

## "Seeing is Believing" Phase V Shanxi CHEER

### The Clinical Final Evaluation

Dr. Zhang Jingkai

#### Executive Summary

"Seeing is Believing (SiB)" Phase V Project is designed to promote establishing three-level of pediatric eye care network in Jincheng, Datong, Jinzhong, Taiyuan Prefecture of Shanxi Province. It planned to screen for child eye problems, set up the referral system, enhanced the postoperative follow-up and eventually improve children's educational opportunity, especially children with visual disability or multiple disabilities. The project is a 5-year project which was launched in June 2013 and is now approaching to the final stage for the evaluation. With the invitation of Orbis, the evaluation was to conduct to assess the clinically targeted outputs and outcomes of the network of child eye health which was established and functioning with the support of project.

The targeted areas of the clinical evaluation focused on the following:

- Shanxi Provincial Eye Hospital (SPEH, provincial-level implementing partner): Provision of comprehensive eye care services to children, training provision and supervision to county- and prefecture-level eye care professionals, and the practical research and child eye health promotion.
- Prefecture-level hospitals (Jincheng, Datong and Jinzhong): Capacity of managing simple child eye diseases.
- 15 county-level hospitals in four prefectures: Capacity of carrying out screening and referral and primary eye care provision.

The methods used for the evaluation includes desk documents review, on-site observation, face-to-face interview and questionnaire.

The overall findings of the evaluation were that "SiB" Shanxi CHEER Project effectively improved the capacity, quality and skills of child eye care services in eye care institutions at all levels in Shanxi Province. It played active role in improving children's educational opportunity. The key findings consist two parts. The first is the clinical outputs. The cumulative overall clinical outputs from June 2013 to April 2018 include: 5,093 cases of major surgeries (e.g. strabismus) with completion rate of 81% and of which 43.26% were girls; 639 cataract/glaucoma surgeries with a completion rate of 67% and of which 44.13% were girls; 1,892 minor surgeries (e.g. ptosis) with the completion rate was 150% and of which 41.60% were girls. The number of pediatric outpatient visits was 350,163 which achieved the target of 180%. Subsidized surgeries performed were 607 which achieved 101% of the target.

The second is the establishment and functioning of three-level eye care network for children at county-, prefecture-, and provincial level. The project follows "the trainer's training" approach to build a pyramid network at county-, prefecture-, and province-level. The child eye health network was established through this project. Equipment provided through the project is functioning well. Automatic short message system (SMS) for post-operative follow-up was set up in Shanxi Provincial Eye Hospital. The extent of engagement of primary eye care

institutions varied while some of the expected targets have not been fully achieved. There was delay or incomplete data entry; Postoperative follow-up was generally limited to the early postoperative period while there were few follow-up records of 6 months after surgery. There were 1-2 staff attended the training on how to use auto-SMS or counseling service so it was difficult to attain all services in the project. A hospital has no one to do the certain work because the person was transferred to another post so the collaboration among hospital project staff need to be improved.

Recommendations from the evaluation included improving the long-term follow-up to children with eye diseases, strengthening data management, increasing the strength of primary level training, and seeking for the active engagement and support of government sectors.

## **Background**

"Seeing is Believing" Shanxi CHEER project is funded by the Standard Chartered Bank. Orbis is the leading organization in the project while Shanxi Provincial Eye Hospital (SPEH) is the main local project implementing partner. Brien Holden Vision Institute, Helen Keller International and Perkins School for the Blind are also participated in the project. With various efforts, communication and collaboration among health, education sectors and disable people's federation (DPF), the project established the three-level child eye health network. It conducted child vision screening, set up the referral system, improved the postoperative follow-up, thus it has improved children's, especially those with visual disability or multiple disabilities, educational opportunity in Jincheng, Jinzhong, Taiyuan, and Datong Prefecture of Shanxi Province.

The project is a 5-year project which was launched in June 2013 and is now approaching to the final stage for the evaluation. With the invitation of Orbis, the evaluation was conducted to assess the clinical targeted outputs and outcomes of the three-level of child eye health network which was established and functioning with the support of project.

## **Targeted areas of the clinical evaluation**

1. Shanxi Provincial Eye Hospital (provincial implementing partner): Provision of comprehensive eye care services to children, training and supervision to county- and prefecture-level eye care professionals, and the practical research and child eye health promotion.
  - The capacity of manage complex eye diseases of children.
  - Pediatric ophthalmological teaching and surgical training for residents.
  - The establishment and application of counseling service and post-operative follow-up system to pediatric cataract and other surgeries.
2. Prefectural hospitals in Jincheng, Datong and Jinzhong: The capacity of managing simple eye diseases in children.
  - Capacity of diagnosing amblyopia and simple strabismus, and surgical treatment to simple strabismus in children.
  - Capacity of diagnosis and referral complicated strabismus (e.g. vertical, neurologic strabismus), congenital cataracts, glaucoma, ptosis, and other complex eye diseases in children.
3. County-level hospitals in four prefectures: Capacity of screening and referral and primary eye care.
  - Capacity of managing amblyopia with optometry approach or patching.
  - Capacity of post-operative follow-up for strabismus in large county hospitals.

## **Methodology**

1. Desk documents review.
2. On-site observation for assessing the patient pathway in OPD and ward, surgical service and equipment provision in one county hospital, one prefecture hospital and one provincial hospital.
3. Face-to-face interview:
  - Interviewees: a) Doctors: 10 at SPEH (including 2 anesthesiologists, 1 optometrist), 5 at No.1 People's Hospital of Jinzhong City (including 1 optometrist and project manager), 3 at Yangcheng Eye Hospital (including 1 optometrist). b) Nurses: 2 at SPEH

(including 1 project manager), 1 at No.1 People's Hospital of Jinzhong City, and 2 Yangcheng Eye Hospital (including 1 project manager). c) Administrative personnel: 1 at Yangcheng Eye Hospital. d) 1 parent from a village of Yuci district.

- The face-to-face interview mainly focused on the responsibilities of the interviewee in the project, the self-evaluation of project implementation, feedback and recommendation about the project.
4. Questionnaire: 5 valid response from No.1 People's Hospital of Jinzhong City and Yangcheng Eye Hospital respectively.

## Results

The overall findings of the evaluation were that "SiB" Shanxi CHEER Project effectively improved the capacity, quality and skills of child eye care services in eye care institutions at all levels in Shanxi Province. It played active role in improving children's educational opportunity.

### 1. Clinical outputs:

- The cumulative outputs of all hospitals from Jun. 2013 to April 2018: 5,093 major surgeries (e.g. strabismus) with completion rate of 81% and of which 43.26% were girls; 639 cataract/glaucoma surgeries with a completion rate of 67% and of which 44.13% were girls; 1,892 minor surgeries (e.g. ptosis) with the completion rate of 150% and of which 41.60% were girls. The number of pediatric ophthalmic outpatient visits was 350,163 with the completion rate of 180%. Subsidized surgeries performed were 607 which achieved 101% of the target.
- SPEH: Cumulative clinical outputs in 5 years (up to April 2018) were 4,656 major surgeries (e.g. strabismus) with a completion rate of 74% and of which 44.61% were girls; 626 cataract/glaucoma surgery with the completion rate was 65% and which girls accounted for 44.09%. Among the 1,296 ptosis surgery, the completion rate was 103%, among which 39.51% were girls. The number of pediatric ophthalmic outpatient visits was 300,678 which achieved 154% of the target. Subsidized surgery was performed in 339 cases with a completion rate of 57% because surgeries were also subsidized in other four project hospitals at prefecture- or county -level.

By selecting and appointing medical personnel training abroad and inviting international experts to SPEH, it strengthened ophthalmologists' ability of dealing with complex strabismus and other child eye diseases. This introduced new skills and surgeries outcomes were improved with new skills. It also achieved "zero breakthrough" in assessing binocular visual function among children aged 0- 3 years old. The capacity of child eye health service has been well improved.

- County- and prefecture-level hospital: Cumulative clinical outputs in 18 hospitals from Jun. 2013 to April 2018 include 437 major surgeries (e.g. strabismus), 13 cataract/glaucoma surgeries and 596 minor surgery (e.g. ptosis). Pediatric ophthalmic outpatient visits were 49,485 while 268 subsidized surgeries were performed.

The reason for unachieved surgical target may be related to parents' concerns so they refused to accept the surgery or chose to go to the higher-level hospital even places like Beijing and Tianjin. Other reasons are that provincial ophthalmologists perform surgeries in hospitals at lower level because of new policy allowing them to practice in other places and so on.

2. Establishment and functioning of three-level eye care network for children at county-, prefecture-, and provincial level: The project follows "the trainer's training" approach to build a pyramid network at county-, prefecture-, and province-level. The child eye health network has been established through the project and equipment provided through the project is in functioning well. Automatic short message system (SMS) for post-operative follow-up was set up in Shanxi Provincial Eye Hospital. The extent of the engagement of primary ophthalmic institutions varied so some of the expected targets have not been fully achieved. There was delayed or incomplete data entry for post-operative follow-up which was generally limited to the early postoperative period with few follow-up records of 6 months after surgery. There were 1-2 staff trained on how to use auto-SMS or counseling on surgery in one hospital but they also have other responsibilities so it was hard for them to attain all services. A hospital has no one to do the work because the staff trained was transferred to another post. The collaboration among hospital project staff need to be improved.
  - SPEH: SPEH's team compiled a curriculum for pediatric ophthalmology resident training. With the support of Orbis and other organizations for the prevention of blindness, a wet-lab was set up for surgical training with 4 sets of teaching equipment in total while three surgical microscope with side-port for teaching. This wet-lab is functioning well and has kept a log. The wet-lab and equipment have played a key role in training junior ophthalmologists of SPEH and ophthalmologists from lower-level hospitals.
  - Prefectural hospital: The doctors were sent to SPEH for further training or through attending workshop or conferences to improve the capacity of diagnosis and management of amblyopia and simple strabismus and the ability of referring complex cases. In No.1 People's Hospital of Jinzhong City, for example, the project has carried out a large scale of eye disease screening among children. They performed 234 strabismus surgeries, 14 ptosis surgeries and had 1,143 referrals from the screenings. The hospital has ability of prevention and management of simple child eye disease but the strabismus surgery has not achieved the target of the annual growth rate by 10%. The postoperative follow-up can be further improved. There is a big gap between the number needed to be referred from the school and the number of attendance in the hospital.
  - County-level hospital: The optical service and amblyopia management was established through building eye care personnel's capacity. The hospital with relatively good facilities (e.g. Yangcheng Eye Hospital) is capable of performing some simple strabismus surgery and providing low vision service. However, the postoperative follow-up needs further improvement as the long-term follow-up was unknown.

### **Recommendations**

1. Further improve the long-term follow-up to children with eye diseases: Vision reached to normal after strabismus surgery or amblyopia management may still become worse because children are in a specific development period. It needs continuous observation

on the long-term outcome so timely intervention can be provided accordingly to avoid missing the golden chance.

2. Strengthen data management: On the one hand, project data directly demonstrates the progress of the project; on the other hand, the data of five years has the value of the research. It can be used to understand children's eye diseases and for policy-makers like health authority and DPF. It is recommended to set up a dedicated person to manage the database, instead of a person working in part-time and taking charge of multiple tasks, which resulted in delay in data entry or incomplete entry. Monitoring needs to strengthen.
3. Increase the training length to eye care personnel at primary level: It is recommended to increase the frequency and length of the training to eye care professionals at the lower level, to combine theory with more practice (e.g. simulation). The interviews and questionnaires indicated that some eye care professionals at county-level felt that the training was not long enough although the training indeed helped them to improve their skills, but it was not qualified enough to the clinical service provision.
4. Seek for the active engagement and support from government sectors: Counties or prefectures with better performance had attention and support from the leaders of relevant government sectors. We should actively advocate and introduce the project to officials of relevant sectors to seek for more support, including official documents from government sectors to promote the smooth implementation of the project.

## **Appendix**

Appendix 1: Evaluation of Filed Visit Schedule (available on request)

Appendix 2: The List of Trainees (available on request)

Appendix 3: The List of Equipment Provided through the Project (available on request)

Appendix 4: Questionnaire (available on request)