sembilan) and beyond. The number of patients increased from 1506 in 2013 to 2900 in 2016. The number decreased in 2015 due to closures of Operating Theaters from incidences of infrastructure failures.

3.1.1 Stock and Flow

Table 3.1.1-1: Stock and Flow, CSR 2013-2016

Year	2013		2014		2015		2016	
Total no. of cataract surgery registered to CSR	1506		2266		1824		2900	
Cataract surgery with visual outcome records	n	%	n	%	n	%	n	%
	1441	95.7	2183	96.3	1500	82.2	2215	76.4

3.2 Characteristics of Patients

Although PPKM-HS is part of the Cataract Free Zone Project - KK1M strategy to address cataract blindness issue in the country, the mean presenting age of the patients was younger, compared to the mean presenting age for MOH (65.9). This could be due to its location in the urban area.

3.2.1 Patient Demography

Table 3.2.1-1: Age and Gender Distributions, CSR 2013-2016

Year	2013		2014		2015		2016	
Total number of cataract surgery	1506		2266		1824		2900	
Age								
Mean (years)	65.3		65.2		65		65.3	
Median (years)	66		66		66		66	
Minimum (year)	19		1		32		21	
Maximum (years)	93		98		86		86	
% Distribution								
Age group, years	n	%	n	%	n	%	n	%
0-4	0	0.0	1	0.0	0	0.0	0	0.0
5-9	0	0.0	0	0.0	0	0.0	0	0.0
10-14	0	0.0	0	0.0	0	0.0	0	0.0
15-19	1	0.1	0	0.0	0	0.0	0	0.0
20-24	3	0.2	1	0.0	0	0.0	1	0.0
25-29	0	0.0	0	0.0	0	0.0	4	0.1
30-34	1	0.1	4	0.2	4	0.2	1	0.0
35-39	4	0.3	3	0.1	11	0.6	13	0.5
40-44	17	1.1	23	1.0	20	1.1	27	0.9
45-49	36	2.4	65	2.5	50	2.7	66	2.3
50-54	108	7.2	134	5.0	124	6.8	180	6.2
55-59	177	11.8	317	12.3	227	12.5	320	11.0
60-64	294	19.5	430	17.9	363	19.9	643	22.2
65-69	343	22.8	541	23.6	466	25.6	758	26.1
70-74	320	21.3	435	19.6	315	17.3	527	18.2
75-79	156	10.4	261	12.7	219	12.0	284	9.8
≥80	46	3.1	51	5.2	25	1.4	76	2.6
Missing	0	0	0	0	0	0.0	0	0.0
Gender								
Male	684	45.4	1077	47.5	865	47.4	1341	46.2
Female	822	54.6	1189	52.5	959	52.6	1559	53.8
Missing	0	0	0	0	0	0.0	0	0.0

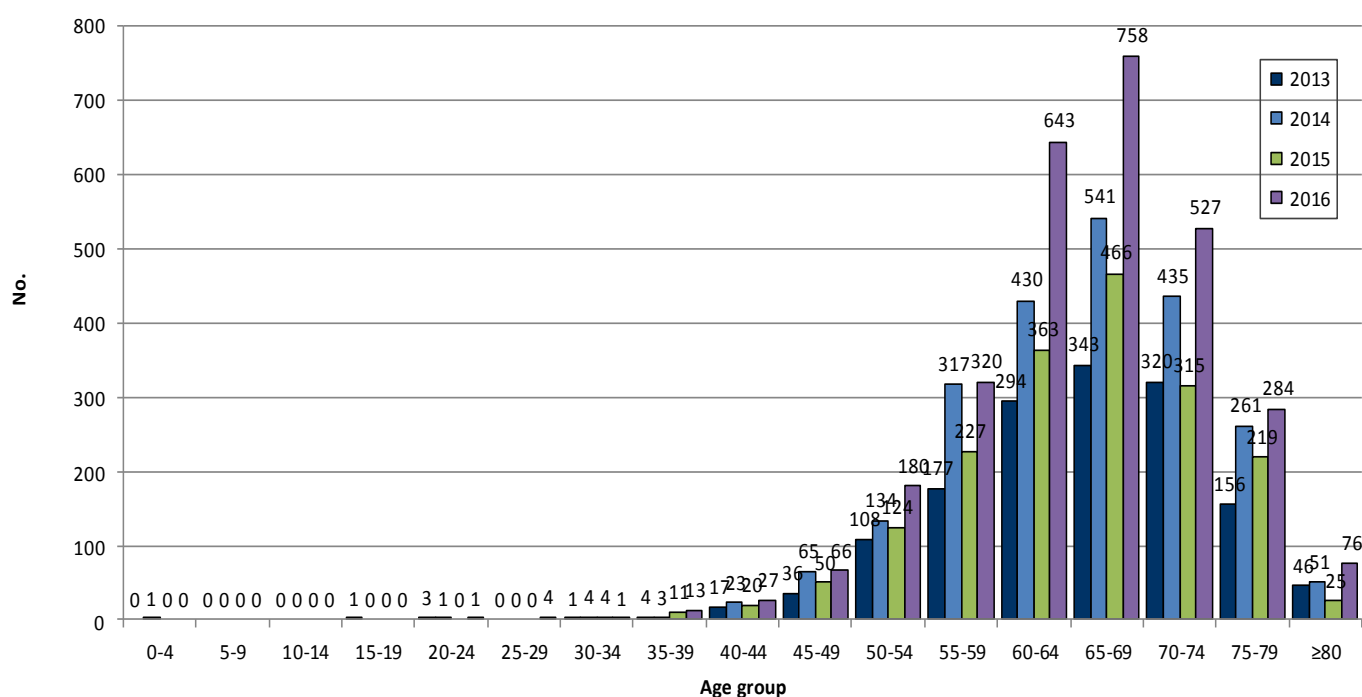


Figure 3.2.1-1: Age Distribution, CSR 2013-2016

3.2.2 Systemic co-morbidity

Similar to profile of patients in total, Hypertension and Diabetes Mellitus formed the major medical illness of patients presenting for cataract surgery in PPKM-HS

Table 3.2.2-1: Distribution of Systemic Co-Morbidity, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
Percentage of patients with any systemic co-morbidity	81.9		77.3		78.0		80.6	
Percentage of patients with specific systemic co-morbidity								
	n	%	n	%	n	%	n	%
1. Hypertension	984	62.2	1405	62.0	1156	63.4	1904	65.7
2. Diabetes Mellitus	679	42.9	1042	46.0	807	44.2	1356	46.8
3. Ischaemic Heart Disease	76	4.8	110	4.9	65	3.6	130	4.5
4. Renal Failure	13	0.8	35	1.5	21	1.2	52	1.8
5. Cerebrovascular accident	21	1.3	16	0.7	12	0.7	24	0.8
6. COAD/Asthma	66	4.2	87	3.8	46	2.5	94	3.2
7. Others	525	33.2	974	43.0	798	43.8	1310	45.2

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

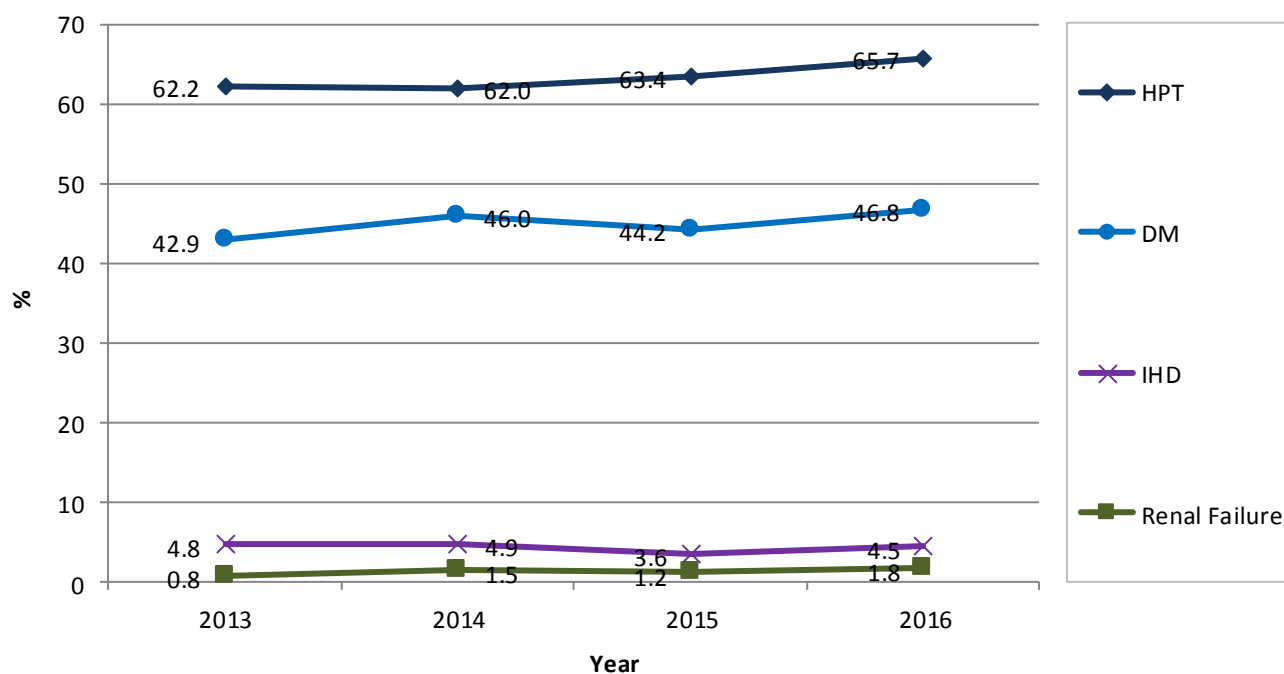


Figure 3.2.2-1: Percentage of Patients with Specific Systemic Co-morbidity, CSR 2013-2016

3.2.3 Causes of cataract

Table 3.2.3-1: Causes of Cataract, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Primary cataract	1214	80.6	1722	76.0	1410	77.3	2332	80.4
Secondary cataract	9	0.6	8	0.4	13	0.7	12	0.4
Missing value	283	18.8	536	23.7	401	22.0	556	19.2
Primary Cataract (N)	1067		1467		1410		2332	
	n	%	n	%	n	%	n	%
Senile/age related	1064	99.7	1463	99.7	1191	84.5	2132	91.4
Congenital	0	0.0	0	0.0	0	0.0	0	0.0
Development	0	0.0	0	0.0	0	0.0	1	0.0
Others	3	0.3	4	0.3	219	15.5	199	8.5
Secondary Cataract (N)	5		2		13		12	
	n	%	n	%	n	%	n	%
Trauma	1	20.0	0	0.0	3	23.1	3	25.0
Drug induced	1	20.0	1	50.0	1	7.7	3	25.0
Surgery induced	2	40.0	0	0.0	2	15.4	2	16.7
Others	1	20.0	1	50.0	7	53.8	4	33.3

3.2.4 First or Second Eye Surgery

Percentage of uptake for second eye surgery is an indicator for access. The percentage of second eye surgery in PPKM-HS was higher than the figure for all MOH (35.9% in 2016). This evidence suggests that PPKM-HS concept has potential to be used in increasing access of patients requiring surgery.

Table 3.2.4-1: First or Second Eye Surgery, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
First eye surgery	894	59.4	1212	53.5	1088	59.6	1771	61.1
Fellow eye surgery	612	40.6	913	40.3	704	38.6	1080	37.2
Missing	0	0.0	141	6.2	32	1.8	49	1.7
Patients who had second surgery in the same year	0	0.0	449	19.8	343	18.8	547	18.9
Period of time between first and fellow eye surgery (months)								
N	611		913		704		1080	
Mean	17.3		13.9		12.6		17.6	
SD	27.3		27.2		22.8		33.9	
Median	6.8		4.3		4.9		4.9	
Patients who had cataract surgery before	612		913		704		1080	
	n	%	n	%	n	%	n	%
Eyes with intra-operative complications during surgery in the first eye	36	5.9	33	3.6	30	4.3	28	2.6

3.2.5 Past Ocular Surgery of the Operated Eye

Most patients did not have any past ocular surgery in the operated eye.

Table 3.2.5-1: Past Ocular Surgery of the Operated Eye, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients	1506		2266		1824		2900	
No. of eyes with past ocular surgery record (N)	1424		2031		1694		2701	
	n	%	n	%	n	%	n	%
Patients with no past ocular surgery	1362	95.6	1986	97.8	1655	97.7	2661	98.5
Vitreoretinal surgery	33	2.3	26	1.3	29	1.7	25	0.9
Pterygium excision	12	0.8	20	1.0	7	0.4	6	0.2
Filtering surgery	0	0.0	0	0.0	0	0.0	4	0.1
Penetrating keratoplasty	0	0.0	0	0.0	0	0.0	0	0.0
Others	22	1.5	20	1.0	10	0.6	9	0.3

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

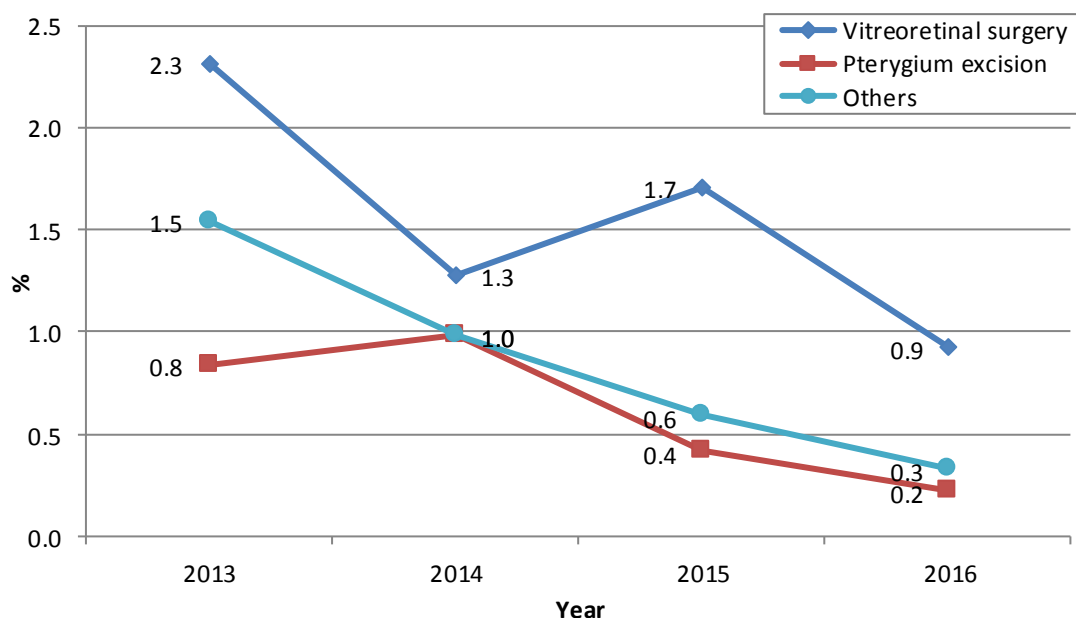


Figure 3.2.5-1: Distribution of Past Ocular Surgery of the Operated Eye, CSR 2013-2016

3.2.6 Pre-existing Ocular Co-morbidity

Consistent with the concept of maximizing surgical output by surgery on low risk cases, only 15% of the operated patients had pre-existing ocular co-morbidity in the operated eye. (As compared to 37% in total MOH)

Table 3.2.6-1: Distribution of Pre-existing Ocular Co-Morbidity, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Patients with any ocular co-morbidity	253	16.8	384	16.9	217	11.9	444	15.3
Patients with specific ocular co-morbidity								
<u>Anterior segment</u>								
1. Glaucoma	31	2.1	45	2.0	29	1.6	91	3.1
2. Pterygium involving the cornea	14	0.9	16	0.7	9	0.5	14	0.5
3. Pseudoexfoliation	4	0.3	5	0.2	6	0.3	4	0.1
4. Corneal opacity	2	0.1	5	0.2	3	0.2	6	0.2
5. Chronic uveitis	0	0.0	0	0.0	0	0.0	7	0.2
<u>Len related complication</u>								
1. Phacomorphic	0	0.0	1	0.0	0	0.0	2	0.1
2. Phacolytic	0	0.0	0	0.0	0	0.0	0	0.0
3. Subluxated/Disclosed	0	0.0	0	0.0	0	0.0	0	0.0
<u>Posterior segment</u>								
1. Diabetic Retinopathy: Non Proliferative	70	4.6	115	5.1	55	3.0	118	4.1
2. Diabetic Retinopathy: Proliferative	31	2.1	33	1.5	15	0.8	37	1.3
3. Diabetic Retinopathy: CSME*	6	0.4	13	0.6	8	0.4	19	0.6

4. Diabetic Retinopathy: Vitreous haemorrhage	4	0.3	2	0.1	4	0.2	1	0.0
5. ARMD	13	0.9	19	0.8	7	0.4	27	0.9
6. Other macular disease (includes hole or scar)	6	0.4	13	0.6	4	0.2	7	0.2
7. Optic nerve disease, any type	0	0.0	2	0.1	1	0.1	4	0.1
8. Retinal detachment	11	0.7	5	0.2	4	0.2	6	0.2
9. Cannot be assessed	9	0.6	84	3.7	58	3.2	36	1.2
Miscellaneous								
1. Amblyopia	0	0.0	1	0.0	0	0.0	4	0.1
2. Significant previous eye trauma	0	0.0	0	0.0	0	0.0	0	0.0
3. Pre-existing non glaucoma field defect	0	0.0	0	0.0	0	0.0	0	0.0
4. Others	88	5.8	65	2.9	36	2.0	120	4.1

*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

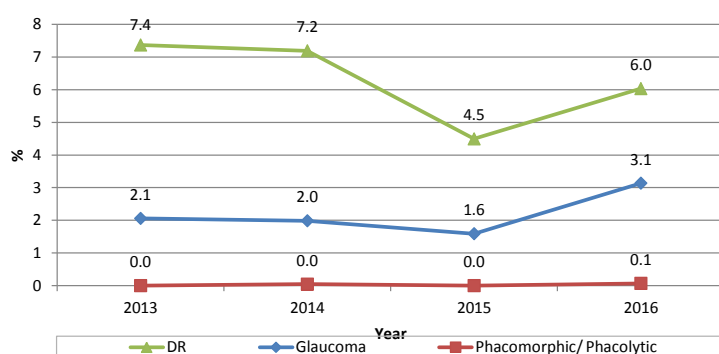


Figure 3.2.6-1: Distribution of Eyes with Specific Ocular Co-morbidity, CSR 2013-2016

3.2.7 Pre-operative Vision

Most patients presented at moderate visual impairment (41.4% at <6/18 - 6/60 in 2016) unlike figure for total MOH (41.4% at <3/60 in 2016)

Table 3.2.7-1: Distribution of Pre-Operative Vision, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Patients with unaided VA	1148	76.2	1662	73.3	1394	76.4	2668	92.0
Patients with pinhole VA	367	24.4	347	15.3	426	23.4	1721	59.3
Patients with best corrected VA	6	0.4	10	0.4	0	0.0	101	3.5
Patients with no refraction	1191	79.1	1652	72.9	1394	76.4	2567	88.5

6/12 and better	Unaided	58	5.1	79	4.8	68	4.9	112	4.2
	Pinhole	50	13.6	54	15.6	53	12.4	186	10.8
	Best corrected	2	33.3	0	0.0	0	0.0	25	24.8
<6/12 - 6/18	Unaided	91	7.9	156	9.4	158	11.3	303	10.4
	Pinhole	74	20.2	53	15.3	82	19.2	294	17.1
	Best corrected	0	0.0	2	20.0	0	0.0	18	17.8
<6/18 - 6/60	Unaided	506	44.1	680	40.9	551	39.5	1104	41.4
	Pinhole	188	51.2	155	44.7	199	46.7	626	36.4
	Best corrected	4	66.7	3	30.0	0	0.0	28	27.7
<6/60 - 3/60	Unaided	135	11.8	194	11.7	167	12.0	302	11.3
	Pinhole	20	5.4	27	7.8	28	6.6	144	8.4
	Best corrected	0	0.0	0	0.0	0	0.0	1	1.0
<3/60	Unaided	358	31.2	553	33.3	450	32.3	847	31.7
	Pinhole	35	9.5	58	16.7	64	15.0	471	27.4
	Best corrected	0	0.0	5	50.0	0	0.0	29	28.7
Unaided VA for patient with no refraction									
n		1145		1652		1394		2567	
6/12 and better		58	5.1	79	4.8	68	4.9	105	4.1
<6/12 - 6/18		91	7.9	154	9.3	158	11.3	292	11.4
<6/18 - 6/60		503	43.9	677	41.0	551	38.5	1056	41.1
<6/60 - 3/60		135	11.8	194	11.7	167	12.1	296	11.5
<3/60		358	31.3	548	33.2	450	32.3	818	31.9

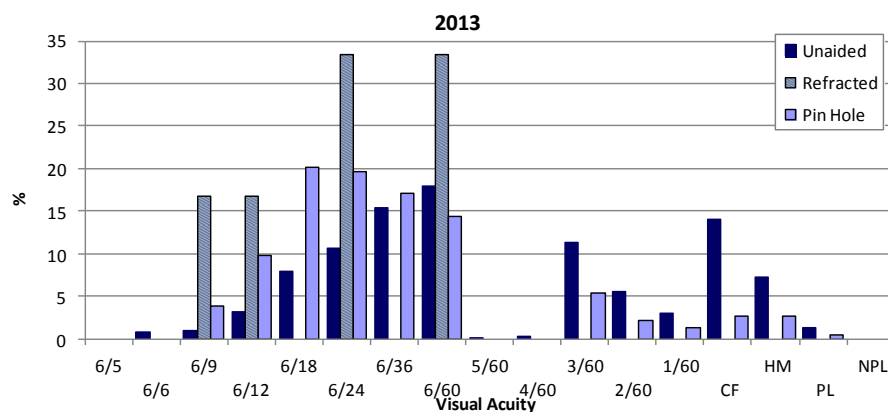


Figure 3.2.7-1: Distribution of Pre-Operative Vision (Unaided/presenting and best corrected), CSR 2013

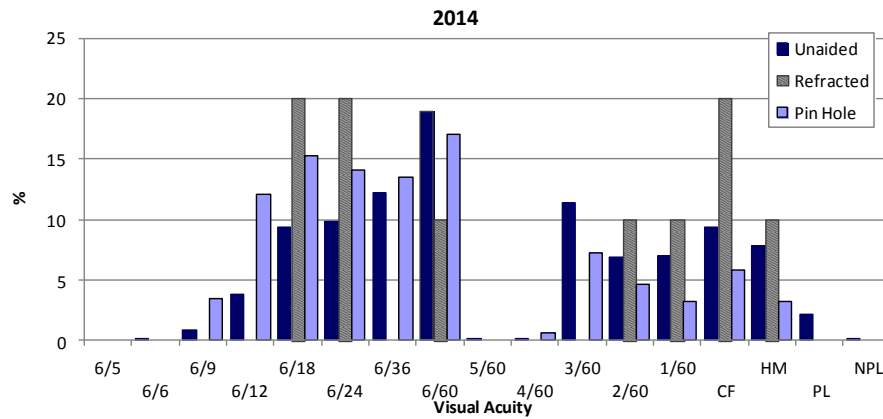


Figure 3.2.7-2: Distribution of Pre-Operative Vision (Unaided/presenting and best corrected), CSR 2014

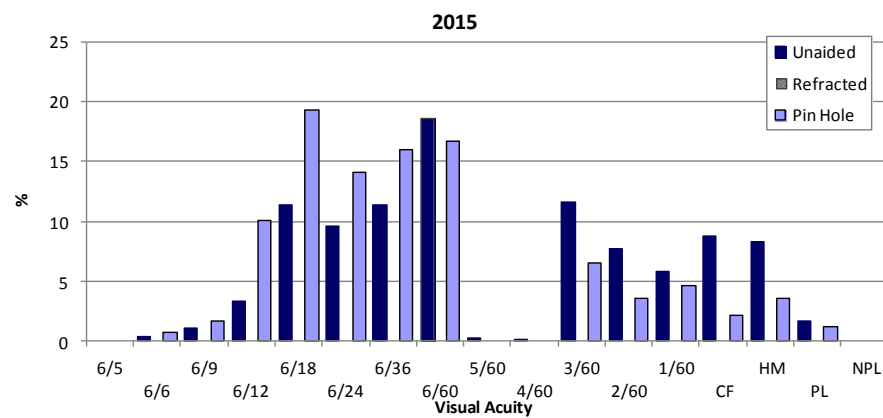


Figure 3.2.7-3: Distribution of Pre-Operative Vision (Unaided/presenting and best corrected), CSR 2015

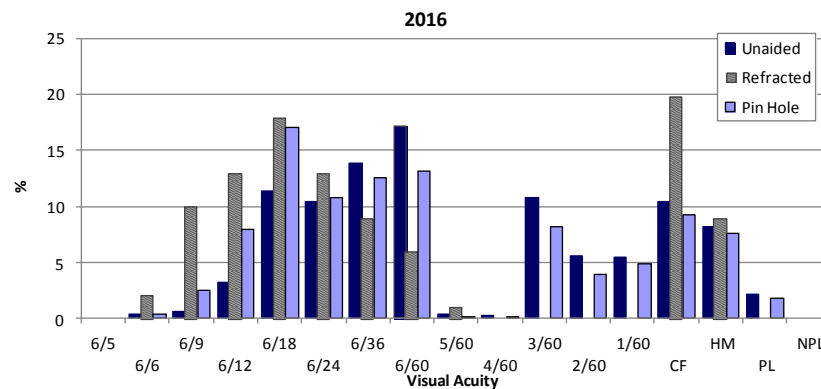


Figure 3.2.7-4: Distribution of Pre-Operative Vision (Unaided/presenting and best corrected), CSR 2016

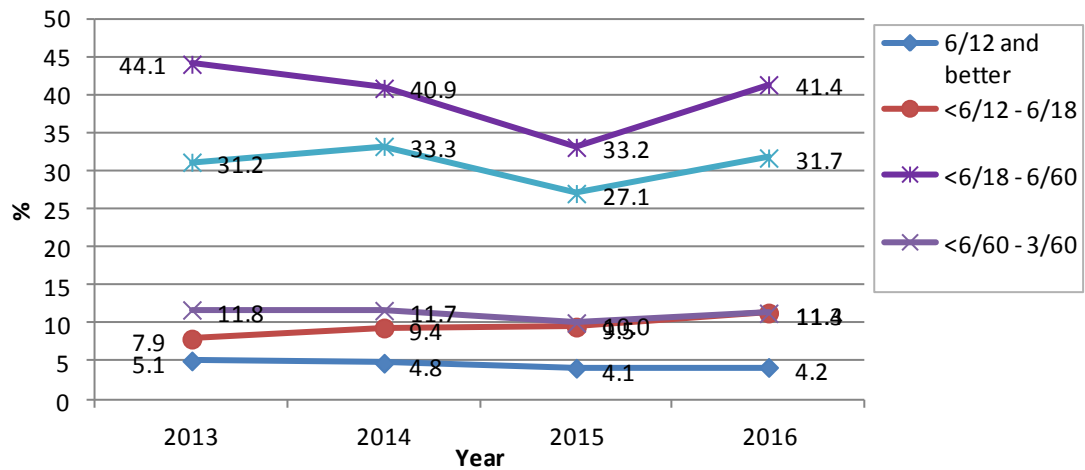


Figure 3.2.7-5: Distribution of Pre-Operative Vision (Unaided/presenting), CSR 2013-2016

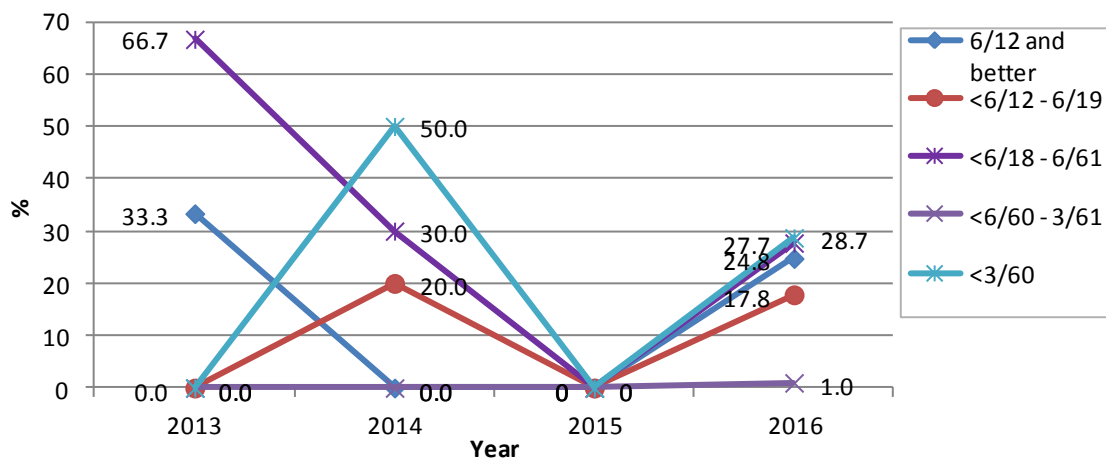


Figure 3.2.7-6: Distribution of Pre-Operative Vision (Best corrected), CSR 2013-2016

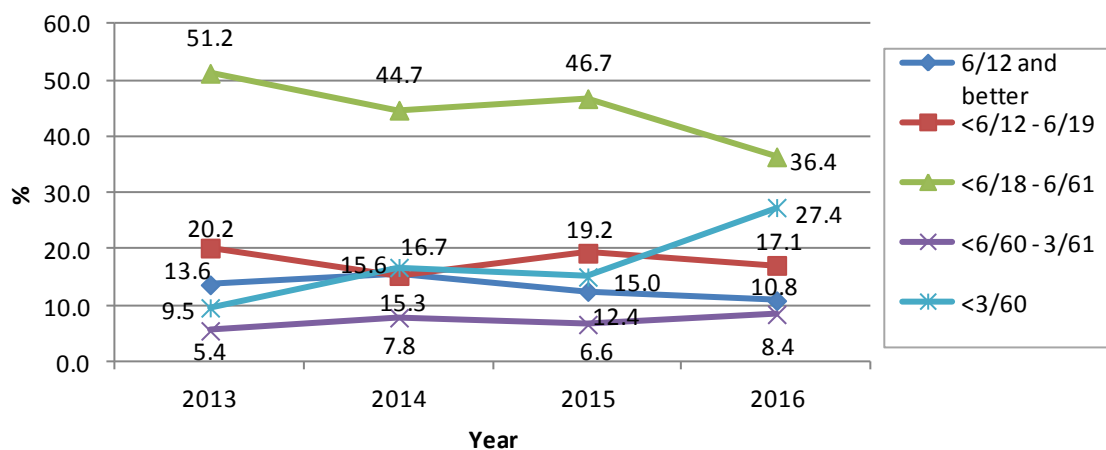


Figure 3.2.7-7: Distribution of Pre-Operative Vision (Pin Hole), CSR 2013-2016

3.2.8 Target Refractive Power

Data on target refractive power are not accurate from 2013-2016 due to error in data entry resulting in low number synched from the local ECMS to NED. This error has been rectified.

Table 3.2.8-1: Distribution of Target Refractive Power, CSR 2013-2016

Year	2013	2014	2015	2016
Operated eye (N)	985	859	255	2062
Mean	-0.3	-0.3	-0.4	-0.3
SD	0.4	0.1	0.6	0.2
Median	-0.3	-0.3	-0.4	-0.3
Minimum	-6.2	-1.3	-9.9	-1.5
Maximum	0.01	0.20	1.82	2.25

Table 3.2.8-2: Distribution of Target Refractive Power, CSR 2013-2016

Year	2013		2014		2015		2016	
Target refractive power (Dioptres)	Operated eye N=985		Operated eye N=859		Operated eye N=255		Operated eye N=2062	
	n	%	n	%	n	%	n	%
-10-<(-9.5)	0	0.0	0	0.0	1	0.4	0	0.0
-9.5-<(-9)	0	0.0	0	0.0	0	0.0	0	0.0
-9-<(-8.5)	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	0.0
-8-<(-7.5)	0	0.0	0	0.0	0	0.0	0	0.0
-7.5-<(-7)	0	0.0	0	0.0	0	0.0	0	0.0
-7-<(-6.5)	0	0.0	0	0.0	0	0.0	0	0.0
-6.5-<(-5)	4	0.4	0	0.0	0	0.0	0	0.0
-5-<(-4.5)	0	0.0	0	0.0	0	0.0	0	0.0
-4.5-<(-4)	0	0.0	0	0.0	0	0.0	0	0.0
-4-<(-3.5)	0	0.0	0	0.0	0	0.0	0	0.0
-3.5-<(-3)	0	0.0	0	0.0	0	0.0	0	0.0
-3-<(-2.5)	0	0.0	0	0.0	0	0.0	0	0.0
-2.5-<(-2)	0	0.0	0	0.0	0	0.0	0	0.0
-2-<(-1.5)	1	0.1	0	0.0	0	0.0	0	0.0
-1.5-<(-1)	1	0.1	3	0.4	0	0.0	4	0.2
-1-<(-0.5)	42	4.3	53	6.2	61	23.9	89	4.3
-0.5-<0	936	95.0	802	93.4	192	75.3	1911	92.7
0-<0.5	1	0.1	1	0.1	0	0.0	52	2.5
0.5-<1	0	0.0	0	0.0	0	0.0	3	0.2
1-<1.5	0	0.0	0	0.0	0	0.0	1	0.1
1.5-<2	0	0.0	0	0.0	1	0.4	0	0.0
2-<2.5	0	0.0	0	0.0	0	0.0	2	0.1
2.5-<3	0	0.0	0	0.0	0	0.0	0	0.0
3-<3.5	0	0.0	0	0.0	0	0.0	0	0.0
3.5-<4	0	0.0	0	0.0	0	0.0	0	0.0

4-<4.5	0	0.0	0	0.0	0	0.0	0	0.0
4.5-<5	0	0.0	0	0.0	0	0.0	0	0.0
5-<5.5	0	0.0	0	0.0	0	0.0	0	0.0
5.5-<6	0	0.0	0	0.0	0	0.0	0	0.0
6-<6.5	0	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
7-<7.5	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
8-<8.5	0	0.0	0	0.0	0	0.0	0	0.0
8.5-<9	0	0.0	0	0.0	0	0.0	0	0.0
9-<9.5	0	0.0	0	0.0	0	0.0	0	0.0
9.5-10	0	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.

3.3 Cataract Surgical Practices

3.3.1 Surgeon Status

Table 3.3.1-1: Surgeon Status, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Specialist	1488	98.8	2197	97.0	1714	94.0	2536	87.5
Gazetting Specialist	7	0.5	2	0.1	6	0.3	6	0.2
Medical Officer	11	0.7	23	1.0	7	0.4	100	3.5
Missing/NA	0	0	44	1.9	97	5.3	258	8.9

3.3.2 Duration of Surgery

Table 3.3.2-1: Duration of Surgery by Types of Cataract Surgery in minutes, CSR 2013-2016

Year	2013		2014		2015		2016	
	Median	(IQR)	Median	(IQR)	Median	(IQR)	Median	(IQR)
All eyes	22	(18-30)	20	(17-25)	20	(17-25)	20	(17-26)
Phaco	22	(18-29)	20	(17-24)	20	(17-24)	20	(17-26)
ECCE	40	(32-49)	38	(34-45)	52.5	(37-65)	44.5	(37-60)
Phaco → ECCE	56.5	(45-67)	56.5	(47.5-71)	58	(43-65)	60.5	(51-71)
ICCE	45	(30-60)	64	(52.5-69)	50	(40-59)	66.5	(55-68)
Lens Aspiration	27.5	(21-34)	20.5	(17-23)	19	(18-24)	28	(24-34)

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

3.3.3 Distribution of Types of Cataract Surgery

Table 3.3.3-1: Distribution of Types of Cataract Surgery, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Phacoemulsification	1432	95.1	2196	96.9	1777	97.4	2841	98.0
ECCE	37	2.5	18	0.8	13	0.7	10	0.3
Lens Aspiration	3	0.2	5	0.2	3	0.2	16	0.6
Phaco converted to ECCE	25	1.7	39	1.7	23	1.3	25	0.9
ICCE	2	0.1	4	0.2	7	0.4	6	0.2

3.3.4 Anaesthesia in Cataract Surgery

The practice is consistent in all MOH facilities

Table 3.3.4-1: Types of Anaesthesia, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
General Anesthesia	0	0.0	0	0.0	0	0.0	0	0.0
Local Anesthesia	1506	100.0	2266	100.0	1824	100.0	2900	100.0
Type of local anaesthesia								
Subtenon	166	11.0	123	5.4	87	4.8	86	3.0
Topical	1282	85.1	2171	95.8	1607	88.1	2668	92.0
Peribulbar	0	0.0	0	0.0	4	0.2	0	0.0
Retrobulbar	0	0.0	6	0.3	5	0.3	12	0.4
Intracameral	287	19.1	494	21.8	870	47.7	1054	36.3
Subconjunctival	25	1.7	12	0.5	7	0.4	25	0.9
Facial block	0	0.0	0	0.0	0	0.0	0	0.0
Combined local anaesthesia	309	20.5	584	25.8	766	42.0	984	33.9
Types of sedation for patients under local anaesthesia								
No sedation	1305	86.7	1565	69.1	1464	80.3	2784	96.0
Oral sedation alone	0	0.0	0	0.0	0	0.0	1	0.0
Intravenous alone	1	0.1	0	0.0	0	0.0	4	0.1
Intravenous plus oral	1	0.1	0	0.0	0	0.0	0	0.0
Intramuscular alone	0	0.0	0	0.0	0	0.0	4	0.1

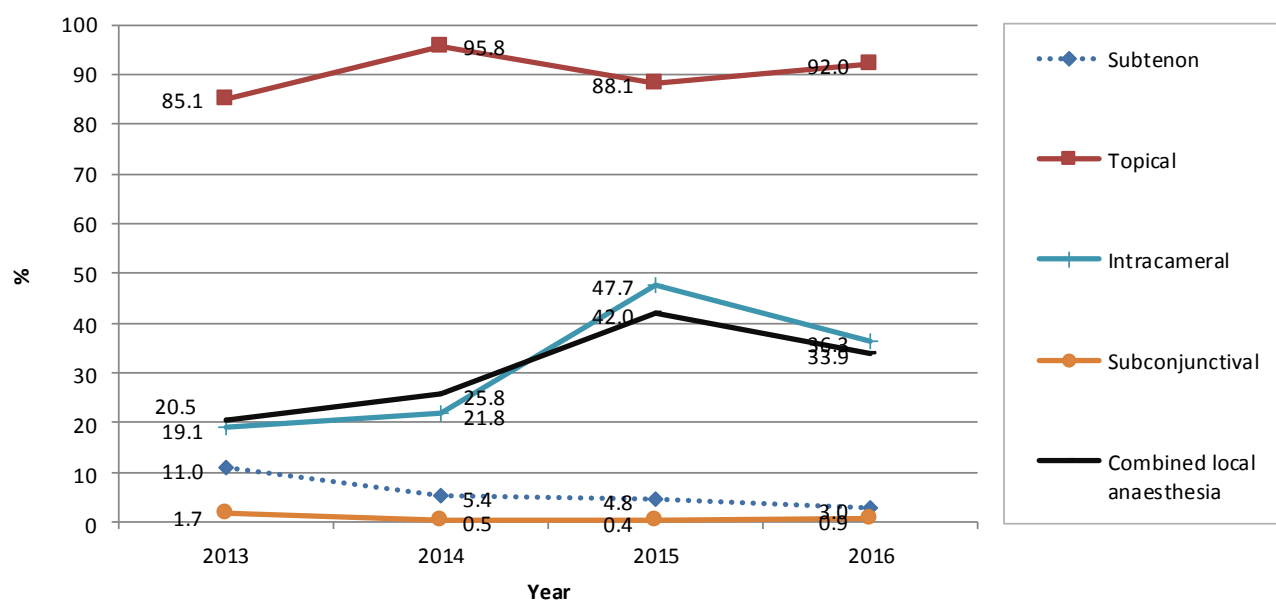


Figure 3.3.4-1: Types of Anaesthesia, CSR 2013-2016

3.3.5 Intraocular Lens Implantation

Table 3.3.5-1: Intraocular Lens Implantation, CSR 2013-2016

Year	2013		2014		2015		2016	
No of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
With IOL	1499	99.5	2256	99.6	1820	99.8	2889	99.6
Without IOL	7	0.5	7	0.3	4	0.2	11	0.4
Not Available	0	0.0	0	0.0	0	0.0	0	0.0
IOL Placement								
No of IOL	1499		2259		1820		2889	
PCIOL	1472	98.2	2218	98.2	1798	98.8	2860	99.0
ACIOL	24	1.6	36	1.6	20	1.1	25	0.9
Scleral Fixated IOL	0	0.0	2	0.1	0	0.0	0	0.0
Others	3	0.2	3	0.1	2	0.1	4	0.1
Not Available /missing	0	0.0	0	0.0	0	0.0	0	0.0
Materials of IOL								
No of IOL	1499		2259		1820		2889	
1. Acrylic	1396	93.1	2109	93.4	1643	90.3	2410	83.4
2. PMMA	23	1.5	26	1.2	13	0.7	13	0.4
3. Silicone	39	2.6	86	3.8	92	5.1	19	0.7
4. Others	9	0.6	12	0.5	7	0.4	431	14.9
Not Available/ missing	32	2.1	26	1.2	65	3.6	16	0.6

Types of IOL								
No of IOL	1499		2259		1820		2889	
1. Foldable	1453	96.9	2210	97.8	1741	95.7	2858	98.9
2. Non-foldable	21	1.4	25	1.1	15	0.8	16	0.6
Not Available/ missing	25	1.7	24	1.1	64	3.5	15	0.5

Table 3.3.5-2: Distribution of IOL Placement, CSR 2013-2016

Cataract Surgery With IOL							
	N	Posterior Chamber IOL		Anterior Chamber IOL		Scleral Fixated IOL	
		n	%	n	%	n	%
2013	1506	1472	97.7	24	1.6	0	0.0
2014	2259	2218	98.2	36	1.6	2	0.1
2015	1820	1798	98.8	20	1.1	0	0.0
2016	2900	2860	98.6	25	0.9	0	0.0

3.4 Intra-operative Complications

3.4.1 Intra-operative Complications by Years

Table 3.4.1-1: Distribution of Type of Intra-operative Complications, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Patient with intra-op complication	52	3.5	61	2.692	53	2.906	53	1.828
Types of complications								
PCR	2	0.1	29	1.3	28	1.5	30	1.0
Vitreous loss	22	1.5	27	1.2	12	0.7	20	0.7
Zonular dehiscence	11	0.7	20	0.9	16	0.9	11	0.4
Drop nucleus	7	0.5	5	0.2	2	0.1	4	0.1
Suprachoroidal haemorrhage	0	0.0	0	0.0	0	0.0	0	0.0
Central corneal oedema	1	0.1	1	0.0	1	0.1	0	0.0
Others	40	2.7	6	0.3	11	0.6	13	0.4

PCR is inaccurate due to data collection error

Table 3.4.1-2: Distribution of Type of Intra-operative Complications – Posterior Capsule Rupture, CSR 2013-2016

Year	2013		2014		2015		2016	
No. of patients (N)	1506		2266		1824		2900	
	n	%	n	%	n	%	n	%
Patient with intra-op complication	52	3.5	61	2.7	53	2.9	53	1.8
Types of complications								
PCR and Others	2	0.1	15	0.7	9	0.5	16	0.6
PCR Only	0	0.0	14	0.6	19	1.0	14	0.5

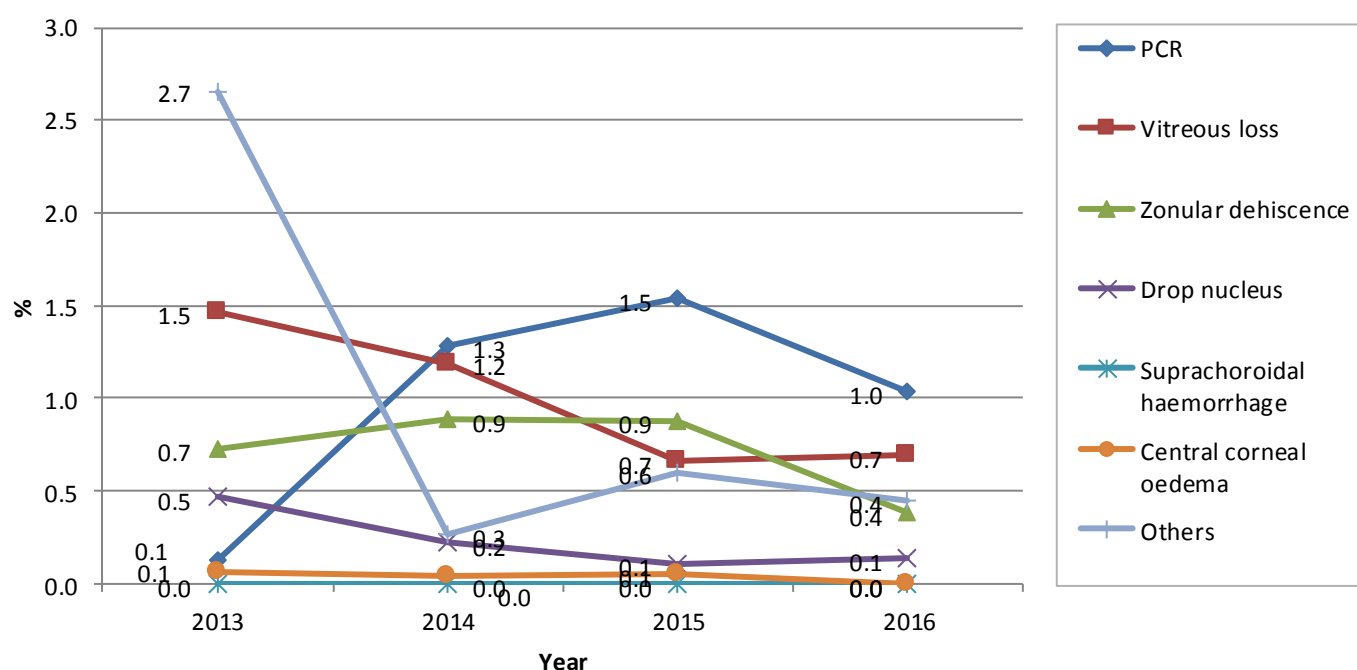


Figure 3.4.1-1: Distribution of Specific Type of Intra-operative Complications, CSE 2013-2016

Table 3.4.1-3: Distribution of Types of Intra-operative Complications, CSR 2013-2016

MAIWP	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	%
2013	1506	52	3.5	2	0.1	22	1.5	11	0.7	7	0.5	0	0.0	1	0.1	40	2.7
2014	2266	61	2.7	29	1.3	27	1.2	20	0.9	5	0.2	0	0.0	1	0.0	6	0.3
2015	1824	53	2.9	28	1.5	12	0.7	16	0.9	2	0.1	0	0.0	1	0.1	11	0.6
2016	2900	53	1.8	30	1.0	20	0.7	11	0.4	4	0.1	0	0.0	0	0.0	13	0.4

3.4.2 PCR

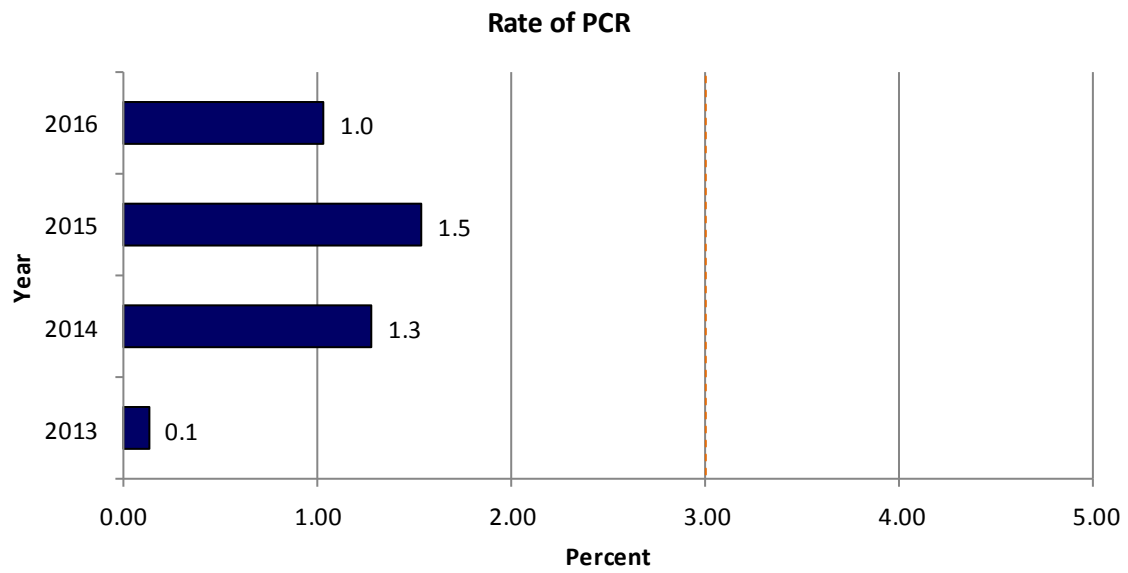


Figure 3.4.1-2: PCR (all surgeries) (National standard set at <3.0%), CSR 2013-2016

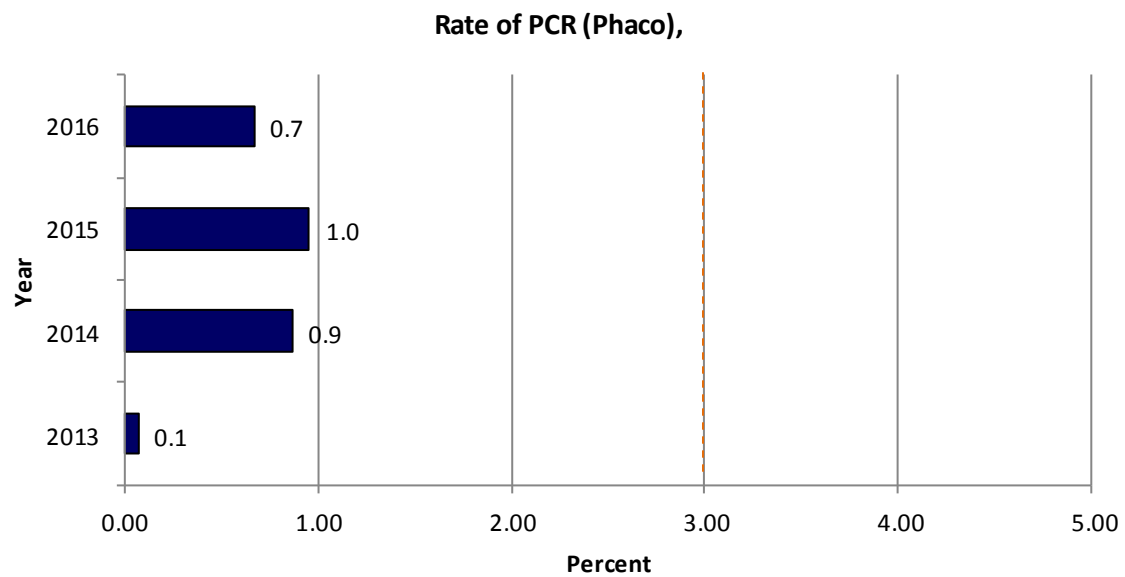


Figure 3.4.1-3: PCR (Phaco only) (National standard set at <3.0%), CSR 2013-2016

3.4.3 PCR by Type of Cataract Surgery

Table 3.4.3-1: PCR by Type of Cataract Surgery, CSR 2013-2016

Year	2013			2014			2015			2016		
No. of patients	1506			2266			1824			2900		
Total PCR	2			29			28			30		
	N	n	%	N	n	%	N	n	%	N	n	%
Phaco	1432	1	0.1	2196	19	0.9	1777	17	1.0	2841	19	0.7
ECCE	37	1	2.7	18	0	0.0	13	1	7.7	10	0	0.0
Lens Aspiration	3	0	0.0	5	0	0.0	3	0	0.0	16	0	0.0
ICCE	2	0	0.0	4	0	0.0	7	0	0.0	6	0	0.0
Phaco converted to ECCE	25	0	0.0	39	10	25.6	23	10	43.5	25	11	44.0

3.5 Cataract Surgery Outcome

3.5.1 Post-operative Complications Record and Ascertainment

Table 3.5.1-1: Distribution of Cataract Surgery with Post-operative Complication Record, CSR 2013-2016

Year	2013	2014	2015	2016
Total number of cataract surgery registered to CSR	1506	2266	1824	2900
Cataract surgery with post-operative complication record	1500	2251	1535	2269
Ascertainment on post-operative complication (%)	99.6	99.3	84.2	78.2
Cataract surgery with visual outcome record	1441	2183	1500	2215
Ascertainment on visual outcome (%)	95.7	96.3	82.2	76.4

3.5.2 Post-operative Infectious Endophthalmitis

Table 3.5.2-1: Post-operative Infectious Endophthalmitis, CSR 2013-2016

Year	2013	2014	2015	2016
Eyes with post-operative complication records (N)	1506	2251	1535	2269
Eyes with post-operative infectious endophthalmitis (n)	0	0	0	0
Percentage of eyes with post-operative endophthalmitis (%)	0.0	0.0	0.0	0.0

3.5.3 Post-operative Follow-up Period

Table 3.5.3-1: Median Follow-up Period for Eyes with Unaided Vision (in weeks) by Types of Surgery, CSR 2013-2016

Types of surgery	2013					2014				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	1445	1443	9	6	12	2189	2187	7	6	10
Phaco	1377	1375	9	6	12	2122	2120	7	6	11
ECCE	35	35	12	7	17	18	18	11.5	10	13
Phaco → ECCE	23	23	17	11	21	37	37	11	7	12
ICCE	1	1	11	-	-	3	3	10	1	14
Lens aspiration	3	3	12	6	12	5	5	7	3	7

Types of surgery	2015					2016				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	1509	1509	7	7	11	2215	2215	7	7	11
Phaco	1479	1479	7	7	11	2179	2179	7	7	10
ECCE	9	9	9	6	17	5	5	11	10	11
Phaco → ECCE	16	16	12	9	16.5	17	17	11	9	12
ICCE	3	3	11	6	12	2	2	9	7	11
Lens aspiration	2	2	9.5	7	12	11	11	7	5	7

n = No. of available information

Table 3.5.3-2: Median Follow-up Period for Eyes with Refracted Vision (in weeks) by Types of Surgery, CSR 2013-2016

Types of surgery	2013					2014				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	1377	1375	10	6	12	2048	2048	8	7	11
Phaco	1318	1316	10	6	12	1989	1989	7	7	11
ECCE	29	29	12	8	15	18	18	11.5	10	13
Phaco → ECCE	21	21	17	12	21	33	33	11	10	13
ICCE	2	2	13.5	11	16	2	2	12	10	14
Lens aspiration	3	3	12	6	12	2	2	8	7	9

Types of surgery	2015					2016				
	N	n	Median	25 th percentile	75 th percentile	N	n	Median	25 th percentile	75 th percentile
All surgeries	1520	1520	7	7	11	2206	2206	7	7	11
Phaco	1493	1493	7	7	11	2169	2169	7	7	10
ECCE	8	8	8	5.5	14	5	5	11	10	11
Phaco → ECCE	15	15	12	9	17	16	16	11	9.5	12.5
ICCE	3	3	11	6	12	2	2	9	7	11
Lens aspiration	1	1	7	-	-	12	12	7	5.5	7

n = No. of available information

3.5.4 Post-operative Visual Acuity

Table 3.5.4-1: Post-operative Visual Acuity, All Eyes, CSR 2013-2016

Year	2013				2014				2015				2016			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	1	0.1	1	0.1	1	0.0	1	0.0	0	0.0	0	0.0	1	0.0	0	0.0
6/6	210	13.9	938	62.3	396	17.5	1339	59.1	267	14.6	980	53.7	384	13.2	1516	52.3
6/9	448	29.8	267	17.7	710	31.3	469	20.7	555	30.4	409	22.4	825	28.4	474	16.3
6/12	212	14.1	65	4.3	342	15.1	113	5.0	205	11.2	85	4.7	283	9.8	111	3.8
6/18	222	14.7	38	2.5	254	11.2	40	1.8	214	11.7	26	1.4	273	9.4	48	1.7
6/24	81	5.4	21	1.4	126	5.6	25	1.1	96	5.3	13	0.7	128	4.4	18	0.6
6/36	89	5.9	11	0.7	128	5.6	20	0.9	48	2.6	1	0.1	93	3.2	15	0.5
6/60	81	5.4	18	1.2	91	4.0	20	0.9	51	2.8	1	0.1	91	3.1	10	0.3
5/60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.0
4/60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0
3/60	37	2.5	8	0.5	52	2.3	10	0.4	17	0.9	1	0.1	55	1.9	3	0.1
2/60	15	1.0	1	0.1	28	1.2	1	0.0	19	1.0	0	0.0	22	0.8	1	0.0
1/60	7	0.5	2	0.1	20	0.9	1	0.0	16	0.9	1	0.1	22	0.8	2	0.1
CF	30	2.0	5	0.3	25	1.1	5	0.2	10	0.5	1	0.1	21	0.7	3	0.1
HM	11	0.7	2	0.1	10	0.4	4	0.2	6	0.3	2	0.1	12	0.4	3	0.1
PL	1	0.1	0	0.0	2	0.1	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0
NPL	0	0.0	0	0.0	4	0.2	0	0.0	2	0.1	0	0.0	2	0.1	0	0.0
Missing	61	4.05	129	8.57	77	3.4	218	9.6	315	17.3	304	16.7	685	23.6	694	23.9
Total	1506	100.0	1506	100.0	2266	100.0	2266	100.0	1824	100.0	1824	100.0	2900	100.0	2900	100.0

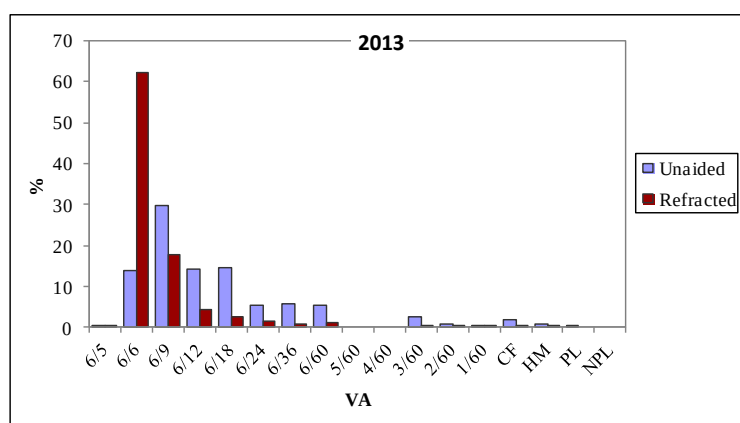


Figure 3.5.4-1: Distribution of Post-operative Unaided and Best corrected Visual Acuity, All Eyes, and CSR 2013

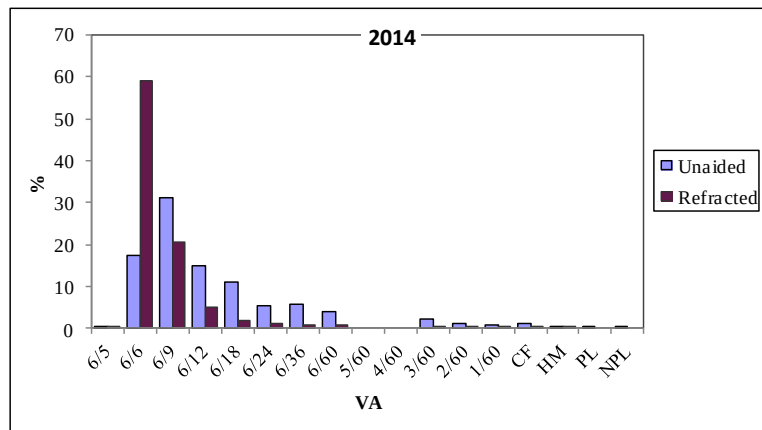


Figure 3.5.4-2: Distribution of Post-operative Unaided and Best corrected Visual Acuity, All Eyes, and CSR 2014

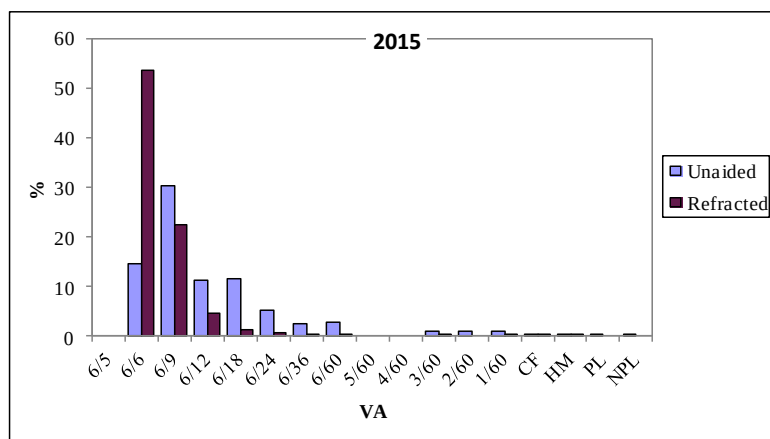


Figure 3.5.4-3: Distribution of Post-operative Unaided and Best corrected Visual Acuity, All Eyes, and CSR 2015

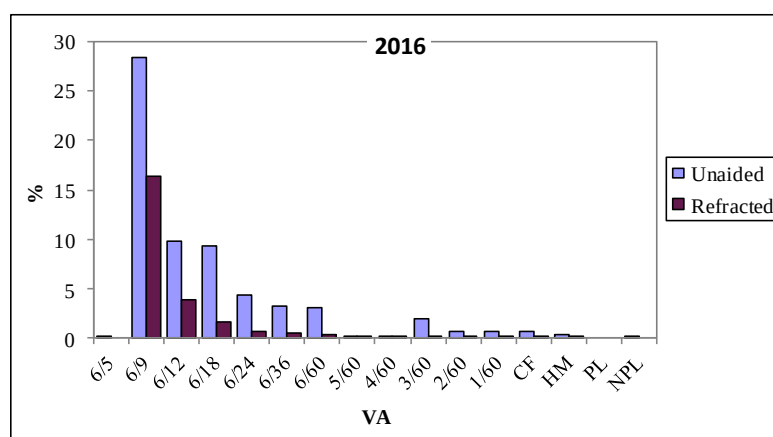


Figure 3.5.4-4: Distribution of Post-operative Unaided and Best corrected Visual Acuity, All Eyes, and CSR 2016

Table 3.5.4-2: Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2013-2016

Year	2013				2014				2015				2016			
VA	Unaided		Refracted		Unaided		Refracted		Unaided		Refracted		Unaided		Refracted	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
6/5	1	0.1	1	0.1	0	0.0	0	0	0	0.0	0	0.0	1	0.1	0	0.0
6/6	188	15.6	834	72.5	337	20.1	1,125	71.6	246	18.9	884	67.3	343	18.7	1,329	72.5
6/9	384	31.9	213	18.5	564	33.6	328	20.9	486	37.3	346	26.3	717	39.0	394	21.5
6/12	179	14.9	47	4.1	268	16.0	65	4.1	164	12.6	59	4.5	225	12.2	65	3.5
6/18	178	14.8	19	1.7	172	10.2	23	1.5	188	14.4	16	1.2	208	11.3	21	1.1
6/24	65	5.4	12	1.0	88	5.2	13	0.8	78	6.0	8	0.6	95	5.2	7	0.4
6/36	69	5.7	7	0.6	89	5.3	9	0.6	38	2.9	0	0.0	71	3.9	6	0.3
6/60	63	5.2	10	0.9	65	3.9	2	0.1	44	3.4	0	0.0	67	3.6	4	0.2
5/60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.1
4/60	0	0.0	0	0.0	0	0.0	0	0	0	0.0	0	0.0	1	0.1	1	0.1
3/60	25	2.1	3	0.3	38	2.3	3	0.2	13	1.0	0	0.0	46	2.5	0	0.0
2/60	12	1.0	1	0.1	21	1.3	0	0	16	1.2	0	0.0	20	1.1	0	0.0
1/60	6	0.5	0	0.0	16	1.0	0	0.0	14	1.1	0	0.0	17	0.9	1	0.1
CF	26	2.2	3	0.3	13	0.8	2	0.1	7	0.5	0	0.0	16	0.9	1	0.1
HM	8	0.7	1	0.1	7	0.4	1	0.1	5	0.4	1	0.1	9	0.5	2	0.1
PL	0	0.0	0	0.0	0	0.0	0	0	2	0.2	0	0.0	0	0.0	0	0.0
NPL	0	0.0	0	0.0	2	0.1	0	0	1	0.1	0	0.0	1	0.1	0	0.0
Total	1204	100	1151	100	1680	100.0	1571	100.0	1302	100.0	1314	100.0	1839	100.0	1832	100.0

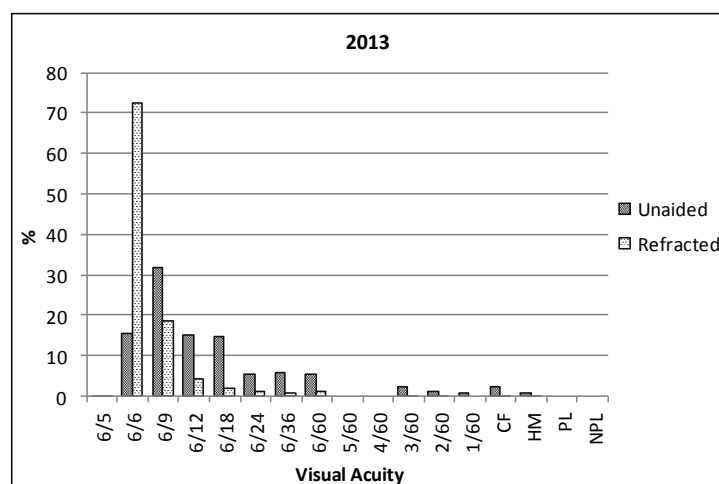


Figure 3.5.4-5: Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2013

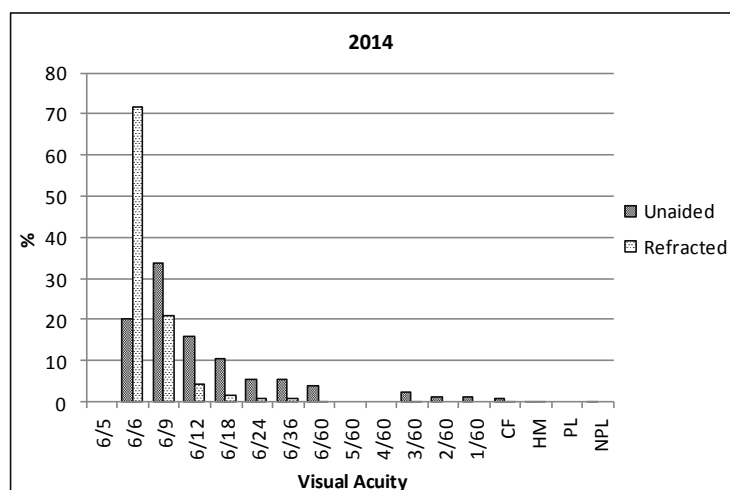


Figure 3.5.4-6:Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2014

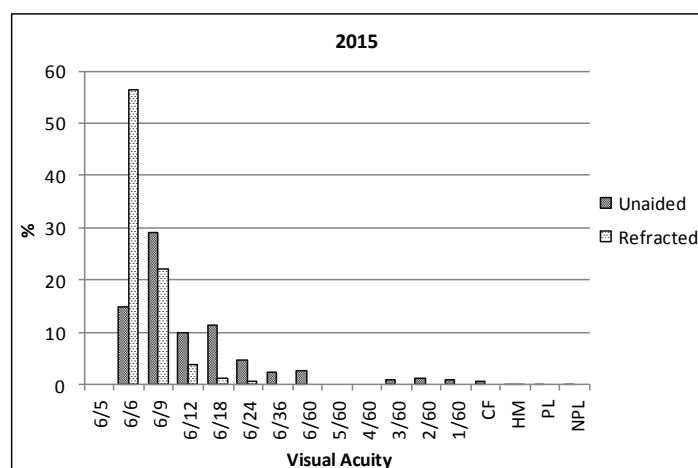


Figure 3.5.4-7:Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2015

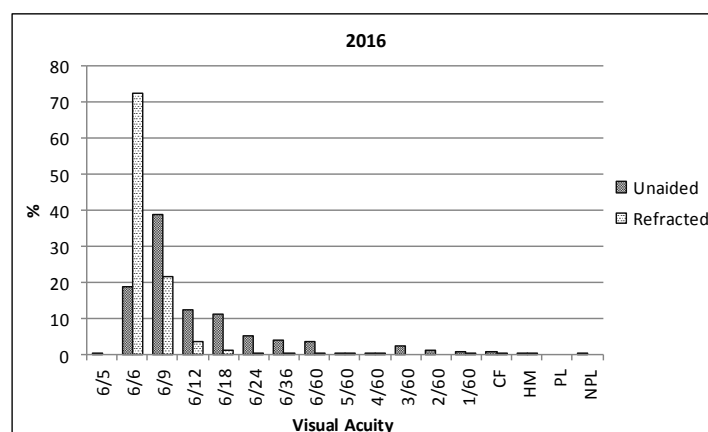


Figure 3.5.4-8:Post-Operative Visual Acuity for Eyes without Ocular Co-morbidity, CSR 2016

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

Table 3.5.5-1: Post-operative Visual Acuity 6/12 or Better for Eyes without Ocular Co-morbidities by Types of Surgery, CSR 2013-2016

	2013						2014					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	1204	752	62.5	1151	1095	95.1	1680	1169	69.6	1571	1518	96.6
Phaco	1147	729	63.6	1101	1057	96.0	1645	1154	70.2	1539	1491	96.9
ECCE	30	11	36.7	26	19	73.1	7	4	57.1	7	6	85.7
Phaco → ECCE	20	9	45.0	18	14	77.8	24	9	37.5	22	18	81.8
Lens Aspiration	2	0	0.0	2	2	100.0	2	2	100.0	1	1	100.0
ICCE	1	1	100.0	1	0	0.0	2	0	0.0	2	2	100.0

	2015						2016					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	1302	896	68.8	1314	1289	98.1	1839	1286	69.9	1832	1788	97.6
Phaco	1282	888	69.3	1296	1277	98.5	1818	1272	70.0	1811	1770	97.7
ECCE	4	1	25.0	3	3	100.0	2	1	50.0	2	2	100.0
Phaco → ECCE	12	5	41.7	12	8	66.7	12	7	58.3	11	8	72.7
Lens Aspiration	2	1	50.0	1	1	100.0	7	6	85.7	8	8	100.0
ICCE	2	1	50.0	2	0	0.0	0	0	0.0	0	0	0.0

Table 3.5.5-2: Post-operative Visual Acuity 6/18 or Better for Eyes without Ocular Co-morbidities by Types of Surgery, CSR 2013-2016 (WHO Classification)

	2013						2014					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	1204	930	77.2	1151	1114	96.8	1680	1341	79.8	1571	1541	98.1
Phaco	1147	896	78.1	1101	1070	97.2	1645	1321	80.3	1539	1514	98.4
ECCE	30	15	50.0	26	22	84.6	7	5	71.4	7	6	85.7
Phaco → ECCE	20	13	65.0	18	16	88.9	24	11	45.8	22	18	81.8
Lens Aspiration	2	2	100.0	2	2	100.0	2	2	100.0	1	1	100.0
ICCE	1	1	100.0	1	1	100.0	2	2	100.0	2	2	100.0

	2015						2016					
	Unaided			Refracted			Unaided			Refracted		
	N	n	%	N	n	%	N	n	%	N	n	%
All Surgeries	1302	1084	83.3	1314	1305	99.3	1839	1494	81.2	1832	1809	98.7
Phaco	1282	1072	83.6	1296	1290	99.5	1818	1479	81.4	1811	1791	98.9
ECCE	4	2	50.0	3	3	100.0	2	2	100.0	2	2	100.0
Phaco → ECCE	12	8	66.7	12	10	83.3	12	7	58.3	11	8	72.7
Lens Aspiration	2	1	50.0	1	1	100.0	7	6	85.7	8	8	100.0
ICCE	2	1	50.0	2	1	50.0	0	0	0.0	0	0	0.0

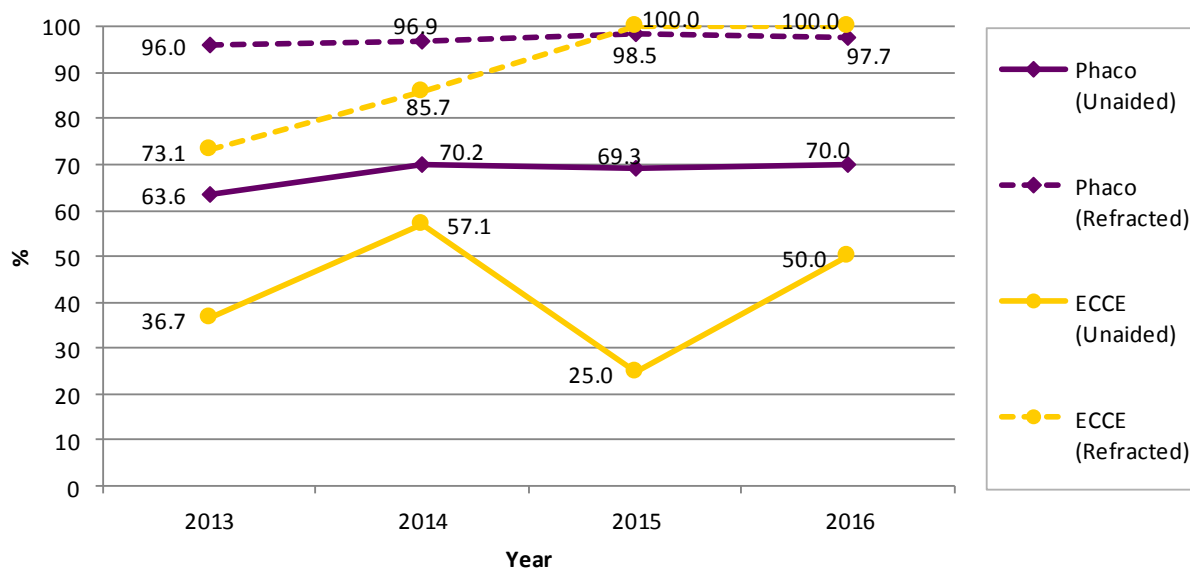


Figure 3.5.5-1: Post-operative Visual Acuity 6/12 or Better for Eyes without Ocular Co-morbidities by ECCE and Phaco, CSR 2013-2016

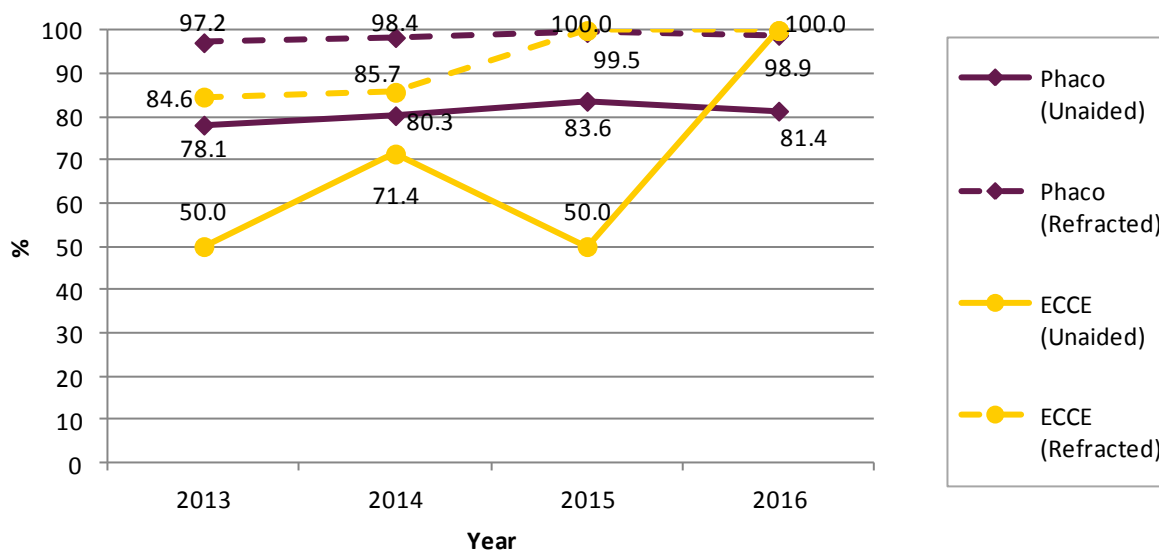


Figure 3.5.5-2: Post-operative Visual Acuity 6/18 or Better for Eyes without Ocular Co-morbidities by ECCE and Phaco, CSR 2013-2016

Table 3.5.5-3: Post-operative Best corrected Visual Acuity 6/12 or Better in Eyes without Ocular Co-morbidities by Complications and Types of Surgery, CSR 2013-2016

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	%
With intra-op complications	24	17	70.8	0	0	0	2	1	50.0	13	11	84.6	8	4	50	0	0	0
No intra-op complications	1127	1078	95.7	2	2	100.0	24	18	75.0	1088	1046	96.1	10	10	100	1	0	0

2014	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	%
With intra-op complications	36	28	77.8	0	0	0	0	0	0.0	23	19	82.6	12	8	66.7	1	1	100
No intra-op complications	1535	1490	97.1	1	1	100.0	7	6	85.7	1516	1472	97.1	10	10	100.0	1	1	100

2015	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	%
With intra-op complications	28	23	82.1	0	0	0.0	1	1	100.0	17	17	100.0	9	5	55.6	1	0	0.0
No intra-op complications	1286	1266	98.4	1	1	100.0	2	2	100.0	1279	1260	98.5	3	3	100.0	1	0	0.0

2016	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	%
With intra-op complications	17	14	82.4	0	0	0.0	0	0	0.0	12	12	100.0	5	2	40.0	0	0	0.0
No intra-op complications	1815	1774	97.7	8	8	100.0	2	2	100.0	1799	1758	97.7	6	6	100.0	0	0	0.0

Table 3.5.5-4: Post-operative Best corrected Visual Acuity 6/18 or Better in Eyes without Ocular Co-morbidities by Complications and Types of Surgery, CSR 2013-2016 (WHO Classification)

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	%
With intra-op complications	24	20	83.3	0	0	0.0	2	2	100.0	13	11	84.6	8	6	75.0	0	0	0.0
No intra-op complications	1127	1094	97.1	2	2	100.0	24	20	83.3	1088	1059	97.3	10	10	100.0	1	1	100.0

2014	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	%
With intra-op complications	36	29	80.6	0	0	0	0	0	0.0	23	20	87.0	12	8	66.7	1	1	100.0
No intra-op complications	1535	1512	98.5	1	1	100.0	7	6	85.7	1516	1494	98.5	10	10	100.0	1	1	100.0

2015	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	%
With intra-op complications	28	25	89.3	0	0	0.0	1	1	100.0	17	17	100.0	9	7	77.8	1	0	0.0
No intra-op complications	1286	1280	99.5	1	1	100.0	2	2	100.0	1279	1273	99.5	3	3	100.0	1	1	100.0

2016	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	%
With intra-op complications	17	14	82.4	0	0	0.0	0	0	0.0	12	12	100.0	5	2	40.0	0	0	0.0
No intra-op complications	1815	1795	98.9	8	8	100.0	2	2	100.0	1799	1779	98.9	6	6	100.0	0	0	0.0

3.5.6 Factors Contributing to Post-operative Best corrected Visual Acuity of Worse than 6/12

Table 3.5.6-1: Factors Contributing to Post-operative Best corrected VA of Worse than 6/12 in All Eyes, CSR 2013-2016

Year	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N (total no. of post-op refracted vision worse than 6/12)	106		126		46		105	
Preexisting ocular co-morbidity	0	0.0	28	22.2	4	8.7	22	47.8
High astigmatism	0	0.0	2	1.6	3	6.5	2	4.3
Posterior capsular opacity	0	0.0	0	0.0	0	0.0	0	0.0
Cystoid macular oedema	0	0.0	3	2.4	0	0.0	0	0.0
Endophthalmitis	0	0.0	0	0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0	0	0.0	0	0.0
Decentered IOL	0	0.0	0	0	1	2.2	0	0.0
Retinal detachment	0	0.0	1	0.8	0	0.0	0	0.0
Others	2	1.9	6	4.8	6	13.0	8	17.4

Table 3.5.6-2: Factors Contributing to Post-operative Best corrected VA of Worse than 6/18 in All Eyes, CSR 2013-2016 (WHO classification)

Year	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N (total no. of post-op refracted vision worse than 6/18)	68		86		20		57	
Preexisting ocular co-morbidity	0	0.0	22	17.5	4	8.7	10	21.7
High astigmatism	0	0.0	1	0.8	1	2.2	2	4.3
Posterior capsular opacity	0	0.0	0	0.0	0	0.0	0	0.0
Cystoid macular oedema	0	0.0	3	2.4	0	0.0	0	0.0
Endophthalmitis	0	0.0	0	0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0	0	0.0	0	0.0
Decentered IOL	0	0.0	0	0	0	0.0	0	0.0
Retinal detachment	0	0.0	1	0.8	0	0.0	0	0.0
Others	2	1.9	6	4.8	2	4.3	5	10.9

Table 3.5.6-3: Factors Contributing to Post-operative Best corrected VA of Worse than 6/12 in Eyes without Preexisting Ocular co-morbidity, CSR 2013-2016

	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N	56		53		25		44	
Preexisting ocular co-morbidity (not detected pre-operatively)	0	0.0	6	11.3	1	4.0	0	0.0
High astigmatism	0	0.0	1	1.9	2	8.0	1	4.0
Posterior capsular opacity	0	0.0	0	0.0	0	0.0	0	0.0
Cystoid macular oedema	0	0.0	2	3.8	0	0.0	0	0.0
Endophthalmitis	0	0.0	0	0.0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0.0	0	0.0	0	0.0
Decentered IOL	0	0.0	0	0.0	0	0.0	0	0.0
Retinal detachment	0	0.0	0	0.0	0	0.0	0	0.0
Others	2	3.6	4	7.5	5	20.0	4	16.0

Table 3.5.6-4: Factors Contributing to Post-operative Best corrected VA of Worse than 6/12 in Eyes without Preexisting Ocular co-morbidity, CSR 2013-2016 (WHO classification)

	2013		2014		2015		2016	
Factors	n	%	n	%	n	%	n	%
N	37		30		9		23	
Preexisting ocular co-morbidity (not detected pre-operatively)	0	0.0	3	5.7	1	4.0	0	0.0
High astigmatism	0	0.0	1	1.9	1	4.0	1	4.0
Posterior capsular opacity	0	0.0	0	0.0	0	0.0	0	0.0
Cystoid macular oedema	0	0.0	2	3.8	0	0.0	0	0.0
Endophthalmitis	0	0.0	0	0.0	0	0.0	0	0.0
Corneal decompensation	0	0.0	0	0.0	0	0.0	0	0.0
Decentered IOL	0	0.0	0	0.0	0	0.0	0	0.0
Retinal detachment	0	0.0	0	0.0	0	0.0	0	0.0
Others	2	3.6	4	7.5	1	4.0	3	12.0

3.5.7 Actual or Residual Refractive Power (Spherical Equivalent)

Table 3.5.7-1: Distribution of Target and Actual Refractive Power in ECCE and Phaco, CSR 2013-2016

	Target Refraction				Actual-Target Refraction				Actual Refraction							
	All Patient				All Patient				ECCE				Phaco			
	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016
N	990	862	258	2062	870	658	190	1311	29	18	8	5	1270	1693	1284	1822
Mean	-0.3	-0.3	-0.4	-0.3	-0.1	-0.1	-0.1	-0.1	-0.4	-0.3	-0.7	-1.8	-0.5	-0.5	-0.5	-0.4
SD	0.4	0.1	0.6	0.2	0.7	0.7	0.8	0.7	0.9	0.9	0.6	2.1	0.7	0.6	0.5	0.6
Median	-0.3	-0.3	-0.4	-0.3	-0.1	-0.1	-0.1	-0.1	-0.5	-0.3	-0.8	-1.0	-0.5	-0.5	-0.5	-0.4
Minimum	-6.2	-1.3	-9.9	-1.5	-7.8	-4.0	-3.3	-6.0	-1.8	-2.8	-1.5	-5.0	-9	-5.8	-0.4	-6.4
Maximum	0.4	0.3	1.8	2.3	8.3	9.1	9.2	9.1	2.8	1.8	0.0	0.3	3.8	8.8	1.5	9.0

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

Table 3.5.7-2: Percentage Distribution of Target and Actual Refractive Power in ECCE and Phaco, CSR 2013-2016

	Target Refraction								Actual Refraction							
	All Patients								ECCE				Phaco			
	2013		2014		2015		2016		2013	2014	2015	2016	2013	2014	2015	2016
Dioptr (D)	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
-10.0-<(-9.5)	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-9.5-<(-9.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	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	0	0.0
-8.5-<(-8.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-8.0-<(-7.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0
-7.5-<(-7.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-7.0-<(-6.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
-6.5-<(-5.0)	4	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	1	0.1
-5.0-<(-4.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	20.0	0	0.0
-4.5-<(-4.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
-4.0-<(-3.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0
-3.5-<(-3.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	3	0.2
-3.0-<(-2.5)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	5.6	4	0.3	3	0.2
-2.5-<(-2.0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	20.0	5	0.4
-2.0-<(-1.5)	1	0.1	0	0.0	0	0.0	0	0.0	2	6.9	0	0.0	19	1.5	29	1.7
-1.5-<(-1.0)	1	0.1	3	0.3	0	0.0	4	0.2	4	13.8	1	5.6	2	25.0	104	8.2
-1.0-<(-0.5)	42	4.2	53	6.1	61	23.6	89	4.3	8	27.6	4	22.2	3	37.5	2	40.0
-0.5-<0.0	936	94.5	802	93.0	192	74.4	1909	92.6	6	20.7	4	22.2	1	12.5	0	0.0
0.0-<0.5	6	0.6	4	0.5	2	0.8	54	2.6	3	10.3	6	33.3	2	25.0	1	20.0
0.5-<1.0	0	0.0	0	0.0	1	0.4	3	0.1	4	13.8	1	5.6	0	0.0	0	0.0
1.0-<1.5	0	0.0	0	0.0	0	0.0	1	0.0	1	3.4	0	0.0	0	0.0	9	0.7

1.5-<2.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	5.6	0	0.0	0	0.0	4	0.3	4	0.2	3	0.2	1	0.1
2.0-<2.5	0	0.0	0	0.0	0	0.0	2	0.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	1	0.1
2.5-<3.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3.0-<3.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
3.5-<4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	1	0.1
4.0-<4.5	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	0.0	0	0.0	0	0.0	0	0.0
4.5-<5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5.0-<5.5	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	0.0	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	0.0	0	0.0	0	0.0	0	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	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	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	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	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	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	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
8.5-<9.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	1	0.1
9.0-<9.5	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	0.0	0	0.0	0	0.0	0	0.0
9.5-<10.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	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

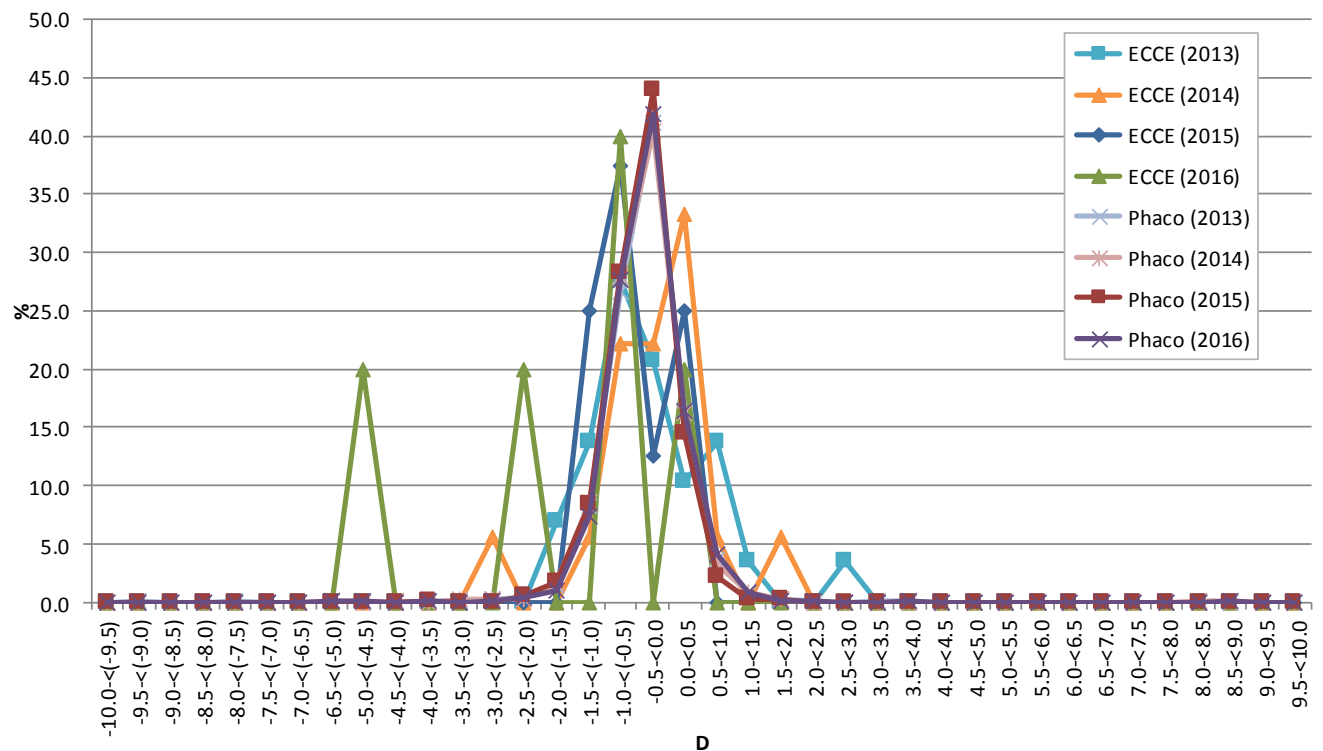


Figure 3.5.7-1: Distribution of Actual Refractive Power in ECCE and Phaco, CSR 2013-2016

Table 3.5.7-3: Difference in Target and Actual Refractive Power for Patients who had Phacoemulsification Only, CSR 2013-2016

Power (D)	Target Refraction				Actual Refraction				Difference between Target and Actual Refraction			
	2013	2014	2015	2016	2013	2014	2015	2016	2013	2014	2015	2016
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
N	936 100	841 100	249 100	2023 100	1270 100	1693 100	1284 100	1822 100	829 100	642 100	184 100	1293 100
-10.0-<(-9.5)	0 0.0	0 0.0	1 0.4	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 0.0
-9.5-<(-9.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 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	1 0.1	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	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 0.0
-8.0-<(-7.5)	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
-7.5-<(-7.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
-7.0-<(-6.5)	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 0.0	0 0.0	0 0.0	0 0.0
-6.5-<(-5.0)	4 0.4	0 0.0	0 0.0	0 0.0	2 0.2	1 0.1	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	1 0.1
-5.0-<(-4.5)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	0 0.0
-4.5-<(-4.0)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	1 0.2	0 0.0	0 0.0
-4.0-<(-3.5)	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	1 0.1	1 0.1	0 0.0	0 0.0	0 0.0	0 0.0
-3.5-<(-3.0)	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	3 0.2	0 0.0	0 0.0	0 0.0	1 0.2	1 0.5	1 0.1
-3.0-<(-2.5)	0 0.0	0 0.0	0 0.0	0 0.0	4 0.3	3 0.2	0 0.0	2 0.1	1 0.1	1 0.2	0 0.0	1 0.1
-2.5-<(-2.0)	0 0.0	0 0.0	0 0.0	0 0.0	5 0.4	4 0.2	7 0.5	6 0.3	6 0.7	1 0.2	0 0.0	3 0.2
-2.0-<(-1.5)	1 0.1	0 0.0	0 0.0	0 0.0	19 1.5	29 1.7	22 1.7	18 1.0	9 1.1	5 0.8	0 0.0	7 0.5
-1.5-<(-1.0)	1 0.1	3 0.4	0 0.0	4 0.2	104 8.2	145 8.6	108 8.4	133 7.3	25 3.0	14 2.2	7 3.8	36 2.8
-1.0-<(-0.5)	39 4.2	50 5.9	57 22.9	85 4.2	339 26.7	474 28.0	362 28.2	503 27.6	145 17.5	103 16.0	22 12.0	202 15.6
-0.5-<0.0	885 94.6	784 93.2	187 75.1	1875 92.7	522 41.1	683 40.3	565 44.0	763 41.9	301 36.3	256 39.9	71 38.6	488 37.7
0.0-<0.5	6 0.6	4 0.5	2 0.8	53 2.6	209 16.5	275 16.2	185 14.4	300 16.5	259 31.2	194 30.2	68 37.0	403 31.2
0.5-<1.0	0 0.0	0 0.0	1 0.4	3 0.1	46 3.6	55 3.2	27 2.1	76 4.2	56 6.8	50 7.8	12 6.5	118 9.1
1.0-<1.5	0 0.0	0 0.0	0 0.0	1 0.0	9 0.7	14 0.8	4 0.3	14 0.8	18 2.2	13 2.0	2 1.1	26 2.0
1.5-<2.0	0 0.0	0 0.0	1 0.4	0 0.0	4 0.3	4 0.2	3 0.2	1 0.1	4 0.5	0 0.0	0 0.0	5 0.4
2.0-<2.5	0 0.0	0 0.0	0 0.0	2 0.1	1 0.1	0 0.0	0 0.0	1 0.1	3 0.4	1 0.2	0 0.0	0 0.0
2.5-<3.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
3.0-<3.5	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
3.5-<4.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	1 0.1	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	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	0 0.0	1 0.1
4.5-<5.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
5.0-<5.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	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 0.0	0 0.0	0 0.0	0 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	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 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	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	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	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 0.1	0 0.0	0 0.0	0 0.0	1 0.2	0 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 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
9.0-<9.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1	0 0.0	1 0.2	1 0.5	1 0.1
9.5-<10.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0

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

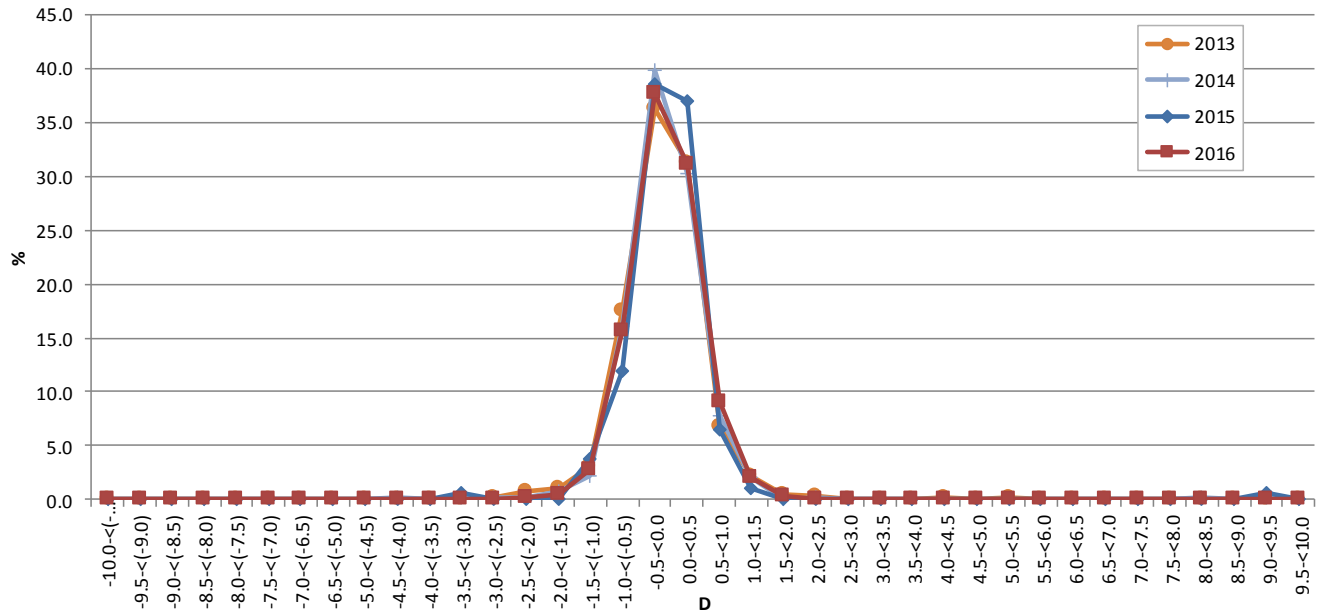


Figure 3.5.7-2: Difference in Target and Actual Refractive Power for Patients who had Phacoemulsification Only, CSR 2013-2016

Table 3.5.7-4: Difference in Target and Actual Refractive Power within $\pm 1.0D$, CSR 2013-2016

Year	All			By Phacoemulsification			By ECCE		
	No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$		No. of patient with refracted VA	Difference between Target and Actual Refraction within $\pm 1.0D$	
	N	n	%	N	n	%	N	n	%
2013	870	792	91.0	829	761	91.8	19	15	78.9
2014	658	615	93.5	642	603	93.9	6	4	66.7
2015	190	179	94.2	184	173	94.0	2	2	100.0
2016	1311	1224	93.4	1293	1211	93.7	3	2	66.7

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

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

Target/Planned refractive power = Section pre-clerking

Actual refractive power, $SE = \text{Section post-op visual acuity measurement} (SE = Sp + (Cy/2))$

Denominator = patient with refraction = if info available in refracted vision Section post-op visual acuity measurement

CHAPTER 4

RETINOBLASTOMA REGISTRY 2016

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CHAPTER 4: RETINOBLASTOMA REGISTRY

Retinoblastoma is the most common intraocular childhood malignancy in children, with a reported incidence ranging from 1 in 15,000 to 1 in 18,000 live births.

The retinoblastoma (RB) registry tracks all the patients diagnosed with Retinoblastoma since 2004 that were seen in 3 major RB treatment centers in the country; namely Hospital Kuala Lumpur (covering Peninsular Malaysia), Hospital Queen Elizabeth (Sabah) and Hospital Umum Kuching (Sarawak).

4.1 Stock and Flow

4.1.1 Stock and Flow

There are total of 208 patients registered, of which 26 and 13 patients were diagnosed in 2015 and 2016 respectively.

Table 4.1.1-1: Stock and Flow

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Hospital Kuala Lumpur	8	10	12	19	11	13	10	5	9	25	13	16	12	163
Hospital Queen Elizabeth, Kota Kinabalu	0	0	0	0	1	0	7	2	4	3	3	0	0	20
Hospital Umum Sarawak	1	0	0	2	2	6	1	0	0	0	1	0	0	13
Hospital Likas	0	0	0	0	1	0	0	0	0	0	0	10	1	12
Total	9	10	12	21	15	19	18	7	13	28	17	26	13	208

4.2 Patient Demography

4.2.1 Age, Gender and Ethnicity

The median age at presentation was 1.95 years. The youngest age was 18.25 days and the oldest was 13 years. About a third (31.3%) of these patients was in the age group of 13 to 24 months and 24% were less than 12 months at presentation.

There were slightly more boys (54.3%) than girls affected, and the majority were of Malay ethnicity (54.3%), followed by Chinese (16.4%) and Indians (6.3%).

Table 4.2.1-1: Distribution of Patients by Age

Age, years	n=208	
Median (IQR)	1.95 (1.10–2.82)	
Minimum, maximum	0.05, 13.00	
Age group	No.	%
<12 months	50	24.0
13–24 months	65	31.3
25–36 months	48	23.1

37–48 months	26	12.5
49–60 months	9	4.3
>60 months	10	4.8
Total	208	100.0

IQR = Interquartile range reported as 25th percentile–75th percentile.

Table 4.2.1-2: Distribution of Patients by Gender

Gender	No.	%
Male	113	54.3
Female	95	45.7

Table 4.2.1-3: Distribution of Patients by Ethnicity

Ethnicity	No.	%
Malay	113	54.3
Chinese	34	16.4
Indian	13	6.3
Orang Asli	1	0.5
Melanau	1	0.5
Kadazan/Murut/Bajau	16	7.7
Iban	4	1.9
Others	22	10.6
Missing	4	1.9

4.3 Ocular History and Presentation

4.3.1 Ocular History and Presentation

The most common presentation was leukocoria(80.8%) followed by strabismus.

Table 4.3.1-1: Clinical Presentation

Presentation	No.	%
Leukocoria	168	80.8
Strabismus	36	17.3
Proptosis	16	7.7
Others	24	11.5

(Number or percentage may be more than total or 100% as patients might have more than one clinical presentation)

The median duration of disease from onset of symptoms to presentation was 2 months with the majority (62.5%) within 1 to 6 months.

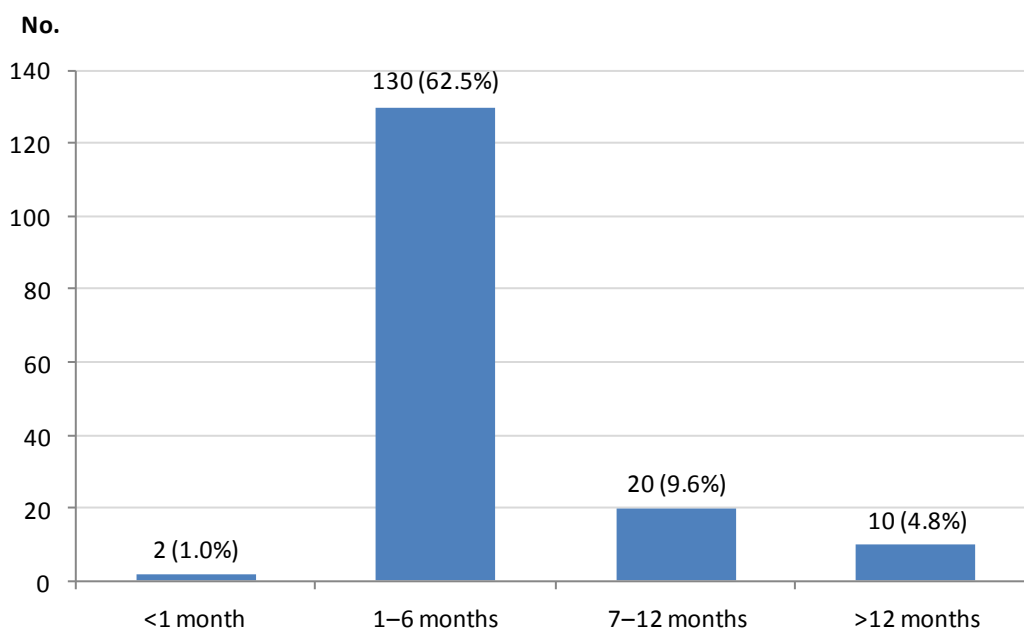


Figure 4.3.1-1: Onset of Disease

Of the 208 patients, 131 (64.7%) had unilateral disease whereas 77 patients (37%) had both eyes affected. A total of 285 eyes were affected. Only 6 patients had positive family history of retinoblastoma.

Table 4.3.1-2: Eyes Affected

	No. of patients	% by no. of eyes
Right eye only	61	21.4
Left eye only	70	24.6
Both eyes	77	54.0
Total eyes	285	100.0

Family history	No.	%
Yes	6	2.9
No	178	85.6
Missing	24	11.5

4.4 Investigation and Classification

4.4.1 Investigation and Classification

The presence of mass was detected in 69.5% however only 68.4% reported as calcification of CT scan imaging. In patients who had MRI done, 11.0% showed presence of mass but only 9.5% had calcification. There was extraocular extension detected through imaging in 32 eyes, 11.2% and 8 eyes, 2.8% through CT scan and MRI respectively. Majority of them were extension into the optic pathway.

Table 4.4.1-1: Type of imaging done at diagnosis, by no. of eyes (n=285)

No. of eyes		MRI scan	
		Yes	No/NA/Missing
		No. (%)	No. (%)
CT scan	Yes	27 (9.5)	201 (70.5)
	No/NA/Missing	14 (4.9)	43 (15.1)

Table 4.4.1-2: Type of imaging done at diagnosis by patient (n=208)

No. of eyes		MRI scan	
		Yes	No/NA/Missing
		No. (%)	No. (%)
CT scan	Yes	18 (8.7)	150 (72.1)
	No/NA/Missing	9 (4.3)	31 (14.9)

NA=Not available

Table 4.4.1-3: Presence of mass, by CT scan

	No.	%
Yes	198	69.5
No	30	10.5
No CT scan/ NA/ missing	57	20.0

Table 4.4.1-4: Presence of mass, by MRI scan

	No.	%
Yes	32	11.2
No	9	3.2
No MRI scan/ NA/ missing	244	85.6

Table 4.4.1-5: Presence of calcification, by CT scan

	No.	%
Yes	195	68.4
No	33	11.6
No CT scan/ NA/ missing	57	20.0

Table 4.4.1-6: Presence of calcification, by MRI scan

	No.	%
Yes	27	9.5
No	14	4.9
No MRI scan/ NA/ missing	244	85.6

Table 4.4.1-7: Presence of extraocular extension, by CT scan

	No.	%
Yes	32	11.2
No	196	68.8
No CT scan/ NA/ missing	57	20.0

Table 4.4.1-8: Presence of extraocular extension, by MRI scan

	No.	%
Yes	8	2.8
No	33	11.6
No MRI scan/ NA/ missing	244	85.6

Table 4.4.1-9: Type of extraocular extension, by CT scan

	No.	% (n=32)
Optic pathway	29	90.6
Orbit and adnexa	9	28.1
Intracranial	7	21.9

Table 4.4.1-10: Type of extraocular extension, by MRI scan

	No.	% (n=8)
Optic pathway	6	75.0
Orbit and adnexa	1	12.5
Intracranial	0	0.0

Number or percentage may be more than total or 100% as patients might have more than one type of extraocular extension.

More than half (54.4%) of the patients presented with Group E Retinoblastoma (based on International Intraocular Retinoblastoma Classification- IIRC).

Table 4.4.1-11: Classification of Retinoblastoma

	Right eye		Left eye		Total	
	No.	%	No.	%	No.	%
Group A	8	5.8	5	3.4	13	4.6
Group B	9	6.5	14	9.5	23	8.1
Group C	10	7.3	8	5.4	18	6.3
Group D	27	19.6	20	13.6	47	16.5
Group E	67	48.6	88	59.9	155	54.4
Not available/Missing	17	12.3	12	8.2	29	10.2
Total eyes	138	100.0	147	100.0	285	100.0

4.5 Management and Outcome

4.5.1 Management and Outcome

61.1% of patients had systemic chemotherapy with a mean of 6.8 cycles (maximum 15 chemotherapy cycles). Of those with bilateral disease, 12 patients had ocular (7 subtenon and 5 intravitreal injection) chemotherapy together with the systemic chemotherapy.

98 out of 131 eyes (74.8%) with unilateral RB were enucleated with 39.7% of them showed histopathological extension outside the eyeball. Of the bilateral RB, 38.3% were enucleated. 11 patients had external beam radiotherapy.

Table 4.5.1-1: Chemotherapy by patient

	Unilateral (N=131)		Bilateral (N=77)		All (N=208)	
	No.	%	No.	%	No.	%
Had chemotherapy	64	48.9	63	81.8	127	61.1
Did not have chemotherapy	42	32.1	7	9.1	49	23.6

	No.	% (n=64)	No.	% (n=63)	No.	% (n=127)
Systemic chemotherapy	62	96.9	62	98.4	124	97.6
Subtenon injection	0	0.0	7	11.1	7	5.5
Intravitreal injection*	0	0.0	5	7.9	5	3.9
• Mean cycles given	6.4		7.3		6.8	
• Median cycles given	6		6		6	
• 25 th percentile–75 th percentile	6–9		6–9		6–9	
• Minimum cycle	2		4		2	
• Maximum cycle	13		15		15	

*All patients in the subgroup had systemic chemotherapy as well.

Table 4.5.1-2: Treatment method by no. of eyes

	Unilateral						Bilateral					
	Right (n=61)		Left (n=70)		All (n=131)		Right (n=77)		Left (n=77)		All (n=154)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Enucleation	46	75.4	52	74.3	98	74.8	28	36.4	31	40.3	59	38.3
HPE result:												
Intraocular (no extraocular extension)	19	31.1	18	25.7	37	28.2	6	7.8	0	0.0	6	3.9
With extraocular extension	22	36.1	30	42.9	52	39.7	16	20.8	2	2.6	18	11.7
Not available/Missing	5	8.2	4	5.7	9	6.9	6	7.8	29	37.7	35	22.7
Focal therapy	2	3.3	8	11.4	10	7.6	32	41.6	28	36.4	60	39.0
Laser only	1	1.6	4	5.7	5	3.8	14	18.2	18	23.4	32	20.8
Cryotherapy only	0	0.0	0	0.0	0	0.0	2	2.6	1	1.3	3	1.9
Laser & cryotherapy	1	1.6	4	5.7	5	3.8	16	20.8	9	11.7	25	16.2
Radiotherapy	3*	4.9	2	2.9	5	3.8	6	7.8	0	0.0	6	3.9
External beam radiation (EBRT)	0	0.0	2	2.9	2	1.5	6	7.8	0	0.0	6	3.9
Plaque radiotherapy	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Intensity modulated radiotherapy (IMRT)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

*Missing 3 cases on subgroup of radiotherapy.

Table 4.5.1-3: Treatment method for all patients with chemotherapy

	Unilateral				Bilateral			
	Right eye	Left eye	All (n=64)		Both eyes	Either one eye	All (n=63)	
	n	n	No.	%	n	n	No.	%
Enucleation	28	29	57	89.1	5	44	49	77.8
Laser therapy	2	7	9	14.1	7	39	46	73.0

Table 4.5.1-4: Outcome and complications, by no. of eyes

	Unilateral						Bilateral					
	Right (n=61)		Left (n=70)		All (n=131)		Right (n=77)		Left (n=77)		All (n=154)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Remission												
Complete	18	29.5	23	32.9	41	31.3	10	13.0	11	14.3	21	13.6
Partial regression	0	0.0	3	4.3	3	2.3	17	22.1	13	16.9	30	19.5
No regression	0	0.0	3	4.3	3	2.3	0	0.0	1	1.3	1	0.6
NA/Missing	43	70.5	41	58.6	84	64.1	50	64.9	52	67.5	102	66.2
Recurrence	0	0.0	4	5.7	4	3.1	10	13.0	7	9.1	17	11.0
Duration from first time treatment (in months)												
• n	0		4		4		9		7		15	
• Mean (SD)	-		12.0 (7.4)		12.0 (7.4)		18.8 (7.5)		12.7 (12.4)		15.6 (10.2)	
• Median (IQR)	-		11 (6–18)		11 (6–18)		22 (12–74)		7 (5–24)		17 (5–24)	
• Min, max	-		5, 21		5, 21		5, 28		4, 36		4, 36	
Complication	4	6.6	6*	8.6	10*	7.6	10	13.0	3	3.9	13	8.4
Socket /prosthesis related	3	4.9	3	4.3	6	4.6	4	5.2	1	1.3	5	3.2
Disease related	1	1.6	2	2.9	3	2.3	6	7.8	2	2.6	8	5.2

*Missing 1 case on subgroup of complication.

IQR = Interquartile range, is reported as 25th percentile–75th percentile.

Table 4.5.1-5: Outcome by patient

	Unilateral (n=131)		Bilateral (n=77)		All (n=208)	
	No.	%	No.	%	No.	%
Lost to follow-up	15	11.5	8	10.4	23	11.1
Status by 1 year:						
Alive	61	46.6	39	50.6	100	48.1
Death	7	5.3	4	5.2	11	5.3
Unknown/Missing	63	48.1	34	44.2	97	46.6

4 eyes of the unilateral RB and 17 eyes in bilateral RB had recurrences. The earliest recurrence was noted at 5 months from diagnosis and the latest was at 21 months.

23 patients defaulted treatment and were lost to follow-up. Death was reported in 11 patients.

Comment

Since 2004, there were 208 patients registered in the RB registry with 285 affected eyes. In 2016, 13 new patients were registered. Data from the RB registry showed that there is no change in the spectrum of presenting symptoms which were similar to those reported elsewhere. Leukocoria was the most common presentation followed by strabismus.

Late presentation was still a problem. Majority of patients presented with advanced stage Group E which necessitate enucleation. 74.8 % of unilateral RB were enucleated. In bilateral RB, 38.4% of the patients had at least 1 eye enucleated. About 11.2% of eyes showed extraocular extension on CT scan imaging, involving mainly the optic pathway. HPE of the enucleated eyes showed 39.7% of unilaterally affected eye, and 11.7% of the bilaterally affected, had histopathological evidence of extraocular extension.

Chemoreduction is the mainstay of treatment especially in bilateral RB. Apart from systemic chemotherapy, periocular and intraocular chemotherapy are also used as treatment especially in bilateral RB. We have initiated intra-arterial chemotherapy (IAC) for recalcitrant retinoblastoma and the service was provided by interventional radiologist since July 2015 . Until end of 2016, there were 11 patients received the IAC. 11 patients needed external beam radiation due to the advanced stage of the disease.

11% of bilateral RB and 3.1% of unilateral RB reported recurrence of the disease with the mean duration of 12 months in unilateral cases and 15.6 months in bilateral cases after the initial treatment. About 11.1% of patients were lost to follow up, whereas death was reported in 11 patients.

As with other cancers, early detection of retinoblastoma for instance during postnatal screening and routine examination would facilitate early diagnosis and appropriate treatment can improve outcome.

