End of Term Evaluation Report

Strengthening Pakistan's Response to Diabetic Retinopathy

Project number: Pakistan 75061

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Acknowledgements

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List of Acronyms and Abbreviations

AAP	Annual Action Plan
AI	Artificial Intelligence
AIEH	Al Ibrahim Eye Hospital
APEC	Advanced Primary Eye Care
AVEGF	Anti-Vascular Endothelial Growth Factor
BCC	Behavioural Change Communication
BHU	Basic Health Unit
CEC	Comprehensive Eye Care
COAVS	College of Ophthalmology and Allied Vision Sciences
COVID-19	Corona Virus Disease 2019
DAP	Divisional Action Plan
DCEC	District Comprehensive Eye Care
DHIS	District Health Information System
DM	Diabetes Mellitus
DPOs	Disabled People's Organisations
DR	Diabetic Retinopathy
FGDs	Focus Group Discussions
GPs	General Practitioners
HFH	Holy Family Hospital
HMIS	Health Management Information System
IEC	Information Education Communication
IPCEC	Integrated People Centred Eye Care
KIIs	Key Informant Interviews
LHSs	Lady Health Supervisors
LHWs	Lady Health Workers
MEL	Monitoring Evaluation Learning
MOs	Medical Officers
MTR	Mid-Term Review
MTs	Medical Technicians
NCDs	Non Communicable Diseases

NCEH	National Committee for Eye Health
NGO	Non-Governmental Organisation
PCO	Pakistan Country Office
PEC	Primary Eye Care
PHC	Primary Health Care
PPE	Personal Protective Equipment
PPHI	People's Primary Health Initiative
PPIU	Policy Planning and Implementation Unit
QSAT	Quality Standards Assessment Tool
RHC	Rural Health Centre
SGM	Support Group Meeting
SiB	Seeing is Believing
STDR	Sight Threatening Diabetic Retinopathy
ToR	Terms of Reference
TTHs	Tertiary Teaching Hospitals
UCAP	Union Council Action Plan
UNICEF	United Nations Children Emergency Fund

Executive Summary

Background

This was a combination of a five year project and a one year project. The timeline is summarised below.

Seeing is Believing (SiB) Phase 5
Standard Chartered contributed US$1,000,000 to a budget of US$1,250,000, for a project from 1st April 2014 to 31st March 2019. In July 2019, a No Cost Extension was provided to 31st March 2020 to address a budget underspend of $77,778. This underspend was reallocated towards other activities. In May 2020, a Letter of Variation (LOV) approved a No Cost Extension to support the COVID-19 response. Expenditure was allowed up to and including July 2020. This authorised procurement of Personal Protective Equipment (PPE) for frontline health workers and consumables.

SiB Extension project
In the SiB Extension project, Standard Chartered contributed US$200,000 to a budget of US$250,000 from January 2019 to 30 June 2020. In May 2020, a LOV was approved for budget variation to allow underspend to support the COVID-19 response – allowing expenditure in July. This authorised procurement of PPE and consumables for surgery.

Project activities therefore spanned six years, delivered through two SiB funded projects, with a combined budget of US$1.5m. All references to the 'project' hereinafter refer to the combination of the two projects.

Sightsavers, in collaboration with three tertiary-care partners, designed and implemented a Seeing is Believing V (SiB) and a SiB Extension Phase funded project in three districts of Pakistan (Karachi, Lahore and Rawalpindi) that aimed to:

- screen known diabetics for diabetic retinopathy (DR)
- establish a referral pathway for patients screened for DR to the three tertiary hospitals
- diagnose those at risk, especially those with sight-threatening diabetic retinopathy (STDR) and provide timely treatment
- develop a functioning tracking system that provides information about referrals, screening, treatment and follow-up
- incorporate a sustainability plan that would transfer ownership of the project activities/DR services to the three tertiary hospitals in the three respective districts

The project was designed to prevent visual impairment due to DR through early detection, regular follow up and appropriate management of STDR amongst known diabetics in order to contribute to the reduction of avoidable blindness in the selected districts. The project focussed on sensitising and screening known diabetics for DR and providing adequate treatment for those identified with STDR. The project was implemented in a phased manner across the three locations.

Purpose of Evaluation

The evaluation aimed to review the achievements of the project against objectives and outputs, focusing specifically on understanding key successes and challenges in the implementation of the project, to help inform the future design of Sightsavers programmes and identify any further cross-cutting or organisational level lessons and recommendations.

Evaluation approach

This was designed as a strategic and retrospective evaluation that utilised mixed methods of quantitative and limited qualitative components (due to the limitations imposed by the Corona Virus Disease 2019 (COVID-19) lockdown and inability of the Consultant to travel to the project sites to meet with key stakeholders).

Main findings

The rating reference is provided in **Appendix 1**.

Relevance	**Rating** 

The project demonstrated a high degree of relevance and was appropriately adapted to the unique local circumstances of each of the three partners (one non-government organisation (NGO) and two from the public sector). The project filled a programmatic gap by catalysing the formulation of a national DR control strategy and providing further impetus to the fledgling National DR Task Force under the National Committee for Eye Health (NCEH). DR was not given enough priority prior to the project. The project improved access to DR care services for women who accounted for 62% of all patients received as referrals for DR screening at the three partner hospitals. The counsellors/diabetic educators deployed in the project played a critical role in advising patients, especially women who took the advice seriously and made an effort to follow the advice and attend for follow-up. In addition, the project officers (also performing the role of social organisers), were part of the project team, and were instrumental in mobilising, operationalising and maintaining community links with the local administration, district coordinators of the Lady Health Workers (LHWs) programme, and health personnel in-charge of basic health units (BHUs) for the smooth implementation of the project. The roles of the diabetic educators/counsellors and social organisers (role performed by project officers in this project) are examples of good practice and recommended for adoption in future DR projects.

Effectiveness	**Rating** 

The project achieved its intended targets and in fact exceeded some of them. The project successfully piloted a referral pathway from the primary health care (PHC) level to the tertiary hospitals for DR screening of known patients with diabetes and established a linkage between the tertiary hospitals and PHC services. The project made good use of Information Education Communication (IEC) material for education and promotion. The IEC material like posters and leaflets was used for creating awareness by LHWs, during counselling sessions conducted by diabetic educators/counsellors at the tertiary hospitals and for improving inter-departmental

awareness about and referral to the DR screening service. The IEC component also introduced diet charts that were very popular with the women patients which they used in their day to day cooking activities at home. The LHWs utilised a 'Positive Deviance' approach using women motivators to create awareness amongst women in their communities. This was good practice and recommended for adoption in future DR projects. The project has provided useful learning that suggests the need for a more comprehensive behavioural change communication (BCC) strategy for DR projects in the future.

Efficiency	**Rating** 

The project achieved a satisfactory rate of programme spend with minimal underspends (< 10%) due to the foreign exchange fluctuations especially in the last two years. The underspends were utilised effectively for service delivery activities, purchase of necessary surgical consumables, research activities and procurement of equipment for DR screening. In addition, some of the underspend was used to respond to the COVID-19 situation by donation of Personal Protective Equipment (PPE) to provincial Comprehensive Eye Cells.

The project successfully demonstrated that there were a range of service approaches that could be provided at tertiary facilities. This ranged from the one-stop approach implemented fully at Al Ibrahim Eye Hospital (AIEH), to elements that were partially adapted and implemented in the public sector hospitals.

The Evaluators considered five elements for a one-stop approach; biochemical testing, diabetic clinical consultation in a diabetic/endocrinology/medicine clinic, diabetic counselling, DR care, and foot care. All five elements were provided at AIEH, while College of Ophthalmology and Allied Vision Sciences (COAVS - Mayo Hospital) provided three except foot care, as part of an integrated project response, and Holy Family Hospital (HFH) was able to introduce at least diabetic clinical consultation in a clinic, diabetic counselling and DR care. Biochemical testing is available by default because it is necessary for patients visiting diabetic clinics in both public sector hospitals.
Project efficiency could have been improved by utilising existing human resources like ophthalmology residents and subspecialty fellows in training (for vitreo-retina) for DR care. Although the project successfully established a referral pathway between the primary and tertiary levels of health care, this is not tenable in the long run as the services at the tertiary hospitals will not be able to cope with the workload. Furthermore, most of the patients (80%) with diabetes referred from the primary level did not have DR and therefore did not need to go to a tertiary hospital if a screening service was available closer to home. The project identified the need for an intermediate level DR screening service delivery point between the tertiary and PHC levels located at a Rural Health Centre (RHC) with deployment of an optometrist to conduct DR screening.

Impact	**Rating** 

The project successfully embedded a DR screening service in each of the three partner hospitals with modifications in the original strategy and adapted to the local circumstances. The project teams established and maintained liaison with the local district administration and LHW programme and primary health facilities. The diabetic educators/counsellors strengthened the link with LHWs to enhance referrals; while one of the partners (AIEH) introduced a two-way feedback with thank you

letters to general practitioners (GPs) who had referred patients. This improved the referral rate from the GPs and is an example of good practice for adoption in future DR projects. The project further established and enhanced inter-departmental linkages for referral of patients with diabetes for DR screening. The project also successfully demonstrated the implementation of a one-stop approach and how it could be adapted to both NGO and public sector settings. There are still a few technology gaps for DR care that need to be addressed at one of the tertiary hospitals (HFH).

Sustainability **Rating** 

Each partner developed a sustainability plan that was implemented in phases. The degree of sustainability varies with the partner situations. The process of sustainability has been managed in stages because of their unique circumstances. The NGO partner (AIEH) has internalised most of the project activities and began taking ownership after the Mid-Term Review (MTR). One of the public sector partners COAVS has created new posts of optometrist and counsellor and these project staff will be retained after the project. The other public sector partner (HFH) has submitted a project proposal to the provincial government for funding of the DR care services – however, the proposal is not yet approved and is likely to have immediate implications for the project team if not approved in the next few months. Clinical services for DR care and inter-departmental linkages will continue in all three hospitals. AIEH has internalised the Health Management Information System (HMIS) in its own system and this will continue. However, the public sector hospitals are dependent on the hospital's health information system which is very limited at present, and is not able to integrate the DR HMIS. The two public sector partners however continue to use a simplified manual data entry system. The project could have considered more thoroughly during the design and execution phases the likelihood/feasibility of the HMIS system being integrated in and sustained in the public hospitals post project. COAVS has developed a synergistic collaborative arrangement with the Project Planning and Implementation Unit (PPIU) dealing with the LHW programme in Punjab. AIEH's engagement is currently limited to HANDS in Karachi. The scope of engagement can be further extended to the People's Primary Health Initiative (PPHI) in Sindh because the Government of Sindh has outsourced management of most of the BHUs in the province to PPHI. This can have long term dividends.

Scalability/replication **Rating** 

The one-stop approach adopted by AIEH is an efficient programmatic option for DR care services because it provides all essential diabetes related services under one roof, saves patients from frequent visits for different services, and improves compliance for treatment. The one-stop approach can also be partially adopted in public sector hospitals as evidenced in the two public sector partner hospitals. COAVS has already initiated plans to replicate the DR care and screening services at two public sector tertiary teaching hospitals (TTHs) in two districts in Punjab. The project proposal has been approved by the Health Department. The project identified several good practices which are learnings for future DR projects. These include:

- role of diabetic educators/counsellors and social organisers as part of the DR screening team;
- the use of 'Positive Deviance' by LHWs as a BCC strategy to influence community health awareness, behaviour change for health lifestyles and health seeking behaviour;

- use of a two-way feedback mechanism to referral categories like GPs and Lady Health Supervisors (LHSs); and
- developing a one-stop approach at tertiary hospitals for improved referral, counselling, general diabetes and DR care, and prevention and treatment of diabetes related complications like diabetic foot.

Coherence/coordination	Rating 

Overall, the project maintained and managed a good level of coordination with provincial stakeholders like PPIU in Punjab and PPHI in Sindh. Furthermore, the project established effective coordination mechanisms with the LHWs programme at the operational level in both provinces. The Prevention and Control of Non-Communicable Diseases (NCDs) Programme in Punjab and the Provincial Integrated People Centred Eye Care Plans (currently in development) are two new and emerging opportunities that lend themselves to synergy with DR control initiatives and provide a platform for joint collaboration for piloting new integrated interventions in the former and scaling up DR screening and management services in the latter.

Conclusions

The project successfully achieved its targets and in fact exceeded some of them. The project demonstrated convincingly that a DR screening service can be established both in public and non-government sectors using an adaptable one-stop approach suited to the local circumstances of the tertiary level partners. Although there are concerns about the sustainability of the referral pathway, the project also demonstrated its feasibility for patients with diabetes for DR screening from the PHC level to the tertiary care level. The project identified capacity building needs at primary and tertiary health care levels and tested approaches to build and strengthen these capacities. A good level of sustainability was achieved with the NGO partner internalising all project activities, while the public sector partners have taken steps to obtain government financing for DR screening services. The hospital related DR screening and management services will continue owing to strengthened inter-departmental collaboration. The project has identified the need for an intermediate DR screening service structure between the primary and tertiary health care levels to improve referral compliance for screening and unnecessary referral to the tertiary hospitals.

Recommendations

Recommendation	Audience
Relevance	
Formulate a holistic DR programme strategy that is mindful of epidemiological transitions resulting in diabetes in younger age groups and needs of other diabetic groups like those with gestational diabetes	Sightsavers' PCO team and design teams and partners for future projects
Include a community awareness and social mobilisation strategy for diabetes and DR that is directed towards households as part of family eye health with a life continuum – this will also allow realistic assessment of coverage and reach of the health education and health promotion component for diabetes and DR.	Sightsavers' PCO team and design teams and partners for future projects

Recommendation	Audience
Engage proactively with **Disabled People's Organisations** (DPOs) to create awareness about diabetes among their constituents and to enhance assessment of diabetes/ screening for DR. This initiative should reinforce the data management processes for disaggregated data reporting for disability.	Sightsavers' partners
Develop a gender strategy for DR prevention and control (aligned with an overarching organisational gender strategy) for inclusion at the outset in baseline assessments, project design, implementation, monitoring and evaluation and coverage of DR screening services.	Sightsavers' PCO team and design teams and partners for future projects
Effectiveness	
Integrate a BCC strategy in DR project design that is directed towards changing behaviour and practices that exacerbate the effects of diabetes on the individuals and increase the risk of complications. This can include positive deviance, use of audio-visual tools, and pictorial IEC materials.	Sightsavers' PCO team and design teams and partners for future projects
Incorporate a skills development programme for district (secondary level of health care) ophthalmologists in the indications and safe use of Anti-Vascular Endothelial Growth Factor (AVEGF) in patients with diabetes to prevent or minimise the risks of STDR. This will require their hands-on capacity building at selected TTHs and will help to decentralise DR screening and management as the demands for these services increase with a growing population and rising burden of diabetes.	Sightsavers' partners
Strengthen competencies of optometrists through formal training and certification in DR screening and primary grading and use of Artificial Intelligence diagnostics. This will enhance their capabilities to be deployed at intermediate referral health facilities RHCs.	Sightsavers' partners
Establish service delivery links with low vision services to ensure that patients treated for DR are able to achieve a reasonable quality of life with their residual vision. This can be augmented with quality of life studies to determine service impact where resources permit.	Sightsavers' PCO team and design teams and partners for future projects
Create posts of diabetic educators/counsellors and social organisers as essential team members integral to DR screening and management at tertiary hospitals designated as divisional hubs.	Sightsavers' partners
Efficiency	
Revise the training programmes of ophthalmology and optometry residents and vitreo-retina fellows to incorporate DR screening, management and supportive supervision as necessary competencies to be acquired for their respective roles. In addition, this will require structured training and online certification of optometrists as graders before they are deployed for DR screening.	Sightsavers' partners
Pilot the role of RHCs as intermediate referral service delivery points for DR screening for referrals from PHC workers. This structure will require the deployment of optometrists adequately trained in DR screening and grading.	Sightsavers' PCO team and design teams and partners for future projects
Impact	
Adopt the one-stop approach as a programmatic option at tertiary eye care facilities to enhance the service delivery impact for patients with diabetes. This will require that inter-departmental linkages are strengthened, and the scope and range of services offered to patients with diabetes is adapted according to the local context of the public or NGO sector hospitals.	Sightsavers' PCO team and design teams and partners for future projects

Recommendation	Audience
Conduct further research to determine the contributory factors that have led to the decline in DR and STDR in patients with diabetes in the project areas covered by AIEH.	Sightsavers PCO team and AIEH
Sustainability	
Advocate to the LHW programme for inclusion of health promotion and disease prevention messaging about diabetes and its potential complications in their core curriculum. This will lay the foundation for a family eye health concept for a life continuum.	Sightsavers' partners
Adapt elements of the module on DR to the extent feasible in the respective eye department information systems to sustain gains made through the HMIS developed in the project. For public sector partners, this is likely to require engagement with respective provincial information technology boards of the government to ensure that these information needs are incorporated in Electronic Medical Records systems planned for development for government tertiary hospitals.	Sightsavers' partners
Scalability/Replication	
Sustain the strategic engagement with the People's Primary Health Initiative in Sindh and Policy Planning Implementation Unit in Punjab and build on the gains made in the DR project to integrate identification of people with diabetes and referral for DR screening at the next appropriate level of health care.	Sightsavers' partners
Anticipate and plan for the use of Artificial Intelligence (AI) e.g. hand-held or table-mounted screeners in future DR screening activities especially at PHC level to strengthen capacities for screening and detection of DR. This will require support to AI research activities to develop algorithms adapted for the local context, and engaging with existing tools that have been shown to be quite effective in screening in other contexts.	Sightsavers' PCO team and design teams and partners for future projects
Coherence/Coordination	
Identify strategic integration points in the NCDs programme in Punjab (and other provinces when these are planned) and foster collaborative partnerships to improve the alignment, synergy and value addition of DR projects with NCDs programme initiatives.	Sightsavers' PCO team and design teams and partners for future projects
Align future DR programme strategies with national and provincial integrated people centred eye care plans, cascaded through the divisional hubs, district eye units (providing a package of eye care services) and extending coverage to zones of intervention at the Union Council level.	Sightsavers' PCO team and design teams and partners for future projects

Introduction and background

1.1. Background

This was a combination of a five year project and a one year project. The timeline is summarised below.

Seeing is Believing (SiB) Phase 5

Standard Chartered contributed US$1,000,000 to a budget of US$1,250,000, for a project from 1st April 2014 to 31st March 2019. In July 2019, a No Cost Extension was provided to 31st March 2020 to address a budget underspend of $77,778. This underspend was reallocated towards the following activities:

- Research into the effectiveness of referral system completed and results disseminated
- Learning and Sharing workshop with SCB
- A video documentary
- Combined final evaluation of two DR projects
- Completion of a small number of activities.

In May 2020, a Letter of Variation (LOV) approved for a No Cost Extension to support COVID-19 response. Expenditure was allowed up to and including July 2020. This authorised procurement of Personal protective Equipment (PPE) for frontline health workers and consumables for surgery.

SiB Extension project

In the SiB Extension project, Standard Chartered contributed US$200,000 to a budget of US$250,000 for a project from January 2019 to 30 June 2020. In May 2020, a LOV was approved for budget variation to allow underspend to support the COVID-19 response – allowing expenditure in July. This authorised procurement of PPE for frontline health workers and consumables for surgery.

Project activities therefore spanned six years, delivered through two SiB funded projects, with a combined budget of US$1.5m. All references to the '**project**' hereinafter refer to the combination of the two projects.

In this project, Sightsavers in collaboration with three tertiary-care partners (two government and one non-government) designed and implemented a SiB Phase V and a SiB Extension Phase funded project in three districts of Pakistan (Karachi, Lahore and Rawalpindi) that aimed to:

- screen known diabetics for diabetic retinopathy (DR)
- establish a referral pathway for patients screened for DR to the three tertiary hospitals
- diagnose those at risk, especially those with STDR and provide timely treatment
- develop a functioning tracking system that provides information about referrals, screening, treatment and follow-up
- incorporate a sustainability plan that would transfer ownership of the project activities/DR services to the three tertiary hospitals in the three respective districts.

1.2. Purpose of evaluation

The Terms of Reference (ToR) for the end term evaluation are presented in Appendix 2. The scope and purpose of the evaluation was to review the achievements, strengths and weaknesses of different approaches used, potential strategies for replication and scale-up, opportunities and challenges, implementation of MTR recommendations, and equity achieved by the project especially for women and people with disabilities. The evaluation was designed as a retrospective one that utilised mixed methods of quantitative and limited qualitative components (owing to the limitations imposed by the COVID-19 lockdown and inability of the Consultant to travel to the project sites to meet with key stakeholders).

The target audiences for the report include the donor, partners, Sightsavers Country Office team, NCEH and its National Task Force on DR, and global programme support teams within Sightsavers.

1.3. Project description

This project was designed to prevent visual impairment due to DR through early detection, regular follow up and appropriate management of STDR amongst known diabetics in order to contribute to the reduction of avoidable blindness in three selected districts of Pakistan.

It was implemented in collaboration with three implementing partners and two Comprehensive Eye Cells who played a facilitatory role in the project:

- **Al Ibrahim Eye Hospital (AIEH), Karachi**
  AIEH is committed to implementing innovative approaches to improve eye care. AIEH initiated low vision services since 2002 with the support of Sightsavers. AIEH has a long standing partnership with Sightsavers which includes projects on district comprehensive eye care (DCEC) in Kharan district in Balochistan, piloting a community based DR project in Gadap Town in Karachi, and a childhood blindness control programme. This DR project aimed to embed the programme within PHC services, including support to LHWs to incorporate awareness-raising and community education on diabetes mellitus (DM) and DR.

- **Holy Family Hospital (HFH) Rawalpindi**
  HFH is an affiliate of the Rawalpindi Medical College and has a track record of excellence in service delivery in eye health, research and undergraduate and post-graduate medical training. HFH has previously successfully implemented the SiB phase IV programme from January 2011 to December 2015.

- **College of Ophthalmology and Allied Vision Sciences (COAVS) at the Kind Edward Medical University, Mayo Hospital, Lahore**
  COAVS also has a track record of innovation and commitment to achieving the objectives of Vision 2020. Since its inception in 1999, it has developed active partnerships with, and successfully implemented many programmes supported by many international eye health agencies including CBM, Fred Hollows Foundation and Sightsavers[1].

[1] Sightsavers key support has been for the training of mid -level Eye Care Professionals as well as for the training of Ophthalmologists in Community Ophthalmology. Furthermore, the concept of District Comprehensive Eye Care (DCEC) was piloted through COAVS in Punjab which was

- **Comprehensive Eye Care (CEC) Cells of Sindh and Punjab**
  All three hospitals implemented the programme with full cooperation and support of the CEC Cells of Sindh and Punjab who were instrumental in ensuring that DR services were incorporated at the provincial level and the learning from the programme used to inform policy and the sustainability of DR services. They bring to the programme their considerable resources and expertise.

The project focussed on sensitising and screening known diabetics for DR and providing adequate treatment for those identified with STDR. The project was implemented in a phased manner across the three locations because DR screening and treatment was already established at AIEH and Mayo hospitals to some extent. However, in the case of HFH, the services had to be initiated from scratch. The project was designed and managed by Sightsavers and funded by Standard Chartered Bank, through their SiB initiative.

The goal of the project was to contribute to the reduction of avoidable blindness due to STDR in three districts of Pakistan. It aimed to prevent visual impairment due to DR through early detection, regular follow up and appropriate management of STDR amongst known diabetics in three districts of Pakistan.

The main objectives of the project included the following:

1. Men and women, who are known diabetics, are diagnosed with DR and treated for STDR in three districts in Pakistan.
2. Hospitals in three districts in Pakistan have a referral system in place to ensure known diabetic patients are screened for DR and a management plan established.
3. Hospitals in three districts in Pakistan have a functioning tracking system that records referrals, screening, treatment and follow-up of known diabetic patients.
4. A sustainability plan to transfer ownership of the DR services from Sightsavers to hospitals in three districts in Pakistan has been achieved.

1.4. Methodology and ethical considerations

1.4.1. Evaluation Approach

Originally, the evaluation approach was designed as a review of the achievements, strengths and weaknesses of different approaches used, potential strategies for replication and scale-up, opportunities and challenges, and equity achieved by the project especially for women and people with disabilities. The approach contained a combination of desk review, onsite visits, face to face meetings for key informant interviews (KIIs) and focus group discussions (FGDs). Owing to the COVID-19 pandemic, the evaluation approach was revised to use a desk-based approach and so completely avoiding travel and face to face meetings. Every effort was made to ensure a gender balance in terms of the distribution of key informants for interview. The evaluators enquired whether

then replicated at national level by government and other INGOs. The first Childhood Blindness Control Programme was also supported by Sightsavers and was implemented by COAVS in major district of Punjab; this was again adapted at national level by CBM and Fred Hollows Foundation. COAVS is one of the pioneer institutes for piloting of SAFE strategy for the Trachoma control programme in Pakistan with the support of Sightsavers.

there were any persons with disabilities among the key informants so that appropriate considerations and accommodations could be made – however, there were none who self-identified as having a disability.

The evaluation framework addressed the criteria indicated in the ToRs (**Appendix 2**) - relevance, effectiveness, efficiency, impact, sustainability, scalability/replicability, and coherence/coordination. The ToRs defined thirteen questions. The details of the data collection process and plans to address these questions are presented in the Evaluation Framework in **Appendix 3**.

The evaluation matrix and topic guides were revised for a desk-based evaluation approach, including Zoom/Skype/phone interviews. The matrix further signalled the evaluation questions that the team anticipated would be harder to answer in as much depth due to the revised approach. This is highlighted in the limitations to our methodology.

1.4.2. Evaluation design

The evaluation was designed to have qualitative and quantitative components. The qualitative component involved primary data collection, while the quantitative component was drawn from project reports, monitoring and evaluation framework and validation of partner data. The qualitative perspectives enquired about what worked well and what did not, screening and referral processes, uptake of services, and opportunities for sustainability and scalability. The quantitative analysis assessed project achievements against planned targets. Where possible, two to three sources of information were used to triangulate findings during analysis.

The evaluation was carried out in three stages (the detailed work plan and field schedule are presented in **Appendix 4 and Appendix 5**):

Inception: The Evaluation Team reviewed background documents and data to inform the evaluation methodology and understand the project context. The Evaluation Team held a kick-off meeting with Sightsavers Pakistan Country Office (PCO) team and Sightsavers UK Monitoring Evaluation and Learning (MEL) team to review the development of the Inception Report. The Inception Report identified the key informants, defined the sampling framework, formulated the topic guides and key questions for different categories of respondents and finalised an interview-based data collection schedule.

Data collection: The evaluation team collected primary data from KIIs at the national and district levels.

Data analysis and report writing: This involved the collation and analysis of qualitative and quantitative data collected during the evaluation, and analysis of secondary data provided by the project. A draft report was prepared for feedback from Sightsavers, revision and final editing.

1.4.3. Ethical considerations

Informed consent or assent was obtained from all informants. In-country ethical approval was not required. However, Sightsavers' PCO reviewed the topic guides and consent procedures in advance of data collection to advise on appropriateness. The evaluation did not involve any interview or examination of children. There was no clinical examination planned.

Furthermore, care was taken in the sampling not to divert time/attention/resources from frontline or primary health care activities impacted by the COVID-19 pandemic.

The evaluation team (Evaluation Lead and Tropical Health support team) have completed United Nations Children Emergency Fund (UNICEF's) 'Ethics in Evidence Generation' course.

1.4.4. Data collection methods

Primary data collection

The Team Leader conducted qualitative data collection through interviews of national, sub-national and district informants on Skype or phone. A total of 27 KIIs were planned and these were all completed (60% were women).

The informant categories interviewed are presented in **Appendix 6**.

Topic guides were developed for the different informant groups and were designed to be adapted according to the key informant type (**Appendices 7 and 8**). These were reviewed by the Sightsavers PCO for appropriateness in advance of data collection. The guides were designed to follow a semi-structured approach so that there was an opportunity to explore all evaluation questions, while allowing for new/unexpected perspectives to be raised. The evaluator broadly followed the guides' questions, adjusting wording during the interviews in-line with points raised by informants.

The interviews were conducted in English or Urdu according to the comfort level of the respondents.

All interviews were written as notes during interviews by the Team Leader. Interviews were not recorded. The notes were used for thematic analysis to determine emergent themes.

Secondary data sources

Document review: The Team leader reviewed and collated information from national and sub-national resource documents relevant to the project, and documents prioritised by Sightsavers, to obtain quantitative and qualitative information. This process was iterative, with documents revisited and additional information reviewed throughout the evaluation to cross-reference findings. The list of 60 out of 61 documents provided and reviewed is presented in **Appendix 9**.

Project output data: The Team Leader collated quantitative output data using a quantitative data tool drawing from project data systems and information provided by implementing partners and the Sightsavers Country Office. The quantitative data tool is presented in **Appendix 10**.

1.4.5. Analysis and projection of evaluation report

Data from all sources was triangulated to the extent possible, through review and comparison of themes across all sources, and discussion between Sightsavers PCO and the evaluation team.

Thematic analysis of KII data was done to determine emergent themes.

Quantitative output data was analysed in Excel to assess performance against project targets using the quantitative data tool presented in **Appendix 10**.

1.4.6. Limitations of the evaluation

One of the major limitations faced by the evaluation was the inability to conduct field visits to project sites to meet with the partners to develop a better understanding of the implementation of the project owing to the lockdown restrictions imposed by the COVID-19 pandemic. Furthermore, the initial draft of the Inception Report had included FGDs with the project teams, LHSs, LHWs, Medical Officers (MOs) and GPs, Medical Technicians (MTs) and sample beneficiaries. Since none of these FGDs could be conducted, the final Inception Report had designed the evaluation approach based on a desk review and KIIs. The FGDs would have greatly enriched the evaluation findings by providing a more in-depth 'demand' side perspective of the project. Normally, such an evaluation would always ensure that voices of the service recipients were included. However, owing to the COVID-19 situation, this could not be achieved and is a major limitation of the evaluation. While KIIs were conducted with the project teams, only two LHSs could be interviewed. In the original evaluation plan, the FGDs were designed to elicit information from the following groups of respondents:

- LHWs – it would have been helpful to obtain their perspective for example, on things that need to be in place for health staff trained in the project to continue their roles in identifying and referring patients for DR screening
- Patient beneficiaries – it would have been very useful to elicit information and perspectives from patients on the following:
    - What did they know about the effects of this condition on their health
    - When they were referred to the hospital, did they face any difficulty in getting there
    - How did they hear about the screening programme at their nearby health facility and the services offered under the project at respective partners hospitals
    - What were their thoughts about the treatment they received at respective partner hospitals for their diabetes and the eyes
    - After they received treatment for their eyes because of the effects caused by diabetes, what was their experience about the follow-up
    - Is there anything that they would like to share about their experience of screening and treatment, and the awareness they have gained about diabetes and the effects it has on the eyes

1.5. Report structure

The Evaluation Report is divided into three main sections:

1. The first section includes the Introduction and Background section which provides an overview of the project and the approach and methodology of the evaluation.
2. This is followed by the Results section which presents the findings and analysis pertaining to each of the 13 evaluation questions. It also provides the ratings for the 7 evaluation criteria.
3. The last section is comprised of the Conclusions and Recommendations which distils the findings and analysis into programmatic conclusions, draws out some of the key learnings, and proposes actionable recommendations for future programme strategy and scalability.

Supplementary information, including copies of the data collection tools used, is provided in the Appendices.

Results

2.1. Relevance

Rating 

2.1.1. How aligned are the project's objectives with national and provincial eye health plans in relation to DR in Pakistan?

The National Action Plan for Prevention and Control of Non-Communicable Diseases and Health Promotion in Pakistan[1] was developed as early as 2004. However, it was under-resourced by the federal or provincial governments and did not receive any major traction. Sightsavers supported pilot DR projects with its partners, especially AIEH but there was no overarching national DR strategy. The National Plan for Prevention and Control of Blindness 2005 – 2010 (extended to 2012) identified the need for control of DR, but there was no supporting strategy. Similarly, the provinces did not have any provincial eye health plans since the National Plan for Prevention and Control of Blindness 2005 – 2010 ended in 2012.

Prior to this project, Sightsavers had supported pilot initiatives with AIEH, the results and learning of which helped inform the design of this project. Furthermore, the DR project was well aligned with Vision 2020 – The Right to Sight global initiative[2].

"This project was different from the earlier pilots which focussed on the peripheral end, while this project developed a referral system and focussed on the receiving end" - Medical Director AIEH

"This project filled a programmatic gap. The previous focus used to be on cataract, trachoma etc" - COAVS Consultant

In 2013, Sightsavers supported a national situation analysis of DR[3] which not only provided a baseline, but also paved the way for development of this project after a two-year period of iteration. After the launch of the project and presentation of preliminary findings of the inceptive years of the DR project to the NCEH, the members of the NCEH endorsed the need for a National Task Force on DR.

According to the Second National Diabetes Survey 2016-17[4], the prevalence of diabetes in Pakistan is a staggering 26.3%. About 27% of all diabetes is undiagnosed according to this survey. The study also demonstrated that age-stratified prevalence of diabetes and pre-diabetes was also being seen in younger age groups in both sexes. Partners noted that they were seeing patients with diabetes at much younger ages less than 40 years, and some were even children. However, their data was not captured as the project age was limited to 40 years and above.

"Diabetes is becoming a serious problem. We are beginning to see patients even in their 20s with Type 2 diabetes" - COAVS Consultant

The project played the role of a catalyst as it had a policy influence in creation of a National Task Force on DR, which then developed guidelines for screening for DR, and subsequently guidelines for treatment of DR with laser and intravitreal therapy of AVEGF.

2.1.2. What are the different barriers to accessing eye health services, and has the project been able to address these?

Several barriers were noted in the implementation of the project. However, some of these barriers were not specific to diabetes or DR but were more related to access to health services in general like socio-economic factors such as poverty, travel costs, overcrowded health facilities, long waiting times and distance and logistic challenges[5]. Most of these factors are social determinants of health and were beyond the scope of the project even though it (project) was appropriate in the circumstances. However, the project provided costs for treatment (vitreo-retinal surgery) for those patients who could not afford them as the consumables required in the surgery are expensive. The project set up DR screening clinics which directed patients with general diabetes to a less crowded clinic where they were examined for DR, and also provided counselling and advice about DR and general diabetes care.

Initially, the project interventions were designed to cover a population of one million. However, on implementation, there were not enough people coming for screening and the project targets were not being met. It was felt that there was a need to extend the geographical coverage of the project within the project districts by expanding the population size especially for screening purposes. Initially, the project had planned for one of the towns (Gadap Town in Karachi, Data Gunj Bakhsh Town in Lahore and Satellite Town in Rawalpindi) within the respective districts to be the designated project areas, but this had to be changed to include the whole district. This was especially necessary in Lahore and Rawalpindi. In Karachi, AIEH was working in a controlled project area where they had a long standing programmatic presence, and therefore were not affected by a need for change in screening strategy until about the fourth year of the project, when the project area was extended to include part of Malir as well.

Creating awareness was another challenge for the project as patients were reluctant to come for screening. In the first three years of the project, annual numbers of people screened were 8,134, 10,165 and 11,047 in years one, two and three respectively. However, from the fourth year, annual numbers of people screened were 12,972, 14,264 and 16,954 in years four, five and six respectively (Table 1).

Table 1: Number of patients screened in the project

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number of patients screened	8,134	10,165	11,047	12,972	14,264	16,954

There is an uneven uptake increase year on year with an average annual increase of 16%, with highest delivery outputs experienced in the second half of the project This suggests a period of confidence building during the first half of the project, and then an increase in uptake of screening

services by word of mouth (according to informants interviewed). Factors that contributed to this are discussed further under Effectiveness. They include a change in tactical strategy by AIEH which began screening patients for general diabetes at an adjacent hospital, COAVS moved the location of the screening clinic to the centre of the main hospital outpatient area, refresher training of LHWs, and improving the two-way feedback process to GPs. These actions indicate good adaptive management by the project.

Initially, the project did not have much focus on improving access to services for people with disabilities. As the project evolved, Sightsavers' and the partners' understanding about equity evolved too. Disability disaggregation of data was introduced in the HMIS (e.g. disaggregated data about people with disabilities for number screened or number treated) on a trial basis, but the challenge for partners remained as to how to identify patients who also had disabilities as the registration/reception staff were not fully trained to enquire about disability. Sightsavers had planned to orient its partners on the need to include disability disaggregated indicators and provide a briefing to partner staff on disability inclusion but this could not be achieved during the project life. However, Sightsavers trained all project staff in Safeguarding. This is an area that needs to be developed further before meaningful inference can be made of disability statistics. As partners were gradually sensitised by Sightsavers to the needs of people with disabilities, and inter-departmental referral increased, the project began to identify patients with diabetic foot. However, reporting of diabetic foot in patients screened for DR was not part of the reporting template – its inclusion would have quantified the need for foot care, which according to the counsellors was considerable. Although the project made a start in the area of disability, this programmatic component remained comparatively weaker (very limited or no data on people with disabilities, diabetic foot, low vision and referral for other rehabilitation needs) than other interventions and will require a specific focus in future projects.

Although some of the areas like continuity of care, low vision and rehabilitation services were identified during the project life and ad hoc efforts made to address them, the linkages established for these were minimal. These are important service needs, which if unaddressed become barriers. For instance, patients who have STDR or are treated by laser may have a reduction in visual acuity which would affect their quality of life, and they may have difficulty in accepting that the laser treatment was to prevent total vision loss because of DR, when in fact they had experienced a reduction in visual acuity. Furthermore, diabetic foot is a serious complication of diabetes and patients need to be assessed, counselled and treated for this. This is one of the essential services that need to be provided in a one-stop service. The counsellors in the project did in fact advise patients about the diabetic foot complication and AIEH introduced diabetic foot care in their one-stop service. These are candidates for programme interventions and further integration with general diabetes care services.

The DR project was designed to build on existing health service platforms. Therefore, any limitations in the health services would affect the DR project as well. One of the limitations in the project design was that it had a limited emphasis on community awareness and social mobilisation which would have supported addressing some of the barriers described above.

2.1.3. How effective has the project been in ensuring that services are sensitive to the needs of women?

The project addressed the needs of women through the following strategies.

The focus on training of LHSs and LHWs was instrumental in reaching women to raise awareness about general diabetes and the need for DR screening in the target communities because LHWs had household access to women as part of their community health worker role. The LHWs were identified as focal points in the project design. LHWs played an important role in conveying health education and promotion messages on general diabetes and potential eye complications to their respective communities to mobilise communities, despite the limited social mobilisation component in the project.

The project established a gender disaggregated data collection system which provided monitoring indicators that women were receiving the health education messages and were accessing DR care. A text message was sent as a reminder to all patients who were required to come for follow-up. This created awareness amongst families about the importance of the disease and helped ensure access of women to DR care services at the partner hospitals.

The messages sent by SMS to the heads of household were very helpful for the women because sometimes the husbands and mother-in-law's were reluctant for them to go to hospital. But the messages gave their families a sense of urgency and they allowed them (women) to go to the hospital for follow-up - Counsellor

The LHWs were also the focal persons for the consultation process to develop the IEC material. Initially, the IEC materials developed focussed on general diabetes. However, the LHWs provided feedback of the women in their communities who requested a diet sheet (indicating the type of foods that are appropriate for persons with diabetes and which are not; a day by day diet chart with combination of foods to prepare breakfast, lunch and supper). This was part of the project IEC material from the start as the need was identified during pre-development field research. This was added to the package of IEC materials and LHSs indicated that this was greatly appreciated by the women who were either diabetics themselves or had family members who were diabetics. The women in the communities used the diet charts as a ready reference and even hung them up in their kitchens.

The counsellors/diabetic educators played a critical role in advising patients, especially women who took the advice seriously and made an effort to follow the advice and turn up for follow-up (please also see section 2.6.1). The counsellors also noted that there was an increasing trend of women coming with gestational diabetes seeking advice about general diabetes and eye complications (please see section on Lessons Learnt). The project reports and data indicate that a higher number of women were screened for DR (Table 2). While it is not possible to determine the contribution of women diabetic educators/counsellors in this increase, the counsellors interviewed indicated that women preferred to discuss their health issues with female diabetic educators and appreciated the explanation, guidance and diet charts provided by them. The diabetic educators/counsellors also maintained a vital link by telephonic contact with LHSs and even LHWs regarding referrals and follow-

up. This is evident from project reports and data that demonstrate a higher rate of women who were screened (Table 2). Additionally, the role of the counsellor/diabetic educator in the DR project is an example of **good practice** and is recommended for adoption in future projects.

Furthermore, the project officers (who also functioned as social organisers) in the project (they were part of the project team) were instrumental in mobilising, operationalising and maintaining community links (local administration, district coordinators of the LHW programme, health personnel in-charge of BHUs) for the implementation of the project. The role of the social organiser in the DR project is another example of **good practice** and is recommended for adoption in future projects.

"The information about the DR screening services also spread by word of mouth. We saw many women who came to the counsellor without a referral slip from the LHWs. They had heard about it from other women and wanted to know more about the condition (diabetes) and about screening for eye problems". Project Officer/Social Organiser

The findings indicate that the project was equitable for and favourably inclined towards women:

- Surgical intervention – 46.9% (129 out of 275) were women
- Medical intervention (laser and AVEGF) – 50.6% (2,352 out of 4644) were women
- Screening – 57.3% (42,126 out of 73,536) were women
- People reached through IEC materials – 52.3% (636,175 out of 1,215,529) were women
- Health personnel trained – 94.5% (3,967 out of 4,197) were women. This includes 3,884 LHWs/LHSs who are all women

A research study[6] on the DR project conducted by Sightsavers found that men were reluctant to take the referral advice from LHWs seriously as they felt that LHWs were not knowledgeable enough or trained adequately to advise about referral for diabetes to the tertiary hospital. They preferred to go to a GP or other health facility first. This is likely to have contributed to the comparatively lower referral rate of men in the overall numbers of patients received as referrals from LHWs and more numbers of men referred from GPs (see Table 2).

However, while these findings validate that a gender focus helped achieve a commendable degree of gender equity , there was no overarching gender mainstreaming strategy. Usually, organisations implementing or supporting health programmes tend to have cross-cutting organisational gender strategies. Such overarching gender strategies are important as they enhance health promotion among women and girls, address gender inequities in health access, improve documentation of gender disaggregated data, and help to address gender inequalities that affect health and the social determinants of health. Sightsavers' is developing a gender and disability inclusion strategy which will serve as a guide for future projects with partners. Gender strategies for DR projects would also need to be aligned to the organisational gender and disability inclusion strategy. This is an area that needs to be incorporated as a component in future project designs

2.2. Effectiveness

Rating 

2.2.1. How effective has the project been in delivering the objectives in the project locations, specifically in relation to the following areas?

- Use of IEC materials
- Identification of DM patients for screening
- Referral pathway from PHC (including engagement with LHWs)
- Implications for the project of changing clinical practices (including shift from laser to AVEGF)
- System for follow-up of patients after treatment and for compliance to treatment plans (including the use of HMIS)

IEC materials

At the outset, the project recruited the services of a reputable communications company with experience in health education and communications. The company used the findings from a community assessment to develop the IEC materials. Although the IEC materials had information about complications of diabetes mellitus, there was not much on DR. This gap was noted in the project MTR after which the IEC materials incorporated more information on DR. This also helped during the counselling services.

As described above, one piece of feedback received from women in the project area was the need for a diet chart. The project responded to this need and recruited the services of a nutritionist to develop a contextually appropriate diet chart in the local language. This was appreciated by the women in their interactions with the LHWs and counsellors.

The IEC materials were made available at health facilities where DR education charts were mounted for easy viewing by patients. DR IEC leaflets were distributed at community awareness sessions, at counselling and screening clinics, in various departments in the partner hospitals and at primary health facilities. According to project reports, about 1,215,529 people were distributed IEC material by the project against a target of 1,100,000.

In Rawalpindi district, the project team hired a hawker who went from house to house to distribute the IEC leaflets. This was also found to be a useful project activity for dissemination of IEC material.

The project design focused on known diabetics. Therefore, PHC staff and LHWs were trained to counsel known diabetics and refer them to the partner hospitals for DR screening. Their role in the project also included referral of all people 40 years and above who had symptoms or family history of diabetes. While the IEC strategy was generally useful to support that, there is need to expand its scope to BCC in the future as prevention and control of DM, and therefore DR, is a behavioural issue. Two videos on health education about general diabetes and eye complications were prepared but these were not used so effectively. This is an area for development in future projects.

Identification of DM patients for screening

The DM patients were recruited for DR screening through four different sources:

- Referrals from within the hospital through inter-departmental collaboration (see Table 2) – the partners engaged with heads of department of various clinical departments especially medicine and endocrinology and set up a DR screening and counselling clinic in the medicine/endocrinology departments. This ensured screening of patients already diagnosed with DM
- Referrals by LHWs who were aware of already diagnosed patients with diabetes in their service area and by health education and promotion messages in the community
- Referrals by GPs/MOs and MTs of patients who had already been diagnosed with DM at the respective health facilities (private clinic for GPs and BHUs for MOs and MTs). The project interacted with the GPs/MOs and MTs, oriented them about the DR screening service and established a referral pathway (discussed in the next section)
- Walk-in patients who were already diagnosed with DM – there was a large category of walk-in patients who had not been referred by any health personnel but had learnt of the DR screening service by word of mouth. This was reported during the KIIs but there was no data in the project reports that helped quantify this.

The referral data from different categories is presented in Table 2 and Table 3 and discussed in the next section under referral pathway.

Referral pathway

By the end of six years, 26,611 people had been referred to the partners hospitals, of which 23,320 referrals were received at partner hospitals (84% referral uptake rate).

Project data (Table 2 and Table 3) indicates that:

- The highest number of successful referrals - those received at DR clinics - came from other hospital departments
- The second highest number of successful referrals was from LHWs

Initially, there were no referrals from GPs/MOs and MTs. Therefore, the project teams focused on strengthening linkages with these sources through bi-monthly calls and meetings. The GPs/MOs and MTs were invited to events organised by hospitals (such as World Sight and Diabetes Days) and were involved in community awareness sessions.

Initially, the referrals were mostly from LHWs but were in low numbers. Project teams organised a range of activities to engage with hospital departments and to train LHWs and other medical staff. LHWs were also provided with referral books from which a referral slip was given to the patients and a copy was retained in their book. The project teams reviewed the referral slips received from patients who turned up as referrals from LHWs and compared it with the counterfoil retained by the LHWs. This helped in determining how many patients were referred and how many actually turned up. This provided a useful process for monitoring referral and uptake. Hospital systems were enhanced to facilitate referrals, including introducing a dedicated day in the week for referred patients and a one-window operation at AIEH. Staff in other hospital departments were briefed on available DR services and the importance of referring DM patients for DR screening.

One of the novel approaches used by the LHWs was that of Positive Deviance[7]. The LHWs organise a Support Group Meeting (SGM) with the community members (usually women) and they discuss

various health topics. In discussion on diabetes, the LHWs used positive examples to mobilise other women. For instance, a woman who changed her dietary practices, or had her blood sugar checked, or went for DR screening, or took her husband for DR screening and he received treatment. This had a positive and empowering effect and helped induce behaviour change. The SGM is an example of **good practice** and should be incorporated in future project strategies.

Table 2: Status of referrals received by referral source in six years

Referral Source	Male	Female	Total
Hospital Departments	6,024	10,075	16,099
LHWs	1,300	3,440	4,740
GPs/MOs	1,508	773	2,281
MTs	136	64	200
Total	**8,968**	**14,352**	**23,320**

The data indicates a preponderance of female referrals (62%) (**Table 2**).

Table 3: Referral uptake by category of referral source in six years

Referral source	Number referred	Number received	Variance	% referral uptake
Hospital Departments	16,519	16,099	926	97
LHWs	5,894	4,740	1,154	80
GPs/MOs	4,786	2,281	2,505	48
MTs	412	200	212	49
Total	**27,611**	**23,320**	**4,797**	**84**

Table 4 illustrates the frequency trends at partner hospitals as derived from project reports. It also presents the proportionate numbers by partner. The percentages under each partner indicate their proportionate contribution towards the specified indicator. Of all patients screened (73,536), about one-fourth (23%) (16,622) were diagnosed as having DR. Of all those with DR, about two-fifths (38%) (6,242 out of 16,622) had STDR. About 37% of all patients with STDR received laser (2,333 out of 6,242) and AVEGF (37%) (2,311 out of 6,242). Only 4% of patients with STDR (276 out of 6,242) received vitreo-retinal surgery. About one-fifth (21%) (1,322 out of 6,242) of patients with STDR who were advised to have treatment were drop-outs (did not return). This suggests a high compliance rate (79%) for treatment at the partner hospitals.

Table 4: Frequency trends at partner hospitals in 5 years

	Total		AIEH		COAVS		HFH	
Patients screened	73,536		31,262	43%	32,825	45%	9,449	13%
Patients identified with DR	16,622	23%	5,494	18%	9,531	29%	1,597	17%

DR patients identified with STDR	6,242	38%	2,137	39%	3,331	35%	774	48%
STDR patients who had Laser	2,333	37%	601	28%	1,424	43%	308	40%
STDR patients who had AVEGF	2,311	37%	989	46%	1,023	31%	299	39%
STDR patients who had vitreo-retinal surgery	276	4%	111	5%	115	3%	50	6%
Patients who did not return for treatment	1,322	21%	436	20%	769	23%	117	15%

COAVS screened a large number of patients with diabetes. This surge in patient workload is attributed to a change in screening strategy whereby all departments of the hospital referred their patients who had diabetes to the DR screening and counselling clinic (Table 4) (this is discussed further under Impact).

AIEH also screened about 43% of all patients reported under screening in the project. During the extension phase of the project, AIEH convinced the hospital administration of Al-Tibri Hospital (a general hospital adjacent and close to AIEH) to introduce 'across the board' screening of blood sugar of all patients 40 years and above visiting Al-Tibri Hospital. This improved the diagnosis of general diabetics and contributed to the high referral rate to AIEH for DR screening (Table 4). AIEH has now reached an outpatient load of 70-80 patients per day in the diabetic section. The referrals by LHWs to AIEH has increased incrementally through the life of the project:

- Year 1 – 0.8%
- Year 2 – 8.7%
- Year 3 – 35% (greatly improved by refresher training of the LHWs in the project area)
- Year 4 – 46%
- Year 5 – 56%

"90% or more referrals from optometrists in the screening clinic to the medical retina clinic were appropriate. This is good use of an eye health professional for DR screening" - COAVS Consultant.

The situation at HFH went through some challenging phases which limited the performance of the DR project at the hospital level. Initially, there was no space allocated for the Counsellor Desk which was partly due to a disagreement between the Head of the Eye Department and the Medical Superintendent. After a period of resolution, clinic space for the Counsellor Desk was provided, and the counselling component began to function. After a few months, the Department of Medicine where the Counselling Desk was based decided to take back the clinic space because of a Dengue epidemic.

Furthermore, there was no diabetologist or endocrinologist in the Department of Medicine which made access to diabetic patients quite challenging for the DR screening team.

Sightsavers and the visiting SiB team held an awareness event at HFH which helped to ease the bureaucratic hurdles and the relationship with the hospital administration and medicine department further improved after a new Head of the Eye Department was posted to HFH. Eventually, an endocrinologist was posted to the diabetic clinic twice a week. The optometrist, counsellor and data entry operator join the endocrinologist on those two days and are able to run a DR screening service.

Changing of clinical practice

Previous standard practice for treatment of STDR was by application of laser (PRP, Pan retinal photocoagulation) but patients were sometimes reluctant to receive laser application and there was also an associated reduction in visual acuity. While still retaining the use of laser for treatment of STDR or advanced DR, global practice has introduced another treatment modality of AVEGF which is administered as an injection into the eye. According to the project partners (retina specialists), it is quicker and more acceptable to patients but there is a cost associated with it as multiple injections need to be administered at intervals (patients have to purchase the injection as it is not provided in the hospital pharmacies). AVEGF has been shown to result in less inflammation and scarring of the retina (which happens in the case of laser application) and improves visual acuity by reducing inherent retinal inflammation associated with the DR. It also helps improve the results and reduces scarring if laser needs to be applied later. The DR Task Force has produced standard guidelines for treatment of DR and use of AVEGF. These should be disseminated to ophthalmologists at secondary hospitals so that patients with DR who are more likely to benefit with AVEGF, are advised the same in place of laser treatment, which may still be the first choice in some cases.

The project had initially planned for laser interventions for treatment of STDR. However, within the first two years, it was noted that the laser targets were not being met and that there was emphasis on intravitreal injection of AVEGF. The total target for laser was 4133, against which the laser treatments were reported as 330 in year 1 and 694 in year 2. However, in the same corresponding period, AVEGF treatments were 98 and 491, respectively.

The project design needed to keep pace with changing clinical practices, and it responded positively by including AVEGF as a treatment intervention and used the combination of laser plus AVEGF treatments to calculate overall treatment against original laser targets (even though no financial cost was provided by the project for AVEGF). The total project outputs indicate that the number of patients treated with AVEGF (2311) was almost similar to those treated by laser (2333) (**Appendix 10**). The results indicate that the project achieved a 112% achievement rate (4644 against an original laser target of 4133). The use of AVEGF is also now included in the DR guidelines published by the National DR Task Force under the auspices of Ophthalmological Society of Pakistan. There is need for monitoring the rational use of these and preventing market forces to determine the choice of treatment.

The learning about the use of AVEGF in the project was shared during meetings of the National DR Task Force and the NCEH. The learnings included more acceptance of the procedure by patients, maintaining or even improving the visual acuity in patients with STDR, and the role of district ophthalmologists to administer the AVEGF injection. The learning has been included in ongoing parallel consultations among provincial stakeholders and adopted as an intervention strategy at district level eye care services with supportive supervision and mentoring by TTHs in the new provincial eye health plans currently being developed.

HMIS

The HMIS was a vital component of the project. Prior to the project, there was no precedence for a HMIS for DR in Pakistan. The project supported HMIS was designed as a tracking mechanism. Initially, the HMIS had start-up issues and was not used much for active tracking. It took about six to

eight months to embed the tracking system in the clinical processes in the eye departments of the respective partners, whereby a system of calls and text messages to patients was used. This improved the follow-up rate, especially for women as stated earlier. The counsellor played a critical role in ensuring the calls and sending text messages to patients.

Although the HMIS proved effective during the project once its software bugs were resolved in the first year, its adoption after the life of the project is limited to AIEH who has incorporated the key indicators into its own data management system. The public sector hospitals (COAVS and HFH) would not be able to continue with the vendor maintenance fee and therefore the HMIS would cease to function after the end of the project. The data entry operators are already currently maintaining manual sheets since the software subscription expired in September 2019.

DM was not included in the core curriculum of LHWs. This meant that diabetes was not included in their regular monthly data reporting system. Therefore, they had to report diabetes patients separately for the project. While this worked for the project, it is likely to cease beyond its lifetime unless there is a continuous link between the LHWs and the partner hospitals. This is discussed further under Sustainability.

2.2.2. How effective has the project been in assuring quality in the following areas?

- The quality of the training for LHWs and PHC workers
- Visual outcomes of project participants receiving treatment

LHWs and PHC workers training

The training of LHWs in counselling known diabetics for DR assessment was a vital component of the project. This was a legacy from the pilot projects with AIEH.

The training of LHWs was conducted by COAVS for Lahore and Rawalpindi, while AIEH conducted it in Karachi.

Only two LHSs could be interviewed for the evaluation, which places limitations on the inference drawn. However, they provided positive feedback about the training and said that it changed the perception amongst communities who previously thought they were only ‘family planning workers’.

The quality of training was maintained through the following:

- The project used standard training guidelines developed for the project – these were used in all three districts
- The IEC material that was used for training was standardised for all three districts. In addition, AIEH translated the material into the local language for ease of understanding, training and application
- The LHWs received refresher training around mid-way in the project and this reinforced their knowledge and skills
- The system of referral by LHWs and feedback through monthly meetings with the LHSs provided reassurance to the LHSs and LHWs and helped consolidate their understanding about the need for referral of DM patients for DR screening

"The LHWs liked the ability to provide prevention advice on diabetes to household members. Previously, they were only seen as family planning workers, but the training in diabetes and its complications enhanced their role and importance in their communities" - LHS

Programmatic interventions like messaging (from the tracking system), pictorial charts, engagement with LHSs were new additions to the DR project design compared to previous DR projects. The IEC charts provided a ready and standardised reference for LHWs. The training and programmatic support provided to LHSs by the project team and diabetic educators/counsellors strengthened capacities of LHSs for supportive supervision of the LHWs. Since the LHWs were only referring diagnosed patients with DM, there was little chance of error or false referral (non-diabetics).

The structure of the training component of LHWs in the DR project kept as close to the training structure and processes used by the LHW programme. This facilitated its application across the three project districts. The training was embedded in the health system and refresher training helped ensure consolidation of a skill set among LHSs and LHWs.

Sightsavers designed a Quality Standards Assessment Tool (QSAT) during the project period for monitoring quality of any DR project and piloted its use with AIEH. Although Sightsavers has now finalised the tool, it has not yet been scaled up for use by other partners in this DR project. QSAT uses five themes that include service delivery, health and other workforce, infrastructure and technology, medical products and equipment, and programme effectiveness. Each theme has benchmarks which are assessed jointly with the partner and a score is generated by the Excel based tool. The QSAT identifies actions to improve quality, includes an action plan and time frame, means of verification and comments.

There is anecdotal evidence about how quality was maintained. It would be useful for future projects to consider specific quality assurance indicators during project design so that these could be measured.

Visual outcomes

Visual outcomes were not uniformly available across all partners. However, data from AIEH, which had the most up to date data management system, is summarised in Table 5. It indicates a high improvement rate using AVEGF.

Table 5: Changes in visual acuity after DR treatment per treatment modality at AIEH

	Laser treatment	AVEGF treatment	Vitreo-retinal surgery
Number of patients	609	1196	230
Visual acuity stable (no change)	47%	27.5%	23%
Visual acuity improved	33%	66%	21%
Visual acuity decreased	12%	3.5%	42%

Although the HMIS was designed to record visual acuity data, this was not practiced consistently by partners. For the public sector partners (COAVS and HFH), there was a large general outpatient

workload and visual acuity data was not routinely recorded for every DR patient. Although AIEH has begun recording visual acuity data, this was also not readily available at the time of the evaluation. Table 5 presents useful data, but it would have been more meaningful if data on visual acuity could be related to actual visual acuities using the standard notations of normal vision, visual impairment, moderate visual impairment, severe visual impairment and blind.

2.3. Efficiency

Rating 

2.3.1. How efficient have the project's strategies been in dealing with challenges to financial planning and in ensuring the project resources are used in the most cost-efficient manner?

By the end of year 5, the project had spent $1,172,221 of its $1,250,000 budget (94%). One of the reasons for the 6% underspend was that the Pakistani Rupee depreciated by almost 30% between 2018 and 2019.

The total underspend of $77,779 was re-allocated towards project related service delivery activities after agreement by the Sightsavers' institutional funding team to submit a Letter of Variation to the donor, which was subsequently approved by them. The activities included payment of costs for vitreo-retinal surgery, AVEGF injections, screening equipment for the outreach teams, research activities, and a non-mydriatic fundus camera for placement at Al-Tibri Hospital adjacent to AIEH.

A separate project was approved for an additional $250,000 for January 2019 to June 2020 (this has been explained in the Introduction).

In the first quarter of 2020, the COVID-19 pandemic imposed serious restrictions on project activities. Donor flexibility permitted the use of underspends for publication of research reports (see section 2.6.1). Sightsavers also took an operational decision for procurement of surgical consumables and donation of PPE to different provincial CEC Cells.

The financial data provided to the evaluation did not allow for any analysis at disaggregated level like comparing costs of training, different clinical practices or between partners over time. These would be useful to track in the future to inform the cost-efficiency/effectiveness of the programme.

Annual external financial audits of the project were conducted regularly and found to be satisfactory. Since the review of these reports were not part of the evaluation, it is not known whether procurement practices were reviewed as part of these audits to ensure that the lowest cost possible was obtained for set quality.

The project successfully demonstrated that there were a range of service approaches that could be provided at tertiary facilities. This ranged from the one-stop approach implemented fully at Al Ibrahim Eye Hospital (AIEH), to elements that were partially adapted and implemented in the public sector hospitals.

The Evaluators considered five elements to be part of a one-stop approach service:

- biochemical testing
- diabetic clinical consultation in a diabetic/endocrinology/medicine clinic
- diabetic counselling
- DR care, and
- foot care

All five elements were provided at AIEH, while COAVS (Mayo Hospital) provided the first three except foot care as part of an integrated project response, and HFH was able to introduce at least diabetic clinical consultation in a diabetic/endocrinology/medicine clinic, diabetic counselling and DR care. Biochemical testing for blood sugar is available by default because it is necessary for all new patients coming to the diabetic clinics in both public sector hospitals. It is important to note that in the public sector hospitals, the services of diabetic clinical examination and biochemical testing in the medicine/endocrinology departments and DR care in the eye departments were already taking place but were disjointed i.e. there was no formal collaboration between the two departments. In Mayo Hospital, the diabetic clinic refers diabetic patients to a foot clinic in the hospital, but this was not part of the project.

The project successfully demonstrated that such integrated care could take place even in public sector hospitals and provide a one-stop service (to varying degrees) to patients with diabetes. WHO proposes an integrated chronic disease prevention and control approach[8] especially when developing national policies and strategies for prevention and control of Non Communicable Diseases (NCDs). The project demonstrates at a small scale how two to three different services can work in an integrated manner leading to an effective one-stop service.

The project reports indicate that most of the planned project implementation activities have been successfully completed according to the workplans, and a successor project is continuing to strengthen Pakistan's response to DR.

One of the challenges facing public sector hospitals like HFH is that about 40% to 50% of their patients come from different parts of the country, while the rest come from Rawalpindi district. The project targets did not incorporate this differential and only limited it to the project district. This is an area that needs to be addressed in future project design.

2.3.2. Were any specific efforts made to make the process more cost-efficient?

These have been partly discussed in 2.3.1.

The public sector hospitals e.g. COAVS introduced programme services that were free. These included:

- Screening activities in the communities – COAVS routinely conducts screening activities in various communities and has included DR screening in these activities
- Laser treatment – laser treatment was already being provided to DR patients before the project. This project activity was absorbed in the existing workload and continues to be provided as a regular clinical activity of the department and is provided free
- Vitreo-retinal surgery – free or minimal cost. COAVS caters for some costs of surgery, but consumables for vitreo-retinal surgery are not always available and have to be purchased by

the patients. This happened in the last quarter of 2019 when the provincial government reduced the COAVS budget for consumables and medicines. All VR surgeries of project beneficiaries were totally free of cost. The project provided part support for consumables for vitreo-retinal surgery. COAVS already has a regular mechanism to continue with vitreo-retinal surgeries with consumables provided by the hospital, but some additional consumables may need to be purchased by the patients

Since AVEGF is not provided by government health facilities, the patients were asked to purchase it.

Initially, the patients coming to HFH eye department had to purchase the consumables e.g. for vitreo-retinal surgery, from private vendors. The department then made it easier for the patients by stocking the consumables in the department which saved them the expense of going to look for the items outside of the hospital. In addition, HFH established a formal collaboration with Pakistan Bait-ul-Mal[9] (an autonomous government organisation that provides social protection assistance) which provides monthly support for procurement of AVEGF for poor/non-affording patients.

The partners took the following steps to make the project cost-efficient:

- As mentioned above, AIEH approached the administration of Al-Tibri Hospital which is located close by to AIEH, to screen all patients aged 40 years and above coming to their hospital for blood sugar. All those identified as diagnosed diabetics or newly diagnosed diabetics were automatically referred to AIEH for DR screening. This literally meant walking across the road from Al-Tibri to AIEH. This helped to improve the DR screening rate
- COAVS changed its tactical strategy and convinced the administration of Mayo Hospital to be allowed to establish the DR clinic adjacent to the diabetes clinic/endocrinology unit of Mayo Hospital in the main outpatient area. This immediately increased the DR screening rate
- All partners used optometrists for primary DR screening – this is a more cost effective option and is scalable within the country. This learning has been adopted by the new provincial integrated people centred eye care plans being developed for 2020 – 2025

The concept of a one-stop approach was tested by the project in which the patients with DM/DR could receive associated DM and DR care under one roof without having to make repeated visits. Before the DR project, AIEH and COAVS had functioning diabetic/endocrine clinics and eye clinics, while HFH had functioning medicine and eye clinics. However, there was no formal collaborative link between these two tertiary services (diabetic care and eye care), with the result that patients with diabetes were examined totally independently at the diabetic/endocrine/medicine clinics, while DR was diagnosed equally independently at the eye clinics through routine examination. The project brought both services together to view needs of patients with diabetes holistically, and to provide a 'one-stop approach'[10, 11, 12, 13] as far as possible. By establishing a DR screening clinic in the diabetic clinic, patients with diabetes now receive counselling services, have their eyes screened for STDR and are promptly referred to the medical retina service in the same hospital for further treatment.

This intervention of a one-stop approach was cost-efficient and an example of **good practice** because it:

- enhanced synergy between existing diabetic and medical retina clinics

- Improved DR detection in patients with diabetes attending diabetic clinics through establishment of DR screening centres and deployment of optometrists
- Established a point of referral and counselling to patients referred from the different referral categories to the tertiary hospitals

The evaluation identified a few areas where future programme could be more cost-efficient. At the tertiary hospital level, a more optimal utilisation can be made of other eye care staff for DR care e.g. optometry and ophthalmology residents (4th year residents) and fellows undergoing subspecialty training in vitreo-retina.

There is a need to reinforce the curriculum of the optometry and ophthalmology training programmes by incorporating specific modules on DR. Optometrists receive on-the-job training in DR screening at present, but this orientation/training is not structured nor is it standardised with defined clinical competencies to be acquired. Trained optometrists need to be oriented through a hands-on DR screening and grading attachment at retina clinics to achieve specified competencies. In addition, optometrists must complete an online certification of DR grading before being deployed as DR screeners. Examples of free online self-directed DR courses include the following:

- University of Melbourne Online Self-Directed Diabetic Retinopathy Grading Course[14]
- IDF Online Short Course Diabetic Retinopathy – IDF School of Diabetes[15]

"Many tertiary teaching hospitals in the country are running fellowship training programmes in vitreo-retina. These fellows under training should be involved in DR screening work" - COAVS Consultant

One area which can improve cost efficiency in the future is to establish DR screening closer to the community e.g. at a RHC. This would require deployment of an optometrist with screening equipment. It is easier for LHWs to refer patients to the RHC first (as it is much closer) for an initial screening and then only refer those patients to district or tertiary hospitals, who require further assessment and treatment. In the present project, all diabetic patients were being referred from the primary level to the tertiary hospital. It was a useful approach in testing the referral process, but not one that will be cost-efficient in the long run, for the programme or for the patients.

Sightsavers conducted a research study related to the project which aimed to explore the experiences of the delivery and integration of DM/DR services at the three tertiary level facilities participating in the project. This was a qualitative study carried out during the first quarter of 2019 with 144 participants, including patients, health care staff, project managers and LHWs. Data were collected through 37 individual in-depth interviews and 14 focus group discussions. This research study[16] also concluded that there was a need for models of care that are responsive to the needs of diabetes patients, i.e. delivered through smaller and less overburdened facilities, closer to patients' home and have more convenient opening times.

2.4. Impact

Rating 

2.4.1. What impact has the project had on the linkages between the PHC system and hospitals, as well as the hospitals' own internal referral pathways for DR screening and management?

The project implemented the following strategies to strengthen its link with the PHC services and increase compliance and referral uptake.

First, the Project Teams increased their interaction with the PHC facilities through phone calls and visits to the health facilities. This helped to improve referrals from the PHC centres.

Second, at monthly meetings with LHSs and staff at BHUs, the Project Teams shared copies of the referral slips and explained the outcome of the referrals. This also helped to boost confidence and enhance referrals. However, since the continuing link with the LHWs for DM referrals and DR screening is likely to diminish after the project, the use of the referral slips may continue for some time depending on the motivation of the LHWs but is likely to cease. AIEH may continue to maintain the link by virtue of its ongoing DR activities, but HFH and even COAVS are unlikely to sustain this process.

The counsellors made regular phone calls to LHSs thanking them for the referrals and explaining the treatment process and advising the patients. According to the LHSs and counsellors interviewed, the patients were satisfied with the referrals by the LHWs and LHSs and they shared their appreciation with them.

AIEH took this a step further and sent thank you letters to all GPs who referred diabetic patients. They referred the patients back to the referring physicians together with the thank you letter and summarised the findings of the DR assessment. This helped to increase the confidence among the GPs that they would not lose their 'private patients' once they referred them to AIEH. This is an example of **good practice** and is recommended for adoption in future projects.

One of the key objectives of the project was to strengthen inter-departmental linkages for DR screening and treatment at the partner hospitals. This was achieved to a varying degree in each of the hospitals.

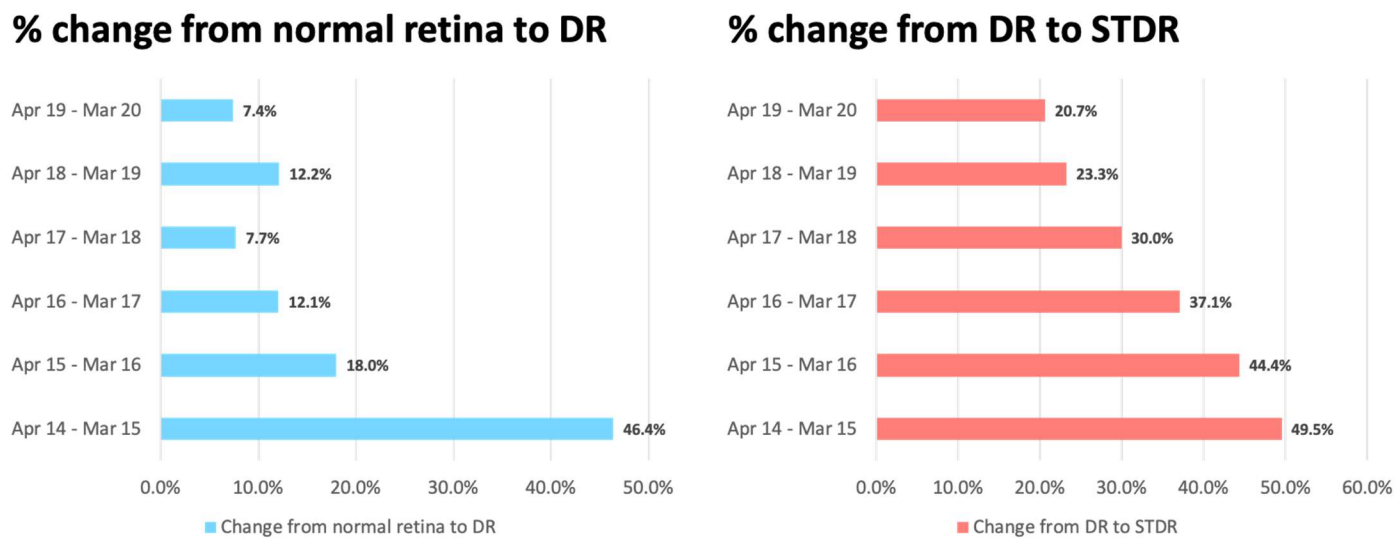
AIEH, inspired by the project, established a completely separate section for diabetic patients coming to the hospital. The section had its separate reception, waiting area, clinics and even diagnostic area. This means that patients who have diabetes go straight to a separate service area that is designed to provide a one-stop service complete with ophthalmic examination, DR care, biochemical testing, foot care and counselling by a diabetic educator. This one-stop approach has had a significant impact on the relationship with the LHSs and LHWs, GPs and MOs in the project area. The LHSs and LHWs receive appreciation from the community members who have received counselling and specialist care for DM and DR – this also raises their standing in the community beyond just family planning. The GPs consider it as a valued addition to the clinical services they offer in their private clinics and also do not lose their patients (as they are referred back by AIEH with a thank you note). This has increased uptake of referrals to the hospital and compliance with treatment.

The one-stop approach at AIEH and its highly effective engagement with the LHSs and LHWs and GPs has seen a steady decline in new/incident cases of DR and STDR.

The situation in AIEH indicated that the uptake of screening services remained stable for the first four years. However, by the fifth year, they noted that the same patients were coming for screening/re-screening. Since they had been working in the project area since 2006, it is possible that a saturation or threshold point had been reached and fewer new/incident cases were being seen.

Figure 1 illustrates that there is a declining incidence trend at AIEH in both the percentage of all diabetics screened who initially had normal retinae and on follow-up were found to have developed DR; and those who were diagnosed initially with DR and on follow-up were found to have developed STDR. However, these data only refer to patients who returned for follow-up. One cannot comment on those who were lost to follow-up.

Figure 1: Comparative incidence trends at AIEH – normal retina to DR and DR to STDR



Further research is required to determine whether this decline is the result of behavioural change, intensive diabetes management for diabetic patients by a full-time diabetologist and counselling support by a diabetic educator/counsellor, or whether AIEH has now reached the threshold or saturation rate for identification of new diabetics in its project area where it has been providing diabetic health education, health promotion and disease prevention, and DR care for the last 20 years. This would also provide an assessment of the 'coverage' of DR screening among the community. The details of the six-year decline at AIEH (**Figure 1**) are shown in **Appendix 11**.

COAVS established a DR screening and counselling room in the diabetic/endocrinology clinic of Mayo Hospital. While this worked well and there was good inter-departmental collaboration between the eye and diabetic/endocrinology departments, the main issue faced by patients was the distance they had to walk between the two clinics which was considerable (about 1.5 km). This resulted in drop-outs. The drop-out rate was not determined but was learnt by the counsellors when they enquired why some patients, coming for review, had to not gone to the eye department. In the third year of the project, COAVS changed its tactical strategy and addressed this issue by moving the screening clinic to the main outpatient clinic area of Mayo Hospital which was closer to the eye department. The Medical Superintendent of Mayo Hospital sent a directive to all department heads to refer their diabetic patients to this screening clinic. The DR screening and counselling clinic now

receives diabetic patients coming from any department in the hospital which has significantly increased its screening output (Tables 2 and 3).

The DR project had a significant impact on the services and training programme at HFH. The eye department at HFH had no concept of medical retina services prior to the project. The department had no laser, no indirect ophthalmoscope, no retinal imaging system, and no AVEGF treatment. The ophthalmology residents did not learn about laser or AVEGF or DR care. The project strengthened the service delivery component and DR care because it was now able to receive and treat DM/DR referrals both from within the hospital and those referred from elsewhere – they were not able to do this previously. The project also improved the quality of their postgraduate training programme because residents could learn about DR screening, and clinical and surgical management of DR. Two ophthalmologists from HFH were supported by the project for vitreo-retina surgical training – one went to Al-Shifa Eye Hospital for 1.5 years, while the other went to AIEH for 1 year and thereafter for a three-months fellowship (by International Council of Ophthalmology) to Germany. HFH still lacks a retinal imaging system, an OCT machine and a PASCAL laser – this is important technology but was beyond the scope of the current project. It can be incorporated in future project design.

The project has been able to successfully embed a DR screening service in each of the partner hospitals with modifications in the original strategy and adapted to the local circumstances.

2.5. Sustainability

Rating 

2.5.1. Has a sustainability plan been implemented and is there evidence that the plan will ensure that activities will continue after the end of the Sightsavers funded project?

Sightsavers interacted with each partner to develop their specific sustainability plans. The phased implementation of these plans is reported in the project reports. Sustainability was integrated into project funding agreements and the memoranda of understanding signed with the partners. All hospitals covered electricity and other utility costs and provided funds for the repair and maintenance of equipment. The two public hospitals undertook to continue to fund laser treatments and vitreo-retinal surgeries after project completion.

Considering three dimensions of sustainability, the project has achieved the following:

1. Stewardship (interventions fully embedded in health system) – All partners have internalised DR screening as an ongoing and regular clinical activity of the partner. This will continue even after the project. The HMIS has been internalised by AIEH, but procedural challenges remain with the two public sector partners (COAVS and HFH), as they are dependent on the hospital's own information system which is not able to integrate the HMIS developed by the project. The referral linkage with GPs/MOs and LHWs is likely to continue with AIEH, but will diminish with HFH (unless they can mobilise resources from the provincial government to support the project team) and COAVS to some degree (because they now have to rely on a manual system of data management)

2. Technical capacity (can the interventions and quality continue without project technical support) – there is sufficient technical capacity in all partners for the DR screening and clinical and surgical management of DR to continue beyond the life of the project
3. Financial capacity – all partners have adapted to the financial implications of DR care according to their respective contexts (these are discussed below)

The degree of sustainability varies with the partner situations. The process of sustainability has been managed in stages at each partner hospital because of their unique circumstances.

AIEH has internalised most of the project activities and began taking ownership after the MTR. The project staff will be taken on the staff strength of the hospital and deployed for DR screening activities. The HMIS tracking system indicators have been incorporated in AIEH's own data management system. AIEH has also developed a collaborative arrangement with the PPHI who manages most of the BHUs in Sindh province.

At Mayo Hospital, COAVS has created new posts of optometrist and counsellor and these project staff will be retained after the project. The post of data manager is still under consideration and is not yet approved. Furthermore, COAVS has incorporated equipment maintenance cost in its annual grants from the provincial government.

At HFH, the clinical services and inter-departmental linkages will continue. The head of the eye department has submitted a project proposal to the provincial government for funding of the DR care services. This project proposal includes posts of the project staff. The project proposal has not yet been approved.

"We were project stakeholders, not just project beneficiaries. This is our project, our patients and our activities" – Head of Department, HFH

Overall, in the public sector partner hospitals, clinical DR care services and inter-departmental collaboration are likely to remain sustainable. However, the community linkages will likely diminish, more for HFH than COAVS (because COAVS has a well-established working relationship with the LHW programme). The continuation of the project-based HMIS is likely to be a sustainability issue for both partners as neither will be able to meet the annual maintenance fee of the software vendor (about PKR 300,000 per year), nor do they have a separate data management system that can incorporate this. The departmental data management in the two public sector hospitals is dependent on the hospital information system. Although there are plans by the Health Department of Government of Punjab to develop an Electronic Medical Records system for patient care in all TTHs, it is unclear when this will be initiated.
At the level of LHSs and LHWs, the continuation of the project activities related to their work will depend on their own motivation, follow-up linkage by the tertiary hospital, and change in their curriculum and monthly reporting template.

2.5.2. What strategies were used to engage with other relevant stakeholders and were these strategies effective in ensuring that some of the project's impact will be sustained?

This question has been partly addressed under 2.5.1.

However, two other strategies that were initiated in the project life and are likely to prove highly beneficial to enhance the sustainability of the project include the following:

- COAVS developed a synergistic collaborative arrangement with the PPIU dealing with the LHW programme. The PPIU found the training of LHSs and LHWs beneficial and there is potential to enhance the scope of this collaboration to advocating for inclusion of household members with diabetes in the LHW diary and for extending the training and orientation to LHSs and LHWs in other districts. Furthermore, Sightsavers has also gained a lot of goodwill from the interaction with PPIU and can further build on this relationship in the future
- AIEH's engagement with PPHI is likely to have long term dividends. The Government of Sindh has outsourced management of most of the BHUs in the province to PPHI. PPHI has already incorporated a few eye health indicators (joint effort by AIEH and the CEC Cell at Civil Hospital in Karachi). PPHI is expanding the scope of the primary health services for non-communicable diseases including diabetes. This provides a unique opportunity for screening and referral of patients diagnosed with diabetes to collaborating tertiary hospitals for DR screening and treatment

This strategic level of engagement with PPIU in Punjab and PPHI in Sindh needs to be sustained in the future to build on the gains made in this project.

2.5.3. What arrangements have been made to ensure continuity of data collection and availability beyond the project?

This question has been addressed under 2.5.1 and 2.5.2

Some of specific steps taken by the project include the following:

- Absorption of the AIEH project team on to its payroll and internalising the project community and facility-based activities in the hospital activities and the HMIS in the hospital health information system
- COAVS has managed to obtain financing for the posts of diabetic educator and optometrist, but not yet for the data entry operator – they will continue with a more simplified manual data management system
- HFH will continue to maintain its data by manual data entry but this is also dependent on being able to retain the data entry operator (pending approval of the HFH project proposal submitted to the provincial government)

During the design and execution phases the project could have considered more thoroughly the likelihood/feasibility of the HMIS system being integrated and sustained in the public hospitals post project. Engagement with the Punjab Information Technology Board[17], which is the government

agency that develops software applications for various government departments in the province, would have helped create a system that was cheaper and more likely to be sustained as it would have been developed with government collaboration.

2.6. Scalability/Replication

Rating 

2.6.1. What are the key learnings that can be taken from this project to inform strategies for replication, in different contexts?

The project identified the following good practices which are learnings for future DR projects:

- The counsellors provided a counselling service for women where they could discuss their health issues with female diabetic educators and appreciated the explanation, guidance and diet charts provided by them. The diabetic educators/counsellors also maintained a vital link by telephonic contact with LHSs and even LHWs regarding referrals and follow-up
- The social organisers in the project (they were part of the project team) were instrumental in mobilising, operationalising and maintaining community links (local administration, district coordinators of the LHW programme, health personnel in-charge of BHUs) for the implementation of the project
- One of the novel approaches used by the LHWs was that of Positive Deviance. The LHWs organise a SGM with the community members (usually women) and they discuss various health topics. In discussion on diabetes, the LHWs used positive examples to mobilise other women. For instance, the example could be a woman who changed her dietary practices, or had her blood sugar checked, or went for DR screening, or took her husband for DR screening and he received treatment. This had a positive and empowering effect and helped induce behaviour change
- AIEH developed a two-way feedback system and sent thank you letters to all GPs who referred diabetic patients. They referred the patients back to the referring physicians together with the thank you letter and summarised the findings of the DR assessment. This helped to increase the confidence among the GPs that they would not lose their 'private patients' once they referred them to AIEH
- The one-stop approach enhanced synergy between existing diabetic and medical retina clinics; improved DR detection in patients with diabetes attending diabetic clinics through establishment of DR screening centres and deployment of optometrists; and established a point of referral and counselling to patients referred from the different referral categories to the tertiary hospitals. The one-stop approach adopted by AIEH is an efficient programmatic option for DR care services because it provides all essential diabetes related services under one roof, saves patients from frequent visits for different services, and improves compliance for treatment. AIEH data (**Appendix 11**) indicates that by the sixth year, there was about 60% follow-up rate. This approach can be adopted in other large national eye care NGOs. However, there is need to document this approach as a case study and present it at the NCEH and National DR Task Force meetings. The one-stop approach can also be partially adopted in public sector hospitals as evidenced in Mayo Hospital and HFH.

"While the project approach in general is replicable to varying degrees in NGO or public sector hospitals, having a base of medical and surgical retina services at the tertiary hospital is an essential requirement" – COAVS Consultant

COAVS has already initiated plans to replicate the DR care and screening service at two public sector TTHs in Gujranwala and Sahiwal districts in Punjab. The project proposal has been approved by the Health Department.

"Different systems require slightly different approaches – one size does not fit all" – Sightsavers Technical Advisor

There are four main documentation resources that are directly or indirectly related to the project and have strategic implications for future replication and scalability:

- **A Global Compendium on Good Practice: Integrated care for diabetes and eye health**[18] – this document was a multi-agency effort. The DR project is included as a case study in this document, which serves as a useful resource for future planning
- **Prevention and Control of Diabetic Retinopathy in Pakistan: A Learning Review 2018** – this document was published under the auspices of the NCEH and provides a comprehensive review of diabetes and DR and includes key learnings and recommendations for future programmes (this report is available separately with Sightsavers)
- **Research studies inspired by the DR project** – there were several DR studies that were inspired by the project and published by implementing partners. They provide useful evidence for future strategy development[19, 20, 21, 22, 23]. Of special interest are research studies undertaken by HFH[24]. The Head of Department at HFH eye department is working with a special interest group to develop algorithms for detection and screening of patients in Gastroenterology, Ophthalmology, Radiology and Pathology. This initiative by HFH in Artificial AI has good potential for the future
- **Research studies commissioned by Sightsavers in the DR project** – the following studies were undertaken, and their reports are available separately with Sightsavers:
    - Diabetic Retinopathy / Diabetes Mellitus Service Delivery and Integration into the Health System in Pakistan. Study report[25]
    - Baseline Survey to assess the Knowledge, Attitude and Practices regarding diabetes and DR among the residents of Satellite Town Area of Rawalpindi, Pakistan
    - A Small Scale Survey to Explore the Reasons of Low Treatment Compliance by DR Patients
    - A Focus Group Discussion with Lady Health Workers Trained in Basics of Diabetes Mellitus and its Effects on Eyes

HFH has recently initiated discussions with an NGO called Meethi Zindagi[26] (this literally means 'sweet life') that deals with children with diabetes. The discussions are still at an inception stage, but the collaboration has good potential for expanding the outreach of DR screening activities.

2.7. Coherence/Coordination

Rating 

2.7.1. How effective have the project's efforts been in coordinating with other key actors including:

- National LHW programme
- PHC system (BHUs and RHCs)
- Hospital senior management
- Hospital inter-departmental linkages
- Regional level structures/committees
- National level structures/committees
- Other NCD initiatives in the region
- Private medical practitioners

The coordination efforts and their effectiveness have already been discussed in earlier sections for the following: LHW programme, PHC system (BHUs), Hospital senior management, Hospital inter-departmental linkages, National level structures/committees and Private medical practitioners. There was no specific information found that was related to regional structures or committees.

There are two specific new and emerging areas which have implications for DR projects in the future:

Prevention and Control of NCDs Programme in Punjab – in 2016, the Health Department in Punjab launched a province-wide NCD prevention and control programme[27]. The aim of this programme was to address the four main NCD conditions (cardiovascular disease, chronic respiratory disease, diabetes and cancer). With regards to diabetes, the NCD programme planned to establish NCD screening desks at each health facility, especially the secondary hospitals. The linkage and engagement with the NCD programme unit was initiated by the DR project towards the latter end of the project in 2019. Although there is a lot of goodwill that has been developed between COAVS and Sightsavers with the NCD unit, immediate integration could not take place as both the NCD programme and the DR project were in the last phases of their respective initiatives. Concrete interventions for collaboration will need to be discussed in the future to determine what can be incorporated within the NCD programme and where joint collaboration for piloting new interventions may be possible. The future plans of the NCD programme lend themselves to synergy with DR control initiatives in the following areas:

- Capacity building of doctors and paramedics of primary healthcare facilities (BHUs and RHCs) on screening and management of NCDs
- Training of LHWs on counselling and health awareness about NCDs and risk factors
- Screening of people for NCDs and risk factors through screening camps and screening desks
- Diagnosis, management and follow-up of diabetics, hypertensives and chronic respiratory diseases patients through NCDs Clinics
- Development of referral linkages with tertiary care hospitals for effective management of complicated cases
- Conduction of operational and behavioural research on NCDs

Furthermore, future DR programme initiatives can attain better alignment and synergy with the service delivery package for NCDs at the different levels of health care[28].

Provincial Integrated People Centred Eye Care Plans – these plans are currently under development. The learning from this project has already been incorporated into the planning process. These include orientation of LHWs on a holistic Family Eye Health package that is based on a life continuum and will incorporate health education and prevention aspects relating to diabetes and DR. Furthermore, the use of AVEGF will now be part of the capacity building of district ophthalmologists by divisional level TTHs acting as hubs. A key indicator of DR, laser and AVEGF treatments will be included in the new eye health reporting process planned for integration in the District Health Information System (DHIS). The new national and provincial approach to Integrated People Centred Eye Care (IPCEC) Plans 2020 – 2025 has revised and updated the operational strategy from that used in previous national eye health plans. The new operational strategy will use a hub and spoke approach extending the coverage through expanding circles of outreach whereby the smallest administrative unit (Union Council) will be the ultimate 'Zone of Intervention'. This will be achieved by cascading the process through the five administrative levels:

- **National** – a harmonised national IPCEC plan – merged from the provincial IPCEC plans
- **Provincial –** a provincial IPCEC plan
- **Divisional** – selected TTHs will be identified to act as divisional hubs to provide supportive supervision to secondary eye care services. Each division has three to four districts under it and constitutes a circle of outreach. Each divisional hub will develop an annual Divisional Action Plan (DAP) for IPCEC based on the provincial IPCEC plan. Social organisers will be deployed to each divisional hub and will support planning and coordination in the districts and the Union Councils
- **District** – each district (district and sub-district eye units jointly) will develop an Annual Action Plan (AAP) of key activities and targets. The compendium of district AAPs will constitute the respective divisional DAPs
- **Union Council** – the Union Council is the smallest administrative unit serving a population of 5,000 – 10,000. It usually has a BHU. LHWs are attached to BHUs and are supervised by LHSs also attached to BHUs. The LHWs have a specified number of households under their care (usually 150 – 200). The social organiser from the divisional hub will mobilise and orient the Union Council Committee on IPCEC needs and work with the BHU in-charge, LHSs and LHWs to develop an annual Union Council Action Plan (UCAP). By linking the UCAP with number of households and resident population, it will be possible to realistically determine the penetration, access and coverage of eye care services. The RHC usually serves a cluster of Union Councils

District ophthalmologists will be trained at divisional hubs to administer AVEGF according to specified indications and safety procedures. Divisional hubs will be capacitated with advanced diagnostic and laser facilities to cater for patients with STDR referred from district eye units after initial intervention with AVEGF to reduce morbidity.

Future DR strategies will need to align with this tiered operational structure. Further details are presented in **Appendix 12**.

Conclusions and Recommendations

3.1. Summary and conclusions

The project demonstrated a high degree of relevance and was appropriately adapted to the unique local circumstances of each of the three partners (one NGO and two public sector). The project filled a programmatic gap by catalysing the formulation of a national DR control strategy and strengthening creation of a National DR Task Force under the NCEH. The project improved access to DR care services for women who accounted for 62% of all patients received as referrals for DR screening at the three partner hospitals. The counsellors/diabetic educators deployed in the project played a critical role in advising patients, especially women who took the advice seriously and made an effort to follow the advice and attend follow-up. In addition, the project officers (who also functioned as social organisers), were instrumental in mobilising, operationalising and maintaining community links with the local administration, district coordinators of the LHW programme, and health personnel in-charge of BHUs for the smooth implementation of the project. The roles of the diabetic educators/counsellors and 'social organisers' are examples of good practice and recommended for adoption in future DR projects.

The project achieved its intended targets and in fact exceeded some of them (**Appendix 10**). The project successfully piloted a referral pathway from the PHC level to the tertiary hospitals for DR screening of known patients with diabetes and established a linkage between the tertiary hospitals and PHC services. The project used IEC materials for health education and promotion. The IEC material like posters and leaflets was used for creating awareness by LHWs, during counselling sessions conducted by diabetic educators/counsellors at the tertiary hospitals and for improving inter-departmental awareness about and referral to the DR screening service. The IEC component also introduced diet charts that were very popular with the women patients which they used in their day to day cooking activities at home. The LHWs utilised a Positive Deviance approach using women motivators to create awareness amongst women in their communities. This was an example of good practice and recommended for adoption in future DR projects. The project has provided useful learning that suggests the need for a more comprehensive BCC strategy for DR projects in the future.

The project achieved a satisfactory rate of programme spend with minimal underspends due to foreign exchange fluctuations especially in the last two years. The underspends were utilised for service delivery activities, purchase of necessary surgical consumables, research activities and procurement of equipment for DR screening. In addition, some of the underspend was used to respond to the COVID-19 situation by donating of PPE to provincial CECs. The project successfully demonstrated that the one-stop approach was the preferred strategy for DR care. While this was implemented fully at AIEH, it was adapted and implemented partially in the public sector hospitals. Project efficiency could have been improved by utilising existing human resources like ophthalmology residents and subspecialty fellows in training (for vitreo-retina) for DR care. Future projects would benefit from having this discussion with the heads of department to enhance optimal utilisation of available human resources for DR activities. Although the project successfully established a referral pathway between the primary and tertiary levels of health care, this is not tenable in the long run as the services at the tertiary hospitals will not be able to cope with the workload. Furthermore, most of

the patients with diabetes (80%) referred from the primary level did not have DR and therefore did not need to go to a tertiary hospital if a screening service was available closer to their homes. The project identified the need for an intermediate level DR screening service delivery point between the tertiary and PHC levels located at a RHC with deployment of an optometrist to conduct DR screening.

The project has been able to successfully embed a DR screening service in each of the three partner hospitals with modifications in the original strategy and adapted to local circumstances. The project teams established and maintained liaison with the local district administration, LHW programme and primary health facilities; diabetic educators/counsellors strengthened the link with LHSs to enhance referrals; while one of the partners (AIEH) introduced a two-way feedback with thank you letters to GPs who had referred patients. This improved the referral rate from the GPs and is an example of good practice for adoption in future DR projects. The project further established and enhanced inter-departmental linkages for referral of patients with diabetes for DR screening. The project also successfully demonstrated the implementation of a one-stop approach and how it could be adapted to both NGO and public sector settings. There are still a few technology gaps for DR care that need to be addressed at one of the tertiary hospitals (HFH).

Each partner developed a sustainability plan that was implemented in phases and which varies with the partner situations. The process of sustainability has been managed in stages because of their unique circumstances. The NGO partner (AIEH) has internalised most of the project activities and began taking ownership after the MTR. One partner (COAVS) has created new posts of optometrist and counsellor and these project staff will be retained after the project. HFH has submitted a project proposal to the provincial government for funding of the DR care services – however, the proposal is not yet approved and is likely to have immediate implications for the project team if approval is not forthcoming in the next few months. Clinical services for DR care and inter-departmental linkages will continue in all three hospitals. AIEH has internalised the HMIS in its own system and this will continue. However, the public sector hospitals are dependent on the hospital's health information system which has not yet integrated the DR HMIS and continue to use a simplified manual data entry system. The project could have considered more thoroughly during the design and execution phases, the likelihood/feasibility of the HMIS system being integrated and sustained in the public hospitals post project. COAVS has developed a synergistic collaborative arrangement with the PPIU dealing with the LHW programme in Punjab, while AIEH's engagement with PPHI in Sindh is likely to have long term dividends because the Government of Sindh has outsourced management of most of the BHUs in the province to PPHI.

The one-stop approach adopted by AIEH is an efficient programmatic option for DR care services because it provides all essential diabetes related services under one roof. The approach can also be partially adopted in public sector hospitals as evidenced in the two public sector partner hospitals. The primary need for a patient with diabetes is holistic diabetic care including that of its complications or screening for potential complications. Where possible, integration into wider health services with diabetes/endocrinology units talking the lead would be preferred.

COAVS has already initiated plans to replicate the DR care and screening service at two public sector TTHs in two districts in Punjab and the proposal has been approved by the Health Department. The project identified several good practices which are learnings for future DR projects. These include the:

- role of diabetic educators/counsellors and social organisers as part of the DR screening team;
- use of Positive Deviance by LHWs as a BCC strategy to influence community health awareness, behaviour change for health lifestyles and health seeking behaviour;
- use of a two-way feedback mechanism to referral categories like GPs and LHSs; and
- developing a one-stop approach at tertiary hospitals for improved referral, counselling, general diabetes and DR care, and prevention and treatment of diabetes related complications like diabetic foot.

Overall, the project maintained and managed a good level of coordination with provincial stakeholders like PPIU in Punjab and HANDS in Sindh. Furthermore, the project established effective coordination mechanisms with the LHW programme at the operational level in both provinces. The Prevention and Control of Non-Communicable Diseases (NCDs) Programme in Punjab and the Provincial Integrated People Centred Eye Care Plans with its divisional hub and zonal intervention strategy (currently in development) are two new and emerging opportunities that lend themselves to synergy with DR control initiatives and provide a platform for joint collaboration for piloting new integrated interventions in the former and scaling up DR screening and management services in the latter.

3.2. Lessons learnt

The conclusion of the DR project is providing several key learnings to inform future programme strategy.

The project demonstrated the feasibility to establish effective DR screening and DR care services at TTHs both in the public and NGO sectors. Furthermore, the project also tested a feasible referral pathway for patients with diabetes from the PHC level to tertiary hospitals for DR screening. Even stand-alone achievements e.g. at an NGO hospital have been impressive. One of the service delivery links that would have been desirable to develop was that with low vision services especially since diabetic patients (treated for DR) would relate quality of life with visual outcome. This is a service delivery aspect that needs to be developed as an integral part of future projects.

The project has generated demand for services and has shown an incremental increase in outpatient statistics through referrals and word of mouth. However, even though the feasibility for a referral pathway was established, this referral pathway direct from the primary level to the tertiary level is not tenable in the long run as the services at the tertiary hospitals will not be able to cope with the workload. Furthermore, most of the patients with diabetes (80%) referred from the primary level did not have DR and therefore did not need to go to a tertiary hospital if a screening service was available closer to their homes. There is a need to position an intermediate screening service delivery point closer to the community e.g. at an RHC with deployment of an optometrist. This would provide value addition not only for screening for DR and only referring those patients who had DR that required further assessment at tertiary level, but also refractive error services and screening for cataract and glaucoma.

The use of a two-way feedback to the referral categories (GPs/MOs and LHSs/LHWs) was highly effective in establishing confidence in the referral pathway. However, this process was managed by the project teams especially the counsellors and social organisers who acted as catalysts for the

project. Future strategies will need to ensure continuity of this management arrangement so that linkages established do not diminish because of lack of a feedback mechanism.

The counsellors noted that there was an increasing trend of women coming with gestational diabetes seeking advice about general diabetes and eye complications. This is an area that can be developed further in future programme strategies as it was not included in the current project design.

The epidemiological transition of diabetes, in which partners reported that diabetes is now being seen in much younger patients and even children, means that future programme strategies will need to take this into consideration and not limit the age range to 40 years and above.

The use of IEC was helpful, but project findings suggest the need for a different strategy. For instance, group work and one-to-one sessions by counsellors were very useful for exercise, footcare, and general hygiene care of the patients. Foot care is still at an early stage and should be part of DM management of every patient. The patients were mainly fixated on their 'blood sugar' and were not aware about the potential complications like DR. These are all examples where behaviours need to be changed and community perceptions need to be addressed. Future DR prevention and control programmes would need to develop and incorporate comprehensive BCC strategies in the project design.

As provincial health sector strategies incorporate specific programmes for NCDs, as in the case of Punjab, DR programmes will need to adapt their design for scalability, alignment and synergy with the NCD programmes. Furthermore, the DR projects can build on the package of services developed by NCD programmes and in fact contribute to them when these are being developed or revised. This will require ongoing engagement with the NCD units and to establish formal collaborative tripartite partnerships that include the national eye care partners, NCD units and international eye care partners.

There was very limited interaction of the project with DPOs. Recent health data indicates the high risk that people with disabilities have especially for NCDs. People with disabilities face higher healthcare needs, more barriers to accessing services, and less health coverage, resulting in worse health outcomes. A global report entitled 'The Missing Billion – Access to health services for 1 billion people with disabilities'[29] that was recently launched in 2019 found that persons with disabilities are three times more likely to have diabetes.

Future programme strategies need to incorporate engagement of DPOs to ensure that people with disabilities are assessed for diabetes and screened for DR.

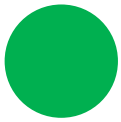
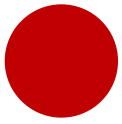
3.3. Recommendations

Recommendation	Audience
Relevance	
Formulate a holistic DR programme strategy that is mindful of epidemiological transitions resulting in diabetes in younger age groups and needs of other diabetic groups like those with gestational diabetes	Sightsavers' PCO team and design teams and partners for future projects
Include a community awareness and social mobilisation strategy for diabetes and DR that is directed towards households as part of family eye health with a life continuum – this will also allow realistic assessment of coverage and reach of the health education and health promotion component for diabetes and DR.	Sightsavers' PCO team and design teams and partners for future projects
Engage proactively with DPOs to create awareness about diabetes among their constituents and to enhance assessment of diabetes and screening for DR. This initiative should reinforce the data management processes for disaggregated data reporting for disability.	Sightsavers' partners
Develop a gender mainstreaming strategy for DR prevention and control (aligned with an overarching organisational gender strategy) for inclusion at the outset in baseline assessments, project design, implementation, monitoring and evaluation and coverage of DR screening services.	Sightsavers' PCO team and design teams and partners for future projects
Effectiveness	
Integrate a BCC strategy in DR project design that is directed towards changes in behaviour and practices that exacerbate the effects of diabetes on the individuals and increase the risk of complications. This can include positive deviance, use of audio-visual tools, and pictorial IEC materials.	Sightsavers' PCO team and design teams and partners for future projects
Incorporate a skills development programme for district (secondary level of health care) ophthalmologists in the indications and safe use of AVEGF in patients with diabetes to prevent or minimise the risks of STDR. This will require their hands-on capacity building at selected TTH and will help to decentralise DR screening and management as the demands for these services increase with a growing population and rising burden of diabetes.	Sightsavers' partners
Strengthen competencies of optometrists through formal training and certification in DR screening and primary grading and use of Artificial Intelligence diagnostics. This will enhance their capabilities to be deployed at intermediate referral health facilities like RHCs.	Sightsavers' partners
Establish service delivery links with low vision services to ensure that patients treated for DR are able to achieve a reasonable quality of life with their residual vision. This can be augmented with quality of life studies to determine service impact where resources permit.	Sightsavers' PCO team and design teams and partners for future projects
Create posts of diabetic educators/counsellors and social organisers as essential team members integral to DR screening and management at tertiary hospitals designated as divisional hubs.	Sightsavers' partners
Efficiency	
Revise the training programmes of ophthalmology and optometry residents and vitreo-retina fellows to incorporate DR screening, management and supportive supervision as necessary competencies to be acquired for their respective roles. In addition, this will require structured training and online	Sightsavers' partners

Recommendation	Audience
certification of optometrists as graders before they are deployed for DR screening.	
Pilot the role of RHCs as intermediate referral service delivery points for DR screening for referrals from PHC workers. This structure will require the deployment of optometrists adequately trained in DR screening and grading.	Sightsavers' PCO team and design teams and partners for future projects
Impact	
Adopt the one-stop approach as a programmatic option at tertiary eye care facilities to enhance the service delivery impact for patients with diabetes. This will require that inter-departmental linkages are strengthened, and the scope and range of services offered to patients with diabetes is adapted according to the local context of the public or NGO sector hospitals.	Sightsavers' PCO team and design teams and partners for future projects
Conduct further research to determine the contributory factors that have led to the decline in DR and STDR in patients with diabetes in the project areas covered by AIEH.	Sightsavers' PCO team and AIEH
Sustainability	
Advocate to the LHW programme for inclusion of health promotion and disease prevention messaging about diabetes and its potential complications in their core curriculum. This will lay the foundation for a family eye health concept for a life continuum.	Sightsavers' partners
Adapt elements of the module on diabetic retinopathy to the extent feasible in the respective eye department information systems to sustain gains made through the HMIS developed in the project. For public sector partners, this is likely to require engagement with respective provincial information technology boards of the government to ensure that these information needs are incorporated in Electronic Medical Records systems planned for development for government tertiary hospitals.	Sightsavers' partners
Scalability/Replication	
Sustain the strategic engagement with the People's Primary Health Initiative in Sindh and Policy Planning Implementation Unit in Punjab and build on the gains made in the DR project to integrate identification of people with diabetes and referral for DR screening at the next appropriate level of health care.	Sightsavers' partners
Anticipate and plan for the use of AI e.g. hand-held or table-mounted screeners in future DR screening activities especially at PHC level to strengthen capacities for screening and detection of DR. This will require support to AI research activities to develop algorithms adapted for the local context, and engaging with existing tools that have been shown to be quite effective in screening in other contexts.	Sightsavers' PCO team and design teams and partners for future projects
Coherence/Coordination	
Identify strategic integration points in the NCDs programme in Punjab (and other provinces when these are planned) and foster collaborative partnerships to improve the alignment, synergy and value addition of DR projects with NCDs programme initiatives.	Sightsavers' PCO team and design teams and partners for future projects
Align future DR programme strategies with national and provincial integrated people centred eye care plans cascaded through the divisional hubs, district eye units (providing a package of eye care services) and extending coverage to zones of intervention at the Union Council level.	Sightsavers' PCO team and design teams and partners for future projects

Appendices

Appendix 1: Evaluation Criteria Rating

	Excellent	There is strong evidence that the project ***fully meets all or almost meets all aspects*** of the evaluation criterion under consideration. The findings indicate **excellent and exemplary** achievement/progress/attainment. This is a reference for highly effective practice and an Action Plan for positive learning should be formulated.
	Satisfactory	There is strong evidence that the project ***mostly meets*** the aspects of the evaluation criterion under consideration. The situation is considered **satisfactory, but there is room for some improvements.** There is need for a management response to address the issues which are not met. An Action Plan for adjustments should be formulated to address any issues. Evaluation findings are potentially a reference for effective practice.
	Attention	There is strong evidence that the project ***only partially meets*** the aspects of the evaluation criterion under consideration. There are **issues which need to be addressed and improvements are necessary** under this criterion. Adaptation or redesign may be required, and a clear Action Plan needs to be formulated.
	Caution	There is strong evidence that the project ***does not meet the main*** aspects of the evaluation criterion under review. There are **significant issues which need to be addressed** under this criterion. Adaptation or redesign is required, and a strong and clear Action Plan needs to be formulated. Evaluation findings are a reference for learning from failure.
	Problematic	There is strong evidence that the project ***does not meet*** the evaluation criterion under consideration and is performing very poorly. There are **serious deficiencies** in the project under this criterion. There is need for a strong and clear management response to address these issues. Evaluation findings are definitely a reference for learning from failure
	Not Sufficient Evidence	There is ***not sufficient evidence*** to rate the project against the criterion under consideration. The project needs to seriously address the inability to provide evidence for this evaluation criterion.

Appendix 2: Terms of Reference

Strengthening Pakistan's Response to Diabetic Retinopathy

End of term evaluation

1. Background

Project name: Strengthening Pakistan's Response to Diabetic Retinopathy (DR)

Project number: 75061

Project Duration: March 2014 – June 2019

Project budget: $1,500,000 ($1,250,000 plus an extension of $250,000)

Project partners:

- Al Ibrahim Eye Hospital (AIEH), Karachi
  AIEH is a long-standing partner of Sightsavers, committed to implementing innovative approaches to improve eye care. It also has long standing partnerships with CBM, FHF and BHVI. Since 2002, AIEH, with Sightsavers' support, initiated low vision services. The District Comprehensive Eye Care (DCEC) project in Kharan Baluchistan piloted community based DR project in Gadap town Karachi and instituted a Childhood Blindness Control Program. The current DR project aims to embed the programme within PHCs, including supporting LHWs to incorporate awareness-raising and community education on diabetes mellitus (DM) and DR.

- HFH Rawalpindi
  HFH is an affiliate of the Rawalpindi Medical College and has a track record of excellence in service delivery in eye health, research and undergraduate and post-graduate medical training. HFH has previously implemented the SiB phase IV program from January 2011 to December 2015 successfully.

- College of Ophthalmology and Allied Vision Sciences (COAVS) at the Kind Edward Medical University, Mayo Hospital, Lahore
  COAVS also has a track record of innovation and commitment to achieving the objectives of V2020. Since its inception in 1999, it has developed active partnerships with, and successfully implemented many programmes supported by, many international eye health agencies including FHF, CBM and Sightsavers[2].

[2] Sightsavers key support has been for the training of mid -level Eye Care Professionals as well as for the training of Ophthalmologists in Community Ophthalmology. Furthermore the concept of District Comprehensive Eye Care (DCEC) was piloted through COAVS in Punjab which was then replicated at national level by government and other INGOs. The first Childhood Blindness Control Programme was also supported by Sightsavers and was implemented by COAVS in major district of Punjab; this was gains adapted at national level by FHF and CBM. COAVS is one of the pioneer institutes for piloting of SAFE strategy for the Trachoma control programme in Pakistan with the support of Sightsavers.

- Comprehensive Eye Care (CEC) Cells of Sindh and Punjab
  All three hospitals will implement the programme in full cooperation and support of the Comprehensive Eye Care (CEC) Cells of Sindh and the Punjab who will be instrumental in ensuring that DR services are incorporated at the provincial level and the learning from the programme informs policy and the sustainability of DR services. They bring to the programme their considerable resources and expertise.

Key stakeholders

The other key stakeholders of the project include:

- National Programme of Family Planning & PHC
- DR Working Group

General information on project area

Pakistan is a large country with an area of around 800,000 square kilometres and an estimated population of 210-220 million from preliminary reports of the 2017 census in the Pakistani media[3], making it the fifth most populous country in the world and the largest in the WHO Eastern Mediterranean Region. The vulnerability of the Pakistani population with regard to health, stems from the many challenges to its health system, from poor health indicators to low health investments, expenditures and utilisation. This vulnerability is exacerbated by poor social determinants of health such as illiteracy, unemployment, gender inequality, social exclusion, rapid urbanisation and environmental degradation. According to the National Blindness Survey 2004 in Pakistan, the prevalence of blindness is 0.9%, which indicates that around 1.5 million people are blind. Although cataract is the leading cause of blindness (53%), non-communicable diseases such as Diabetic Retinopathy (DR) and Sight Threatening Diabetic Retinopathy (STDR) are now on the rise. The International Diabetic Federation (IDF) ranks Pakistan seventh globally for number of diabetics in the population, with prevalence estimated at 7 million in 2010 and projected to increase to 11.5 million by 2025. This project will work in three districts of Pakistan:

- **Karachi**: The capital of Sindh Province is the country's economic hub and is one of the world's largest cities with an estimated population of 20 million. The project locations, Gadap Town and Bin Qasim Town with a population of 1 million, are located in the semi-urban catchment area of Al-Ibrahim Eye Hospital (AIEH).

- **Lahore**: Capital of Punjab Province and Pakistan's second largest city, Lahore is home to over 9.8 million people. The project location, Datta Gunj Buksh Town, is a heavily populated urban area with over 1 million people. One of the findings of the KAP survey done in Gadap by Sightsavers in (2009) was that lack of awareness on health and education are perennial

[3] For example, Dawn (https://www.dawn.com/news/1342140) and the Daily Sabah (https://www.dailysabah.com/asia/2017/05/25/pakistans-2-month-long-census-complete-population-anywhere-between-210-220-million). The official preliminary results from the Pakistan bureau of statistics are forthcoming.

problems. This area is within the catchment population of the College of Ophthalmology and Allied Visual Science (COAVS) at the Mayo Hospital.

- **Rawalpindi**: This city is adjacent to the Islamabad Capital Territory, and is the fourth largest city of Pakistan, with an estimated population of 4.5 million. The project location is Rawalpindi Tehsil with an estimated population of 1 million. The HFH hospital is located in Rawalpindi.

Project description, goal and objectives:

This project is designed to prevent visual impairment due to DR (diabetic retinopathy) through early detection, regular follow up and appropriate management of STDR (sight threatening diabetic retinopathy) amongst known diabetics in order to contribute to the reduction of avoidable blindness in three selected districts of Pakistan.

The project has a focus on sensitising and screening known diabetics for DR and adequate interventions for those identified with STDR and has been implemented in a phased manner across the three locations. Therefore, to some extent DR screening and treatment was already established

at AIEH and Mayo hospitals, however these services have started from scratch at HFH. The project is designed and managed by Sightsavers and funded by Standard Chartered Bank.

Goal: To contribute to the reduction of avoidable blindness due to sight-threatening diabetic retinopathy (STDR) in three districts of Pakistan.

Purpose: To prevent visual impairment due to diabetic retinopathy (DR) through early detection, regular follow up and appropriate management of sight-threatening diabetic retinopathy (STDR) amongst known diabetics in three districts of Pakistan.

Specific Objectives:

1. Men and women, who are known diabetics, are diagnosed with DR and treated for STDR in three districts in Pakistan.
2. Hospitals in three districts in Pakistan have a referral system in place to ensure known diabetic patients are screened for DR and a management plan established.
3. Hospitals in three districts in Pakistan have functioning tracking system that record referrals, screening, treatment and follow-up of known diabetic patients.
4. A sustainability plan to transfer ownership of the DR services from Sightsavers to hospitals in three districts in Pakistan has been achieved.

2. Purpose of Evaluation

The end of term evaluation will review the achievements of the project against the project objectives. The evaluation will look at the strengths and weaknesses of the different approaches used at the different project locations and establish what has worked well and what could have been done differently. It will also look at the potential strategies for replication and scale-up of the current project to see where the opportunities and challenges lie. The evaluation will also assess the extent to which it has been possible to implement the agreed MTR recommendations and associated action plan formulated in the Management Response. Equity is also a cross cutting issue that the evaluation will consider, including assessing if there were any specific barriers for women or people with disabilities to access the project's services.

The evaluation of the project will use the following 6 criteria which will be the basis for evaluation, analysis and reporting: relevance, effectiveness, efficiency, impact, sustainability and coherence/coordination.

The report will produce a set of specific recommendations for similar, future project designs, and identify any further cross-cutting or organisational level lessons and key learning points.

The target audience for the report will be funders, partners, programme staff and global programme support teams within Sightsavers.

The learning, findings and recommendations emerging from this evaluation will be important for Sightsavers' and partners' wider programming design and decision making.

2.1. Evaluation criteria – questions

Relevance – the extent to which the project is suited to the priorities and policies of the target beneficiaries, national partners, government ministries and donors, where applicable.

- How aligned are the project's objectives with national and provincial eye health plans in relation to DR in Pakistan?
- What are the different barriers to accessing eye health services, and has the project been able to address these?
- How effective has the project been in ensuring that services are sensitive to the needs of women?

Effectiveness – the extent to which the project has attained its objectives

- How effective has the project been in delivering the objectives in the project locations, specifically in relation to the following areas:
    - Use of IEC materials
    - Identification of DM patients for screening
    - Referral pathway from PHC (including engagement with LHWs)
    - Implications for the project of changing clinical practices (including shift from laser to IV)
    - System for follow-up of patients after treatment and for compliance to treatment plans (including the use of HMIS)
- How effective has the project been in assuring quality in the following areas:
    - The quality of the training for LHWs and PHWs
    - Visual outcomes of project participants receiving treatment

Efficiency – the extent to which results have been delivered with the least costly resources possible, and the manner in which resources have been efficiently managed and governed in order to produce results.

- How efficient have the project's strategies been in dealing with challenges to financial planning and in ensuring the project resources are used in the most cost-efficient manner?
- Were any specific efforts made to make the process more cost-efficient?

Impact – the direct or indirect changes or effects (positive or negative) that have occurred, or will occur, as a result of the project

- What impact has the project had on the linkages between the PHC system and hospitals, as well as the hospitals' own internal referral pathways for DR screening and management?

Sustainability – whether benefits of the project are likely to continue after donor funding has ceased.

- Has a sustainability plan been implemented and is there evidence that the plan will ensure that activities will continue after the end of the Sightsavers funded project?
- What strategies were used to engage with other relevant stakeholders and were these strategies effective in ensuring that some of the project's impact will be sustained?
- What arrangements have been made to ensure continuity of data collection and availability beyond the project?

Scalability/replicability – whether any aspects of the programme are suitable for replication or scaling up.

- What are the key learnings that can be taken from this project to inform strategies for replication, in different contexts?

Coherence/coordination – the extent to which the project or programme has coordinated with other similar initiatives, interventions or actors, and the degree to which the project design and implementation is internally coherent.

- How effective have the project's efforts been in coordinating with other key actors including:
  - National LHW programme
  - Primary health care system (BHUs and RHUs)
  - Hospital senior management
  - Hospital inter-departmental linkages
  - Regional level structures/committees
  - National level structures/committees
  - Other NCD initiatives in the region
  - Private medical practitioners

The commissioned consultant/team will be expected to further refine or develop the key questions during the Inception phase, in order to ensure the conceptual and practical scope of the evaluation is clear and appropriate, in consultation with relevant technical leads and project staff in Sightsavers and partners.

1.1. Scope

The project will be evaluated against the original project period and the project extension, from March 2014 – December 2019.

Although the extended DR project finishes at the end of June 2020 its, implementation of the project activities will finish at the end of December 2019 and the evaluation will consider the project data available up to that point.

3. Review Team

Tropical Health LLP consultancy has been commissioned to conduct this evaluation under

Sightsavers Evaluation Framework Agreement. The team allocated to this will have strong MEL and programmatic expertise for undertaking project evaluations in the health sector with a focus on eye health. Team members will have the following competencies: international development experience in eye health, evaluation expertise, project/programme analysis, knowledge management and dissemination, report writing, oral presentation and facilitation skills, as well as a good understanding of the eye health context in Pakistan. Knowledge of DR and DR programming is also required.

4. Methodology

The evaluators should detail the approach and methodologies to be used to indicate how they will fulfil the requirements of the ToR and address the evaluation objectives and evaluation questions. These will include qualitative and quantitative tools as appropriate but should be participatory in nature and seek the voices of those who may otherwise be marginalised. The evaluation team will define an appropriate sample size, where relevant, and specify what mechanisms will be adopted to avoid selection bias.

The evaluation team should also outline how they will address any ethical considerations arising for this assignment.

As a minimum, the evaluation should include the following key steps:

1. Review relevant reference material and data, as listed in Section five below, plus any additional relevant documents identified by Sightsavers or the consultant team.
2. Development of a detailed Inception Report including details on the development and application of appropriate data collection tools (e.g. questionnaire schedules and tools, interview checklists and focus group templates) for interviews and discussions with stakeholders.
3. Desk based data review and data collection field visit to the intervention region – interviews/focus groups with project implementers, partners, other relevant actors in the sector, and if appropriate, service recipients/beneficiaries.
4. A debriefing session for partners and stakeholders at the end of the fieldwork period.
5. Analysis and production of a draft and final Evaluation Report, as well as a PowerPoint presentation to present the key findings and learnings.

The evaluation team will adhere to the contractual terms and conditions with Sightsavers, including clauses in relation to confidentiality, data protection and intellectual property rights. It is expected that the evaluation will fully follow ethical principles for evaluation, and that the team will adhere to Sightsavers guidelines on ethical considerations for evaluation (Appendix 1), Safeguarding policy and code of conduct (Appendix 2). It is also a requirement that all members of the evaluation team have completed the short online UNICEF ethics training, or equivalent, before embarking on the evaluation.

5. Project Documentation

Indicative list of key project documents

- Proposal
- Log frame
- List of facilities and locations
- Donor narrative reports and appendices
- IAPB visit reports, and action plans
- QSAT
- MTR
- MTR management response and action plan
- Monthly KPI sheets
- Learning Review on Prevention and Control of DR in Pakistan
- Situation Analysis Report
- Research Report

6. Outputs/ deliverables

Detailed guidelines on how to structure the evaluation reports will be provided to the evaluation team prior to commencement of the activity, and reporting templates will be provided which the team should use for the Inception Report and the Evaluation Reports.

The timeframe for the evaluation will be between December 2019 and the end of May 2020. It is expected that work on the inception phase will start in January 2020 with the fieldwork planned for March. The final report will be signed off by Sightsavers by the end of May 2020, so that it can be shared at a dissemination event planned with SCB in Mid-June.

6.1. Indicative structure and phasing of evaluation

Phase	Activity	Timeframe
Phase I – Desk study: Review of documentation and elaboration of field study	Desk research /literature and data review	January – February
	Inception Report	February
	Revision of collection methods and tools based on inception report comments	February
Phase II: Field Data Collection	Field visits and data-collection	March
Phase III – Analysis and production of evaluation report	Data analysis and preparation of Draft Report	April
	Review of Draft Report from feedback.	May
	Final report complete	End of May

6.2. Inception report

The report should describe the conceptual framework the evaluation team will use in undertaking the evaluation and should contain the methodology, quantitative and/or qualitative data collection methods and instruments, the assessment questions, sampling methodology, work plan etc. The report should reflect the team's initial rapid review of literature and the gaps that the field work will fill.

Fieldwork will only commence once this report has been reviewed and agreed with Sightsavers.

6.3. Draft Report

The draft findings will be presented in-country during a debriefing session. A draft report should be submitted to Sightsavers within 2 weeks after completion of the field activities. Sightsavers will provide feedback on the draft versions to the evaluation team.

6.2. Final Report

A Final Report will be submitted to Sightsavers after receiving the feedback from Sightsavers on the draft reports. The final report should be a detailed report of not more than 40 pages (excluding annexes), written in English.

6.3. Learning products

At the technical proposal stage, Sightsavers and Tropical Health will agree on any specific learning products to be created from this evaluation. This may be in the form of a short PowerPoint presentation (no more than 20 slides) of the key findings from the evaluation, for Sightsavers to distribute or use as appropriate.

6.4. Data Sets

The evaluation team will be expected to retain complete data sets (in Excel/Word) of all the quantitative data as well as any formally documented qualitative data gathered during the exercise. These data sets should be provided on request.

7. Administrative/Logistical support

7.2. Support and advice

Sightsavers' MEL Team and the Project Team will provide coordination and logistical support for the evaluation and consultant/team. Clear lines of and leads for communication between

Sightsavers' MEL Team and the Project Team and the consultant/team will be agreed at the initial meeting after the contract has been signed.

The Sightsavers MEL Team's principal function is to ensure that the consultant/team is professional, independent, skilled and experienced and provides a high standard of input and good quality deliverables that promote learning for change and contribute to an evidence base supporting commissioning, project design and implementation. The MEL Team is guided by the principles attached at Appendix 1.

The role of Sightsavers MEL Team includes:

- ToR development in consultation with donors, technical leads and project staff,
- Overall coordination quality assurance and liaison between the project staff and consultant, as well as being the focal point for consultant in respect of contractual issues,
- Advise the consultant on Sightsavers' expectations regarding ethics, including Safeguarding Policies and Code of Conduct,
- Review and advise on methodology, selection of site visits, reliability of and access to secondary data,
- Advise on context-specific and contemporary security assessments, other risks and challenges to the evaluation,
- Review of deliverables: Inception Report, Final Report, Evaluation Communication and Dissemination Plan, Learning products,

The role of the Project Team will be to support with on the ground logistics of the evaluation, including supporting the development of the fieldwork schedule, coordinating with local partners, scheduling of meetings and interviews with key stakeholders. It will also include arranging and facilitating all of the local logistics for the evaluation team (including transport and accommodation). The Project team will also monitor the security situation and liaise with Sightsavers' Security Advisor to ensure that all activities are authorised in terms of safety and security.

All key contact points will be identified and shared as part of the Inception stage.

7.3. Safety and risk management

In planning the evaluation, the situation in Pakistan will be closely monitored and advice will be taken from Sightsavers' Global Head of Security. Before any travel is authorised, a risk assessment will be conducted to ensure that the evaluation activities would not be affected by any security concerns, and the safety and security of the consultant/team, project staff and stakeholders are prioritised at all times.

Therefore, a field visit will only be conducted to areas or districts that are assessed, at the time, as not presenting any undue security risks to consultants or staff or projects' participants. If restrictions are in place, then remote means such as skype or telephone interviews will be employed to obtain data and information, or alternative locations utilised which do not present a security risk.

Appendix 3: Evaluation Framework

The evaluation matrix below outlines the detailed evaluation questions along with the primary data collection techniques and secondary data that will be utilised to answer each of these questions.

	Key evaluation question to be addressed	Data Collection Technique			
		Primary Data Tools (level or target group)	**Secondary Data Tools**	**Data Source**	**Implications of revised approach due to Covid 19**
Relevance *– the extent to which the project is suited to the priorities and policies of the target beneficiaries, national partners, government ministries and donors, where applicable.*					
1.	How aligned are the project's objectives with national and provincial eye health plans in relation to DR in Pakistan?	KII (N, D, PCO)	Document Review	National and sub-national policy and strategy documents Project documents: • Project proposal • Log Frame • DR Task Force documents • MTR Project research reports KIIs	There will be minimal implications for this as the questions can be adequately answered by desk review and KIIs.
2.	What are the different barriers to accessing eye health services, and has the project been able to address these?	KII (D, PCO)	Document review	Project documents: • SIB Reports • Donor visit reports • MTR Project research reports KIIs	While the desk review and KIIs will provide useful information to answer this question, absence of field-level perspectives of PHC staff will limit the extent of analysis and learning

	Key evaluation question to be addressed	Data Collection Technique			
		Primary Data Tools (level or target group)	**Secondary Data Tools**	**Data Source**	**Implications of revised approach due to Covid 19**
3	How effective has the project been in ensuring that services are sensitive to the needs of women?	KII (D, PCO)	Document review	Project documents: • Project proposal • Log Frame • MTR • SIB reports • output data Project research reports KIIs	While the desk review and KIIs will provide useful information to answer this question, absence of field-level perspectives of PHC staff will limit the extent of analysis and learning, especially considering that LHWs and LHSs would have been able to provide good insight into this
***Effectiveness** – the extent to which the project has attained its objectives.*					
4.	How effective has the project been in delivering the objectives in the project locations, specifically in relation to the following areas? ○ Use of IEC materials ○ Identification of DM patients for screening ○ Referral pathway from PHC (including engagement with LHWs) ○ Implications for the project of changing clinical practices (including shift from laser to IV) ○ System for follow-up of patients after treatment and for compliance to treatment plans (including the use of HMIS)	KII (D, PCO)	Document review Project output data	Project documents: • Log Frame • SIB reports • MTR • QSAT • Output data Project research reports KIIs	There will be limited information and analysis that can be drawn from the desk review and KIIs, as the questions were designed to obtain perspectives from PHC staff and LHWs especially for: • Use of IEC materials • Identification of DM patients for screening • Referral pathway from PHC (including engagement with LHWs)
5.	How effective has the project been in assuring quality in the following areas? ○ The quality of the training for LHWs and PHWs ○ Visual outcomes of project participants	KII (D, PCO)	Project output data	KIIs Output data	There will be limited information and analysis that can be drawn from the desk review and KIIs, as the question

	Key evaluation question to be addressed	Data Collection Technique			
		Primary Data Tools (level or target group)	**Secondary Data Tools**	**Data Source**	**Implications of revised approach due to Covid 19**
	receiving treatment				pertaining to quality of training was expected to obtain feedback from LHWs and LHSs
Efficiency *– the extent to which results have been delivered with the least costly resources possible, and the manner in which resources have been efficiently managed and governed in order to produce results.*					
6.	How efficient have the project's strategies been in dealing with challenges to financial planning and in ensuring the project resources are used in the most cost-efficient manner?	KII (D, PCO)	Document review	Project financial reports Project documents: • SIB reports • MTR KIIs	There will be minimal implications for this as the questions can be adequately answered by desk review and KIIs
7.	Were any specific efforts made to make the process more cost-efficient?	KII (D, PCO)	Document review	Project financial reports Project reports: • SIB reports • MTR KIIs	There will be minimal implications for this as the questions can be adequately answered by desk review and KIIs
Impact *– the direct or indirect changes or effects (positive or negative) that have occurred, or will occur, as a result of the project*					
8.	What impact has the project had on the linkages between the PHC system and hospitals, as well as the hospitals' own internal referral pathways for DR screening and management?	KII (D, PCO)	Document review	Project documents: • SIB reports • Log Frame • Output data • MTR • Project research reports KIIs	There will be limited information and analysis that can be drawn from the desk review and KIIs because insight from PHC staff would not be available
Sustainability *– whether benefits of the project are likely to continue after donor funding has ceased.*					

	Key evaluation question to be addressed	Data Collection Technique			
		Primary Data Tools (level or target group)	**Secondary Data Tools**	**Data Source**	**Implications of revised approach due to Covid 19**
9.	Has a sustainability plan been implemented and is there evidence that the plan will ensure that activities will continue after the end of the Sightsavers funded project?	KII (D, PCO)	Document review	Project documents: • Project proposal • SIB reports • MTR KIIs	There will be minimal implications for this as the questions can be adequately answered by desk review and KIIs
10.	What strategies were used to engage with other relevant stakeholders and were these strategies effective in ensuring that some of the project's impact will be sustained?	KII (D, PCO)	Document review	Project documents: • Project proposal • SIB reports • MTR • Project research reports KIIs	There will be limited information and analysis that can be drawn from the desk review and KIIs because perspectives from other stakeholders will not be possible to obtain
11.	What arrangements have been made to ensure continuity of data collection and availability beyond the project?	KII (D, PCO)	Document review	KIIs	There will be limited information and analysis that can be drawn from the desk review and KIIs because insight from PHC staff would not be available. Information about process would be available but not about the extent of implementation and its challenges
Scalability/replicability *– whether any aspects of the programme are suitable for replication or scaling up.*					
12.	What are the key learnings that can be taken from this project to inform strategies for replication, in different contexts?	KII (D, PCO)	Document review	Project documents: • SIB reports • Donor visit reports • MTR • Project research reports KIIs	Top level learnings would be possible to obtain from the desk review and KIIs, but implementer perspectives especially at the level of PHC and LHWs would not be

	Key evaluation question to be addressed	Data Collection Technique			
		Primary Data Tools (level or target group)	**Secondary Data Tools**	**Data Source**	**Implications of revised approach due to Covid 19**
					possible which would enrich learning
Coherence/coordination *– the extent to which the project or programme has coordinated with other similar initiatives, interventions or actors, and the degree to which the project design and implementation is internally coherent.*					
13.	How effective have the project's efforts been in coordinating with other key actors including: ○ National LHW programme ○ Primary health care system (BHUs and RHUs) ○ Hospital senior management ○ Hospital inter-departmental linkages ○ Regional level structures/committees ○ National level structures/committees ○ Other NCD initiatives in the region ○ Private medical practitioners	KII (D; PCO)	Project documents	Project documents: • SIB reports • Output data • MTR • Project research reports KIIs	For this question, the analysis would be limited as the desk review and KII would not be able to adequately address: • National LHW programme • PHC system • Other NCD initiatives • Private medical practitioners

N = National; D = District; PCO = Sightsavers PCO Staff

Appendix 4: Detailed Work Plan

Pakistan's response to diabetic retinopathy - Workplan 16 April 2020

Stage	Description	Responsible	Jan				Feb				March					April				May				June					July			
		w/c	6	13	20	27	3	10	17	24	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27
Preparation (2-3	Define scope and budget	ET																														
	ToR development in collaboration with country team	ET/CO																														
Drawdown FA contract (2-4 weeks)	Collate and share ToR package	ET																														
	Comment on draft ToR	TH																														
	Finalise ToR	ET/CO																														
	Develop Technical Proposal	TH					3																									
	Review and comment on technical proposal (request a meeting if needed)	ET																														
	Finalise proposal based on SI comments	TH																														
	Prepare FA drawdown letter	ET																														
	Sign FA drawdown letter	TH/ET																														
Inception	Provide background documents	ET/CO																														
	Review key background documents before kick-off meeting	TH																														
	Kick-off meeting	TH/ET/CO						11																								
	Provide additional background documents requested	ET																														
	Draft and submit Inception Report (V1)	TH								28																						
	Review and circulate for IR for comments	ET/CO																														
	Collate and share comments on IR (request a meeting to discuss if needed)	ET										9																				
	Revise and submit finalised IR (V2) based on SI comments	TH											19																			
	feedback on COVID 19 requirements	ET													31																	
	submit IR v3 with COVID 19 adjustments for fully desk based evaluation	TH															17															
	feedback on IR v3	ET																24														
	submit IR v4	TH																	28													
	Approve final Inception Report	ET																	30													
	Issue inception invoice	TH																														
	Review and approve inception invoice and submit for payment	ET																														
	Key Informant interview planning - obtain consent forms by email and detailed proposal for date and time for conducting interviews of KIIs	TH/ CO																														
Fieldwork	data collection	CO																														
	online meeting for discusssion of preliminary findings and creation of recommendations before drafting Evalaution report 1	TH/CO/ET																						2								
Reporting	Draft Evaluation Report (V1)	TH																														
	Submit draft Evaluation Report (V1)	TH																							8							
	Review and circulate ER (V1) for comments	ET																														
	Collate and share comments on ER (V1)	ET																								19						
	Phone meeting to discuss SI comments if needed	TH/ ET																									22					
	Amend Evaluation Report based on SI comments	TH																														
	Submit Final Evaluation Report and v1 of dissemination product	TH																									26					
	Approve final Evaluation Report	ET																										29				
	finalise and present (if applicable) dissemination product (e.g. learning seminar, video, infographic) to share the findings with donors and stakeholders. Exact date tbc	TH/ET/CO																														
	Submit final report to donor	ET																														
Final invoicing	Issue final invoice	TH																														
	Review and approve final invoice and submit for payment	ET																														

PCO will not be around as end of Ramadan

ET
CO Evaluations Team (Sightsavers)
TH County Office (Sightsavers)
Tropical Health

Task
Meeting
SI Review
TH Deliverable

Appendix 5: Field Schedule

Date/Time	Activity	Methods\Issues	Place
Monday – 27 April 2020			
10:30	interview with implementing Partner	KII on zoom, skype or phone	Islamabad
12:00	interview with Assistant Director	KII on zoom, skype or phone	Karachi
13:00	meet with Project officer	KII on zoom, skype or phone	Karachi
	LUNCH		
15:00	Collate information, follow up communication if necessary		
End of Day One			

Tuesday 28 April 2020			
10:00	interview with Educator	KII on zoom, skype or phone	Karachi
11:30	interview with Optometrist	KII on zoom, skype or phone	Karachi
13:00	meet with Data Entry Operator	KII on zoom, skype or phone	Karachi
	LUNCH		
14:00	Collate information, follow up communication if necessary		
End of Day Two			

Monday 4 May 2020			
9:30	Meeting with Programme Staff	KII on zoom, skype or phone	Lahore
11:00	Meet with Focal Person at Mayo Hospital	KII on zoom, skype or phone	Lahore
12:30	Interview with community worker	KII on zoom, skype or phone	Lahore
	LUNCH		
14:30	Meet at COAVS	KII on zoom, skype or phone	Islamabad

15:30	Collate information, follow up communication if necessary		
End of Day Three			

Date/Time	Activity	Methods\Issues	Place
Tuesday 5 May 2020			
9:30	Meet with Programme Office Staff	KII on zoom, skype or phone	Lahore
11:00	Interview with Data entry Operator	KII on zoom, skype or phone	Lahore
13:00	Technologist	KII on zoom, skype or phone	Lahore
End of Day Four			

Date/Time	Activity	Methods/Issues	Place
Wednesday 6 May 2020			
11:00	Interview with LHS	Skype	Karachi
13:00	Interview with LHS	Phone call	Lahore
End of Day Five			

Date/Time	Activity	Methods\Issues	Place
Thursday – 7 May 2020			
10:00	Meet with Clinical role at Holy Family	KII on zoom, skype or phone	Rawalpindi
11:00	Meet with Clinical role at Holy Family	KII on zoom, skype or phone	Rawalpindi
12:00	Collate information, follow up communication if necessary		
End of Day Six			

Date/Time	Activity	Methods\Issues	Place
Friday – 8 May 2020			
10:00	Interview with health professional at Holy Family Hospital	KII on zoom, skype or phone	Rawalpindi
11:00	Meeting with health professional at Holy Family Hosp	KII on zoom, skype or phone	Rawalpindi

12:00	Interview at Holy Family Hospital	KII on zoom, skype or phone	Rawalpindi
	LUNCH		
14:00	Collate information, follow up communication if necessary		
End of Day Seven			

Date/Time	**Activity**	**Methods\Issues**	**Place**
Saturday – 9 May 2020			
10:00	Interview at Holy Family Hospital	KII on zoom, skype or phone	Rawalpindi
11:00	Interview with health professional at Rawalpindi Medical University	KII on zoom, skype or phone	Rawalpindi
12:00	Meet with data entry operator	KII on zoom, skype or phone	Rawalpindi
	LUNCH		
14:00	Collate information, follow up communication if necessary		
End of Day Eight			

Monday – 11 May 2020			
10.00	Sightsavers PCO	KII on zoom, skype or phone	Islamabad
	Collate information, follow up communication if necessary		
End of Day Nine			

*Times and dates and interviewees may be subject to change due to the changing environment, but we will work with the PCO to ensure a good range.

Appendix 6: Informant categories, data collection methods and sampling approach

Informant category	Project Role	Persons to be consulted (estimated)	KII (estimated target)*	FGD (estimated target)	Sampling approach	Suggested priority	Notes	Timing inc. Male (M) or Female (F)
Sightsavers Technical Advisors	Technical	2	2	0	Purposive – informants with technical knowledge and experience and global outlook	H	KII on Skype or phone	19 May at 1030 (1 M and 1 F)
Sightsavers Pakistan Country Office staff	Grantee	2	2	0	Purposive - informants with most involvement / responsibility with the project	H	KII on Skype or phone	11 May PCO team at 1000 (2 F)
National Coordinator for Eye Health	Implementing Partner	1	1	0	Purposive - informant with multiple roles from policy, strategic and implementation	H	KII on Skype or phone	4 May (M) at 1430
Chairman, National Diabetic Retinopathy Task Force	Implementing Partner -	1	1	0	Purposive - informant with multiple roles from policy, strategic and implementation	H	KII on Skype or phone	27 April (M) at 1030
Head of Department, Holy Family Hospital	Focal Person at Holy Family Hospital	1	1	0	Purposive - Key role in implementation of project at Holy Family Hospital	H	KII on Skype or phone	9 May (M) at 1100
Project Managers	Clinical role at Holy Family	3	3	0	Purposive - Key role in the clinical management of referred patients. KII shall involve all project managers available for interview	H	KII on Skype or phone	7 May (M) at 1000 (F) at 1100 8 May (F) at 1100

Informant category	Project Role	Persons to be consulted (estimated)	KII (estimated target)*	FGD (estimated target)	Sampling approach	Suggested priority	Notes	Timing inc. Male (M) or Female (F)
Project Team	Project management, training, screening and supportive supervision to LHWs	4	4	0	Purposive - one group of 4 persons	H	KII on Skype or phone	8 May (M) at 1000 (F) at 1200 noon 9 May (M) at 1000 (M) at 1200 noon
In-Charge of Technical - DR Project	Focal Person at Mayo Hospital	1	1	0	Purposive - Key role in implementation of project at Mayo Hospital	H	KII on Skype or phone	4 May (M) at 1100
In-Charge of Training / Community Work	Focal Person for Training	1	1	0	Purposive - Key role in training component	H	KII on Skype or phone	4 May (M) at 1230
Project Team	Project management, training, screening and supportive supervision to LHWs	4	4	0	Purposive - one group of 4 persons	H	KII on Skype or phone	4 May (M) at 0930 5 May (M) at 0930 (M) at 1100 (F) at 1300
Lady Health Supervisor (LHS)	Immediate supervision of LHWs and training	1	1	0	Purposive – role in training and supervision	H	KII on phone	(F) at 1300
Project Team	Project management, training, screening and supportive supervision to LHWs	5	5	0	Purposive - one group of 5 persons	H	KII on Skype or phone	27 April (M) at 1200 noon (F) at 1300 28 April (F) at 1000 (F) at 1130 (F) at 1300

Informant category	Project Role	Persons to be consulted (estimated)	KII (estimated target)*	FGD (estimated target)	Sampling approach	Suggested priority	Notes	Timing inc. Male (M) or Female (F)
Lady Health Supervisor (LHS)	Immediate supervision of LHWs and training	1	1	0	Purposive – role in training and supervision	H	KII on Skype	(F) at 1100
Total		**27**	**27**	**0**				

Key: M – Male; F – Female; LHS – Lady Health Supervisor

Appendix 7: KII Topic Guide – National and District Informant

Pakistan DR ETE

Key Informant Topic Guide

National and District level

Interviewer Instructions

Purpose and respondents: This topic guide is to be used for key informant interviews with stakeholders at national (N) and district (D) levels and will also be used to guide interviews and discussions with Sightsavers staff at country office level. The target level for each question is designated in the column "level". These designations do not specifically include Sightsavers staff, for whom the questions will be adapted.

The guide follows the key evaluation criteria described in the ToRs. However, some topic areas (e.g. sustainability, learnings) will largely be integrated and probed on during discussion of other topic areas.

Asking Questions:

- This is a semi-structured interview guide.
- Not all topics will be relevant to all informants. The questions should be tailored according to the respondent's involvement in the project and area of expertise.
- For some topics, informants should be asked to reflect on their own role in the project, and for others, they should be asked to comment on the roles of other actors, as appropriate.
- Although the questions are numbered, they may be asked in a different order, and topics that have already come up spontaneously in the interview may be skipped.
- Standard probes should be used to encourage respondents to elaborate ("can you tell me more about that"), and to ensure that the respondent has nothing further to add on a topic ("anything else?")
- High priority questions are designated "P". Non-priority questions may be appropriate to ask of only a few respondents, or until sufficient information (saturation) has been obtained.
- As data collection progresses, questions should be refined based on information obtained and will become increasingly focused on the individual's experience and opinions. Interviews may also seek to focus on key topics of interest that warrant further exploration, while allowing for open enquiry with all respondents, so as not to limit the scope of opinion or topics covered.
- In some cases, this topic guide will be used to interview two or more individuals at the same time. Where more than one respondent is present, the Evaluation team will use prompts to encourage reflective discussion and exchange between the informants (e.g. of challenges, learnings, areas for improvement, etc.).
- This guide may be revised and shortened following review of topics by the Sightsavers Pakistan Country Office.

Introduction of the interview to the respondent:

- [Introduce self]
- I have been asked to evaluate a project implemented by Sightsavers, an international organisation working to help prevent and treat eye problems.
- You have been identified as a key [partner/actor/stakeholder] in the project.
- I would like to speak with you about your involvement in the project, as well as ask your opinions about the project in Pakistan.
- Our goal is to understand and document your experience so that we can learn from it and make recommendations for future projects.
- The questions will take about 45 – 60 minutes [state longer time if more than one person being interviewed].
- Whatever you tell me will be kept confidential. That means that it will be shared only with the members of the evaluation team. Any information we include in our report will not identify you.
- Do you have any questions for me before we begin?

All respondents to sign information and informed consent sheet.

An email with the consent form shall be sent to each respondent prior to the interview. They will be requested to submit their confirmation of participation by email if possible or give verbal agreement at start of interview.

Interview and respondent information to be recorded
○ Date of interview
○ Length of interview (start/end time)
○ Name
○ Gender
○ Disability status
○ Location of interview
○ Any notes on interview context and persons present

N = national; D = district

Q	Topic	Level	Eval Q	Priority "P"
Project Involvement				
1	[Greetings, informal conversation] Please tell me about your role in the project.	All		
Relevance				
2	In your opinion, how well aligned was the overall project with national and provincial eye health plans in relation to DR in Pakistan? P: Can you give me some examples that help explain your response?	N, D	1	P
3	What do you think are some of the barriers to accessing eye health services, and how has the project been able to address these? P: How do we know this? P: are there any differences in the barriers for women, children and people with disability?	N, D	2	P
4	How effective has the project been in ensuring that services are sensitive to the needs of women? P: Can you give me some examples that help explain your response?	N, D	3	P
Effectiveness				
5	Could you describe how effective the project has been in relation to: P: Can you give me some examples that help explain your response? • Use of pictorial materials for health information • How people with diabetes were identified for screening • What was the process of referral from the primary health care centre • What role did the LHWs play in the referral process • Was there any impact (positive or negative) on the project by changing clinical practices (including shift from laser to IV) • What was the system for follow-up of patients after treatment and for compliance to treatment plans (including the use of HMIS)?	D	4	P
6	What are your views regarding the quality aspects of the project in the following areas? • The quality of the training for LHWs and PHWs • Visual outcomes of project participants receiving treatment P: Can you give me some examples that help explain your response?	D	5	P
Efficiency				
7	How efficient have the project's strategies been in dealing with challenges to financial planning and in ensuring the project resources are used in the most cost-efficient manner? P: Can you explain a bit more about the reasons for your response?	D	6	P
8	Do you know whether any specific efforts were made to make the design and implementation of the project more cost-efficient? P: Can you explain a bit more about the reasons for your response? P: Could it have been made more cost-effective? How?	D	7	

Q	Topic	Level	Eval Q	Priority "P"
Impact				
9	Has there been any impact of the project on the linkages between the PHC system and hospitals, as well as the hospitals' own internal referral pathways for DR screening and management? P: Can you give me some examples that help explain your response? P: Are there any areas where this could have been improved? How??	N, D	8	P
Sustainability				
10	Do you know if there are any project activities that will continue after the end of the Sightsavers funded project? P: Please provide some examples to explain your response? P: Was any sustainability or hand-over plan developed to ensure that the project activities continued after the end of the project?	D	9	P
11	Do you know of any strategies that were used to engage with other relevant stakeholders and were these strategies effective in ensuring that some of the project's impact will be sustained? P: Can you give me some examples that help explain your response? P: Are there any areas where this could have been improved? How??	D	10	P
12	What are your views about the continuity of data collection and availability beyond the project? P: Do you know if any arrangements have been to ensure this?	D	11	P
Scalability/Replicability				
13	What are your views regarding replication of this type of project elsewhere in the country? P: What would you say are your main learnings from this project?	D	12	P
Coherence/Coordination - Scale up and Lessons Learned				
14	How effective do you think the project's efforts have been in coordinating with other stakeholders? P: Specify in relation to the following: • LHW programme • PHC system (BHUs and RHCs) • Hospital senior management • Hospital inter-departmental linkages • Regional level structures/committees • National level structures/committees • Other NCD initiatives in the region • Private medical practitioners P: Can you give me some examples to explain your response? P: Is there any aspect that you think could have been improved? How?	N, D	13	P
15	Are there any other learnings from this project that you wish to share? [Closing / thank you for your time] [NOTE THE INTERVIEW END TIME]	N, D		P

Appendix 8: KII Topic Guide – LHS and Project Teams

Pakistan DR ETE

KII Topic Guide – LHS and Project Teams

Notes for the Facilitator

- This is a semi-structured interview guide.
- This topic guide is to be used to conduct key informant interviews of selected members of the selected LHSs and project teams (PT) involved in the project.
- The questions to, and discussions with individuals will be tailored to suit their situation, to match their particular area of expertise and their relationship to the project. Prompts are included in the guide to encourage further elaboration on a topic.
- The aim here is to elicit viewpoints and reflect on successes, challenges and lessons learned. To that end, the moderator should have a minimal speaking role and use small prompts ("what do others think?") to encourage individual exploration of (relevant) topics as they are raised.
- Not all topics will be relevant to all informants. The questions should be tailored according to the individual's involvement in the project and area of expertise. High priority questions are also designated "P".
- For some topics, informants may be asked to reflect on their own role in the project, and for others, they should be asked to comment on the roles of other actors, as appropriate.
- Although the questions are numbered, they may be asked in a different order, and topics that have already come up spontaneously in the interview may be skipped.
- Prompt sub-questions are provided to help probe for more information around a topic. In addition, standard probes should be used to encourage respondents to elaborate ("can you tell me more about that?"), and to ensure the group has nothing further to add on a topic ("anything else?")
- All participants should read the information sheet and give written informed consent (or by email) to participate

Introduction of the discussion to the group:

- [Introduce self]
- I have been asked to evaluate the diabetic retinopathy project implemented by Sightsavers, an international organisation working to help prevent and treat eye problems.
- I would like to speak with you about your involvement in the project.
- Our discussion will take about 45 – 60 minutes.
- Whatever you tell me will be kept confidential. That means that it will be shared only with the members of the evaluation team. Any information we include in our report will not identify you.
- Do you have any questions for me before we begin?

All respondents to sign information and informed consent sheet.

An email with the consent form shall be sent to each respondent prior to the interview. They will be requested to submit their confirmation of participation by email if possible or give verbal agreement at start of interview.

Information to be recorded:

Information to be recorded:
For group
○ Date of discussion
○ Length of discussion (start/end time)
○ Location of discussion
○ Any notes on discussion context and other persons present
For each participant
○ Name
○ Role / Job title
○ Gender
○ Disability status
○ Sub-district
○ Facility name (if relevant)

Q	Topic	Level	Eval Q	Priority "P"
Project Involvement				
1	[Greetings, informal conversation] Please tell me about your role in the project.	All		
Relevance				
2	In your opinion, how useful or important was the project considering the different eye care needs of people? P: Can you give me some examples that help explain your response?	PT, LHS	1	P
3	Do you think people faced any difficulties in coming to eye health services for treatment and how has the project been able to address these? P: Can you give me some examples that help explain your response?	PT, LHS	2	P
4	Do you think the project was effective in meeting the needs of women? P: Can you give me some examples that might help explain your response?	PT, LHS	3	P
Effectiveness				
5	Could you describe whether there were any specific interventions that were useful in implementing the project: P: Can you give me some examples that might help explain your response? • Use of IEC materials • Identification of DM patients for screening • Referral pathway from PHC (including engagement with LHWs)	PT, LHS	4	P

Q	Topic	Level	Eval Q	Priority "P"
6	What are your views regarding the quality of training of LHWs and PHC workers by the project? P: Can you give me some examples that might help explain your response? P: What do you think has changed as a result of the training?	PT, LHS	5	P
Efficiency				
7	Do you think the project was implemented in a manner that helped reduce costs (both to the user and the provider) and improved service delivery? Could it have been done differently? P: Can you explain a bit more about the reasons for your response?	PT, LHS	6, 7	P
Impact				
8	What overall effect do you think the project has had on the linkages between the PHC system and hospitals? P: Can you give me some examples that help explain your response? P: Are there any areas where this could have been improved? How?	PT, LHS	8	P
Sustainability				
9	Now that the project is coming to an end in the next few months, how will the project activities continue into the future? For example, are there any things that need to be in place for health staff trained in the project to continue their roles in identifying and referring patients for DR screening? P: Please provide some examples to explain your response? P: What about the continuity of data collection? P: Are there any areas where this could have been improved?	PT, LHS	9, 10, 11	P
Scalability/Replicability				
10	What are your views regarding replication of this type of project elsewhere in the country? P: Do you think it is a feasible design that can be implemented elsewhere, in another province for example?	PT, LHS	12	P
Coherence/Coordination				
11	How effective do you think the project's efforts have been in coordinating with other stakeholders, specifically with the following: • LHW programme • Primary health care system (BHUs and RHCs) • Private medical practitioners P: Can you give me some examples to explain your response? P: Is there any aspect that you think could have been improved? How?	PT, LHS	13	P
12	What would you do differently if the project was being designed again? [Closing / thank you for your time] [NOTE THE INTERVIEW END TIME]	PT, LHS		P

Appendix 9: List of Documents Reviewed

	Document	Sightsavers' prioritisation guidance (P)	Received (Yes √ / No X)	Reviewed (Yes √ / No X)	Notes
	Donor visit 2016				
1.	Management Response_14-07-16		√	√	
2.	Pakistan DR Visit Report 2016		√	√	
	DR Task Force Documents				
3.	3rd National DR WG Meeting at Karachi on 29th July 2017(1)		√	√	
4.	Final Minutes of 2nd NDRWG Meeting Sept 15		√	√	
	IEC Materials				
5.	Sightsavers brochures		√	√	
6.	TV commercials x2		√	√	
7.	Complete book 08-11-2016		√	√	
8.	Diet Chart		√	√	
9.	DM brochure		√	√	
10.	DR Leaflet		√	√	
11.	Manual Lady health worker		√	√	
12.	Poster – 1		√	√	
13.	Posters		√	√	
	Log frame				
14.	2015 75061 SiB phase-5 proposal log frame final		√	√	
	Letter of Variation (LoV)				

	Document	Sightsavers' prioritisation guidance (P)	Received (Yes √ / No X)	Reviewed (Yes √ / No X)	Notes
15.	LoV narrative Pakistan DR 17 05 18		√	√	
16.	Pak DR Project LOV July 2019		√	√	
	MTR				
	MTR visit partner presentations				
17.	AIEH-MTR Presentation		√	√	
18.	Holy Family-MTR Presentation		√	√	
19.	Mayo Hospital-MTR Presentation		√	√	
20.	Pakistan DR Learning Review Report SiB - Final		√	√	
21.	SIB DR MTR management response FINAL		√	√	
	Other resources				
22.	RNIB - Understanding eye conditions affected by Diabetes		√	√	
23.	Sightsavers Reference Atlas		√	√	
24.	DR Learning Review Report dated 22 Dec		√	√	
	Proposal				
25.	2014 - 75061 Sib Pakistan phase 5 proposal narrative		√	√	
	QSAT				
26.	09-08-18_ QSAT Action Plan Update -AIEH		√	√	
27.	15-11-16_Quality Improvement Plan		√	√	
28.	QSAT-AIEH_13-03-2018		√	√	
	Research				
29.	Baseline KAP study - EJ comments addressed (2)		√	√	

	Document	Sightsavers' prioritisation guidance (P)	Received (Yes √ / No X)	Reviewed (Yes √ / No X)	Notes
30.	Compliance study		√	√	
31.	FGD Report		√	√	
32.	Prevalence of Type-II Diabetes Mellitus and Diabetic Retinopathy		√	√	
33.	Sightsavers DR services situation analysis_15 Feb 2013		√	√	
34.	LHW research report 2019		√	√	Final report to be shared – estimated end of February
	SiB reports				
	Y1H1				
35.	Y1H1 Appendices		√	√	
36.	Y1H1 Narrative		√	√	
	Y1H2				
37.	Final Financial Report H2 Y1 SiB phase 5 Pakistan FINAL		√	√	
38.	Pakistan DR IABP Y1H2 Narrative FINAL		√	√	
	Y2H1				
39.	Pakistan DR Y2H1 Appendices		√	√	
40.	Pakistan DR Y2H1 Case Study		√	√	
41.	Pakistan DR Y2H1 Narrative		√	√	
	Y2H2				

	Document	Sightsavers' prioritisation guidance (P)	Received (Yes √ / No X)	Reviewed (Yes √ / No X)	Notes
42.	Case Study_03-05-16 Final		√	√	
43.	Final Financial Report H2 Y2 SiB phase 5 Pakistan 17 6 2016		√	√	
44.	Pakistan DR Y2H2 Narrative 020516 Final		√	√	
	Y3H1				
45.	Case Study of Jannat Khatoon		√	√	
46.	Pakistan DR Y3H1 Appendices final		√	√	
47.	Pakistan DR Y3H1 Narrative final		√	√	
	Y3H2				
48.	Pakistan DR Y3H2 Narrative FINAL 280417		√	√	
49.	SIB Pakistan DR Y3H2Appendices_FINAL 280417		√	√	
	Y4H1				
50.	2017 75061-Pakistan DR Y4H1 Narrative Report		√	√	
51.	Pakistan DR Y4H1 Appendices FINAL 271017		√	√	
	Y4H2				
52.	Copy of Pakistan DR Y4H2 Appendices 30 04 18		√	√	
53.	Pakistan DR Y4H2 Narrative Report 30 04 18		√	√	
	Y5H1				
54.	190729 Case Study		√	√	
55.	DR Phase 5 extension phase appendices		√	√	
56.	DR Project Case Study		√	√	
57.	Pakistan DR Y5H1 Narrative Report		√	√	

	Document	Sightsavers' prioritisation guidance (P)	Received (Yes √ / No X)	Reviewed (Yes √ / No X)	Notes
	Y5H2				
58.	Pakistan DR Y5H2 Narrative Report updated		√	√	
59.	Revised Pakistan DR Phase 5 Financial Report		√	√	
	Y6H1				
60.	Pakistan DR Y6H1 Narrative Report updated		√	√	
61.	Revised Pakistan DR Phase 5 LoV Financial Report		√	√	
	Total		**60**	**60**	

Appendix 10: Data Collation Tool

Output type	Total Project Targets			Achievements Year 1			Achievements Year 2			Achievements Year 3			Achievements Year 4			Achievements Year 5			Achievements Year 6			Total Project Outputs			Performance (achievement out of targets)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
PATIENTS																											
Major Surgical Interventions																											
Patients received VR surgeries			274	11	9	**20**	13	15	**28**	23	21	**44**	25	24	**49**	29	29	**58**	43	34	**77**	144	132	**276**			**101**
Sub Total Major Surgical Interventions				**11**	**9**	**20**	**13**	**15**	**28**	**23**	**21**	**44**	**25**	**24**	**49**	**29**	**29**	**58**	**43**	**34**	**77**	144	132	**276**			
Medical Interventions																											
Diabetic treatment (laser)			4,133	174	156	**330**	355	339	**694**	121	122	**243**	123	157	**280**	174	192	**366**	202	218	**420**	1,149	1,184	**2,333**			**112**
IV injections				14	84	**98**	268	223	**491**	167	139	**306**	225	226	**451**	213	222	**435**	256	274	**530**	1,143	1,168	**2,311**			
Sub-Total Medical Intervention				188	240	**428**	623	562	**1,185**	288	261	**549**	348	383	**731**	387	414	**801**	458	492	**950**	2,292	2,352	**4,644**			
Screening																											
Diabetic Retinopathy Screening			74,234	3,616	4,518	**8,134**	4,392	5,773	**10,165**	4,860	6,187	**11,047**	4,958	8,014	**12,972**	6,285	7,979	**14,264**	7,299	9,655	**16,954**	31,410	42,126	**73,536**			**99**
Patients identified with DR			20,363	1,042	1,242	**2,284**	1,576	2,135	**3,711**	923	1,150	**2,073**	1,136	1,486	**2,622**	1,389	1,322	**2,711**	1,431	1,790	**3,221**	7,497	9,125	**16,622**			**82**
Patients identified with STDR			1,569	310	306	**616**	492	560	**1,052**	439	454	**893**	543	616	**1,159**	555	578	**1,133**	655	734	**1,389**	2,994	3,248	**6,242**			**398**
Sub-Total Screening				4,968	6,066	**11,034**	6,460	8,468	**14,928**	6,222	7,791	**14,013**	6,637	10,116	**16,753**	8,229	9,879	**18,108**	9,385	12,179	**21,564**	41,901	54,499	**96,400**			
Health Education (IEC) and Indirect Beneficiaries																											
People reached through IEC material			1,100,000	375	9,650	**10,025**	226,853	202,240	**429,093**	121,888	169,796	**291,684**	95,296	111,098	**206,394**	79,209	83,752	**162,961**	55,733	59,639	**115,372**	579,354	636,175	**1,215,529**			**111**
Sub-Total Health Education (IEC) and Indirect Beneficiaries				375	9,650	**10,025**	226,853	202,240	**429,093**	121,888	169,796	**291,684**	95,296	111,098	**206,394**	79,209	83,752	**162,961**	55,733	59,639	**115,372**	579,354	636,175	**1,215,529**			
TRAINING																											
Medical Doctors / General Practitioners																						-	-	-			
MOs/ GPs trained in complications of DM/DR			100	64	17	**81**	15	10	**25**	67	8	**75**	6	20	**26**			-			-	152	55	**207**			**207**
Eye Care Specialists																											
Training of 4 Ophthalmologists in laser treatment			4	4		**4**			-			-			-			-			-	4	-	**4**			**100**
Training of 2 Ophthalmologists in advanced VR surgical skills for two years			2	2		**2**			-			-			-			-			-	2	-	**2**			**100**
15 Master Trainers trained on the screening, referral and treatment guidelines by Consultant			15	14	3	**17**			-			-			-			-			-	14	3	**17**			**113**
Primary Eye Care cadres						-			-			-			-			-			-	-	-	-			
Ophthalmic Technicians & Medical Technicians			30	14	6	**20**	15	5	**20**	17	5	**22**	9	9	**18**			-			-	55	25	**80**			**267**
PHC Workers (LHWs) trained in eye care			3,153		3,884	**3,884**			-			-			-			-			-	-	3,884	**3,884**			**123**
Refresher training for optometrist																											
Training on Tracking System						-			-			-			-			-			-	-	-	-			
3 trainings on patient tracking system at 3 locations			3	3		**3**			-			-			-			-			-	3	-	**3**			
Sub-Total Training				**101**	**3,910**	**4,011**	**30**	**15**	**45**	**84**	**13**	**97**	**15**	**29**	**44**	-	-	-	-	-	-	**230**	**3,967**	**4,197**			
																						-	-	-			
TOTAL OUTPUTS				**5,643**	**19,875**	**25,518**	**233,979**	**211,300**	**445,279**	**128,505**	**177,882**	**306,387**	**102,321**	**121,650**	**223,971**	**87,854**	**94,074**	**181,928**	**65,619**	**72,344**	**137,963**	**623,921**	**697,125**	**1,321,046**			

Appendix 11: Changing incidence trends in DR and STDR at AIEH

	Normal retina			Patients revisited			Developed DR			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	%
April 2014-March 2015	954	881	1835	312	225	537	148	101	249	46.4%
April 2015-March 2016	1559	1453	3012	974	810	1784	197	124	321	18.0%
April 2016-March 2017	2020	1944	3964	1388	1127	2515	196	108	304	12.1%
April 2017-March 2018	3450	1690	5140	1478	1310	2788	113	102	215	7.7%
April 2018-March 2019	2642	2466	5108	774	574	1348	98	66	164	12.2%
April 2019-March 2020	3462	3078	6540	2022	1877	3899	180	108	288	7.4%

	Had DR			Patients revisited			Developed STDR			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	%
April 2014-March 2015	181	132	313	129	71	200	54	45	99	49.5%
April 2015-March 2016	235	193	428	142	142	284	99	27	126	44.4%
April 2016-March 2017	300	224	524	197	124	321	82	37	119	37.1%
April 2017-March 2018	462	426	888	212	215	427	71	57	128	30.0%
April 2018-March 2019	511	489	1000	292	224	516	58	62	120	23.3%
April 2019-March 2020	887	489	1376	345	299	644	78	55	133	20.7%

Appendix 12: Remodelled operational strategy for Integrated People Centred Eye Care

	Previous strategy	Remodelling
L	LHWs and LHS were trained in disease focussed primary eye care (PEC).	LHSs and LHWs would now be trained in Family Centred Eye Health (PEC+) providing holistic eye health promotion, disease prevention, gender mainstreaming, Safeguarding and disability inclusion for the whole family.
A	Awareness on eye health was usually delivered through community awareness sessions and through LHWs with IEC as the tactical strategy.	The awareness will now be family centred and will use BCC as the tactical strategy. In addition, Social Organisers will be recruited to act as activists and mobilise Union Council level activities. They will be based at the divisional hubs.
B	BHUs were included in the PEC activities but mostly in pilot projects.	The BHU health team will be provided orientation in a Basic Package of Eye Care. MOs will be provided refresher training in eye health and referral of at-risk patients with diabetes mellitus for retinal examination for diabetic retinopathy to RHCs with optometrists (when and where they become operational) and secondary level eye care services.
R	RHCs did not feature as a service delivery point for eye care.	Optometrists will be posted to RHCs so that they function as Advanced Primary Eye Care (APEC) centres for eye care.
U	Union Council as an Intervention Unit was not part of the DCEC strategy.	The Union Council will become the Intervention Unit for IPCEC.
S	The main focus of the DCEC strategy was at the district level with some extension to sub-district level.	The secondary (district and sub-district level) eye care services will be strengthened using defined service delivery standards. The district and sub-district level eye units will provide a package of eye care services.

L – Lady Health Worker; A – Activist and Awareness; B – Basic Health Unit; R – Rural Health centre; U – Union Council; S – Secondary Hospital/Eye Unit

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