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Replicable Comprehensive Rural Eye Care Model for Vulnerable Groups in Inner Mongolia China “Seeing is Believing Phase V” project is a successfully completed rural eye care model implemented with integration in existing health system of public and private eye health sector at three levels. This project has been able to address the major bulk of avoidable blinding diseases to reduce the blindness in Inner Mongolia. The project end evaluation has been carried out in February 2017.

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Summary

The three years and three months “Establish much needed eye care services in Inner Mongolia and simultaneously provide a successful comprehensive rural eye care model to be replicated by the government throughout China” project aims to develop a model to provide comprehensive rural eye care service in cataract, diabetic retinopathy and refractive error among the underserved regions of the Inner Mongolia. The objectives of the project activities are based on five strategies; the human resource development through capacity building, infrastructure development, eye health service delivery, research and evidence based advocacy. The service delivery was accessed up to the vulnerable groups through strengthening and integrating eye care services at three levels of health care system of public and private institutions. The project activities are relevant to the national prevention of blindness policy, VISION 2020 plans, local context of the disease pattern and awareness and knowledge of the existing avoidable blinding disease. The project end evaluation was conducted on February 2017 by a team of external consultant. The aim of the project end evaluation was to assess effectiveness and impact of various activities conducted during the project implementation period. The evaluation was based on review of project progress reports, direct observation of project activities at the project implementing sites, interview and focal group discussion with relevant stakeholders, hospital administrators, project co-ordinators, trainers, trainees and beneficiaries. Based on the KAP survey on baseline, end line and interview after the project implementation, the awareness and knowledge on cataract, refractive error and diabetic retinopathy among the service providers and beneficiaries was found increased leading to change in attitude and practice towards these diseases. The ultimate impact of this activity has been early presentation of patients, timely treatment and increase in compliance for the treatment. We found increased the capacity of all sectors of health system in leadership and governance, health financing, human resource, health information system, eye care service delivery, and medical technology of the implementing hospitals with the project activities. Through the project activities, large volume of vulnerable people with cataract, diabetes and school children has been screened for their eye problems and got benefited with the timely treatment. The beneficiaries were found very satisfied with the quality of eye care service they received at the local level and attitude and behavior of the health care professionals. The beneficiaries expressed their views that the availability of the eye care service at local level has helped them alot especially to save their time, money and no need of accompanying person all the time. The project activities were found relevant to the local context of the disease pattern and awareness and knowledge of the existing avoidable blinding disease. The multi-partner involvement, their commitment and co-ordination with project management committee were found effective for successful completion of targeted activities on time. Advocacy activities conducted at various stakeholders were found very effective to motivate the concerned stakeholders regarding the importance of these diseases especially for the vulnerable groups. The multi-partner involvement, alignment of the project activities with national and provincial plan and policies of prevention of blindness, integrating project activities within the existing health system are found to be the main pillars for the sustainability of the project activities in the future. We recommend this comprehensive model of rural eye care service to replicate in other underserved areas to reduce the avoidable blindness in China.
EXECUTIVE SUMMARY

Background

“Comprehensive rural eye care model for vulnerable groups in Inner Mongolia” is a three years and three months project started from January 2014 to March 2017 with the support of The Foundation, China and Standard Chartered Bank (SCB).

China has the world’s second largest number of people who are either visually impaired or blind accounting for 18% of the total globe. Cataract and uncorrected refractive error are the leading causes of visual impairment. China has the largest number of people with diabetes in the world comprising of over 90 million and therefore has the largest population in the world at risk of losing sight due to diabetic retinopathy.

Inner Mongolia Autonomous region is located in the North of China and has population of 24.7 million with 49 minority groups. It is estimated that approximately 108,600 people in Inner Mongolia are blind (0.43%) and 243,600 people have low vision (0.58%). The main cause of blindness in Inner Mongolia is cataract, which accounts for 50% of blindness. In 2011, the Cataract Surgical Rate was 577, much below the national average of 950. The International Diabetes Federation (IDF) reported that the prevalence of diabetes was 8.3% in those aged 20-79 with 27.9% prevalence of diabetic retinopathy (DR). It has been expected that the dietary habits of consuming more meat, and milk produces possibly increase the poor glycaemic control in Inner Mongolia. Besides this, the lack of eye care professionals and adequate refractive error service are also identified as a key barrier for eye care service. The majority of people in Inner Mongolia are not able to access basic eye health service due to poverty, lack of public transportation and low awareness of avoidable blindness. Majority of vulnerable groups are not aware of avoidable blinding disease like cataract, refractive error and diabetic retinopathy. The primary health services at the local level are not integrated with primary eye care service. On the other hand, eye doctors are limited mainly to the urban part, only less than 20% are capable of doing cataract surgery, trained optometrist are only available in small number of city and prefecture level hospitals. Most of the rural areas are underserved with even quality refractive error service. These all lead to delay in reaching to tertiary level eye care service with irreversible blindness.

With these facts, the project aimed to develop an innovative comprehensive, sustainable eye care model focused on cataract, refractive error and diabetic retinopathy to serve rural eye care services for both Han and minority population. The project activities are in strong alignment with National Plan for prevention of blindness, VISION 2020 and FHF Country strategic plan and policies.

The goal of the project is eliminate avoidable blindness and visual impairment in Inner Mongolia Autonomous Region. The purpose of the project is to improve policy and practice for providing quality rural eye care service by establishing a Comprehensive rural eye care model in Inner Mongolia Autonomous region and deliver a replicable model for advocacy at national level. The objective of the project is to focus on avoidable blinding disease on cataract, basic childhood blindness and refractive error, and early intervention of diabetic retinopathy by providing modern surgical/medical management.
and screening, skill transfer, the provision of appropriate equipment, public awareness campaigns and patient education activities implemented within a existing eye health care system. The objectives of the project were based on five strategies namely; the human resource development through capacity building, infrastructure development, eye health service delivery, research and evidence based advocacy. The project aims to access up to the vulnerable groups through strengthening and integrating eye care services at three levels of health care system of both the public and private institutions. The total budget for the project over three years was AUD 1,362,003 (USD 1,197,853/RMB 7,354,817). The baseline surveys on major avoidable blinding diseases, mid-term review and project end evaluation are the other key aspects of project activities during the project implementation period. FHF and SCB contributed financially.

The aim of the project end evaluation was to assess the effectiveness and impact of various activities conducted by the project during the project implementation period. The evidence will be used to inform the design and implementation of rural eye care models in other parts of the province of Inner Mongolia and similar other provinces in China.

**Evaluation purpose and key evaluation questions**

The replicable comprehensive eye care model in Inner Mongolia has been implementing its activities in Inner Mongolia over the last three years. The project end evaluation has been carried out in February 2017. The aim of the evaluation is to generate evidence on implementation and effectiveness of the project activities. The evidence will be used to inform the design and implementation of rural eye care models in other province in Inner Mongolia and China. The evidence will also be used for advocacy purpose and to inform policy at the national level.

Based on the terms of reference (TOR), the key evaluation questions of the project end evaluation are

1. What impact has the project had on knowledge, attitude and practice in relation to cataract, refractive error, and DR among individual and health workers in the project area?
2. What impact has the project had on building the capacity of the health system in the project area to deliver comprehensive eye health service?
3. How effectiveness were the screening, referral and treatment mechanisms established through the project at reaching target population?
4. What were the Contextual factors that facilitated or were a barrier to project implementation?
5. How appropriate was the eye care model supported by the project to the local context?
6. How effective were the partnership and advocacy activities supported through the project?

**Methodology**

The evaluation involved mixed methods approach to assess the project end evaluation. Desk review of all the relevant documents preceded the evaluation. The evaluator team participated in FHF team briefing, outcome/output data provided by the FHF, implementing partners and additional information provided by FHF team as requested by the evaluator. The project end evaluation team, The Foundation
China team and project partners provided input to identify the key informants, to ensure the discussion within the main team of stakeholders, partner institutions, hospitals, trainers, trainees as well as beneficiaries. The evaluation design involved analyse key evaluation question to assess the entire evaluation objective, explore for the possible information, and proper data analysis method. Both the quantitative and qualitative data technique was employed for the evaluation. Quantitative assessments involved both the primary and secondary analysis of data and annual reports from the FHF activity files. Qualitative assessments involved focus group discussion (FGD), in-depth interview using a key questionnaire derived from the evaluation objectives and a companion questionnaire, direct observation of procedures, surgery outcome, and clinical records checking, documented recorded activities. The entire questionnaire completed by the interviewers collected, data entry and analysis done using excel. A total of 114 people interviewed in group and in individual across major stakeholders from Health and Family Planning Commission, Disabled Persons’ Federation, Education Bureau of provincial, city/prefecture and from County level, and Inner Mongolia Medical Doctor Association, six project implementation hospitals, township clinics and village health centers were conducted. Among these, 16 were the government officials, 17 were from the management team of the partner hospitals, 42 were the health/eye health care professionals, 32 beneficiaries, 5 school principal and school teacher. In depth of the methodology has been described in the methodology section of the detailed report.

**Evaluation findings**

The findings involved analysis of events during direct observation, interview from all the concerned stakeholders and participants, progress reports of the comprehensive rural eye care model for vulnerable groups in Inner Mongolia.

The knowledge and awareness was found increased among the health/eye health professionals, and among the vulnerable groups on the avoidable blinding disease of cataract, refractive error and diabetic retinopathy. The KAP survey conducted at baseline and end line after the project implementation shows marked improvement in the KAP on these blinding diseases among the vulnerable groups. This has been reflected in the change in attitude and practice on these diseases among the health professionals and public leading to increase in demand of eye care service in the health facilities.

The project activities were found enhanced the capacity of the health system in terms of trained human resource, increase in infrastructures, increase demand in eye care service, increase in revenue for the sustainable eye care system helping to access the eye care service up to the vulnerable groups. The project activities were strongly directed to uplift the quality eye care service among the vulnerable groups through the training of the eye care professionals and infrastructure development.

The increase prevalence of avoidable blinding diseases in Inner Mongolia, poor awareness level among the publics, limited eye care service accessible to the vulnerable groups, existing infrastructures of the public health system of primary, secondary and tertiary level health care system, and alignment of the government and provincial prevention of blindness plan, VISION 2020 and FHF policy were found as the contributing factors for the origin of the project in Inner Mongolia. The hindering factors for project implementation to access up to the vulnerable groups were the lack of awareness among the public,
difficulty in transportation due to large geographic area, and to some extent financial constrains among the public.

The project activities were found successfully completed with the involvement of multiple partners, their commitment and co-ordination with Project Management Committee.

Various advocacy activities conducted in the project were found effective to motivate the concerned stakeholders for their support in continuity of the activities and their plan to replicate in other similar regions to reduce avoidable blindness among the vulnerable groups.

The project activities were implemented through both the public and private sectors of health care system. This approach was found effective model for accessing the eye care service to the most vulnerable groups.

**Conclusions**

The findings suggest that the project activities were effective in increase the KAP on major blinding disease of cataract, basic childhood blindness, refractive error and diabetic retinopathy among the vulnerable groups in the project area. The project activities were found successful to increase the capacity of health system especially for development of trained human resource, infrastructure development, and eye care service delivery to the vulnerable groups through screening, functioning referral network, and quality treatment at the local level. The use of public and private sectors in implementing project activities as per their existing health facilities and involve them in eye care service of the vulnerable groups are the lessons for other sectors. The alignment with national and provincial PBL, VISION 2020 program, co-ordination with the major stakeholders, multi-partner involvement, commitment of project partners for implementing project activities, awareness campaigns and evidence based advocacy were found to be the key success of the project and sustainability of the project activities as a model of comprehensive rural eye care service. This project has been established as a model for comprehensive eye care service to the vulnerable groups in underserved areas of China.

**Recommendations**

The project end evaluation has been carried out in February 2017 and found the comprehensive rural eye care model highly successful and achieved its set objectives.

The findings suggest that the project activities are effective to raise the awareness on major blinding disease of cataract, refractive error, diabetic retinopathy among the vulnerable groups, capacity building of human resource and infrastructure development, establish screening, referral and treatment of these avoidable blinding disease at the local level and evidence based advocacy. The project activities were successfully implemented involving both the public and private sectors.

Such type of comprehensive eye care model looks effective to reach up to the vulnerable groups in rural areas. We recommend this model of eye care service for replication across the rural area to cover a large number of needy people that can be sustainable with multi-partner involvement of both public and private sectors.
The Foundation China has been highly appreciated by the government officials, the hospital management team, trainers, trainees, and beneficiaries for initiating comprehensive rural eye care model in Inner Mongolia. It has played a great role in reducing avoidable blindness. All have their wish to continue The Foundation technical support in the future.

The Foundation technical support is required for the development and replication of such programs across China.
1. INTRODUCTION

Project background

China has the world’s second-largest number of people who are either visually impaired or blind, this accounts for 18% of the global total. It is estimated that approximately 20 million people in the country have moderate to severe visual impairment or are blind. Cataract and uncorrected refractive error are the leading cause of vision impairment. In addition, China has the largest number of people with diabetes in the world - over 90 million - and therefore has the largest population in the world at risk of losing sight due to diabetic retinopathy (DR).

Inner Mongolia Autonomous region is located in the North of China and has population of 24.7 million with 49 minority groups. It is estimated that approximately 108,600 people in Inner Mongolia are blind (0.43%) and 243,600 people have low vision (0.58%). The main cause of blindness in Inner Mongolia is cataract, which accounts for approximately 50% of blindness. In 2011, the Cataract Surgical Rate (CSR) was 577, much below the national average of 950. The International Diabetes Federation (IDF) reported that the prevalence of diabetes was 8.3% in those aged 20-79 with 27.9% prevalence of diabetic retinopathy. It has been expected that the dietary habits of consuming more meat, and milk produces possibly increase the poor glycaemic control in Inner Mongolia. Knowledge, attitude and practice (KAP) baseline survey on 2014 reported almost two thirds (63%) of known diabetics had never undergone an eye examination for DR. KAP among school children revealed 95.4% of the 882 students had never heard of the term refractive error. Myopia was the best known refractive error among those who did answer but the proportion was as low as 22.2%. Besides this, the lack of eye care professionals and adequate refractive error service are also identified as a key barrier for eye care service.

Many people in Inner Mongolia do not have access to basic health services due to poverty and lack of transportation. They are not aware that many eye diseases such as cataract can be treated through simple surgery, or that refractive error can be corrected by wearing glasses. Existing primary health services are limited for primary eye care and therefore when people recognized of their eye disease, the opportunity for treatment to regain vision has been missed.

The Foundation has been working in China towards the elimination of avoidable blindness since 1998. The “Seeing is Believing V” project (SiB V) was initiated on the basis of SiB IV to develop a replicable comprehensive rural eye care model in Inner Mongolia. The duration of the project is three years and three months, starting from January 2014 to March 2017. This is a pilot project that demonstrates a model to the government for providing services to some of the most underserved and vulnerable communities in China, aims to improve policy and practice for providing quality rural eye care services, with specially focus on cataract, basic childhood blindness and refractive error (RE) and DR.

The project is in alignment with the National Plan for the Prevention of Blindness (both 2012-2015, and 2016-2020) to address rural eye care model demonstration and focus on comprehensive approach in line with VISION 2020.
The goal of the project is to eliminate avoidable blindness and visual impairment in Inner Mongolia Autonomous Region. A comprehensive project involves modern medical/surgical management and screening skill transfer, the provision of appropriate equipment, public awareness campaigns and patient awareness activities were implemented to support and sustain the prevention and treatment of avoidable blindness of cataract, basic childhood blindness and refractive error and early intervention of diabetic retinopathy. The project implemented its activities in three levels; the primary, secondary and tertiary level health care system to provide comprehensive eye care service on cataract, RE and DR in rural areas (detail module of eye care service has been attached in the Annex).

The purpose of the project is to improve policy and practice for providing quality rural eye care service by establishing a Comprehensive rural eye care model in Inner Mongolia Autonomous region and deliver a replicable model for advocacy at national level. The objective of the project fall under the main five strategies: human resource development of the eye care professionals to provide quality and sustainable comprehensive rural eye care service to local people, infrastructure development, disease control of priority eye disease through regular outreach screening, treatment, community participation and eye health promotion, research for the evidence collection on major blinding disease and advocacy to promote developed comprehensive rural eye care model and advocate the successful model to the government for its replication throughout China.

The Seeing is Believing (SiB) V project was launched and provided support by The Foundation and Standard Chartered Bank (SCB) in Inner Mongolia in January 2014. The Country Manager and Senior Program Manager of The Foundation’s China Country office provided the direct support and supervision for the co-ordination of the project development and management with technical guidance and policy guidance by The Foundation Sydney. The Inner Mongolia International Medical Hospital (IMMH) and Inner Mongolia Red Cross Chaoju Eye Hospital- Hohhot (IMRCEH) are the implementing partner hospitals with The Foundation and have signed the Memorandum of Understanding (MoU) for implementation of project activities. The main responsibilities of the partners are to provide professional training, technical support, project management through co-ordination with executive agencies like three city level hospitals (Inner Mongolia Red Cross Chaoju Eye Hospital- Baotou, Inner Mongolia Red Cross Chaoju Eye Hospital-Chifeng, Inner Mongolia Red Cross Chaoju Eye Hospital-Ulanquab) and three county level partner hospitals (People’s Hospital of Duolun County, Taibus Banner Hospital, People’s Hospital of Horquin Right Wing Middle Banner). The members of the project management (PMC) comprises from Provincial Health and Family Planning Commission, Education Bureau, Disabled people’s Federation and Inner Mongolia Medical Doctors Association including The Foundation and SCB.

The project has included different strategies to enhance sustainability. The extensive consultation with the local stakeholders to ensure high level of ownership, development of vision centres to contribute financial sustainability, project activities integration in to public health and education system utilizing existing structures, administrative systems, personnel, public awareness raising activities all promoting sustainability of public Institutions.
Mid-term Evaluation was conducted on December 2015 for the activities from January 1st 2014 to September 30th 2015. The evaluation found that the SIB V project is a very useful and well run project that is highly relevant to the provincial response to PBL in each of the project sites. Key success factors included for the project was efforts of working in partnership with strong commitment from the provincial, city and county level government officials, public hospitals and private sector on capacity building of their eye care staffs and building infrastructures. The SIB V project worked closely with service sites to address capacity building needs of the eye care staff. The good practices identified toward the objectives and results at midterm review of project implementation; all initiatives were considered new to the staffs at all sites and SIB V project has built a basic level of critical competencies for PBL in Inner Mongolia. Overall, good examples of progress, their recommendation for sustainability was further strengthening the technical assistance, co-ordination mechanism to prompt government decision makers and policy makers to more participate in and disseminate good practice from SIB V project.

The project end evaluation was conducted on February 2017 to assess the impact of awareness raising activities on the knowledge, attitude and practice relating to cataract, refractive error, and DR among individuals living in the project catchment area and among health professionals care for them, to assess the impact of the project activities on the capacity of the health system to deliver comprehensive eye health services, to determine the effectiveness of the screening, referral and treatment mechanisms for people with cataract, refractive error, and DR in the project catchment area, to describe the contextual factors that facilitated and/or was a barrier to the implementation of the RECIM, to determine the relevance of the RECIM as implemented to the local context and to its original objectives, to assess the partnership that enabled this project to be carried out, to assess the extent to which advocacy goals were achieved and to provide the recommendations for carrying out similar health systems strengthening projects in the same or equally complex settings.

2. METHODOLOGY

2.1 Evaluation purpose

The replicable comprehensive eye care model in Inner Mongolia has been implementing its activities in Inner Mongolia over the last three years. The project end evaluation has been carried out in February 2017. The aim of the evaluation is to generate evidence on implementation and effectiveness of the project activities. The evidence will be used to inform the design and implementation of rural eye care models in other province in Inner Mongolia and China. The evidence will also be used for advocacy purpose and to inform policy at the national level. The findings, conclusions and recommendations will specifically be shared with The Foundation China Country office and local partner hospitals. Medical Affairs and Administrative Department, Provincial Health and Family Planning Commission, Inner Mongolia Disabled Persons’ Federation, Inner Mongolia Education Department and National Prevention of Blindness Committee will be the secondary audiences of this report. The findings of implementation procedure can be a useful guidance for the other countries with similar situation of eye care service.
2.2 Evaluation scope and key questions

The aim of the evaluation is to generate evidence on implementation and effectiveness of the SiB V project activities. The evidence will be used to inform the design and implementation of rural eye care models focussed on avoidable blinding disease focussed on cataract, refractive error/low vision and diabetic retinopathy in other province in Inner Mongolia and other province in China. The evidence will also be used for advocacy purpose and to inform policy at the national level. The details of the questionnaires used for interview, group discussion and written information for various participants during the project end evaluation have been mentioned in annex.

The key evaluation questions of the project end evaluation are

1. What impact has the project had on knowledge, attitude and practice in relation to cataract, refractive error, and DR among individual and health workers in the project area?
2. What impact has the project had on building the capacity of the health system in the project area to deliver comprehensive eye health service?
3. How effectiveness was the screening, referral and treatment mechanisms established through the project at reaching target population?
4. What were the Contextual factors that facilitated or were a barrier to project implementation?
5. How appropriate was the eye care model supported by the project to the local context?
6. How effective were the partnership and advocacy activities supported through the project?

2.3 Approach

The evaluation is conducted by an external consultancy team, including an eye specialist with strong project management background from Nepal and a specialist on development management from China, with thorough logistic support from The Foundation’s Country Office. The Foundation’s Project Officer was responsible for the Inner Mongolia project accompanied the consultancy team for the entire evaluation trip in China for coordination and interpretation. The team paid 9 day visits to Inner Mongolia at the provincial, prefecture/city, county and village level, interviewed 114 people including: 1) government officials from the Health and Family Planning Commission, Education Bureau, Disabled People’s Federation and the Medical Doctor’s Association; 2) management team of partner hospitals; 3) medical professionals including eye doctors, nurses, refractionist, endocrinologists and other hospital staff at all levels; 4) beneficiaries 5) school teachers/principal and students and 6) The Foundation China. The consultancy team also had a two-day meeting at The Foundation’s Kunming office before the trip to Inner Mongolia for preparation, and a half-day interview with The Foundation’s program manager and project officer for their perceptions about the project. The evidence collected during the end-of-project evaluation will be used to inform the design and implementation of rural eye care models in other places in Inner Mongolia and China. It will be also used for advocacy purposes and to inform policy at the national level.

The project end evaluation was conducted with the following steps.
a. Instruments Design

To assess the key objective of project end evaluation, formulation of conceptual framework on methodology was the primary concern. The evaluation design involved analyse key evaluation question for the specific data or information, explore where the piece of information obtained, and proper data analysis method. This approach helped to focus on all evaluation questions during data collection and analysis. The KAP survey on baseline and end line survey were used to assess the change on KAP on cataract, refractive error and diabetic retinopathy besides the information gathered during the end evaluation survey. The questionnaires were developed to answer the evaluation objectives. The tools used in the survey were not adapted from the other surveys. The evaluation tools were developed with extensive review of the materials of project activities, discussed among the evaluation team and research advisor of The Foundation. The project end evaluation team, The Foundation’s team and project partners provided input to identify the key informants, to ensure the discussion within the main team of stakeholders, partner institutions, hospitals, trainers, trainees as well as beneficiaries.

b. Desk Reviews

The evaluation involved mixed methods approach to assess the project end evaluation. Desk review of project design document, partner agreement, relevant literatures, KAP baseline and end survey findings, annual progress reports, mid-term review were conducted. The evaluator team participated in The Foundation team presentation, briefing, outcome/output data provided by The Foundation and implementing partners and additional information provided by The Foundation team as requested by the evaluator.

c. Quantitative Assessment

Quantitative assessments involved analysis of KAP survey and secondary data provided by the implementing hospitals regarding the number of patients screened, the number with medical and surgical treatment and also from the progress reports provided by The Foundation. These analyses were utilized to assess the effectiveness and impact of project activities such as an increase in demand of eye care service and change in KAP on the blinding diseases.

The change in knowledge, attitude and practice were self reported during the interview by the participants.

d. Qualitative assessment

Qualitative assessments involved focus group discussion (FGD), in-depth interview using a key questionnaire derived from the evaluation objectives and a companion questionnaire. This involved information specifically from the project stakeholders (PMC), external stakeholders, hospital administrators, head of eye department and project co-ordinators.

The group discussions were moderated by the lead evaluator, co-evaluator. The senior project officer from The Foundation provided interpretation during the discussion. Group discussions were conducted separately among the different groups of government officials, hospital administrators, trainees and beneficiaries from provincial level, prefecture. The government officials included were from Health and
Family planning Bureau, Education Bureau, Disabled Person’s Federation from provincial level, city/prefecture and county levels. The hospital administrators included hospital directors, head of the eye department, and project co-ordinators of project implementation hospitals. The trainee comprises of those involved in training of trainers and trainee for various project activities from hospital, township clinic and village health clinics. Beneficiaries were selected from the outpatient and inpatient department of hospitals. The beneficiaries of post operation were also enrolled from home visits. Key notes were recorded by the team of evaluator. In each session, the participants were requested to provide their concept on the subject matter. The digital photographs were taken during the session. The notes were reviewed many times, summarized and then analysed.

Health facilities and key person meeting and interview during the project end evaluation:

Evaluation team visited project implementation hospitals that includes two provincial hospital, two city level Red Cross Chaoju Eye hospitals, three county public hospital, three township clinic, one village health centre, one community health centre, home visit of beneficiaries house for direct observation of the hospital service, infrastructures, recording system and for interview with hospital administrators, trainers, trainee and beneficiaries. Interview and FGD with major stakeholders from Health and Family Planning Commission, Disabled Persons’ Federation, Education Bureau of provincial, city/prefecture and from County level, and Inner Mongolia Medical Doctor Association were conducted.

A total of 114 people interviewed in group and in individual across the six project implementation facilities. Among these, 16 were the government officials, 17 were from the management team of the partner hospitals, 42 were the health/eye health care professionals, 32 beneficiaries, 5 schools principal and school teacher as shown in Figure 1 that showed the distribution of respondent’s across the facilities. Males and females comprised of 48 (42%) and 66 cases (58%) among the respondents (Figure 2).

Figure 1. Details of participant respondent on project end evaluation
e. Other clinical assessments

Direct observation of treatment procedures, surgery outcome of beneficiaries at the project implementation hospitals and their catchment area in the community was also conducted. The lead evaluator specifically evaluated the standards, operational procedures of refraction, clinical examination, fundus photography, laser procedures, and operational procedures of surgical treatment and post operation eye status of the beneficiaries.

Based on the information provided and generated through The Foundation’s team and field visit, the project end evaluator team was in a position to make an assessment of overall project end evaluation of the SiB V project.

2.4 Evaluation team

The evaluator team comprises of the following persons.

1. Dr. Raba Thapa MD: Tilganga Institute of Ophthalmology. The key role was an evaluation lead. The evaluation lead was responsible for the finalization of evaluation protocols and tools. The evaluator lead was also responsible oversee the implementation of the evaluation and co-lead data analysis. Also contributed to interpretation of findings and lead the preparation of final outputs in English.

2. Shan Huang: Independent Consultant from China: Evaluator co-lead. The evaluator co-lead worked closely with the evaluator lead to finalize evaluation protocols, and tools, to ensure tools relevant to the context and evaluation generated information that is suitable for stakeholders. The evaluation co-lead also contributed to the interpretation of findings and to the preparation of outputs in Chinese and in English as needed.

3. Ming Ni: The Foundation, China. The key role played was an administrator. The administrator was liaised with the evaluator team for the stipulation and management of contracts, including project
deliverables. The administrator also assisted in the co-ordination of data collection from partners, and helping in translation of interviews and discussion.

4. Fabrizio D’Esposito: The Foundation, Australia. The key role was a research advisor. He worked as research advisor during the project end evaluation with the contracted team and advised on and approved the research protocols, data collection tools, and dissemination outputs.

2.5 Limitations
During the study period, most of the program activities were possible to observe except the few procedures. The study visit was carried out in six project sites out of the eight project implementation sites. Furthermore, only a limited number of beneficiaries can be visited and interviewed during the end evaluation due to limited timeframe, and their view may not represent that of all beneficiaries. The lack of control group was another limitation. The Foundation senior project officer was involved as a translator in many interviews. There could have some possibility of hiding the negative thoughts about the project activities by some of the participants in the interview. However, all the documented project activities and progress reports were reviewed during the project end evaluation. The variation in response rate among the study participants on KAP Survey may have cause biasness in exact comparison of the two results.

3. EVALUATION FINDINGS

3.1 Overview of project end evaluation result
The findings involved analysis of events observed during evaluation field visit, interview with all the concerned stakeholders and participants, progress reports of the comprehensive rural eye care model for vulnerable groups in Inner Mongolia.

The knowledge and awareness was found increased among the health/eye health care professionals, and among the beneficiaries on cataract, refractive error and diabetic retinopathy. This has been reflected in the change in attitude and practice on these diseases among the health professionals and community people leading to early presentation in the hospital, good compliance on treatment and ultimately increases in demand of eye care service in the health facilities as reported on interview. The survey on KAP revealed improvement in KAP on cataract, RE, and DR among vulnerable groups. The project activities were found enhanced the capacity of the health system in terms of trained human resource, increase in infrastructures, increase demand in eye care service delivery, increase in revenue for the sustainable eye care system helping to access the eye care service up to the vulnerable groups. The project activities were strongly directed to uplift the quality eye care service among the vulnerable groups through training of the eye care professionals and infrastructure development in the hospital.

The project activities were found screen large volume of patients with cataract, refractive error, and diabetic retinopathy, referral of needy cases and provide high quality treatment service at the local level through the existing public and private health facility set up. However, there were limited data recording on referred cases at all the levels of health facilities. The cross referral mechanism was found working well between the higher centre and primary eye care centre.
The increase prevalence of avoidable blinding diseases in Inner Mongolia, poor awareness level among the public, limited eye care service accessible to the vulnerable groups, existing infrastructures of the public health system of primary, secondary and tertiary level health care system, and alignment of the government and provincial prevention of blindness plan, VISION 2020 and The Foundation China Policy were found as the contributing factors for the origin and implementation of the project activities in Inner Mongolia. The hindering factors for project implementation to access up to the vulnerable groups were the lack of awareness in the community, difficulty in transportation due to large geographic area, and financial constrains to some extent.

The project activities were found successfully completed with the involvement of multiple partners, their commitment and co-ordination with Project Management Committee. Various advocacy activities were found conducted as per the project target. The advocacy activities were found effective to motivate the concerned stakeholders for their support in completion of project activities, continuity of the activities in the future and have their plan to replicate comprehensive rural eye care model established through this project in other similar areas to reduce avoidable blindness among the vulnerable groups in Inner Mongolia.

The detailed findings of the project end evaluation have been mentioned below.

3.2 Impact of awareness raising activities

The survey was conducted at baseline on KAP on cataract, refractive error, and DR among the vulnerable groups and KAP on DR among the endocrinologist at the start of project activities. The KAP survey highlighted that the awareness and knowledge on the blinding disease of cataract, refractive error, and DR was low among the vulnerable groups despite these diseases being the most common cause of visual impairment and blindness in Inner Mongolia. These were compounded by the limited human resource and infrastructures to tackle these blinding eye conditions. The KAP survey was conducted at the end of project. The KAP findings of the result on baseline and end line are briefly described below. The details have been described in KAP survey study on the individual paper.

Baseline and end line KAP change on cataract

KAP was assessed on cataract among the community people at the age group 50 years and above in Taipusi Banner, Inner Mongolia Autonomous Region. At baseline, out of 878 total respondents, 78.8% heard of cataract while at the endline, out of 897 respondents, 81.8% heard of cataract. The rest had never heard of cataract. At baseline, 33.9% respondent thought they will possibly get cataract while 35.4% were not aware of it. The end line survey showed 52% thought they will get cataract while 44% were not aware of it. This showed some improvement in cataract awareness.

At baseline, 29.7% reported ageing as a cause of cataract while 55.1% were not aware of the cause of cataract. The end line survey revealed 55.7% were aware of ageing as the cause of cataract and 31.9% were not aware of the exact cause of cataract. This shows marked improvement in knowledge and awareness of cataract among the vulnerable groups.
50.5% responded blurred vision as a symptom of cataract at baseline while 60.5% in end line survey. This shows improvement in knowledge. 60.3% thought cataract can be treated surgically at baseline while 72.7% thought it at the end line survey.

At baseline, County hospital doctor (72.5%) and visiting experts (63.5%) were the main source of health information for the rural residence. For urban residence, television (45.1%), cataract patient (32.9%), visiting experts (23.9%) were the main source of information. At endline survey, 57.9% received information from visiting experts, 32.3% each of county level doctors and television. This reflects need of improvement on awareness on cataract at the community through the local level.

**Baseline and end line KAP findings on refractive error among the school students**

The baseline KAP survey conducted among the children (n=901) in Taipusi County of Inner Mongolia Autonomous Region on July 11-28, 2014. The end line survey was conducted on 2016. The samples for end line survey were conducted on the same grade of students studying on school as of baseline as the samples enrolled on baseline were graduated from school.

At baseline, 95.4% of 882 students had never heard of the term “refractive errors” while at the end line survey, 59.5% never heard of the refractive error. Myopia was the best known refractive error (22.2%) at baseline while the proportion was 49.7% at the end line survey. 35.1% were extremely worried of getting myopia at baseline while 23.7% at end line survey. 47.7% of the students thought myopia would affect their life and study at baseline while 23.9% each will influence in life and study at the end line survey. 53.8% thought using glass will increase myopia at baseline while only 12.1% thought it worse using glass at end line survey. Doctors, teachers and parents were the main source of awareness both at the baseline and end line survey. School were the most common site for visual acuity testing both at the baseline and end line survey comprising of 81.5% and 61% respectively. 5.1% got eye check up at county level hospital at baseline while 26.6% at end line survey. This shows the increase demand of eye care service at the county level hospital after project implementation. The KAP on RE among school children have improved than the survey at baseline.

**Baseline and end line KAP on DR among the diabetes patients.**

274 diabetic patients were interviewed at baseline while 599 diabetic patients at end line survey.

Among 268 respondents, 178 (66.4%) had heard of DR. 79.8% of them heard of DR after they were diagnosed with diabetes. At the end line survey, 67.8% heard of eye disease related to diabetes. 32.2% never heard of such disease.

Among 266 respondents, 55.6% did not know what DR really meant and only 17.7% knew it was a disease of retina at baseline. Eye retinopathy was mentioned by 40.4% of diabetic subjects at endline survey.

At baseline, 64.0% of 178 respondents who had heard of DR got the information through TV and 33.1% got it through radio. The role of health workers at township and village levels was very limited since only 5.1% heard from township doctors and 1.7% heard from village doctors.
At end line survey, the county hospital doctors (35%), township doctors (29.8%), village doctors (20.9%) were the main source of information of DR. This reflects that the CHW at township and village health centre are spreading awareness message on DR.

Nearly half (46.7%) of diabetes patients thought they would probably got DR, but still 38.5% did not know whether they would get DR, only 8.8% thought they definitely would get DR at baseline. At the end line survey, 32.2% responded, they might get DR, 7.2% would certainly get DR, and 39.4% don’t know whether they would get DR. This reflects the poor KAP even after the project implementation.

48.3% of 269 respondents thought people would have blurred vision if they had DR. 41.2% thought blurred vision as the symptom of DR at end line survey.

Half of the respondents understand the importance of control diabetes, but only 29.2% thought regular eye check was useful for prevention of DR. Not surprisingly, 47.9% of the respondents did not know how often they should have their eyes checked and 43.9% did not know what kind of check was important for identification of DR at baseline. At the end line survey, among the 599 survey subjects, controlling diabetes was most often mentioned (259 subjects, 43.2%), followed by regular eye check (237 subjects, 39.6%) and less use of eyes (112 subjects, 18.7%), and 187 (31.2%) did not know. This shows some improvement in knowledge on regular eye check up in the community. There is no significant difference in the change of KAP on DR at baseline and end survey.

**Baseline and endline KAP on DR among the endocrinologist.**

Among 73 endocrinologist involved in the base line survey, while 56 endocrinologist at end survey. At baseline, 61 (90.4%) know that diabetes could cause retinopathy. At end line survey, among the 56 respondents, 36 (64.3%) answered diabetes causes fundus lesion. At baseline, 75.3% (55) of the respondents think there is a very big chance for diabetes patients to get DR. 17.8% (13) feel that there is chance for diabetes patients to get DR, 2.7% (2) feel the chance is small and 4.1% (3) do not know. At end line survey, among the 56 respondents, 29 (51.8%) mentioned high possibility of DR, 18 (32.1%) mentioned moderate possibility, 2 (3.6%) mentioned low possibility, and 7 (12.5%) did not know. This shows the poor awareness of DR. Although at end line survey, the information was obtained before the DR orientation training. At baseline, most respondents were not sure of the early symptoms of DR. More than half (63.9%) chose “blurred vision”, 9.8% chose “glittering vision”, 6.6% chose “do not know” and 3.3% chose “headache”. Only 16.4% chose “no symptom”. At the end line survey, among the 56 respondent, 35 (62.5%) mentioned "Can't see things clearly" as the early symptom of DR, 14 (25.0%) mentioned "Flashes of light", 11 (19.6%) mentioned "Headache", 5 (8.9%) mentioned "No symptoms", and 7 (12.5%) did not know. This knowledge was not different at baseline and endline.

At baseline, the respondents’ knowledge of the prevention and consequence of DR is similarly weak. Among 49 respondents who answered the question, 26.5% chose “control blood sugar”, 4.1% chose “control blood fats”, 69.4% chose “regular eye check”. 15 people (30.6%) chose “control blood sugar” and “regular eye check” and only 18.4% chose all three answers. At the endline survey., among the 56 respondent, controlling blood glucose was most often mentioned (41 subjects, 73.2%) to prevent
DR, followed by regular fundus examination (24 subjects, 42.9%) and controlling blood lipid (18 subjects, 32.1%).

At baseline, the respondents have better knowledge of the treatment of DR as 55.3% of 38 people who answered the question thought DR could be treated with laser, 26.3% thought it could be treated with surgery, 18.4% thought it could be treated with medicine and 57.9% chose all three. At the endline survey, among the 56 respondent, medication was most often mentioned (25 subjects, 44.6%) to treat DR, followed by laser therapy (22 subjects, 39.3%) and surgery (21 subjects, 37.5%). At baseline, 53 (72.6%) of 73 respondents said that they would suggest every diabetes patient to have eye check, 18 people (24.7%) would make such suggestion sometimes and only 2 (2.7%) said they had never made such suggestion. At end line survey, regarding the treatment advice, 22 (39.3%) gave advice to all patients, 22 (39.3%) sometimes gave advice to patients, and 12 (21.4%) did not give advice to patients.

So the overall knowledge and awareness among the endocrinologist is low that could be improved with DR orientation training.

Various awareness raising activities and public awareness campaigns were found conducted throughout the project implementation period focussed primarily on these KAP findings. Similar KAP survey was conducted at the end of the project period to assess the KAP status after the project implementation. The details of RAAB and KAP results have been mentioned in the RAAB and KAP study on individual diseases.

In our interview, all the 34 health/eye health care professionals mentioned that the level of knowledge on cataract, DR and RE has been increased with them. This has lead to change in their attitude and practice of counselling to patients. The KAP among the endocrinologist has been changed leading to more focus on DR during counselling and referral for opthalmic consultation. The eye health care professionals were found given priority for counselling besides the treatment. All the health care professionals have felt the increase in awareness and knowledge on these diseases among the patients and public. Patients have now understood the disease process more than before leading to increase in compliance for the treatment and regular follow up”.

According to the 32 beneficiaries participated in interview, their understanding on cataract, RE and DR has been increased after the project implementation. According to senior hospital staff from the Duolun County Hospital “the uniqueness of this project is the provision of eye care service and focussed more on eye health education. There has lead to increase in demand of the eye health care service in the hospital after the project implementation. The ultimate effect is helping to reduce the blindness from these avoidable blinding diseases among the vulnerable groups”.

The DR specialist mentioned that there has been increase in awareness and knowledge on DR among the diabetes patients. Many patients present early for retina check up. This is the product of increase on KAP both among the endocrinologist and diabetic patients. This has helped for timely diagnosis of the vision threatening retinopathy helping them to save their vision.

According to the principals of school who participated for the interview, the awareness activities conducted among the students have helped them to understand the importance of regular use of glass.
The parent’s education given regarding the child’s eye problem has helped to understand the importance of eye check up thereby ensuing for timely consultation in eye hospitals and compliance for treatment.

The directors of Inner Mongolia Chaoju eye hospitals from Hohhot, Baotau, Ulanquab expressed their views that “the project activities have helped to change in KAP on these blinding disease. The number of patients with diabetes and refractive error attending for eye health service has been increased after the project implementation in the hospital”. The overall number of patients presented in outpatient department (OPD) and retina clinic of the project implementing hospitals has been mentioned in the table 1 and table 2. According to the directors, the increase of number of patients is due to 1) the aging population fast growth in China, 2) growth of chronic disease such as diabetes, hypertension and cardiovascular diseases that may cause eye problems, and 3) universal use of electronic devices such as smart phone, pads etc., and 4) heavy study burden of school children. The project has helped people to make them conscious of eye problem for timely eye check up leading to increase in service utilization by the publics. Table 1 shows the number of overall OPD patients presented for eye check up in project implementing hospitals. This shows the marked increase in number of patients at the hospital for eye check up. Besides the increase in awareness on the blinding eye disease, the improvement and added eye care facilities and increase number of referral subjects could be the possible reason for these increased patients after the project implementation.

Table 1. Number of overall OPD patients presented for eye check up in project implementing hospitals

<table>
<thead>
<tr>
<th>Name of the Hospital</th>
<th>Year</th>
<th>Before the project</th>
<th>After the project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2014</td>
<td>2015</td>
</tr>
<tr>
<td>IMMHH</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Duolun County People’s Hospital</td>
<td>4210</td>
<td>4934</td>
<td>8524</td>
</tr>
<tr>
<td>Taibus Banner People’s Hospital</td>
<td>2950</td>
<td>3000</td>
<td>3607</td>
</tr>
<tr>
<td>Horquin Right Wing Middle Banner People’s Hospital</td>
<td>1392</td>
<td>3332</td>
<td>7372</td>
</tr>
<tr>
<td>IMRCEH_Hohhot</td>
<td>28890</td>
<td>30976</td>
<td>32797</td>
</tr>
<tr>
<td>IMRCEH_Baotou</td>
<td>18945</td>
<td>21334</td>
<td>26031</td>
</tr>
<tr>
<td>IMRCEH_Ulanquab</td>
<td>7423</td>
<td>8865</td>
<td>11206</td>
</tr>
<tr>
<td>IMRCEH_Chifeng</td>
<td>13365</td>
<td>15423</td>
<td>20754</td>
</tr>
</tbody>
</table>
Table 2 shows that the number of patients in retina clinic that showed increased in number after the project implementation.

Table 2. Number of patients with in retina clinic in OPD over the years in project implementing hospitals

<table>
<thead>
<tr>
<th>Name of the Hospital</th>
<th>Year</th>
<th>Before the project</th>
<th>After the project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Number)</td>
<td>(Number)</td>
</tr>
<tr>
<td>IMRCEH_Hohhot</td>
<td>2013</td>
<td>21069</td>
<td>22524</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2014</td>
<td>24897</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2015</td>
<td>27769</td>
</tr>
<tr>
<td>IMRCEH_Baotou</td>
<td>9671</td>
<td>16679</td>
<td>16160</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2016</td>
<td>19583</td>
</tr>
<tr>
<td>IMRCEH_Ulanquab</td>
<td>598</td>
<td>822</td>
<td>1353</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2016</td>
<td>1757</td>
</tr>
<tr>
<td>IMRCEH_Chifeng</td>
<td>698</td>
<td>1012</td>
<td>1541</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2016</td>
<td>1899</td>
</tr>
</tbody>
</table>

3.3 Impact of the project on building the capacity of the health system

According to all the interview participants “the project has helped to increase the capacity in all sectors of health system” as below.

Leadership and Governance: According to the hospital administrators “the project activities have helped in leadership and governance. Hospital activities have been enhanced that are conducted in collaboration with multiple partners including international partners from the central level up to the community level. The hospital activities have been well recognized by the beneficiaries.” The project activities were found the hospital administrators to set priority of hospitals for development of eye departments, and management system of hospitals.

Health financing: According to all the senior staffs from all hospitals s “the project activities have supported in increase the revenue for the hospital. The increase in revenue was due to increase in numbers of beneficiaries attending for eye check up and treatment, dispensing spectacles and surgeries as shown in table 1 and table 2. Although the generation of revenue was not the main aim of the project, this will be a support to develop the sustainable eye care to the needy persons.” A senior project manager of The Foundation, China highlighted her view “the aim of enhancing capacity of vision centre in each project implementing hospital was to support health financing system.”

Human resources: According to all the participants of interview and FGD, enhancing the capacity of existing health/eye care professionals at the local level from the provincial up to the township and village clinic and school teachers in their existing system is the very good part of this project. The management training for the hospital administrators, ToT, training of ophthalmologist in cataract surgery, pediatric disease and refraction, trained refractionist, trained ophthalmic nurse, trained diabetic doctors, trained village and township doctors in primary eye care are the great property for the local
health care system. Through the project, overall 6 were found trained as master cataract surgeon, 8 master nurse, 2 master refractionist, 2 master trainer for DR treatment and management, 20 cataract surgeons, 5 refractionist, 8 paediatric ophthalmology, 6 DR treatment and management, 3 general ophthalmology training, 5 eye nurse training, 21 staffs for equipment maintenance, 8 low vision training, 24 teachers/CHW training, 197 diabetic doctors/endocrinologist on DR orientation and referral mechanism, 2420 primary eye care training for CHWs, 616 PEC training for school teachers/volunteers. The details of trained human resource have been attached in the annex. The staffs are now capable of diagnosing the disease and providing the quality treatment for patients with cataract, refractive error and DR.

**Health information management system:** According to all the participants in interview “the project has helped in health Information management system. The detail reporting of project activities like number of patients screened, referred cases, treated medically and surgically has helped in improving HIMS system.

**Eye Care Service Delivery:** According to government officials and hospital administrators, the project activities have made access of the quality eye care service delivery on cataract, RE, and DR up to the vulnerable groups in community. This was possible due to the project approach to work in all the three levels of health care facilities from the provincial to the primary health care system. On analysing the project progress reports, in the process of interview, observation and home visit of the beneficiaries, the project activities have been able to serve wider group of vulnerable group in terms of screening of disease, and both medical and surgical treatment.

**Medical technology:** According to all government officials, hospital administrators, and eye care professionals, “the equipments supported through the project and hospitals by themselves as defined in MOU has helped for the quality service of large volume of needy patients. According to them, “the operating microscope, laser machines and equipments at the vision centres are helping many patients with cataract, refractive error/low vision and diabetic retinopathy for timely and quality treatment at local level”.

**Capacity of health care workers to deliver eye health service on cataract**

According to the trained ophthalmologist on cataract surgery in the project, “Cataract surgery was started to perform after the project support in County level hospitals. Before the project implementation, County hospitals used to provide only simple eye care service by the Eye and ENT doctors”. The project supported three ophthalmologists from county hospitals to start cataract surgery at the local level. The people are now getting this service locally, helping them for timely treatment and also to save their time and money. The training has helped the ophthalmologist to improve their skill of cataract surgery and post operative care of the patients. Even the untrained doctors are benefitted learning from the colleagues, and they had their involvement equally in the community screening. The trained ophthalmic nurse in the project shared their experience “the training they received in the project help them a lot to gain confidence doing the pre-operative, intra-operative and post operative care of the cataract patients”.

‘Cataract Surgery Outcome Manual’ developed and implemented in all the county hospitals and cataract
training centres. This is helping in the quality monitoring of the cataract surgery especially for the beginners ensuring for quality eye care service.”

**Capacity of health care workers to deliver eye health service on refractive error**

According to the refractionist, “the training they received has helped them for quality refraction. They now provide more education on RE, counsel for regular and timely follow up. The establishment of vision centres has enabled dispensing power glass to the patients on the same day”. The hospital management highlighted that “the number of patients getting service from the vision centre has been increased. Patients are also benefited a lot; no need to travel far for the glasses and same day glass preparation has helped them to save their time and money during travel”.

**Capacity of health care workers to deliver eye health service on diabetic retinopathy**

According to the Inner Mongolia Red Cross Chaoju Eye Hospital, senior retina specialist, “endocrinologist has started to counsel the diabetic patients on diabetic retinopathy and suggest for eye consultation. Before the DR orientation training, the endocrinologists not focussed so much regarding DR on counselling. The diabetic club has been established in Chaoju Eye hospital networks. This has facilitated the diabetes cases to understand the comprehensive diabetic care involving in diabetic classes. The benefit for the member of diabetic club has also supported financially to the patients as the treatment for diabetic retinopathy is not covered in insurance system, for the majority of the cases.”

**3.4 Effectiveness of the screening, referral and treatment mechanisms**

According to the participants in interview and FGD, including the beneficiaries, “through the project, large volume of community people with cataract, diabetes, refractive error/low vision and school children have been screened for their eye problems and benefited for timely treatment.”

Interview was taken from 32 beneficiaries. Three beneficiaries were enrolled from their home visit, 14 were from township/village health clinic, 5 from county hospitals in Duolun and Taibus, 5 from IMRCEH, and 5 from IMMH, a provincial hospital. Among these beneficiaries, majority received screening service. All the beneficiaries were benefitted with various kinds of project activities like screening for eye disease, refraction and glass dispensing service, eye health care knowledge, cataract surgery, other eye disease treatment, referral to higher centre for further evaluation and management. Medias, friends, family members and health personnel were the major sources of information for eye health service. Those beneficiaries screened at community level and further referred to higher centre for their treatment were found highly satisfied with the response of the health professionals and treatment service. According to the administrators and eye health care personnel in County Hospitals and City/Provincial hospitals, the referred patients are given priority in all eye health facilities like subsidy for eye check up, dispensing glasses, surgery etc. The table 3 shows that 32 beneficiaries, majority were benefitted with the screening of eye disease followed by eye health care knowledge. Almost one fourth of the total cases were referred to higher centre after screening of the disease. This shows the project good impact on screening, referral and treatment on these blinding diseases.
Table 3. Eye health service benefitted by the beneficiaries

<table>
<thead>
<tr>
<th>Eye health service</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening</td>
<td>18</td>
<td>56.3%</td>
</tr>
<tr>
<td>Cataract surgery</td>
<td>7</td>
<td>21.8%</td>
</tr>
<tr>
<td>DR Laser</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>Refraction and glass dispensing</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>Eye health care knowledge</td>
<td>17</td>
<td>53%</td>
</tr>
<tr>
<td>Refer to higher centre</td>
<td>8</td>
<td>25%</td>
</tr>
<tr>
<td>Other eye treatment</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>More than one service</td>
<td>18</td>
<td>56.3%</td>
</tr>
</tbody>
</table>

Table 4 showed the availability of eye care service at local level helped their life. The facilities of eye care service at local level have helped them to diagnose disease on time (93.8%). It has also helped them to save time (87.5%), save cost (81%) and returned to normal daily activity (34%).

Table 4 . The service available at local level helped the beneficiaries in their life

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save time</td>
<td>28</td>
<td>87.5%</td>
</tr>
<tr>
<td>Save cost</td>
<td>26</td>
<td>81%</td>
</tr>
<tr>
<td>Timely diagnosis</td>
<td>30</td>
<td>93.8%</td>
</tr>
<tr>
<td>Returned to normal activity</td>
<td>11</td>
<td>34%</td>
</tr>
<tr>
<td>No need of accompanying person</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>More than one above</td>
<td>28</td>
<td>87.5%</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Screening, referral and treatment network for cataract, refractive error, and diabetic retinopathy are briefly highlighted below.

**a. Cataract:**

Screening of cataract cases were found conducted through community screening programs at township/village health clinics by the team of doctors from County hospitals and IMRCEH. These screening programs were co-ordinated with Disabled People’s Federation in the community. Besides it, the regular screening is conducted by village and township doctors. The cataract cases needing surgery were referred to County hospital and IMRCEH for cataract surgery. The cataract surgery initiated through the project activities were smoothly conducted in Duolun Public County hospital. The independent cataract surgery just started in Taibus Banner Hospital. The surgeons found satisfied with the training they received in the project. The cataract surgery monitored through MCSO was effective to assess the quality of cataract surgery. The availability of cataract services at local county hospitals
through the project initiation, subsidy for those not covered from health insurance scheme by hospital administration, and quality cataract surgery have facilitated the referral network from the community. The standard cataract screening protocol, standard IEC tools, functioning referral network and quality assurance system for cataract service initiated through the project were found functioning well. The cataract surgeons trained in county hospital were satisfied with the training they received for continuity of cataract surgery in the future. The beneficiaries of cataract surgery were found very happy with the sight they gained after surgery at the county level and IMRCEH and satisfied with the behaviour of the eye surgeons. The following table 5 shows the number of cataract surgeries conducted in project implementing hospitals. Cataract surgery started to perform in county hospital only after the project started. As a county level hospital, the most vulnerable people choose to do surgery here. As per the senior hospital staff of county hospital, most cataract surgery are provided subsidy in the treatment for those not covered by insurance. With more awareness of availability of cataract surgery service and skill of cataract surgeon, the hospital managements are very hopeful to increase quality cataract surgery continued in the future.

Table 5. Number of patients with cataract surgery in project implementing hospitals

<table>
<thead>
<tr>
<th>Name of the Hospital</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMH</td>
<td>N/A</td>
<td>146</td>
<td>244</td>
<td>1878</td>
</tr>
<tr>
<td>Duolun County People’s Hospital</td>
<td>No service</td>
<td>61</td>
<td>39</td>
<td>34</td>
</tr>
<tr>
<td>Taibus Banner People’s Hospital</td>
<td>No service</td>
<td>6</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Horquin Right Wing Middle Banner People’s Hospital</td>
<td>No service</td>
<td>6</td>
<td>14</td>
<td>34</td>
</tr>
</tbody>
</table>

b. Basic childhood blindness and Refractive error:

The refractive error screenings conducted by both the public and private sector through the project activities were found effective to screen large number of needy patients. All participants emphasized that “Refractive error is very common in children. School screening program initiated through the project is very effective for early detection of children and timely treatment”. The primary eye care training to school teachers, eye health education for parents, co-ordination with Education Bureau has facilitated the school screening program. The strengthening of the eye department with establishment of vision centre, training of refractionist, well equipped spectacles dispensing centre, glass dispensing on the same day, locally available quality refractive error correction, subsidy for the referred cases by the hospitals has facilitated the referral network. The provision of free distribution of low vision aids by the Disabled Person’s Federation has helped many people with low vision. All the participants mentioned that “the development of vision centre facilities at the local level is the great support for the community
people initiated through the project”. Although the school screening program was not possible to directly observe because of winter vacation in school, the principal, school teachers and stakeholders from education commission are very satisfied with the school eye health programs. According to them, the regular eye screening exam of school children, training to school teachers on primary eye care focussed on refractive error and basic paediatric eye care and parent’s education on childhood blinding disease and refractive error has helped detection of eye problems like refractive error and other eye disease among the children for timely treatment. This has helped for timely treatment of eye conditions. The school principal were found very happy and supportive for the project approach of development and implementation of standard school based health education protocol for children and parents standard school screening protocol, standard IEC tools for RE and primary paediatric eye care. The successful school eye health program was found facilitated by the co-ordination by Education Bureau for its compliance among teachers, students and parents. The referral network established through the project was found functioning well. The well equipped vision entre, training of ophthalmologist for the basic childhood disease, and refractive error were found supportive for the quality eye service on basic childhood disease and RE at the referral centre. The following tables 6 and table 7 shows the number of patients benefitted with refraction and number of spectacles dispensed from the vision centre before and after the project activities.

Table 6. Number of patients with refractive error presented for eye check up in project implementing hospitals

<table>
<thead>
<tr>
<th>Name of the Hospital</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMH</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Duolun County People’s Hospital</td>
<td>0</td>
<td>547</td>
<td>2149</td>
<td>2635</td>
</tr>
<tr>
<td>Taibus Banner People’s Hospital</td>
<td>0</td>
<td>0</td>
<td>1284</td>
<td>1479</td>
</tr>
<tr>
<td>Horquin Right Wing Middle Banner People’s Hospital</td>
<td>63</td>
<td>136</td>
<td>1949</td>
<td>2662</td>
</tr>
<tr>
<td>IMRCEH_Hohhot</td>
<td>4026</td>
<td>4673</td>
<td>5401</td>
<td>5555</td>
</tr>
<tr>
<td>IMRCEH_Baotou</td>
<td>4265</td>
<td>4858</td>
<td>5691</td>
<td>5911</td>
</tr>
<tr>
<td>IMRCEH_Ulanquab</td>
<td>4144</td>
<td>4362</td>
<td>4792</td>
<td>5396</td>
</tr>
<tr>
<td>IMRCEH_Chifeng</td>
<td>4025</td>
<td>4274</td>
<td>5459</td>
<td>5637</td>
</tr>
</tbody>
</table>

Table 7 shows that increasing number of spectacles dispensed each year. This has increased the financial status of the hospitals besides the quality service to the patients at local level.

Table 7. Number of spectacles dispensed in project implementing hospitals
<table>
<thead>
<tr>
<th>Name of the Hospital</th>
<th>Before the project</th>
<th>After the project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>IMMHH</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Duolun County People’s Hospital</td>
<td>0</td>
<td>90</td>
</tr>
<tr>
<td>Taibus Banner People’s Hospital</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Horquin Right Wing Middle Banner People's Hospital</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>IMRCEH_Hohhot</td>
<td>1186</td>
<td>1225</td>
</tr>
<tr>
<td>IMRCEH_Baotou</td>
<td>1198</td>
<td>1225</td>
</tr>
<tr>
<td>IMRCEH_Ulanquab</td>
<td>1205</td>
<td>1577</td>
</tr>
<tr>
<td>IMRCEH_Chifeng</td>
<td>1174</td>
<td>1220</td>
</tr>
</tbody>
</table>

**c. Diabetic retinopathy:**

The DR Service in the project was integrated within the IMRCEH network that was facilitated by the pre-existing vitreo-retina facilities, and human resource. The standard DR screening protocol, standard IEC tools on DR were found developed for facilitation of the awareness and DR screening. During the field visit, DR screening in collaboration with township clinic was observed in two places. The DR screening combined with blood sugar testing, fundus photography, counselling and referral were found all functioning well. The government policy of annual health check up for all the people and those above 60 years combined with blood sugar test is conducted mainly by township and village clinic doctors. This policy has been implemented very well. The screening for eye problems has been implemented in these annual checks up that were possible with the primary eye care training to the township/village doctors. The provision of routine blood investigation on annual health check up scheme above the age of 65 years has helped in detection of diabetes among the elderly. It would be good to provide this facility to even younger age group for early detection of diabetes. So there is record of all community people with the diabetes with them. This type of co-ordination with the township/village health clinics for DR screening service accessible up to vulnerable groups in the community. The IMRCEH-network has developed the separate team for regular screening that includes general eye check up including RE and DR.

The IMRCEH have started diabetic patient club for the support of diabetic patients. All referred cases first come in contact with the diabetic club. The members of the diabetic club are provided free service, subsidy in treatment service, organized regular eye health education for the diabetic patients, and
reminded for the follow up. In China, to register for the insurance in chronic disease, the duration of diabetes should be two years. The diabetic patients club provide support for those with diabetes duration of less than two years. The integration of DR intervention in primary eye care training and training of diabetic doctors on DR was found facilitation of referral of diabetic patients for timely referral. The multi-partner involvement in DR screening and referral network was found functioning well in the field visit. The training of ophthalmologist for DR screening, and laser treatment at prefecture level IMRCEH by the provincial IMRCEH, instillation of laser machine in pre-fecture level were found all facilitating the referral and quality treatment of diabetic retinopathy. The laser treatment service for DR was started through this project in pre-fecture level hospital. The beneficiaries were found very satisfied with the quality of eye care service they received at the local level and trainees were satisfied with the training they received on DR intervention. We found limited data recording on referral cases at all the levels of health facilities. The following table 8 shows the number of patients treated with laser therapy before and after the project implementation.

Table 8. Number of patients treated with laser therapy over the years in project implementing hospitals

<table>
<thead>
<tr>
<th>Name of the Hospital</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMRCEH_Hohhot</td>
<td>156</td>
<td>180</td>
<td>565</td>
<td>633</td>
<td>879</td>
</tr>
<tr>
<td>IMRCEH_Baotou</td>
<td>25</td>
<td>30</td>
<td>281</td>
<td>502</td>
<td>674</td>
</tr>
<tr>
<td>IMRCEH_Ulanquab</td>
<td>25</td>
<td>40</td>
<td>87</td>
<td>110</td>
<td>194</td>
</tr>
<tr>
<td>IMRCEH_Chifeng</td>
<td>80</td>
<td>107</td>
<td>308</td>
<td>351</td>
<td>841</td>
</tr>
</tbody>
</table>

Table 9 shows that 78% of the beneficiaries strongly recommended the eye care service at the local level.

Table 9. Recommendation of eye health service to others in the community

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly not recommend</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Recommend some what</td>
<td>4</td>
<td>12.5%</td>
</tr>
<tr>
<td>Strongly recommend</td>
<td>25</td>
<td>78%</td>
</tr>
</tbody>
</table>

Table 10 showed the main source of awareness of eye care facilities were health personnel(40.6%), friends (37.5%) and medias (9.3%).

Table 10. Awareness of eye health service

<table>
<thead>
<tr>
<th>Source of awareness</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medias, magazines, TV</td>
<td>3</td>
<td>9.3%</td>
</tr>
<tr>
<td>Friends</td>
<td>12</td>
<td>37.5%</td>
</tr>
<tr>
<td>Family members</td>
<td>3</td>
<td>9.3%</td>
</tr>
<tr>
<td>Patient</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>
### Table 3.5 Contextual factors that facilitated or were a barrier to project implementation

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health personnel</td>
<td>13</td>
<td>40.6%</td>
</tr>
<tr>
<td>More than one</td>
<td>3</td>
<td>9.3%</td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>15.6%</td>
</tr>
</tbody>
</table>

3.5 Contextual factors that facilitated or were a barrier to project implementation

According to the government officials and hospital administrators, the project activities are in alignment with their national and provincial PBL, VISION 2020 and more importantly the huge need of the eye care service in large majority of vulnerable groups. The approach of the project is the key factor for facilitation of project activities. The existing primary, secondary, and tertiary level public health system framework and integrating project activities in these systems was responsible to reach up to the vulnerable groups. The monitoring framework to identify indicators of inequality in service utilization will be further helpful for exploration of the real beneficiaries in the project areas. Similarly, Inner Mongolia Red Cross Chaoju eye hospital network having trained human resources in subspecialties and good infrastructures, their motivation to work for the vulnerable groups facilitates the project activities. The multi-partner involvement facilitated the implementation of project activities. The co-ordination of the Health and Family Planning Bureau, Education Bureau, and Disabled Person’s Federation supported the project activities to reach up to the vulnerable groups.

Mr. Lisheng, Director of Primary Education Department in Inner Mongolia Autonomous Region Education Bureau, “the education system in China provides the best education for the school children. However due to heavy study, many children are having eye problems. The school screening program has been very useful for early detection and timely treatment of the eye problems. The Education Bureau is planning to change in the policy of heavy study burden for the school children, with less homework, change in the pattern of scoring system, more play and refreshing time, more sleep and overall less stress for the school children.” Wang Xiaodong, Director of primary Education Department of Ulanqab Education Bureau expressed his views that refractive error is increasing more than in our times due to modern gadgets and education burden. Myself have been participated in many times during the school screening program, it has really helped the school children for timely identification and treatment of the eye problems especially the refractive error. One of the causes for poor performance by the student could be low vision.” Fu Yuemei, Vice director of Education and technology Department of Duolun Education Bureau additionally highlighted that the project activities supported the psychological aspect of the children. With poor vision, their performance is less in study and all aspects of life. School screening is the right way for early intervention from the social perspective.”

All agreed that the medical insurance cover of the most people for their treatment also contributed alot. Those not covered, are taken care by the hospitals, Disabled People’s fund. Civil Affairs, Red Cross etc. The yearly health check up and blood investigation for those elderly above 65 years of age policy of the Government has facilitated for detection of disease on time at the village level. However, there is no eye evaluation in this scheme. Integrating primary eye care service and also record of all the community people at the village clinic doctor has facilitated for the screening of diabetic retinopathy, cataract etc.
This has been facilitated by the co-ordination with Health and Family Planning Bureau. The directors from various level Disabled Person’s Federation emphasized their role in blinding eye disease screening besides the support for rehabilitation. The Chief of Rehabilitation Department of Inner Mongolia Autonomous Region Disabled Person’s Federation Mr. Zhao Guiyun mentioned that “visual impairment is the second common disability among all the disabilities in Inner Mongolia.”

All emphasized the barriers for the project implementation as lack of awareness and knowledge on important blinding disease like cataract, refractive error, and diabetic retinopathy in the public, large remote areas, scattered residential areas, poor public transport service, financial constraints, and lack of accompanying person while visiting hospitals.”

### 3.6 Appropriateness of the eye care model to the local context

The interview was conducted to assess the relevance of the eye care model and their understanding of the eye care model among the stakeholders, health professionals and vulnerable groups. According to majority of interview and FGD participants, “hypertension, diabetes mellitus, cardiac problems, cancer and various types of chest problems are the common health problems in Inner Mongolia. The common eye health problems are the cataract, refractive error, diabetic retinopathy, and pterygium”. In Inner Mongolia, many people do not have access for basic education and health facilities due to poverty and limited transportation facilities. Many people are not aware that cataract can be treated successfully, refractive error although common among adults and children, can be corrected with the use of glasses. Similarly, diabetes mellitus is one of the most common health problems in Inner Mongolia. Many people are not aware that diabetes can cause blind and almost two thirds of diabetes subjects never had their eye check up for diabetic retinopathy. The stakeholders are now found understood the prevalence of blinding disease in their community among the vulnerable groups. They mentioned “Eye health is a priority for the national and provincial level Health and Family Planning Bureau. China has supported VISION 2020 policy and disease in focus for the project is in alignment with this policy and local need for the people”. In our question of their understanding of comprehensive eye care model established through the project, we found all the participants including stakeholders well understood the three level eye care service provided through the project.

The model of eye care service was found very much accepted by all the stakeholders, hospitals to provide primary eye care service and quality eye care facilities on these disease to the most vulnerable groups in the community. All were convinced regarding the targeted disease in focus and eye care model to reach the vulnerable groups. The access of quality eye care service at the primary eye care level was possible by the concurrent involvement of the secondary and tertiary level eye hospitals for the training and service delivery. The stakeholders are now motivated to advocate this model of eye care service to other areas of provinces with similar eye care situation and also at the national level to establish such model in a wider scale to reduce the avoidable blindness across China. According to them, the success of the project activities and it great impact is that, the project activities are integrated in the existing primary, secondary and tertiary level of public health system and private eye health institutions on their framework.”
While review of the progress report, project activities were found in alignment of the project goal and objectives. All the activities and outputs of the program were found consistent with the intended impacts and effects. The detail target versus achievement of the project activities has been attached in the annex.

As planned in the project, RAAB survey was found conducted as a baseline data to assess further on major avoidable blinding disease in the Inner Mongolia Autonomous Region. Subsequently KAP surveys were found conducted on major blinding diseases like cataract, refractive error, and diabetic retinopathy among the population and DR among the endocrinologist. The outcomes of these studies were found to utilise in IEC material development, and as a tool for advocacy in concerned government and public sector stakeholders.

3.7 Effectiveness of the partnership activities supported through the project and advocacy activities supported through the project

According to the interview participants, progress report and direct observation “the project involved multi-stakeholders while implementing the various activities of the project. A Project Management Committee (PMC) was established to guide overall management and multi-sectoral co-ordination of the project. The members of the PMC include the provincial Department of Health and Family Planning Commission, the Provincial Disabled Persons’ Federation, the Provincial Department of Education and Provincial Blindness Prevention Office and Inner Mongolia Medical Doctor’s Association. The project co-ordinator appointed by the PMC was the executive body of PMC. The overall responsible bodies for project were PMC, FHF and Standard Chartered Bank. The Inner Mongolia Red Cross Chaoju Eye Hospital and International Mongolian Medicine Hospital were the provincial technical support centres for the project. Three County hospitals in Inner Mongolia and three eye care staff in Mongolia County were received training and support from these two centres. A Memorandum of Understanding (MOU) for the overarching project management structure and Annual Partnership Agreement (APA) at the beginning of each year listing the specific program activities and detailed budget to be conducted by the implementing partners. Project Manager and Co-ordinator from the implementing hospitals were identified with their key responsibility for the smooth conduction of project activities. This project involved both the public and private partners for project implementation. This project has been a model to involve private sector with public sectors for implementation of the project activities to reach up to the vulnerable groups as per their existing capacities. The Foundation project officer was responsible for the overall management of the project under the guidance of The Foundation China’s Country and Program Manager.

As stated in the key roles of partners in project management, all the partners of the project were found fulfilled their responsibility in terms of staffs allocation for training, space management for the project activities like development of vision centre, quality control of service provided, multi-tiered pricing system for cataract surgery, provide progress report to FHF, conduction of primary eye care training, co-ordination with local government and local media for PBL advocacy.
On the process of observation of the project implementing hospitals and interview at all levels during the project end evaluation, this kind of project management system was found very effective in implementing the project activities to cover the vulnerable groups in a wider area.

Program was found run smoothly under the frame work prepared for management and co-ordination of each implementing hospitals in the project. The approach of the project in partnership selection of the concerned Governmental body like Health and Family Planning Commission, Education Bureau, Disabled Persons’ Federation from the provincial level to the city/prefecture, and then the county level was found very effective while implementing the project activities. The co-ordination was found smooth and the perception of the program activities were well accepted by the community.

Similarly the partnership selection for the implementation of project activities from the provincial, city/prefecture and county level hospital was very effective for the training and capacity building of the local staffs with support of each other. The trainer’s site selection at the provincial level had increased the capacity of the medical staffs. The concurrent infrastructure development at the hospital had helped for the increase in service delivery to the vulnerable groups at the local level. The trainee’s training at their local hospital had helped to develop confidence among the training staffs at their working environment and also for the hospital administrators.

The Foundation China was found conducting the key responsibilities as per the partnership agreement. The important activities conducted in co-ordination with the concerned governmental body were very effecting in smooth implementation of the project activities. The co-ordination was done with Education Bureau for the support of school screening for students, training of school teachers on primary eye care and parents awareness sessions on eye health. The contributing factors for the smooth conduction of the school screening program and were in alignment with the government policy. By the government of China, the children are kept in the most priority not only in the educational status but has plan for the overall development of the child. So child’s health has been kept as a priority by the government. The according to the project implementing hospital administrators “Education Bureau helped to co-ordinate the school activities, that was very supportive for smooth conduction of these activities in all schools, acceptance of the service not only by the school teachers but also to trust by the parents on service provided on their children. As per the directors of various level Education Bureau, “refractive error is the most common eye problem and be the cause for poor performance by the child in school. The school screening program has opened our eyes to explore the various reasons for poor performance by the student. This project had helped many school children in detecting the underlying refractive error and other eye problems for timely treatment. Through this screening program, the service has been reached up the all vulnerable groups. Through these screening programs, many children have been saved losing their sight irreversibly from a condition resulting from amblyopia”.

Co-ordination was done with the Health and Family Planning Commission for all the activities of the training to village and township doctors for their training on primary eye care and community screening. This co-ordination with the government has increased the compliance of the trainee and also acceptance of the service provided at the local community by the vulnerable groups.
The co-ordination was done with the Disabled Persons’ Federation in community eye screening cataract and other disease. The Disabled Persons’ Federation also supported the vision centre in the county, city and provincial hospitals to provide low vision Aids free of cost to the needy people.

Similarly, the partnership and co-ordination was done with Inner Mongolia Medical Doctor’s Association especially for the awareness campaigns. This association has now reformed the endocrinology and ophthalmic society. Awareness programs on diabetic retinopathy were conducted through this association to the entire endocrinologist of the Inner Mongolia. They actively involved in the eye health awareness campaigns during International Women’s day and other important events.

During the project end evaluation, interview was conducted regarding the relevance and impact and their role while implementation of project with provincial, city and county level Health and Family Planning director and vice directors, director of Education Bureau, vice director of Disabled Persons’ Federation, and vice president of Inner Mongolia Medical Doctor Association.

According to all the stakeholders, the multi-stakeholder involvement is one of the key aspects of this great achievement of all the project activities. All stakeholders are now motivated to support and replicate such eye health activities in other areas to cover large geographic areas. This co-ordination has made this project as a model to replicate in other areas. The government authority wants to replicate this model to other areas as they think this is the best way of reducing avoidable blindness in the Inner Mongolia to make availability of eye care service up to the neediest people in the community.

The multi-stakeholder partnership involvement in implementing the project activities was the key for achieving the goal of the project, its sustainability and making it possible to replicate in other areas to reach up to the vulnerable groups. The inadequate patient flow in the hospital, inadequate human resource, difference in priority setting of each institution could be the possible hindering factors for the implementation of the project activities. But these were seemed managed by all the project partners to their optimum level.

3.8 Effectiveness of the advocacy activities supported through the project

Evidence based advocacy is one of the important activity of the project. As per The Foundation China program manager, Ms Huang and hospital administrators from project implementation hospitals, another key activity of the project was to advocate the awareness and knowledge of PBL work to the relevant government department. Various advocacy activities were found conducted like opening ceremony, project management training workshop, annual co-ordination meeting as well as PBL workshop. Local government and local bureau were informed of PBL activities and hospital staffs were invited to participate in project activities such as study tour. An annual project management and experience sharing workshop assembled the key project stakeholders in the Provincial, County, and Village levels to discuss the project issues, and share experiences and learning with each other, local government and health department officers. Advocacy activities were conducted for raising public or government awareness for childhood blindness or women’s eye health on National Eye Care Day, World Sight Day, Children’s Day, and Women’s Day. Each project hospital arranged PBL related
activities facilitating meetings between education officials for childhood blindness prevention. Study tour for the observation of successful ongoing PBL project model for the management staffs from the provincial health bureau. Similarly, the doctors were attended congress of Chinese Ophthalmological Society and other conference. The PMC meetings were conducted twice a year with the aim to update the project progress and share the project successful experience and lesson learned, discussed on the challenges faced by the project and their potential solution. The annual PBL forum meeting on eye health promotion in Inner Mongolia was conducted to increase the project influence in Inner Mongolia and nationwide. The project management workshop and annual kick off meeting, project opening ceremony, public awareness campaigns, opening ceremony of vision centres, annual review and coordination meeting, regular meeting of PMC. Various awareness campaigns were conducted on the occasion of World sight day, National sight day. These advocacy activities helped to raise awareness on the community, local and national government officials and hospitals about the situation of blinding eye disease and further advocacy for the improvement of eye health service at local level and across the nation.

Similarly, four training manuals were developed and advocated for replication. The training manuals were cataract surgical training manual, school based health education manual, training manual for diabetic doctors, primary eye care training manual. These helped in uniformity in implementation, operational efficiency, clarity in roles and responsibilities, wider application of the tools, Institutional Strengthening and capacity building of the sector.

During the process of interview, the PMC, all the management team of partner hospitals, project implementing hospitals were found aware of and actively involved in various advocacy activities and they thought of good impact to the concerned authority. Few external stakeholders were interviewed and found well aware of various advocacy activities conducted during the project period. This helped to raise awareness on them about the blinding eye disease and further advocacy for the improvement of eye health service at local level.

We found very good impact of the advocacy activities conducted in the project among the local stakeholders of government officials from Health and Family Planning Bureau, Education Bureau, Disabled Person’s Federation, public hospitals to understand the blindness situation in Inner Mongolia. This has been reflected by their support while implementing project activities, commitment of continuity of project activities, and commitment for replicating this model of eye care service model to other areas of Inner Mongolia and their commitment to advocate the model to the National level.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The three years and three months “Replicable Comprehensive Rural Eye Care Model for Vulnerable Groups in Inner Mongolia” is a pilot project to provide an innovative eye care solution for reducing avoidable blindness and visual impairment resulting from cataract, refractive error, and diabetic retinopathy in Inner Mongolia. The purpose of this project is to improve policy and practice for
providing quality rural eye care services by establishing a comprehensive rural eye care model in Inner Mongolia and deliver a replicable model for advocacy at national level. The five strategies adopted to achieve these objectives were (i) human resource development, (ii) development of infrastructure, (iii) eye care service delivery, (iv) research and (v) evidence based advocacy.

The targeted disease in the project were found in alignment with the national PBL, alignment with VISION 2020, alignment with The Foundation country strategy and relevance as per the need of local vulnerable groups.

The project activities were implemented through multi-partner involvement. All the targeted outputs during the project period were found achieved successfully during the project implementation. The concerned stakeholders and implementing partners are satisfied with the project results as it has great impact to reduce the avoidable blindness from cataract, refractive error and diabetic retinopathy.

The project activities had tremendous impacts on raising awareness and improvement in knowledge of the avoidable blinding disease of cataract, refractive error, and diabetic retinopathy, and, subsequent change in attitude and practice have been on these diseases among the vulnerable groups and health professional. The improved awareness has helped for the early presentation of the patient in hospital, better compliance on treatment and follow-up. The end line KAP survey shows improvement on awareness and knowledge on these blinding diseases in the vulnerable groups.

The project has helped to increase the capacity in all sectors of health system in terms of leadership and governance, human resource, infrastructure development, health financing, medical technology, eye care service delivery and health information system.

The capacity building of the eye health human resource and infrastructure development of the existing public and private eye health sector has resulted in increased capacity of eye health system. The project activities have helped to screen large volume of patients with cataract, RE and DR, establish referral network and quality eye care treatment at the local level. The multi-partnership involvement and the commitment among the implementing partners were found the key aspect for successful completion of project activities. The scattered population and large geographical area, limited public transport service, and lack of awareness on vulnerable groups were some of the barriers during project implementation. The raised awareness on these blinding diseases among the vulnerable groups and concerned stakeholders, trained human resource and infrastructure development of the existing eye health system, eye health need of vulnerable groups in the community, multi-partner involvement and commitment of the concerned stakeholder are the major factors that could lead to sustainability of the project activities. The great impact achieved through the RCECM in reducing blindness has been a model for comprehensive eye care service to other similar areas to reduce the avoidable blindness among the vulnerable groups. This pilot project has proved to be a model for providing comprehensive eye care service on these major avoidable blinding diseases on the vulnerable group in rural areas of China.

The major lessons learned through the success of the project is that the project activities targeted on the national and provincial blindness policy are well accepted by the government. Baseline situation analysis of the existing eye health problem, targeted health awareness campaigns, capacity building of
the existing human resource, infrastructure development, multi-partner involvement and their commitment and evidence based advocacy are key aspect of sustainability of project activities. The successful completion and sustainability of the comprehensive rural eye care model of service delivery among the vulnerable groups in reducing avoidable blindness and visual impairment can be a model for reducing blindness in Inner Mongolia and across China.

4.2 Recommendations

Replicable Comprehensive Rural Eye Care Model for Vulnerable Groups in Inner Mongolia China “Seeing is Believing Phase V” project is a successfully completed rural eye care model implemented with integration in existing health system of public and private eye health sector. This project has been able to address the major bulk of avoidable blinding diseases.

The project end evaluation has been carried out in February 2017 and found the comprehensive rural eye care model highly successful and achieved its set objectives.

The findings suggest that the project activities are effective to raise the awareness on major blinding disease of cataract, refractive error, diabetic retinopathy among the vulnerable groups, capacity building of human resource and infrastructure development, establish screening, referral and treatment of these avoidable blinding disease at the local level among the vulnerable groups and evidence based advocacy.

The project activities were successfully implemented involving both the public and private eye health sectors.

Such type of comprehensive eye care model looks effective to reach up to the vulnerable groups in rural areas. We recommend this model of eye care service for replication across the rural area to cover a large number of needy people that can be sustainable with multi-partner involvement of both public and private existing health care system.

The Foundation China has been highly appreciated by the government officials, the hospital management team, trainers, trainees, and beneficiaries for initiating comprehensive rural eye care model in Inner Mongolia. It has played a great role in reducing avoidable blindness. All have their wish to continue The Foundation technical support in the future.

The Foundation technical support is required for the development and replication of such programs across China.

5. ADDITIONAL RESOURCES

i. Rapid Assessment of Avoidable Blindness and Diabetic Retinopathy survey conducted in Inner Mongolia as baseline study.

ii. Knowledge, Attitude and Practice on cataract, refractive error and diabetic retinopathy among the vulnerable groups survey conducted in Inner Mongolia as baseline and end line survey.
iii. Knowledge, Attitude and Practice on diabetic retinopathy among the endocrinologist survey conducted in Inner Mongolia as baseline and end line survey.
6. REFERENCES

- Project Implementation Plan: SIB V project
- [http://www.nhfpc.gov.cn/yz/yjyj/s3573/201611/1513ba075e1842e993337d0c6e6dab0b.shtml](http://www.nhfpc.gov.cn/yz/yjyj/s3573/201611/1513ba075e1842e993337d0c6e6dab0b.shtml)
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ANNEX

Annex 1: Eye care model on comprehensive rural eye care service: cataract, refractive error and diabetic retinopathy

Annex 2: Documents reviewed during the SIB V project end evaluation

Annex 3: Project end evaluation: Field visit Itinerary

Annex 4: Questionnaire used for interview/focal group discussion

Annex 5: Summary of questionnaire completed by the respondents

Annex 6: Comparison of output on target Vs achievement of project activities.
THANK YOU

Contact details

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