



REPORT OF EVALUATION OF THE RIFT VALLEY REGION PREVENTION OF BLINDNESS PROGRAM IN KENYA

“THE SEEING IS BELIEVING PHASE V PROJECT END-TERM EVALUATION”

Project sponsored by the:

1. Government of Kenya
2. County Governments
3. Operation Eyesight Universal
4. Seeing is Believing

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CONTENTS

1	LIST OF TABLES.....	3
2	LIST OF FIGURES.....	4
3	ABBREVIATIONS.....	5
4	EXECUTIVE SUMMARY.....	6
5	BACKGROUND.....	10
6	METHODS.....	12
6.1	Desk review.....	12
6.2	Field visits.....	12
6.3	Data management.....	14
6.4	Ethical considerations.....	15
7	FINDINGS.....	16
7.1	Area and population served by SiB V project.....	16
7.2	Base health facilities.....	17
7.3	Bridging gaps in human resources.....	18
7.4	Provision of eye health services.....	19
7.4.1	Screening for eye conditions.....	19
7.4.2	People treated.....	22
7.4.3	Surgeries performed.....	23
7.4.4	Integration of eye health into main stream health systems.....	29
7.4.5	Summary of achievement of key project targets.....	29
7.4.6	Sustainability.....	30
7.4.7	Strengths Weaknesses, Opportunities and Threats.....	32
8	EMERGING ISSUES.....	33
9	LESSONS LEARNT.....	34
10	CONCLUSIONS.....	35
11	ANNEXES.....	36
11.1	Annex 1: Eye equipment supplied by the SiB V project.....	36
11.2	Annex 2: Additional skilled eye health staff trained by the SiB V project to.....	38

1 LIST OF TABLES

Table 1: Facilities which were inspected and informants.....	13
Table 2: SiB V project implementation time lines.....	14
Table 3: Work plan for the SiB V project evaluation.....	14
Table 4: Proportion of the SiB V in the six Counties	16
Table 5: Population estimates and density in the project area	17
Table 6: Health facilities where SiB V eye health services were based	17
Table 7: Number of the additional eye health workers trained by SiB V project	18
Table 8: SiB V eye health personnel in 2018.....	18
Table 9: People screened for eye conditions.....	19
Table 10: Distribution of the people screened by sex	20
Table 11: People who were seen at static clinics.....	21
Table 12: People screened during non-surgical outreach visits	21
Table 13: People screened during surgical outreach visits.....	22
Table 14: Number of people treated	23
Table 15: Total number surgeries performed in SiB V project	23
Table 16: Patients diagnosed to be requiring cataract surgery.....	24
Table 17: Cataract surgeries done in SiB V project from 2014 to 2018.....	24
Table 18: Cataract surgical rate of the of the SiB V project.....	25
Table 19: Number of people with cataracts who were operated in SiB V project	26
Table 20: Visual outcomes after cataract surgery	27
Table 21: Screening for diabetic retinopathy	28
Table 22: Achievement of key project performance targets.....	30
Table 23: Strengths, weaknesses, opportunities and threats.....	32

2 LIST OF FIGURES

Figure 1: Map of Kenya showing the 6 counties in SiB V project area shaded light yellow	10
Figure 2: Distribution of the people screened by sex	20
Figure 3: Number of operations done by the counties.....	25
Figure 4: Operations per million people per year (CSR)	26
Figure 5: Cataract surgical coverage of the SiB V project counties	27

3 ABBREVIATIONS

CHV	Community Health Volunteer
CHEW	Community Health Extension Worker
DR	Diabetes Retinopathy
NCE	No-Cost Extension period
OCO	Ophthalmic Clinical Officer
OCO/CS	Ophthalmic Clinical Officer /Cataract Surgeon
OEU	Operation Eyesight Universal
ON	Ophthalmic Nurse
PEC	Primary Eye Care
SiB V	Seeing is Believing Phase V Project

4 EXECUTIVE SUMMARY

Between March 2014 and September 2018, Operation Eyesight Universal (OEU) implemented the Seeing is Believing Phase V Project (SiB V), which was also referred to as the Rift Valley Region Prevention of Blindness Project, with financial support from the Seeing is Believing programme of Standard Chartered Bank. SiB V was a 4-year project with an allowance of a six months Non-Cost Extension Period from April to September 2018. The program was intended to generate a model of best practices guided by the 3 Vision 2020 pillars with which to advocate to the Ministry of Health, local county government and other key stakeholders. The implementing partners were Ministry of Health, OEU and County Departments of Health of Trans Nzoia, West Pokot, Narok, Elgeyo Marakwet, Uasin Gishu and Nandi. The objectives of the project were to avail quality and sustainable eye care services in the project area; strengthen capacity of primary, secondary and tertiary level facilities to provide quality eye care services; and integrate primary eye care into Public Health Care (PHC) system by establishing a strong Primary Eye Care network in the Rift Valley Region. Project activities included strengthening eye health teams by training additional ophthalmic workers, improvement of infrastructure to ensure that eye units are well equipped to meet eye health needs and implementation of strategies for control of avoidable blindness. It was envisaged that the project will build capacity of the eye units to provide quality and sustainable services which will continue after withdrawal of the donor support. The overall objective of this evaluation was to assess the extent to which the project goal, outcomes, objectives and outputs had been met.

A participatory cross-sectional evaluation with mixed method approach was adopted and all the six counties in the project area were included. This involved a desk review of project reports and other relevant documents, field visits to selected project sites to verify the information from desk review and follow-up telephone interviews to fill any information gaps. Standardized data collection tools and interview guides were used and proceeding of interviews tape recorded. Health information data was analysed using excel spread sheet and taped information summarized in text. The counties which were visited were Trans Nzoia County on 08.11.2018, Elgeyo-Marakwet and Uasin Gishu on 09.10.2018 and Narok on 11.10.2018. Information from West Pokot and Nandi Counties was collected using telephone interviews. A one day debriefing workshop was convened where project partners gave inputs to enrich the draft report.

The project was implemented at all levels of the health system in an area of 37,698 square kilometres with a combined population of 3,887,375 people. The population density ranged from 72 people per square kilometre in Narok County to 461 people per square kilometre in Trans Nzoia County. The eye health facilities where SiB V project activities were based included 1 national referral hospital (Moi Teaching and referral Hospital), 6 county referral hospitals (Kitale, Narok, Kapsabet, Iten, Uasin Gishu and Kapenguria) 4 sub-county hospitals (Huruma, Endebes, Naroosura, Kachibora and Nandi Hills). The eye unit at Huruma sub-county hospital was newly built by SiB and County government to serve as the county referral eye unit. Nandi Hills sub-county hospital was funded by county government, but the staff was trained by SiB V project. SiB V project provided the required equipment and consumables. The Ministry of Health confirmed that the project was part of national eye health services and project objectives were aligned to those of the national strategic plan for eye health and blindness prevention 2012-2018. Project activities included all the components of VISION 2020 global initiative for prevention of avoidable blindness namely control of blinding diseases, human resource development and strengthening of appropriate infrastructure for eye care. There was an effective project co-ordination and monitoring system with logistical support from Operation Eyesight Universal.

The SiB V project filled human resource gaps in eye health teams of member counties by training following additional staff: 6 Ophthalmic Clinical Officers cataract surgeons (OCO/CS), 11 Ophthalmic Nurses (ON),

1,682 Community Health Volunteers (CHVs). The target was to train 3 Cataract Surgeons, 11 Ophthalmic Nurses and 1,682 Community Health Volunteers. In addition, the project sensitized senior government officers and hospital management team members about the project and eye health. Community Health Extension Workers (CHEWS) were trained on primary eye care to enable them to supervise their respective Community Health Volunteers. Training was done according to need and availability of suitable staff. Skills-update and refresher courses were provided for existing workers.

All key informants indicated the support by SiB was welcomed with a lot of excitement and heightened eye health activities. In 2017 (project years 3 and 4), services in all public hospitals in Kenya were disrupted by multiple strikes by health workers and prolonged general electioneering but the teams in this project continued to render services even in those difficult times. A total of 600,863 people were screened in this project: 556,474 people screened during the 4-year funded period and 44,390 people during the 6-month Non-Cost Extension (NCE) period. At this rate there is likelihood of 90,000 people being screened in 2018. The project had targeted to screen 495,445 people and this target was therefore exceeded. Over a half (52%) of the people who were screened were women.

The number of people who walked into the SiB V facilities for eye treatment were 283,785 (47% of the total), Majority attended the facilities in year one (28%) and year four (25%) because of the awareness created by the project. The key informants and community health volunteers confirmed that outreach had made eye health services accessible to most people in the project area. This made it possible for the vulnerable people (elderly, women, disabled and children) to access the services. Community Health Volunteers were trained and deployed to mobilise community members to go for screening at outreach camps but they were not paid salary by the government because they were classified as volunteers. The project paid them a daily stipend to cater for food and transport. The number of people screened during outreach visits was 317,078 people which constituted 53% of all the people screened in the project. Of the people screened during outreach, 252,993 people (80%) were screened during non-surgical outreach and 64,085 people (20%) during surgical outreach. A large proportion (67%) of the people screened at non-surgical visits were screened in year 4 (2017-18) because there was an enhanced campaign to mobilize people with eye problems to go for screening. The highest proportion (41%) since the camps are conducted by skilled eye care workers who were partly affected by the national strikes in 2017.

The number of people treated for different eye conditions was 326,182 against a planned target of 272,457 people. The highest proportion (35%) was treated in year 1 followed by year 2. In the NCE period 30,611 people were treated which implies there is a likelihood of 60,000 people being treated in 2018. The total number of all types of surgeries performed in SiB V project was 27,147 and additional 3,108 surgeries during the NCE period. The project had planned to provide 22,588 surgeries. Most surgeries (62%) were conducted in year 1 and 2. The adverse events of 2017 dampened surgical outputs of year 3 and 4 but the dedicated eye teams ensured that SiB V project did not collapse. Support of county governments and some left-over supplies enabled the project to continue providing surgical services during the NCE period which may translate to 6,000 operations by the end of 2018.

A total of 24,262 people were diagnosed to have cataracts and by end of the non-cost extension period 12,769 sight restoring cataract surgeries had been performed. The project's target was to perform 5,804 cataract surgeries. The number of people diagnosed to have cataract was high because of intensified community screening and the need for surgery was much higher than the project could handle. Cataract surgical Rate (CSR) is the World Health Organization's recommended indicator for monitoring performance of cataract surgical services. The Kenya Ministry of Health's Health Management Information System (HMIS) indicates that the national CSR has been fluctuating between 500 and 650 operations per

million people per year with wide variations among the 47 counties. In the SiB V project the CSR ranged between 1,185, in year 1 and 571 in year 4. Proportion of the need for cataract surgical services which is met by a project is monitored by calculating the cataract surgical coverage (CSC). It was estimated that the CSC for SiB V project ranged between 71% of the people diagnosed to have cataract in year 1 being operated on in the same year and 43% in year 4.

Diabetes is an emerging major cause of blindness and in 2016 the Government of Kenya and partners started a project to screen patients attending diabetic medical clinics for diabetic retinopathy (DR) using trained technicians with fundus cameras. In the SiB V project it was only Kitale Hospital which had a retina camera to screen for DR and a study conducted in March-April 2018 revealed that the hospital had potential to screen 1,000 patients per year. In this evaluation, it was revealed that most eye health facilities in the project area screened patients for DR at eye clinics as opposed to diabetic medical clinics. As a result, the total number of patients screened (1,104) was low. Development of refraction services was also at the formative stage. At the time of this evaluation, the optical shop at the Moi Teaching and Referral Hospital was being refurbished. Narok and Huruma had a partnership with Kenya Society for the Blind to avail low cost spectacles but they said that the money generated for this arrangement was little. SiB V was a mainly vertical project but review of documents and interviews with key informants revealed that there was substantial evidence towards integration into main stream health systems. The project had sensitized county and hospital teams about eye health and the counties had included eye care in their budget; submitted data through the ministry of health Information Management System; trained Community Health Extension Workers (CHEWs) of the Community Health Strategy project on prevention of blindness and primary eye care; trained community health volunteers to screen and refer patients with eye conditions; and trained Maternal Neonate and Child Health (MNCH) workers to identify neonates and children with eye conditions, administer tetracycline eye ointment to newborn children, give vitamin A supplements and refer children with major eye illnesses.

Assessment of the potential for sustainability of the component of this project indicated that skilled eye health workers (ophthalmic nurses and clinical officers) will be fully sustainable since they are salaried government employees and will continue to render eye health services at their stations. This was true since services at static clinics continued during the NCE period. Community Health Volunteers is the cadre that representatives of county and national governments said they will encounter a lot of difficulties to sustain because the volunteers are not budgeted for. Infrastructure and equipment will be sustainable as it will continue to be used. However, there were some concerns about maintenance of eye equipment and availability of spare parts. Supply of consumables by county government was inadequate and inconsistent due to reduced funding from central government. Financial sustainability will be challenging after the expiry of the SiB V project and it was proposed that the most promising way to bridge this financial gap is for more community members to acquire health insurance cover. All key informants asserted that sustainability of outreach services will be challenging mainly due to lack of support for community health volunteers as described above.

The main issues that emerged from the findings of this evaluation that SiB V project successfully implemented comprehensive eye health services in six counties in the Rift Valley region in line with the Kenya Eye Health Plan, VISION 2020 guidelines and project objectives. The project reached all communities through a combination of static and community outreach services. The project made it possible for the vulnerable groups such as women, children, elderly and the disabled to access the services. The project built strong eye care teams by bridging existing human resource gaps through training of eye health workers and CHVs plus sensitization of county and hospital management teams. Despite major external challenges in 2017, the project was able to record an impressive performance in the second and third years of project implementation. The biggest threat to community outreach is lack of community

health volunteers. The project boosted the cataract surgical rate of the member counties but the need for cataract surgery was much higher than the project could handle.

The lessons learnt from the findings of this evaluation were despite the short time period of 4 years and major challenges in 2017, it is possible to implement a project of such a magnitude as SiB V with remarkable achievements. Involvement and ownership of the SiB V project by county governments and eye health teams ensured sustainability. Community outreach is difficult to implement without community health volunteers and their challenges should be addressed as a matter of urgency. This project was able to reach persons with eye problems at community level and revealed a big unmet need for cataract surgical services. The most feasible strategy to mitigate against declining donor funding is to mobilize more people to own hospital insurance cover riding on the ongoing campaign to attain Universal Health Coverage.

It was concluded that SiB V project:

1. Was part of the Kenya eye health services and it was implemented in line with the national strategic plan for eye health and blindness prevention 2012-2018 and VISION 2020 global initiative for prevention of avoidable blindness
2. Strengthened the capacity of primary, secondary and tertiary facilities in the project area to provide health care eye health
3. Successfully implemented sustainable comprehensive eye health services in the Rift Valley region which catered for all the targeted communities at all levels of health care
4. Demonstrated substantial evidence of integration into mainstream health systems

5 BACKGROUND

Between March 2014 and September 2018, Operation Eyesight Universal (OEU) implemented the Seeing is Believing (SiB) Phase V Project, also referred to as the Rift Valley Region Prevention of Blindness Project, with financial support from the Seeing is Believing programme of Standard Chartered Bank. This was a 4-year project with six months Non-Cost Extension Period from April to September 2018. The program was intended to generate a model of best practices guided by the 3 Vision 2020 pillars with which to advocate to the Ministry of Health, local county government and other key stakeholders. The overall goal was to contribute towards elimination of avoidable blindness in Kenya by strengthening community outreach in six counties in the former Rift Valley Province shown *Figure 1*. The implementing partners were Ministry of Health, OEU and County Departments of Health of Trans Nzoia, West Pokot, Narok, Elgeyo Marakwet, Uasin Gishu and Nandi.



Figure 1: Map of Kenya showing the 6 counties in SiB V project area shaded light yellow

The specific objectives of the project were to:

1. Avail quality and sustainable eye care services in the project area
2. Strengthen capacity of primary, secondary and tertiary level facilities to provide quality eye care services
3. Integrate primary eye care into Public Health Care (PHC) system by establishing a strong Primary Eye Care network in the Rift Valley Region

Project activities included strengthening of eye health teams by training additional ophthalmic workers, improvement of infrastructure to ensure that eye units are well equipped to meet eye health needs and implementation of strategies for control of avoidable blindness. It was envisaged that the project will build capacity of the eye units to provide quality and sustainable services which will continue after withdrawal of the donor support.

The overall objective of the evaluation was to assess the extent to which the project goal, outcomes, objectives and outputs had been met over the project duration in the project coverage area. Specifically, the evaluation aims were to:

1. Assess the effectiveness, relevance, efficiency, sustainability and impact of the project
2. Generate key lessons and identify promising practices for learning to improve future program interventions

This evaluation covered the entire project duration and all elements of the project from January 2014 to September 2018. It assessed project performance and outcomes at all levels. It also assessed Ministries of Health at different levels on perception and engagement with the project. Further, the evaluation assessed impact of the project on both primary and secondary beneficiaries, including health workers and other stakeholders.

6 METHODS

This was a participatory cross-sectional evaluation with mixed method approach. It included all the six counties in the project area (*Figure 1* above). The SiB V project covered all the areas in the six counties except the western parts of Narok County (Transmara East and West sub-counties) where eye health services were provided by the Fred Hollows Foundation.

The evaluation comprised of the following 3 phases:

1. Desk review of project reports and other relevant documents
2. Visits to selected project sites to verify the information from desk review
3. Follow-up telephone interviews to fill information gaps

6.1 Desk review

This included interview with officers at policy level to get the background information about the project followed by review of documents and literature. The documents were provided by Operation Eyesight Universal (OEU). They included:

1. Policy documents
2. Project reports
3. Health information system data for all the project sites covering the whole period under review
4. Any other relevant literature

6.2 Field visits

All counties could not be visited due to budgetary and time constraints. The 4 counties in *Table 1* below which were physically inspected were purposively selected considering geographical representation and the level of health services. Narok County is the only county in South Rift Valley region. The rest are in North Rift Valley region. Moi Teaching and Referral was the only national hospital. Endebes represented surgical satellite centres. Two counties (Nandi and West Pokot) were contacted via telephone interview.

Trans Nzoia County was visited on 08.11.2018, Elgeyo-Marakwet and Uasin Gishu on 09.10.2018 and Narok on 11.10.2018. There was unanticipated high court declaration that 10.10.2018 be a public holiday which forced the visits for Elgeyo-Marakwet and Uasin Gishu Counties to be done on the same day. The distances between the facilities in two counties are short and the task was achieved late in the evening.

The informants who were interviewed are shown in *Table 1*.

Table 1: Facilities which were inspected and informants

County	Health facilities inspected	Key informants
1. Trans Nzoia	Kitale County Referral Hospital	<ul style="list-style-type: none"> • County Director • Medical Superintendent • Ophthalmologist In-charge • Ophthalmic Clinical Officers • 10 Community Health Volunteers
	Endebes Sub-County Hospital	<ul style="list-style-type: none"> • Ophthalmic Nurse In-charge
2. Uasin Gishu	Huruma Sub-County Hospital	<ul style="list-style-type: none"> • County Director • Medical Superintendent • Ophthalmic Clinical Officer In-charge • 10 Community Health Volunteers
	Moi National Teaching and Referral Hospital	<ul style="list-style-type: none"> • Hospital Director • Ophthalmologist In-charge • Eye Unit Manager
3. Elgeyo-Marakwet	Iten County Referral Hospital	<ul style="list-style-type: none"> • County Director • Medical Superintendent • Ophthalmic Clinical Officer In-charge • 10 Community Health Volunteers
4. Narok		<ul style="list-style-type: none"> • County Director • Medical Superintendent • Ophthalmic Clinical Officer In-charge • 10 Community Health Volunteers
<i>Facilities contacted via telephone interviews</i>		
West Pokot	Kapenguria County Referral Hospital	<ul style="list-style-type: none"> • Ophthalmic Cataract Surgeon
Nandi	Kapsabet County Referral Hospital	<ul style="list-style-type: none"> • Ophthalmic Cataract Surgeon

The following activities were conducted during the visits:

1. Interview Key Informants selected from county administration, hospital management, eye unit and community/beneficiaries (Community Health Volunteers)
2. Inspection of the eye units: facilities, equipment, personnel, records and supplies
3. Follow-up telephone calls to fill any information gaps

Purposive selection method was used to pick the persons to be interviewed as they were to be persons with adequate knowledge about the project activities.

Estimates of the catchment population served by the SiB V project was extrapolated from the census reports by the county teams.

6.3 Data management

Data collection tools were submitted separately the proposal document and they included standardised:

1. Data crunching tool to extract information from review of documents
2. Interview guides for interviews and group discussions. The proceedings also tape recorded
3. Eye unit assessment data collection tool to gathered data from inspection of eye care facilities
4. Template to collate the catchment population served by the project

Data from health management information system and inspection of facilities was entered and analysed using excel and the tape recorded proceeding from interviews summarised in text.

For purpose of this evaluation, reporting was done in line with the SiB V project cycle in *Table 2* where a project year started in April of the same calendar year and ended in March of the following calendar year. The Health Management Information System (HMIS) data and project reports which were submitted by the eye units to the government and OUE were by calendar years. The no cost extension (NCE) period was from April to September 2018.

Table 2: SiB V project implementation time lines

Period	From	To
Year 1	April 2014	March 2015
Year 2	April 2015	March 2016
Year 3	April 2016	March 2017
Year 4	April 2017	March 2018
Project implementation period	April 2014	March 2018
NCE period*	April 2018	September 2018

**NCE = 6 months no-cost extension period*

Evaluation work plan

This evaluation was conducted over a period of 19 full time day equivalent (FTE) spread over a period of two months from October to November 2018 as shown in *Table 3* below.

Table 3: Work plan for the SiB V project evaluation

Activity	FTE (Fulltime days equivalent)
Planning and collation of the documents to be reviewed	1
Review project reports and other relevant documents	3
Interview project partners (OEU/MOH/County Representatives)	2
Visit selected County projects to the verify information collated form project reports	5
Data management and analysis	3
Preparation of preliminary report	2
Debriefing meeting to collate inputs from partners and experts	1
Preparation of final report	2
Total	19

6.4 Ethical considerations

The Ministry of Health granted permission for this evaluation to be proceed. No personal medical data was collected during review of documents and interviews. Verbal consent was taken before tape recording of interviews.

7 FINDINGS

The SiB V project was implemented in Trans Nzoia, West Pokot, Narok, Elgeyo Marakwet, Uasin Gishu and Nandi Counties in Kenya. The Ministry of Health confirmed that the project was part of national eye health services and it was implemented jointly by respective county Departments of Health, Operation Eyesight Universal and “Seeing is Believing”. This project submitted regular health management information system data and reports to the government through the head office at the Ophthalmic Services Unit of the Ministry of Health. The project objectives were aligned to those of the national strategic plan for eye health and blindness prevention 2012-2018. Project activities included all the components of VISION 2020 global initiative for prevention of avoidable blindness namely control of blinding diseases, human resource development and strengthening of appropriate infrastructure for eye care. There was an effective project co-ordination and monitoring system with logistical support from Operation Eyesight Universal.

7.1 Area and population served by SiB V project

The project was implemented at all levels of the health system in an area of 37,698 square kilometres. Nearly a half of that area was in Narok County (*Figure 1* above and *Table 4*) which implies that one had to travel for long distances to cover remote areas in the county.

Table 4: Proportion of the SiB V in the six Counties

County	Area	Percentage
Narok	17,921	48
W/Pokot	8,418	22
E/Marakwet	3,050	8
Uasin Gishu	2,955	8
Nandi	2,884	8
Trans Nzoia	2,470	7
Total	37,698	100

The population estimates and densities in the project area are shown in *Table 5*. These estimates were extracted from county development plans. They were projections extrapolated from the last (2009) census using county specific intercensal population growth rates.

Narok County had the lowest population density followed by West Pokot. Both counties are trachoma-endemic counties and have established projects for elimination of blinding trachoma.

Trans Nzoia is the county with the smallest surface area and highest population density. This implies that this county had the shortest distances to reach the remote communities.

Table 5: Population estimates and density in the project area

County	Area (Kms ²)	Population estimate (source: integrated development plans)					Population density*
		2014	2015	2016	2017	2018	
Narok	17,921	1,074,032	1,128,132	1,181,154	1,236,668	1,294,792	72
W/Pokot	8,418	664,035	700,414	663,992	777,180	817,593	97
E/Marakwet	3,050	412,843	423,989	435,437	447,194	459,268	151
Uasin Gishu	2,955	105,4805	1,092,803	1,172,918	1,213,701	1,254,904	425
Nandi	2,884	879,613	906,881	934,994	964,925	994,838	345
3Trans Nzoia	2,470	984,485	1,020,911	1,058,685	1,100,794	1,138,477	461
Total	37,698	3,350,973	3,479,913	3,610,270	3,749,581	3,887,375	103

*Estimated number of people per square kilometre in 2018

7.2 Base health facilities

The eye health facilities where SiB V project activities were based are shown in Table 6. One was a national referral hospital, 6 county referral hospitals and 5 sub-county hospitals. One of the sub-county hospitals (Nandi Hills) was funded by the county government but the staff was trained by SiB V project. All were public health facilities which offered static and community outreach services. The national referral hospital in Uasin Gishu County had outreach services at inception of SiB V project but latter stopped to concentrate on its core mandate of being primarily a referral hospital for the region. However, the national referral hospital supported Huruma sub-county Hospital in the same county with surgeons as need arose. The eye clinic at Uasin Gishu County Referral Hospital was transferred to the newly built and more spacious clinic at Huruma in 2016. From then on Huruma serves as the county referral eye unit.

Table 6: Health facilities where SiB V eye health services were based

County	Health care facilities		
	National Referral hospital	County Referral hospital	Sub-county hospital*
Trans NzNzoia		Kitale	Endebes Kachibora
Uasin Gishu	Moi Teaching and Referral	(U/Gishu County Referral)^	Huruma^
West Pokot		Kapenguria	
Elgeyo-Marakwet		Iten	
Nandi		Kapsabet	Nandi Hills+
Narok		Narok	Narosura
Total	1	6	5

*Sub-county hospitals served as satellite surgical centres for visiting county teams

^In 2016, services at Uasin Gishu Hospital were transferred to the newly built Huruma eye unit

+Nandi Hills was funded by county government but had staff trained by SiB V project

Huruma Eye Unit in Uasin Gishu was newly built and fully equipped by SiB V project. The construction was jointly sponsored by the county government and SiB. The rest of the eye units were equipped to offer quality surgical services. The list of equipment which was supplied is in Annex 1. There was continuous supply of consumables for eye treatment and surgical procedures jointly supported by the project and respective county governments.

There was an effective referral system from the community to tertiary level of health services. Patients who required sub-specialist services which were not available in the project area such as retina surgery and paediatric ophthalmology were referred to Sabatia and Kikuyu Eye Hospitals. There was a special fund to assist children who needed specialised paediatric ophthalmology services.

7.3 Bridging gaps in human resources

From inception, the SiB V project started to fill human resource gaps in eye health teams of member counties. The trained personnel were as shown in *Table 7* and the details are in *Annex 2*. Senior government officers and hospital management team members were also sensitised about the project and eye health. Community Health Extension Workers (CHEWS) were trained on primary eye care to enable them to supervise their respective Community Health Volunteers.

Training of skilled eye health workers was done according to need and availability of staff of the cadre to be trained. The counties' management was responsible for identification and release of staff to be trained. The target was to train 3 Cataract Surgeons, 11 Ophthalmic Nurses and 1,682 Community Health Volunteers. The findings in *Table 7* shows that these targets were achieved.

Skills-update/refresher courses were provided as required. The project provided support for the workers to attend ophthalmic conferences and workshops as part of continuing professional development.

Table 7: Number of the additional eye health workers trained by SiB V project

County	Number of workers*			Total
	OCO/CS	ON	CHV	
Trans Nzoia	1	3	360	364
Uasin Gishu	1	1	250	252
Uasin Gishu (MTRH)	0	2	325	328
West Pokot	1	0	240	242
Elgeyo-Marakwet	1	1	282	284
Nandi	1	3	64	68
Narok	1	1	161	163
TOTAL	6	11	1,682	1,700

*Key: OCO/CS = Ophthalmic clinical officer cataract surgeon, ON = Ophthalmic Nurse, CHV = Community Health Volunteers

During this evaluation, the eye health teams in the project area were as shown in *Table 8*.

Table 8: SiB V eye health personnel in 2018

County	Eye health team personnel					
	Ophthalmologists	OCO	OCO/CS	ON	CHV	Drivers

Trans Nzoia	1	0	3	8	360	1
Uasin Gishu (Huruma)	0	0	2	5	250	0
Uasin Gishu (MTRH)	3	2	4	5	325	1
West Pokot	1	0	5	2	241	1
Elgeyo-Marakwet	0	0	1	5	282	0
Nandi	0	0	2	3	64	1
Narok	1	0	4	3	161	1
TOTAL	6	2	21	31	1,683	5

Key: OCO = Ophthalmic Clinical Officer, OCO/CS = Ophthalmic Clinical Officer Cataract Surgeon, ON = Ophthalmic Nurse, CHV = Community Health Volunteers

Optometrists and Refractionists had not been recruited because these cadres had not been officially recognised by the government of Kenya. However, MTRH had one optometrist who they had recruited since the institution was a parastatal. As a result, refractive services were rendered by skilled eye care workers in the team such as Ophthalmic Nurses, Ophthalmic Clinical Officers and Ophthalmologists.

7.4 Provision of eye health services

All key informants indicated the support by SiB was welcomed with a lot of excitement and heightened eye health activities. In 2017 (project years 3 and 4), services in all public hospitals in Kenya were disrupted by multiple strikes by health workers and prolonged general electioneering but the teams in this project continued to render services even in those difficult times.

The SiB V project enhanced eye care services in six counties in the Rift Valley region through screening, treatment of eye conditions and performing sight restoring surgery. Quality of services was enhanced through training and re-training (skills-update) plus provision of equipment and consumables. Moreover, there were efforts to audit cataract surgical outcomes.

7.4.1 Screening for eye conditions

A total of 600,863 people were screened in this project: 556,474 people screened during the 4-year funded period and 44,390 people during the 6-month Non-Cost Extension (NCE) period. If this rate is sustained, there is likelihood of 90,000 people being screened in 2018. The project had targeted to screen 495,445 people and this target was therefore exceeded.

The distribution of people screened in the 6 counties was as shown in *Table 9*. The fourth year (2017-18) had the highest number of people screened in all counties because there were enhanced community level activities where Community Health Volunteers were deployed to conduct a door-to-door mobilization of people with eye problems to go for screening.

Table 9: People screened for eye conditions

County	Number of people screened					Total	NCE period*	TOTAL
	2014-15	2015-16	2016-17	2017-18				

Trans Nzoia	35,589	37,560	22,432	17,431	113,012	10,620	123,632
Uasin Gishu	27,972	14,953	23,649	79,024	145,598	14,213	159,811
West Pokot	22,026	23,273	28,391	10,563	84,253	9,035	93,288
Elgeyo-Marakwet	6,380	5,523	7,655	66,424	85,982	4,208	90,190
Nandi	6,995	9,899	9,527	59,194	85,615	4,208	89,823
Narok	17,625	9,140	4,069	4,027	34,861	2,106	36,967
Total	123,739	100,348	95,723	236,663	556,473	44,390	600,863
Percentage	22	18	17	43	100	8	108

*NCE = 6 months non-credit Extension period

During the focus group discussions with community health volunteers, it was observed both men and women equally benefited from the services rendered by the project. *Table 10* and *Figure 2* below shows that over a half (52%) of the people who were screened were women.

Table 10: Distribution of the people screened by sex

Sex	Number of people screened						Percentage	
	2014-15	2015-16	2016-17	2017-18	Total	NCE*		TOTAL
Men	58,491	48,292	44,496	115,017	266,296	20,975	287,271	48
Women	65,248	52,056	51,227	121,646	290,177	23,415	313,592	52
Total	123,739	100,348	95,723	236,663	556,473	44,390	600,863	100

*NCE was a 6 months non-credit Extension period

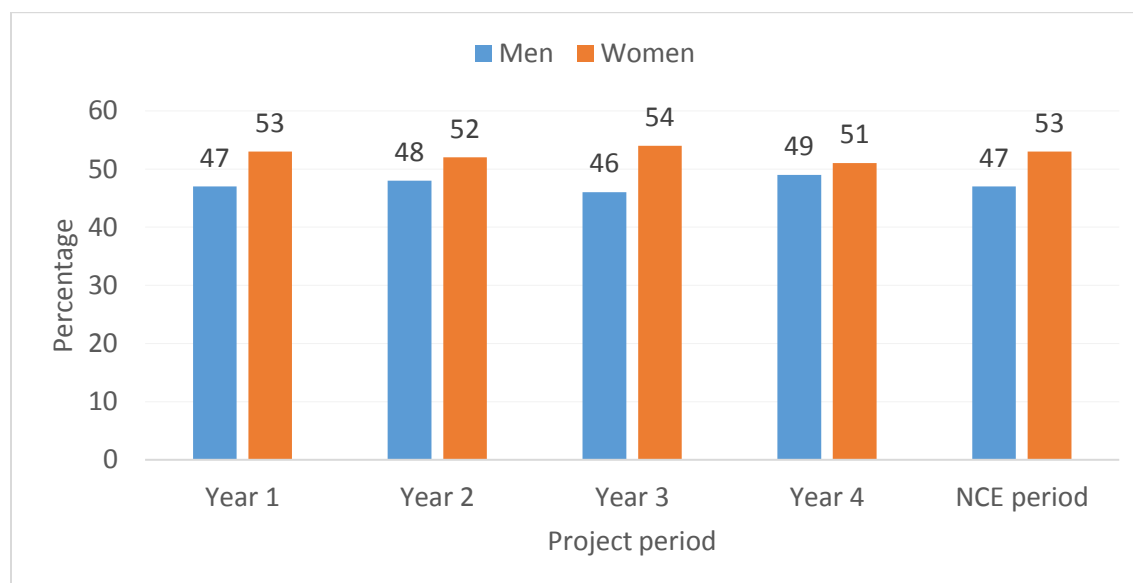


Figure 2: Distribution of the people screened by sex

7.4.1.1 Static services

The number of people who walked into the SiB V facilities for eye treatment were 283,785 (47% of the total) and the distribution by counties is shown in *Table 11*. Majority attended the facilities in year one (28%) and year four (25%) because of the awareness created by the project.

Table 11: People who were seen at static clinics

County	2014-15	2015-16	2016-17	2017-18	Total	NCE	TOTAL
Trans Nzoia	21,758	22,733	18,469	15,165	78,125	9,520	87,645
Uasin Gishu	25,661	14,136	17,788	23,954	81,539	11,668	93,207
West Pokot	2,690	5,376	5,695	4,529	18,290	3,520	21,810
Elgeyo-Marakwet	3,920	3,700	4,144	7,419	19,183	2,799	21,982
Nandi	3,992	7,644	6,886	8,191	26,713	4,208	30,921
Narok	1,754	3,599	3,869	4,027	13,249	2,106	15,355
TOTAL	69,205	59,271	57,752	63,736	249,964	33,821	283,785
Percentage	28	24	23	25	100	14	114

*NCE was a 6 months non-credit Extension period

7.4.1.2 Outreach services

The key informants and community health volunteers confirmed that outreach had made eye health services accessible to most people in the project area. This made it possible for the vulnerable people (elderly, women, disabled and children) to access the services. Poor roads in the hard-to-reach areas were said to be a challenge, especially during the rainy season. In Narok, there were some areas with wild animals. Community Health Volunteers were trained and deployed to mobilise community members to go for screening at outreach camps but they were not paid salary by the government because they were classified as volunteers. The project paid them a daily stipend to cater for food and transport. The number of people screened during outreach visits (Tables 11) was 317,078 people which constituted 53% of the 600,863 people screened in the project. Of the people screened during outreach, 252,993 people (80%) were screened during non-surgical outreach and 64,085 people (20%) during surgical outreach.

A large proportion (67%) of the people screened at non-surgical visits (Table 12) were screened in year 4 (2017-18) for reasons described above. Information gathered through interviews indicated that there were no surgical outreaches in Narok and West Pokot counties in 2017 and 2018 which explains the gaps in Table 11. Non-surgical outreach activities were integrated in ongoing trachoma project activities.

Table 12: People screened during non-surgical outreach visits

County	Number of people screened					NCE	TOTAL
	2014-15	2015-16	2016-17	2017-18	Total		
Trans Nzoia	11,553	12,807	3,383	2,131	29,874	550	30,424
Uasin Gishu	2,311	754	5,540	54,754	63,359	2,545	65,904
West Pokot	11,728	7,403	12,194	0	31,325	0	31,325
Elgeyo-Marakwet	2,156	1,498	3,217	58,625	65,496	1,157	66,653
Nandi	2,257	1,826	2,225	50,738	57,046	0	57,046
Narok	885	679	77	0	1,641	0	1,641
TOTAL	30,890	24,967	26,636	166,248	248,741	4,252	252,993
Percentage	12	10	11	67	100	2	102

*NCE = 6 months non-credit Extension period

The people who were screened at the surgical eye camps conducted by skilled eye care workers were as shown in Table 13 below. The highest proportion (41%) was screened in year 1 followed by year 2 (28%).

Most of the screening in the NCE period was conducted in West Pokot as part of the ongoing trachoma elimination project. There were 3 counties with no outreach activities in NCE period.

Table 13: People screened during surgical outreach visits

County	Number of people screened					NCE*	TOTAL
	2014-15	2015-16	2016-17	2017-18	Total		
Trans Nzoia	2,278	2,020	580	135	5,013	550	5,563
Uasin Gishu		63	321	316	700	0	700
West Pokot	7,608	10,494	10,502	6,034	34,638	5,515	40,153
Elgeyo-Marakwet	304	325	294	380	1,303	252	1,555
Nandi	746	429	416	265	1,856	0	1,856
Narok	14,986	4,862	123	0	19,971	0	19,971
TOTAL	23,644	16,110	11,335	6,679	57,768	6,317	64,085
Percentage	41	28	20	12	100	11	111

**NCE = 6 months non-credit Extension period*

The community health volunteers interviewed in Narok explained that their communities were not happy because cataract surgery was no longer being conducted during trachoma trichiasis (TT) surgical camps. They further said that the community members needed cataract surgical services more than TT surgical services since sight restoration was better after cataract surgery than after TT surgery. One of the volunteers asserted that *“we miss the time when cataract patients were operated at community-based surgical camps. Some of the community members who were told they had cataracts and needed surgery are still waiting for surgery but all we only see health workers coming to look for TT”*.

During the interview with the county representative, it was noted that *“Narok is an expansive county and it was practically not possible for the SiB project to cover all the communities in county. What is needed is more satellite eye units to shorten the distances travelled people and health workers during outreach”*.

7.4.2 People treated

The number of people treated for different eye conditions was 326,182 (*Table 14*) against a planned target of 272,457 people. The highest proportion (35%) was treated in year 1 followed by year 2. The NCE figures implies that there is a likelihood of about 60,000 people being treated by end of 2018.

Table 14: Number of people treated

County	Number treated						
	2014-15	2015-16	2016-17	2017-18	Total	NCE*	TOTAL
Trans Nzoia	29,601	27,176	20,528	16,665	93,970	10,727	104,697
Uasin Gishu	25,231	13,605	19,316	24,253	82,405	6,998	89,403
West Pokot	6,484	11,566	5,923	3,940	27,913	3,131	31,044
Elgeyo-Marakwet	6,286	5,523	7,655	1,135	20,599	3,596	24,195
Nandi	11,483	8,436	8,439	7,858	36,216	4,033	40,249
Narok	23,090	3,507	3,844	4,027	34,468	2,126	36,594
TOTAL	102,175	69,813	65,705	57,878	295,571	30,611	326,182
Percentage	35	24	22	20	100	10	110

*NCE = 6 months non-credit Extension period

7.4.3 Surgeries performed

The total number of surgeries performed in SiB V project was 27,147 and additional 3,108 surgeries during the NCE period (Table 15). The project had planned to provide 22,588 surgeries.

Most surgeries (62%) were conducted in year 1 and 2. In 2017 (year 3 and 4) the national strikes by health workers and two rounds of high-tension general elections dampened performance. The dedicated teams in SiB V projects made sure that eye health services did not come to a halt during this challenging period.

It is important to note that with the support of county governments and some left-over supplies from year 4 of the funded period, the project was able to continue providing surgical services during the NCE period which may translate to 6,000 operations by the end of 2018.

Table 15: Total number surgeries performed in SiB V project

County	Number of surgeries done						
	2014-15	2015-16	2016-17	2017-18	Total SiB V	NCE*	TOTAL
Trans Nzoia	1,691	1,593	962	990	5,236	501	5,737
Uasin Gishu	2,226	1,138	1,251	1,089	5,704	1,225	6,929
West Pokot	3,325	1,092	1,037	350	5,804	225	6,029
Elgeyo-Marakwet	527	417	731	1,135	2,810	411	3,221
Nandi	977	971	1,542	886	4,376	633	5,009
Narok	1,503	1,191	293	230	3,217	113	3,330
TOTAL	10,249	6,402	5,816	4,680	27,147	3,108	30,255
Percentage	38	24	21	17	100	11	111

*NCE = 6 months non-credit Extension period

7.4.3.1 Cataract surgical services

Cataract is the leading cause of reversible blindness in the world and in Kenya. The number of people in SiB V project area who were diagnosed to have cataracts (patients) that required sight restoring surgery are shown in Table 16. The project continued to render cataract services during the non-cost extension period and is likely to diagnose 5,000 patients with cataracts by end of 2018.

Table 16: Patients diagnosed to be requiring cataract surgery

County	Patients in need of cataract surgery					NCE*	TOTAL
	2014-15	2015-16	2016-17	2017-18	Total		
Trans Nzoia	773	1,198	1,155	913	4,039	465	4,504
Uasin Gishu	1,411	869	791	826	3,897	513	4,410
West Pokot	1,222	2,195	1,820	1,121	6,358	876	7,234
Elgeyo-Marakwet	482	614	817	1,478	3,391	349	3,740
Nandi	507	657	432	474	2,070	315	2,385
Narok	1,199	325	162	192	1,878	111	1,989
TOTAL	5,594	5,858	5,177	5,004	21,633	2,629	24,262
Percentage	26	27	24	23	100	12	112

*NCE = 6 months non-credit Extension period

The cataract surgeries conducted are shown in *Table 17* and the comparison of unmet need (patients with cataract) and met need (patients who were operated on) is in *Figure 3*. The need might be higher since a patient with cataract in both eyes require two surgeries. In Trans Nzoia the number of cataract patients diagnosed was less than the operations. This may either indicate that there were many patients with cataracts in both eyes who had 2 surgeries each or there were patients diagnosed elsewhere who came for surgery at Kitale.

The project's target was 5,804 cataract surgeries and at the end of the non-cost extension period 12,769 surgeries had been performed.

Table 17: Cataract surgeries done in SiB V project from 2014 to 2018

County	Cataract surgeries performed					NCE*	TOTAL
	2014-15	2015-16	2016-17	2017-18	Total		
Trans Nzoia	886	856	502	359	2,603	245	2,848
Uasin Gishu	655	245	543	589	2,032	491	2,523
West Pokot	1,116	734	648	209	2,707	72	2,779
Elgeyo-Marakwet	355	325	414	534	1,628	200	1,828
Nandi	373	421	278	306	1,378	209	1,587
Narok	586	294	123	144	1,147	57	1,204
TOTAL	3,971	2,875	2,508	2,141	11,495	1,274	12,769
Percentage	35	25	22	19	100	11	111

*NCE = 6 months non-credit Extension period

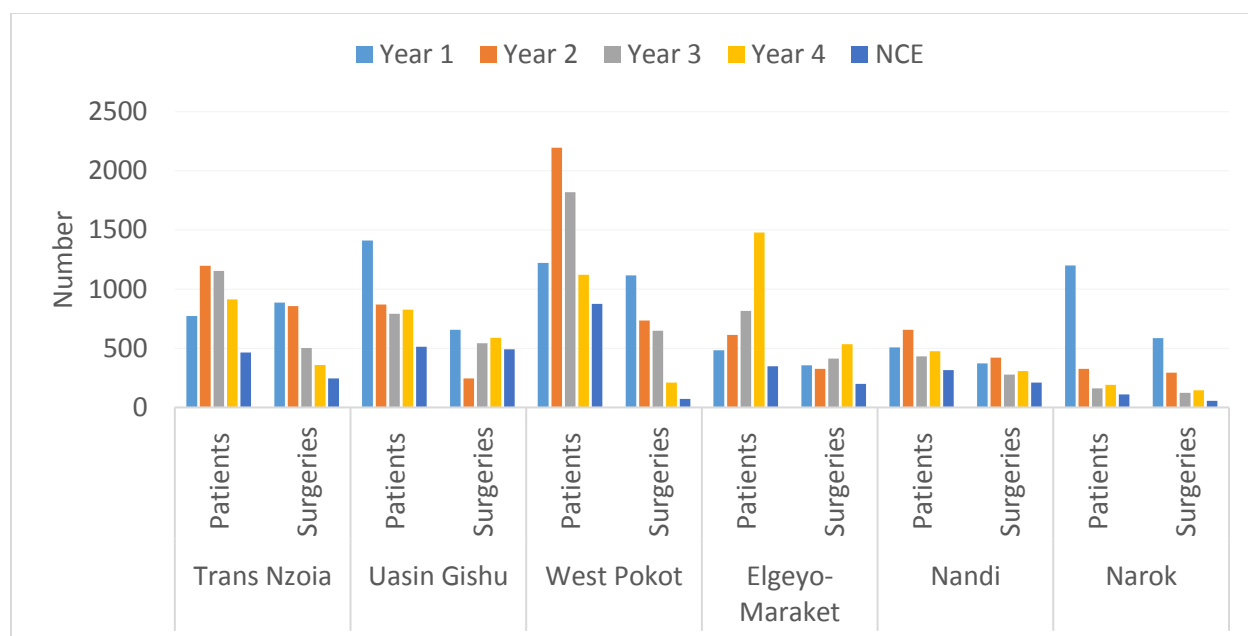


Figure 3: Number of operations done by the counties

SiB V project did not document cataract surgical rate (CSR) and cataract surgical coverage (CSC) but they we estimated and reported them here-below because they are important VISION 2020 indicators.

7.4.3.2 Contribution to Cataract surgical Rate

Cataract surgical Rate (CSR) is the World Health Organization’s recommended indicator for monitoring performance of cataract surgical services. The Kenya Ministry of Health’s Health Management Information System (HMIS) indicates that the national CSR has been fluctuating between 500 and 650 operations per million people per year with wide variations among the 47 counties. Since there were more than one partners rendering cataract surgical services in the project area, the estimates in *Table 18* represent the contribution of SiB V towards the CSR of the project area. CSR is calculated by dividing the number of surgeries by the population of the respective county and multiplied by 1 million. In 2014-15 (year 1) the project recorded the highest CSR of 1,185 cataract operations per million people per year as shown in *Table 18*. The CSR declined with time due the challenges described above.

Table 18: Cataract surgical rate of the of the SiB V project

Variable	2014-15	2015-16	2016-17	2017-18	NCE period
Total population	3,350,973	3,479,913	3,610,270	3,749,581	3,887,375
Total surgeries	3,971	2,875	2,508	2,141	1,274
Cataract surgical rate*	1,185	826	695	571	328

*Cataract surgical rate = cataract surgeries per million people per year

The average CSR during the 4 years project period was 819 surgeries per million people per year. The county which recorded the highest CSR was West Pokot (Figure 4). The reported NCE period was 6 months with CSR of 328 and by the end of 2018 the CSR may increase to 650.

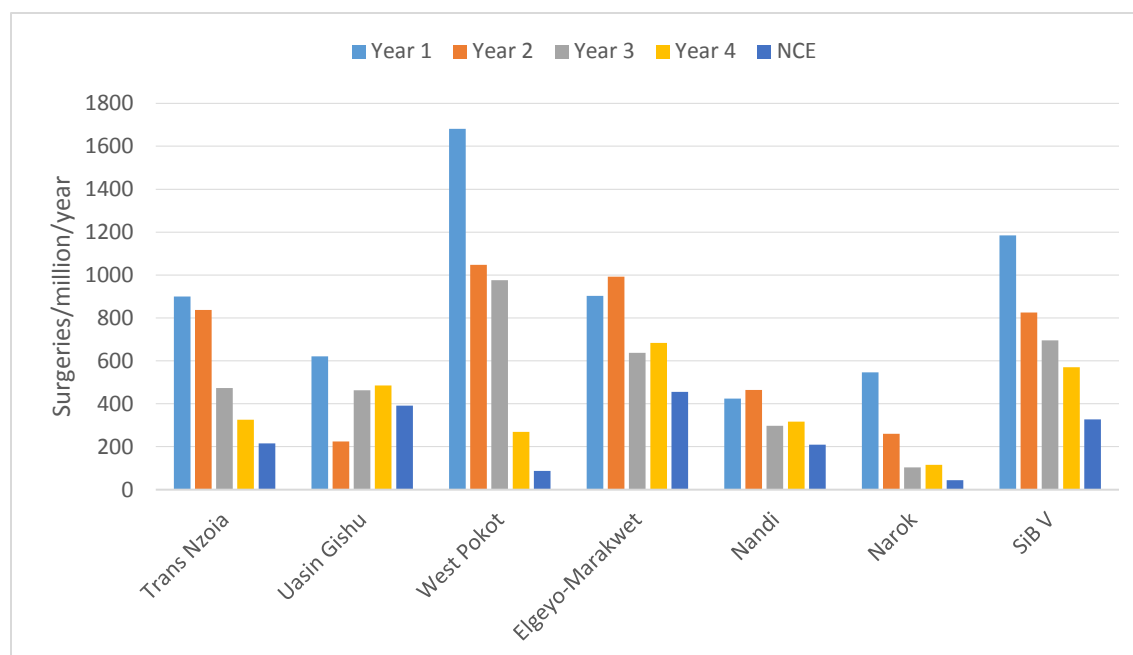


Figure 4: Operations per million people per year (CSR)

7.4.3.3 Cataract Surgical Coverage

Proportion of the need for cataract surgical services which is met by a project is monitored by calculating the cataract surgical coverage (CSC). It is defined as the percentage of people (or eyes) with operable cataract who are operated within the same year as shown in *Table 19* and trend by counties in Figure 4. The raw data for Figure 4 is in Tables 15 and 16 above. In this evaluation we calculated crude CSC since we divided the number of surgeries (eyes) by the number of people diagnosed to be in needed of surgery. It may be for this reason that the CSC for Trans Nzoia was above 100%. Another explanation could be that some people diagnosed in neighbouring counties went for cataract surgery in Trans Nzoia.

Table 19: Number of people with cataracts who were operated in SiB V project

Period	2014-15	2015-16	2016-17	2017-18	SiB V	NCE*
People with cataract	5,594	5,858	5,177	5,004	21,633	2,629
Cataract surgeries done	3,971	2,875	2,508	2,141	11,495	1,274
Surgical coverage (%)	71	49	48	43	53	48

*NCE = 6 months non-credit Extension period

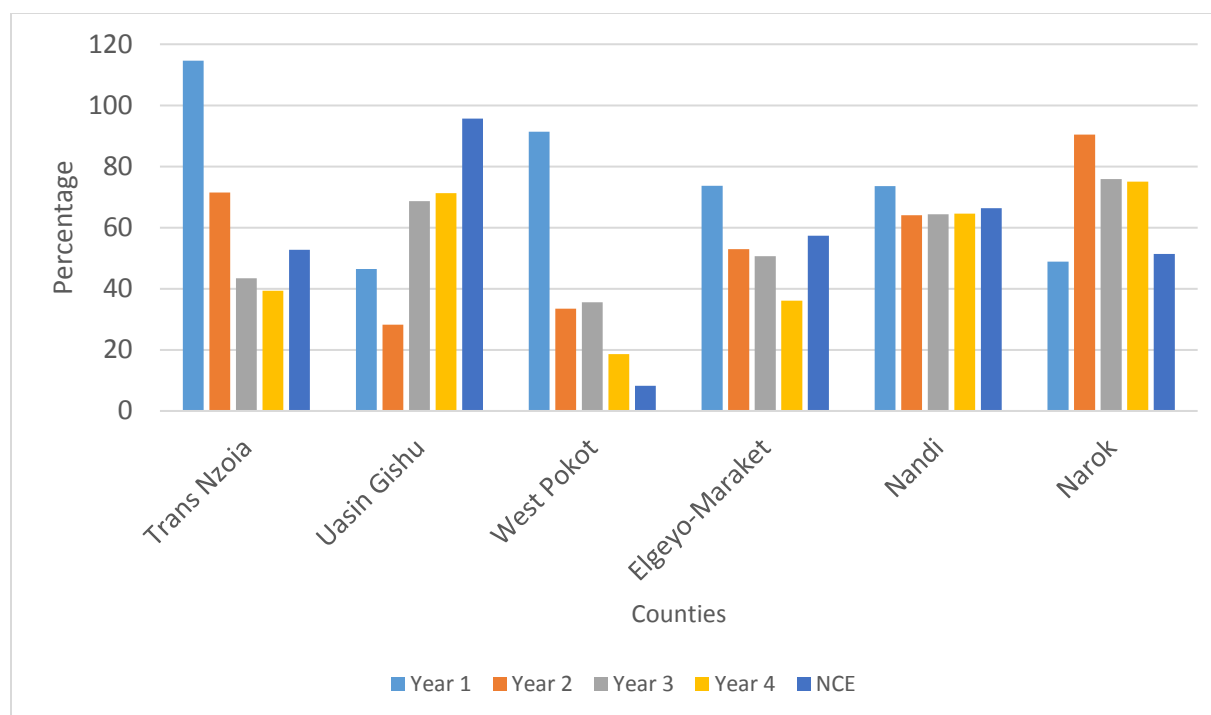


Figure 5: Cataract surgical coverage of the SiB V project counties

7.4.3.4 Quality of surgical services

Ministry of health reports indicated that in most public health facilities in Kenya, cataract surgical audit has been a challenge mainly because the facilities depend on overloaded clinical staff to do it. The audit is intended to ensure continued improvement of outcomes over time and not to compare counties, hospitals or surgeons. In an ideal situation, the World Health Organization recommend good outcomes (best corrected visual acuity 6/18 or better) in over 90% of patients operated.

The outcomes of the SiB V cataract audit are in *Table 20* below. It was observed that there were challenges in reporting as the reports did not match outcomes and the time period when visual acuity was assessed. Visual outcomes at week 2 are expected to be better than day 1 and a mix-up of the two may dampen the quality of outcomes. Prior to 2017, the findings for day 1 and week 2 were not recorded. Interpretation of the findings in *Table 19* with above reservations indicated that percentage of surgeries with good outcomes was higher at the end of the programme than at the beginning and this is an encouraging trend.

Table 20: Visual outcomes after cataract surgery

Variable	Year 2	Year 3	Year 4	NCE
Cataract Op	2,875(100%)	2,506(100%)	2,141(100%)	1,274(100%)
Patients reviewed after 1 day			1,970(92%)	1,063(83%)
patients reviewed after 2 weeks			1,809(64%)	794(62%)
Number with Visual Acuity $\geq 6/18$ after surgery	1,997(69%)	1317(53%)	1,509(70%)	822(65%)
% with good outcomes*	69	53	77	77

*Patients with $\geq 6/18$ divided with those reviewed on day one (or total where day 1 review was missing)

7.4.3.5 Screening for diabetic retinopathy

Diabetes is an emerging major cause of blindness and in 2016 the Government of Kenya and partners started a pilot project to screen patients attending diabetic medical clinics for diabetic retinopathy (DR). The pilot was started at the Kenyatta National Hospital and will be replicated at all county referral hospitals. Community-based screening for DR was considered not to be feasible because the Kenya eye health system does not have adequate capacity to do so. As a result, screening is done at medical clinics by validated technicians using special retina camera. Kitale was the only eye health facility which had a retina camera in the SiB V project.

A baseline study conducted between March and April 2018 at the diabetic medical clinic of Kitale level 5 Hospital in Trans-Nzoia County with financial support from SiB confirmed that a trained technician with a retina camera can accurately diagnose DR. This is a confirmation that screening can be successfully task-shifted from skilled eye health workers to technicians with retina cameras. When DR screening was conducted at Kitale Diabetic Medical Clinic (as opposed to eye clinic) the number of patients screened increased from an average of 1 to 86 patients per week. It was projected that at that rate of about 1,000 patients will be referred from the diabetic clinic to eye clinic annually. A further qualitative study conducted at Kitale Hospital to investigate the barriers to utilisation of eye services by diabetic patients revealed that the patients referred to eye clinic were unwilling to go there eye check due to various reasons including feeling hungry and delays in hospital queues. Moreover, workers at medical clinic said they did not examine for DR. These findings indicate that for a hospital-based DR screening project to be effective, the screening should be done using retina camera at diabetic medical clinic and not eye clinic.

In this evaluation, it was revealed that most eye health facilities in the project area screened patients for DR at eye clinics. They did not have well-structured and consistent DR screening at medical clinics. Moi Teaching and Referral Hospital in Uasin Gishu County is the only facility which reported that they occasionally screened patients at diabetic medical clinic using clinical examination methods done by skilled eye health workers. They further added that it was a tedious job and they needed a technician and retina camera to make the screening time and cost-efficient. The patients who were screened in the project under review were as shown in *Table 21*. This number is too low considering the above findings that Kitale alone has potential to screen 1,000 patients in a year.

Table 21: Screening for diabetic retinopathy

County	Number of people with diabetes screened or treated				
	2016-17	2017-18	Total	NCE*	TOTAL
Trans Nzoia	0	0	0	71	71
Uasin Gishu	44	283	327	422	749
West Pokot	6	3	9	16	25
Elgeyo-Marakwet	75	9	84	4	88
Nandi	35	85	120	44	164
Narok	0	7	7	0	7
TOTAL	160	387	547	557	1,104

*NCE = 6 months non-credit Extension period

7.4.3.6 *Refraction and low vision services*

Development of refraction services was also at the formative stage. At the time of this evaluation, the optical shop at the Moi Teaching and Referral Hospital was being refurbished. Narok and Huruma had a partnership with KSB to avail low cost spectacles but they said that the money generated for this arrangement was little. The government of Kenya has not commenced recruitment of optometrists. The ophthalmic nurses, ophthalmic clinical officers and ophthalmologists who provide refraction services at public hospitals are busy with clinical duties. These observations implies that refraction and low vision services at SiB V eye health facilities should be considered work in progress.

7.4.4 *Integration of eye health into main stream health systems*

As one of the county representative put it, “.....*the eye project has been almost a distinct entity which has not been fully integrated in other entities....*”.

Despite SiB V being a mainly vertical project, review of documents and interviews with key informants revealed that there was substantial evidence towards integration into main stream health systems since the project:

- Sensitized county and hospital teams about eye health and the counties had included eye care in their budget. As a result, Narok County had appointed a fulltime focal person for eye health in county health management team. This was not possible in other counties because of staff shortage. County representatives added that they worked closely with heads of eye health teams
- Reported through the ministry of health Information Management System
- Trained Community Health Extension Workers (CHEWs) of the Community Health Strategy project on prevention of blindness and primary eye care
- Trained community health volunteers to screen and refer patients with eye conditions
- Training of Maternal Neonate and Child Health (MNCH) workers to identify neonates and children with eye conditions, administer tetracycline eye ointment to newborn children, give vitamin A supplements and refer children with major eye illnesses

7.4.5 *Summary of achievement of key project targets*

Table 22 shows that the project was able to achieve and surpass the key performance targets.

Table 22: Achievement of key project performance targets

Performance indicator	Number		Percentage achievement
	Target	Achieved	
Construct eye facility	1	1	100
Equip eye facilities	8	8	100
Train cataract surgeons	3	6	200
Train ophthalmic nurses	11	11	100
Train community health volunteers	1,001	1,683	168
Screen people for eye conditions	495,445	600,863	121
Treat people with eye conditions	272,457	326,182	120
Perform cataract surgeries	5,804	12,769	220

7.4.6 Sustainability

Interviews with national and county representatives confirmed that they were aware of the SiB V eye project. They considered it to be a priority and flagship project. Their counties expressed readiness to support and sustain the project because it was beneficial to their communities. The president of Kenya declared health as one of the pillars of his “big four” agenda to be achieved by 2022 and the SiB V activities will be a big boost towards achievement of this agenda.

Assessment of the potential for sustainability of the component of this project indicated that:

1. Skilled eye health workers (ophthalmic nurses and clinical officers) will be fully sustainable since they are salaried government employees and will continue to render eye health services at their stations. However, a few ophthalmic nurses had been posted to other departments (internal attrition) where they were not rendering eye health services. Utilization of static eye facilities was high because of the increased awareness at community level
2. Community Health Volunteers is the cadre that representatives of county and national governments said they will encounter a lot of difficulties to sustain because the volunteers are not budgeted for. One key informant observed that “...they are supposed to be volunteers, but their work is critical....and they serve their communities on fulltime bases....” Non-governmental organizations pay a stipend on daily bases to mobilize communities for their specific projects. As the volunteers put it “we are out there waiting for any project which come by including digging pit latrines, immunization, breast feeding, registering births..... at the end of a busy day you are paid the usual five hundred shillings... then you go home, and your children ask for food.....at some homes we visit we find very poor people who ask for money to buy food, medicine and fare to go to hospital...” Most of the key informants asserted that it is practically impossible to render community outreach without the volunteers and urgent action is needed to have them paid by the government. County representatives said they were aware of the importance and plight of the volunteers. In the meantime, counties will continue to depend on non-governmental partners’ support as they lobby for legislation (Community Health Bill) to have them paid as community health workers.

3. Infrastructure and equipment will be sustainable as it will continue to be used. However, there were some concerns about maintenance of eye equipment and availability of spare parts.
4. Supply of consumables by county government was inadequate and inconsistent due to reduced funding from central government. County representatives pledged to continue supporting eye health team to deliver quality services by providing consumables for eye treatment and surgery. The outputs of the No-Cost Extension period reported above is a testimony that these pledges were honored by all the six counties.
5. Financial sustainability will be challenging after the expiry of the SiB V project and it was proposed that the most promising way to bridge this financial gap is for more community members to acquire health insurance cover. At the time of this evaluation, most key informants said that about 20% or less of the people in the counties had National Hospital Insurance Fund (NHIF) cover. The coverage was lower in rural than in urban areas. Counties' representatives said they will ride on the ongoing national universal health coverage campaign to increase the proportion of people with the cover. The eye health team at the Moi Teaching and Referral Hospital observed that NHIF refund for one cataract surgery is 60,000/= shillings and it can pay the hospital charges for 15 surgeries (4,000/= shillings each) for patients who pay out of pocket. They added that if 10% of their patients had NHIF cover, the eye clinic would be able to waive hospital fee for all vulnerable groups such as the elderly, poor, children, disabled, widows and widowers without driving the hospital into debt. As a result, they even asked for NHIF cards during free eye camps. With this approach, the eye clinic had attained NHIF card coverage of 40%. Kitale team had an innovative public private partnership approach where they mobilized individuals and clubs to support eye health activities. They also factored in service delivery and equipment when applying for operational research funds. A diabetic retinopathy study conducted in Kitale in 2008 revealed NHIF card coverage of 43% among patients attending the diabetic medical clinic. Other facilities in the project were developing income generating activities such as "revolving pharmacy" and sale of spectacles. Ministry of health representative explained that there are about 5 million Kenyans with active NHIF cards and each card offers cover to the owner plus an average of 5 immediate family members. As a result, the total number of Kenyans who are either directly or indirectly covered are about 25 million which translates to over 50% NHIF card coverage.
6. All key informants asserted that sustainability of outreach services will be challenging mainly due to lack of support for community health volunteers as described above. Transport was the other challenge which the counties said they will address through provision of transport and adding eye workers in outreach teams of funded projects such as the "Linda Mama" and "Beyond Zero campaign". Linda Mama is an NHIF project that provides a package of basic health services accessed by all in the targeted population on the basis of need and not ability to pay, positioning Kenya on the pathway to Universal Health Coverage. It is a public funded health scheme that will ensure that pregnant women and infants have access to quality and affordable health services. "Beyond Zero Campaign" is a national campaign to improve maternal and child health outcomes in Kenya and it is spearheaded by the First Lady. Two counties (Narok and West Pokot) had trachoma projects with vibrant outreach which could promote comprehensive eye health services.

7.4.7 Strengths Weaknesses, Opportunities and Threats

Assessment of strengths, weaknesses, opportunities and threats to provision of eye health services by SiB V project was done through interviews with key informants and findings summarised in *Table 23*.

Strengths and weaknesses are internal while opportunities and challenges are external to the project.

Table 23: Strengths, weaknesses, opportunities and threats

<p>Strengths</p> <ul style="list-style-type: none"> • Strong commitment by county governments • Generous donation of US\$1,000,000 from the Seeing is Believing project of the Standard Chartered Bank and Operation Eyesight Universal • Availability of skilled personnel and strong team spirit • Availability of eye health infrastructure and equipment • Receptive and motivated communities • Vibrant community outreach • Increased utilization of static units due to the awareness created by the project 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Few satellite eye facilities at sub-county level • Inadequate and inconsistent supply of consumables by county governments • Inadequate support for outreach during the No-Cost Extension period • Poorly developed income generating activities • Some ophthalmic nurses deployed to other duties • High attrition rate of trained Community Health Volunteers
<p>Opportunities</p> <ul style="list-style-type: none"> • The project should be involved in the Universal Health Coverage campaign under the “Big 4” government of Kenya agenda • Sensitize patients to acquire National Hospital Insurance Fund cover • Lobby for more public private partnerships to supplement funding by county governments 	<p>Threats</p> <ul style="list-style-type: none"> • Lack of budgetary allocation for Community Health Volunteers • Industrial action by health workers • Instability during general elections

8 EMERGING ISSUES

The main issues that emerged from the findings of this evaluation were as follows:

- SiB V project successfully implemented comprehensive eye health services in six counties in the Rift Valley region in line with the Kenya Eye Health Plan, VISION 2020 guidelines and project objectives
- The project served all communities in the six counties through a combination of static and community outreach services. The project made it possible for the venerable groups such as women, children, elderly and the disabled to access the services. Moreover, there was a “good Samaritan fund” to support the children who needed specialized eye services outside the project area
- The project built strong eye care teams by bridging existing human resource gaps through training of eye health workers and CHVs plus sensitization of county and hospital management teams
- The project built and equipped one new eye health facility at Huruma in Uasin Gishu County. More will be needed in other counties since provision of outreach in vast counties was noted to be challenging
- Despite major external challenges in 2017, the project was able to record an impressive performance in the second and third years of project implementation. The challenges included multiple national strikes by health workers and two rounds of high-tension presidential elections. This performance was possible mainly because of ownership of the project by eye health teams
- Activities of the six months No-Cost Extension period when the project had no financial support from SiB provided a golden opportunity to test whether the project will be sustainable or not using a “before and after evaluation model.” The number of patients treated, and surgery done during the NCE period was comparable to those in years 3 and 4. This is enough evidence that county governments are determined to sustain what SiB V initiated. This period also benefitted from leftover supplies from the final year of the funded project and the increased awareness at community level
- The biggest threat to community outreach is lack of community health volunteers. This is the only cadre of the eye health team which is not funded by the government. As a result, the project recorded a sharp decline in the number of people screened at non-surgical outreach during the No-Cost Extension period. Lack of funds and transport for skilled eye health workers also contributed to the decline patients screened.
- The project boosted the cataract surgical rate of the member counties but the need for cataract surgery was much higher than the project could handle
- Screening for diabetic retinopathy and refractive services were not fully developed
- The Kenya Trachoma Elimination Programme conducted trichiasis surgical outreach in Narok and West Pokot counties, but these programmes did not have a comprehensive eye health component

9 LESSONS LEARNT

The lessons learnt from the findings of this evaluation were as follows:

- Despite the short time period of 4 years and major challenges in 2017, it is possible to implement a project of such a magnitude as SiB V with remarkable achievements
- Involvement and ownership of the SiB V project by county governments and eye health teams together with increased awareness by the community ensured sustainability of the project
- The continued performance of the project six months into the No-Cost Extension period is the other indication that the project is sustainable
- Community outreach is difficult to implement without community health volunteers and their challenges should be addressed as a matter of urgency.
- This project was able to reach persons with eye problems at community level and revealed a big unmet need for cataract surgical services
- Population density and surface area should be taken into consideration when designing an eye health project and strategies for service delivery adjusted accordingly. Large counties such as Narok and West Pokot will need more satellite eye units at sub-county level to shorten distances people and medical staff move to reach health facilities and outreach camps
- The most feasible strategy to mitigate against declining donor funding is to mobilize more people to own hospital insurance cover riding on the ongoing campaign to attain Universal Health Coverage

10 CONCLUSIONS

The conclusions made from this evaluation were that the SiB V project:

5. Was part of the Kenya eye health services and it was implemented in line with the national strategic plan for eye health and blindness prevention 2012-2018 and VISION 2020 global initiative for prevention of avoidable blindness
6. Strengthened the capacity of primary, secondary and tertiary facilities in the project area to provide health care eye health
7. Successfully implemented sustainable comprehensive eye health services in the Rift Valley region which catered for all the targeted communities at all levels of health care
8. Demonstrated substantial evidence of integration into mainstream health systems

11 ANNEXES

11.1 Annex 1: Eye equipment supplied by the SiB V project

Equipment & instruments -SIB V
Item
Narok Eye Unit
Dipolar Cautery unit
Vitrectomy Machine
Cataract sets
Trial Frame, skeoch, Adult [K- 3502/A
Naroosura Eye Clinic
Electrical VA Chart with remote control
Dipolar Cautery unit
Cataract sets
Tonometer-Goldman approach tonometer
Trial Frame, skeoch, Adult [K- 3502/A
Trial Frame, skeoch, child [K-3502/C]
Operating light-Operating light-portable
Kitale Eye Unit
Direct Ophthalmoscope
Tonometer-Goldman approach tonometer
Slit Lamp-Visine slit lamp on three motorised stand and tonometer
Kapenguria Eye clinic
Indirect Ophthalmoscope-Iris spectra indirect ophthalmoscope
+20D volk lens
Cataract sets
Sonomed Pacscan 300 A (A-scan)
Manual keratometer
MTRH Eye Unit
+20D volk lens

Indirect Ophthalmoscope-Iris spectra indirect ophthalmoscope
Kapsabet Eye Clinic
Cataract sets
+20D volk lens
Indirect Ophthalmoscope-Iris spectra indirect ophthalmoscope
Sonomed Pacscan 300 A (A-scan)
Manual keratometer
Iten Eye Clinic
Slit Lamp-Visine slit lamp on three motorised stand and tonometer
+20D volk lens
Uasin Gishu Eye Unit
Direct Ophthalmoscope
Slit Lamp-Visine slit lamp on three motorised stand and tonometer
Indirect Ophthalmoscope-Iris spectra indirect ophthalmoscope
Tonometer-Perkins rechargeable battery and recharging unit
Tonometer- Schiottz hand held
Refraction and visual tests equipment
Trial sets complete with JCC +& – 0.25 & 0.50 . Trial sets Indian model K 3501 /A or DEOU79
Trial Frame, skeoch, Adult [K- 3502/A
Trial Frame, skeoch, child [K-3502/C]
Lensometer:-Inami internal Reading Lensometer L-4550
Lid sets
Evisceration sets
Challazion sets
TPR sets [entropion]
Operating light-Operating light-portable
Instrument sterilizing -Instrument sterilizing boxes
Dressing trolley -Dressing trolley stainless steel 61X46 with castors
Surgeons stools-Surgeons stools with castors Epc finish cushion
Operating table. Operating table with adjustable heights and tilting mechanism with accessories
Voltage Stabilizer -3

11.2 Annex 2: Additional skilled eye health staff trained by the SiB V project to

NAME	SEX	EYE UNIT	COURSE
CLASS OF 2014			
Merciline Wanyonyi	FEMALE	Kitale	Higher Diploma in Ophthalmic Nursing
Judith Opula Namanda	FEMALE	Kitale	Higher Diploma in Ophthalmic Nursing
Kenneth Kipkoech Kirui	MALE	Kapenguria	Higher Diploma in Ophthalmology & Cataract Surgery
Prisca Chepkurgat Kirwa	FEMALE	Kitale	Higher Diploma in Ophthalmic Nursing
Caroline Jepkemboi Chemalan	FEMALE	Kapsabet	Higher Diploma in Ophthalmic Nursing
CLASS OF 2015			
Beatrice Jemaiyo Kurui (OCO)	FEMALE	Uasin Gishu	Higher Diploma in Ophthalmology & Cataract Surgery
Anne Nasieku Kiseento (OCO)	FEMALE	Naroosura	Higher Diploma in Ophthalmology & Cataract Surgery
Kenneth Kipchumba Kiplagat (ON)	MALE	Uasin Gishu	Higher Diploma in Ophthalmic Nursing
Willy Kiprono Too (ON)	MALE	Narok	Higher Diploma in Ophthalmic Nursing
Agnes Jebotibin Kibet (OCO)	FEMALE	Kapsabet	Higher Diploma in Ophthalmology & Cataract Surgery
Jael Jepkemei Songol (OCO)	FEMALE	MTRH	Higher Diploma in Ophthalmology Advanced Refraction & Low Vision
Raphael Kipkosgei Rotich (ON)	MALE	MTRH	Higher Diploma in Ophthalmic Nursing
Mercy Jepchumba Tanui (ON)	FEMALE	MTRH	Higher Diploma in Ophthalmic Nursing
Emmanuel N'getich (ON)	MALE	Kapsabet	Higher Diploma in Ophthalmic Nursing
CLASS OF 2016			
Beatrice Kipchumba	FEMALE	Iten	Higher Diploma in Ophthalmic Nursing
Robert Tum	MALE	Kapsabet	Higher Diploma in Ophthalmic Nursing
Phanice Temko	FEMALE	Kitale	Higher Diploma in Ophthalmology & Cataract Surgery
CLASS OF 2017			
Daniel Bett	MALE	Iten	Higher Diploma in Ophthalmology & Cataract Surgery