

Rapid action to avoid cataract blindness in South Sulawesi

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ABSTRACT

Background: RAAB 2013 reported the prevalence of bilateral blindness in South Sulawesi was 2,6%, with cataract as the main causes of blindness (64.3%). This report described the 'crash program' for cataract blindness control in South Sulawesi within the last 3 years (2014 - 2016). **Methods:** This is a descriptive study of a 'crash program' in South Sulawesi which consist of data collection of cataract infrastructures, human resources, and cataract surgical rate (CSR) from each district in South Sulawesi. From these data, we conduct an analysis and 'crash program' planning, establish special and regional teams, and perform advocacy to stakeholders of each district to describe the condition of the eye health services and action plans for cataract blindness prevention in each district.

Results: The number of cataract surgery in South Sulawesi was 13,988 with CSR of 1,753 in 2014. The number of cataract surgery in 2015 and 2016 was increased to 16,295 with CSR of 1,954 and 19,147 with CSR of 2,383 respectively. In August 2016, an advocacy workshop was held generating an agreement from all stakeholders from each district in South Sulawesi in the development of the cataract blindness control program.

Conclusions: By implementing a sustained 'crash program' for cataract blindness control involving stakeholders from each district, the number of cataract-related blindness in South Sulawesi will be reduced and the CSR target of 3000 in 2018 can be reached.

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INTRODUCTION

10 South Sulawesi is one of the Indonesian provinces
2 the southern peninsula of Sulawesi island.
The 2010 census 2 estimated the population as
8032551 people, which makes South Sulawesi the
most populous province on the 2 island (contrib-
uting 46% of the population of Sulawesi), and the
sixth most populous province in Indonesia. South
Sulawesi 2 covers an area of 45764.53 square kilome-
ters. The province is bordered by Central Sulawesi
and West Sulawesi to the north, the Gulf of Bone
and Southeast Sulawesi to the east, Makassar Strait
to the west, and Flores Sea to the south. Despite its
massive natural resources and potential income,
many people in South Sulawesi province still live
in poverty.¹ According to national data in 2016,
9.24% people still live below the poverty line with
per capita income ± 13 USD / month. Most of these
unfortunate people live in rural area.²

11 In 2013, studies in South Sulawesi, using Rapid
Assessment of Avoidable Blindness (RAAB) method
found that the prevalence of bilateral blindness was
significantly higher than other countries (2.6%)
in South-East 7. The most common causes of
blindness were cataract (64.3%), non trachomatous
corneal opacity (10.8%), other posterior segment
disease (7.1%), and diabetic retinopathy (2.2%).
Untreated cataract is the major cause (54.5%) of

severe visual impairment (people with visual acuity
>3/60 - ≤ 6/60). These problems need focused
planning and implementation of eye programs. In
this study, the implementation presented as 'crash
program' (we use this name to indicate an extreme
urgency of the intervention) to reduce cataract
related blindness. The main goal is to increase the
cataract surgical rate (CSR) from 1422 surgeries in
2013 to at least 3000 surgeries in 2018.³

MATERIAL AND METHODS

1. Data collection

The first step before launching or commenc-
ing a program was to collect necessary data.
To optimize the program, we collected data
about potential health care facilities that have
not performed cataract surgery at all or at
full capacity, distribution of human resources
(ophthalmologists) and coverage of the total
area, numbers of population in each city and
regency, and the distribution of CSR between
the regions. The 6 CSR distribution data are
required since it is likely to be uneven.

2. Advocacy

The high prevalence of cataract-related
blindness creates the need for a 'crash
program' to address the issue as soon as

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possible. South Sulawesi IOA (Indonesia Ophthalmologist Association) was keen not to waste time in overcoming this situation. The first step was to collaborate with the governor and all key stakeholders in each city and regency of the province. An advocacy workshop was organized and conducted in Makassar (South Sulawesi's capital).

3. Build a network connecting South Sulawesi IOA, stakeholders in each district in South Sulawesi, and NGOs to provide a comprehensive eye health referral and delivery system.

RESULT

The total number of cataract operations performed in 2013 was 11806 which parallels to CSR of 1422. This data was used as the baseline for our

program. This data showed that CSR in South Sulawesi in 2013 was still too low, regarding the data showed 54,5% of severe visual loss was due to cataract. According to this data, we began our 'crash program' by collaborating with the governor and all stakeholders in each region of the province to take eye health seriously in South Sulawesi and conduct the 'crash program' for cataract blindness control from 2013 to 2016.

Next, we organized and conducted an advocacy workshop in Makassar (South Sulawesi's capital). National Eye Health Committee, governor, regent, city mayor, all of the ophthalmologists and all of the directors of the district hospitals in South Sulawesi attended this workshop. This workshop generated commitment and recommendations related to the blindness control program from all stakeholders and ophthalmologists from each district in

Table 1 Recommendation that has been signed by stakeholders and local ophthalmologists in each district in South Sulawesi Province

No	Districts	CSR 2015	Target of total operation to achieve CSR 2500 (2017)	Target of total operation to achieve CSR 3000 (2018)	Advice on the number Cataract Mass Operation/Year
1.	Bone	202	1794	2153	12
2.	Gowa	924	1632	1958	7
3.	Jeneponto	514	857	1028	5
4.	Pinrang	649	879	1054	4
5.	Pangkep	546	765	918	4
6.	Maros	686	807	968	4
7.	Toraja	302	540	647	4
8.	Soppeng	791	560	672	3
9.	Barru	337	416	499	3
10.	Sidrap	1000	696	835	3
11.	Wajo	525	963	1155	3
12.	Selayar	156	306	367	2
13.	Bantaeng	1155	443	531	1
14.	Bulukumba	1650	987	1185	1
15.	Luwu Timur	0	609	730	No data
16.	Luwu Utara	0	720	863	No data
17.	Takalar	0	674	809	No data
18.	Sinjai	0	573	688	No data
19.	Enrekang	0	477	573	No data
20.	Toraja Utara	0	540	647	No data
21.	Pare-pare	3824	Achieved	Do not need any free cataract mass, however need to improve the operation technique	OK
22.	Luwu	2268	Achieved		OK
23.	Palopo	9478	Achieved	Do not need any free cataract mass, however need to improve the operation technique	OK
24.	Makassar	7353	Achieved		OK

Table 2 Total participants of training and workshop for general physicians, nurses, and volunteers (2013-2016)

District	GP	Nurses	Cadres	School Teachers
Bone	39	70	22	22
Bantaeng	8	16	25	23
Palopo	11	24	25	25

Table 3 Total of cataract surgery and CSR in each district in South Sulawesi Province (2014-2016)

No	District	Total Cataract Surgery			CSR		
		2014	2015	2016	2014	2015	2016
1	Makassar	8979	9893	10210	6377	7026	7251
2	Pangkep	86	181	141	271	571	445
3	Bantaeng	162	107	317	895	591	1751
4	Sidrap	217	278	398	766	982	1406
5	Pare-Pare	200	182	112	1481	1348	829
6	Toraja	62	67	90	274	296	398
7	Toraja Utara	0	0	0	0	0	0
8	Bone	257	145	342	350	197	465
9	Jeneponto	128	271	119	364	772	339
10	Soppeng	140	177	232	622	787	1031
11	Pinrang	261	272	288	722	753	798
12	Bulukumba	501	651	806	1240	1611	1995
13	Takalar	157	0	63	560	0	225
14	Wajo	168	444	287	430	1138	735
15	Gowa	353	603	663	507	866	952
16	Luwu	203	754	1129	591	2198	3291
17	Luwu Timur	0	0	378	0	0	1437
18	Luwu Utara	0	0	425	0	0	1430
19	Maros	92	242	152	277	731	459
20	Palopo	873	1405	625	5456	8781	3906
21	Selayar	40	19	43	314	149	338
22	Sinjai	60	41	120	256	175	512
23	Enrekang	0	0	30	0	0	153
24	Barru	0	58	37	0	343	218

Table 4 Total of cataract surgery and CSR in South Sulawesi Province (2013-2016)

Year/Month	2013	2014	2015	2016
January		998	1256	1557
February		1086	1283	1531
March		1081	1325	1560
April		1068	1384	1546
May		1076	1362	1616
June		1159	1264	1485
July		796	1034	1298
August		1197	1433	1608
September		1432	1460	1751
October		1284	1596	1770
November		1411	1487	1728
December		1401	1411	1697
Total	11806	13988	16295	19147
CSR	1422	1753	1954	2383

**Figure 2** The 4 referral areas in South Sulawesi Province**Figure 1** Advocacy workshop attended by all stakeholders in South Sulawesi Province

South Sulawesi. The goal of this advocacy workshop was to reduce the administrative problems.

As explained above, South Sulawesi province is a large land area. With this in mind, South Sulawesi IOA realized it was important to establish a good referral system. South Sulawesi province would be divided into 4 principle zones, each with one referral



Figure 3 Equipment donation by LCIF as part of Sight First Grant



Figure 4 Training and workshop for Nurses and General Practitioners

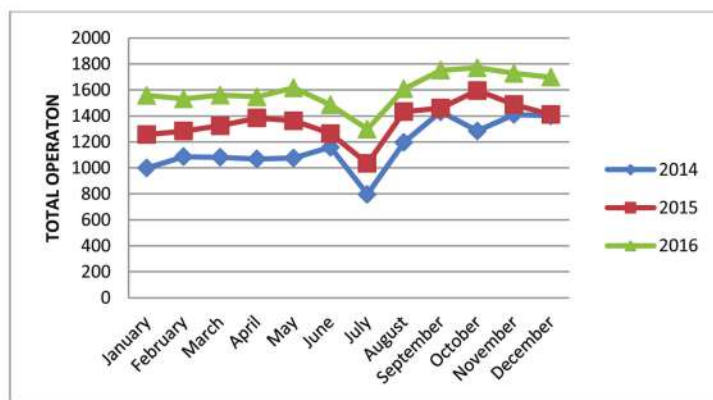


Chart 1 Number of cataract surgery in South Sulawesi Province (2014-2016)

center. Palopo district covered the northern part of the province, Pare-Pare district covered the central area, while Bantaeng and Bulukumba together covered the southern part of the province, and Makassar as the province's capital would take part as the referral center. The system was believed able to avoid a bottleneck situation since before this, all of the cataract patients went into one area. With 4 referral centers located in strategic positions, patients would not need travel for long to get eye health care. It was our hope that ultimately all cataract patients can be treated in time, without delay with this program.

South Sulawesi IOA realized that the important task of preventing cataract blindness would not be accomplished by relying on government resources only. South Sulawesi IOA actively established cooperation with many non-government associations (NGO) both national and international. The notable NGOs were CBM (Christian Blind Mission), HKI (Helen Keller International), Lions Club International Foundation (LCIF), Orbis, Standard Chartered Bank, and many others. These NGOs contributions were sponsoring mass cataract surgery program, conducting training to ophthalmologist and community eye care nurse, and donating equipment to the local district hospitals.

Training in case finding and workshops were performed in all 4 districts for general physicians (GP), nurses, and volunteers (cadres and school teachers). GP, nurses, and volunteers were taught about how to do proper cataract screening and when to refer.

Activity data suggest the 'crash program' for cataract blindness control, had been broadly successful in increasing the CSR. The total number of cataract surgeries in South Sulawesi was increased from 13,988 with CSR of 1,753 in 2014 to 16,295 with CSR of 1,954 in 2015. Data from 2016 shows an even bigger increase with 19,147 surgeries and CSR of 2,383.

DISCUSSION

The results of blindness survey using RAAB protocols performed in 3 provinces (West Nusa Tenggara, West Java and South Sulawesi) in 2013-2014 was the prevalence of blindness whose age was > 50 years old of 3.2% (average) and the main cause of this was cataract (71%).⁴ From a more optimistic perspective, blindness due to potentially reversible cause cataract was much higher than irreversible causes, such as glaucoma, corneal disease, and other posterior segment diseases combined.

In South Sulawesi itself, the RAAB conducted in 2013 found that the prevalence of bilateral blindness (2.6%), again with cataract as the most common cause (64.3%).³ Compare to other provinces in Indonesia, the prevalence of bilateral blindness in South Sulawesi was lower than West Java (2.8%) and West Nusa Tenggara (4%). However, it is still high compared to avoidable blindness in another country, such as Maldives (2.0%). Based on these data, the decline in the prevalence of blindness due to cataracts in South Sulawesi was urgent.

In order to reduce¹³ the number of cataracts, it is necessary to match the cataract surgical rate with the incidence of 'operable' cataract. In India and other countries in South East Asia, to deal with cataract causing visual acuity of less than 6/60, they need to perform at least 3000 cataract surgeries per one million populations per year.¹²

The 2013 CSR in South Sulawesi was 1422. This is a commendable number, considering the wide geographical area and the level of poverty. This number was higher¹² an average CSR in Indonesia (800 in 2012) and many African countries, such as Ethiopia and Kenya (lower than 500),⁹ but lower than in some countries in Asia, such as India (5054 in 2013)¹⁰ and China (3073 in 2013).¹¹ In comparison, CSR in developed countries was about 4000-7000. According to this data, the CSR number in South Sulawesi in 2013 was still too low to overcome the cataract blindness.

Several conditions limit the eradication of cataract blindness in South Sulawesi, including resistance from local ophthalmologists, lack of attention and participation from local government, and lack of screening. The local ophthalmologists refuse free mass cataract surgery program from South Sulawesi IOA. They believed this program would reduce their income. Screening problem was caused by inadequate knowledge among GPs, nurses, and cadres to detect the patients with cataract. Therefore, many patients with operable cataract were not referred or treated adequately.

Based on this evaluation of the challenges and scale of the problem, we conducted a 'crash program' from 2013 to 2016. This program started with established trust through advocacy to the governor and local ophthalmologists. The next step was to achieve the recommendations from all ophthalmologists and stakeholders in each district in need of the cataract blindness control program. We also held training for case finders, from GPs, nurses, and cadres. We established and developed regional teams that serve as referral centers for cataract treatment. In order to execute

this 'crash program', we received financial support, equipment, and resource development from several NGOs, such as Lions Club International, ORBIS, HKI, Mata Hati, and CBM.

During the course of the 'crash program', resistance from local ophthalmology appeared to diminish with the mutual agreement that had been made in the advocacy workshop. With this agreement, South Sulawesi IOA was able to develop cataract blindness control programs in each district in collaboration with local ophthalmologists and stakeholders. With the cooperation of our two active regional teams; southern and northern teams; and one growing team in the central area of South Sulawesi, we believe that we will be able to establish adequate coordination and transportation system to improve eye health services and raise the CSR rate in South Sulawesi.

The main challenge to the 'crash program' is the national health insurance policy that does not offer reimbursement to cover the social services part of the program. In this program, the funding came from NGOs only. This creates dependence on donations which means the program may not be sustained on government budget alone.

The program has resulted in an increase of CSR is possible even in a few short years. Based on these numbers in South Sulawesi in the last three years, we believe that it is possible to reach CSR of 3000 in 2018.

CONCLUSION

By implementing a sustained 'crash program' for cataract blindness control and involving all stakeholders from each city and district, the number of cataract-related blindness in South Sulawesi appears to be reduced and the CSR target of 3000 in 2018 can be reached.

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