Background & objectives

One in four people with diabetes resides in China. **Diabetic retinopathy** (DR) is the leading cause of blindness among the working-age population worldwide. However, primary health facilities still lack qualified healthcare professionals and essential equipment to conduct DR screening. With the contribution of **artificial intelligence** (AI), this project has provided DR screening for over 150,000 individuals in the less developed regions of Anhui Province.

Methodology

The project employs a comprehensive **AI-DR grading digital system** to establish an effective pathway for DR screening, referral and care follow up at primary level health facilities, which connected with the treatment services at secondary level hospitals. It adopts a three-pronged approach: (1) capacity building for integrated diabetic care with DR services, (2) service delivery and community empowerment, and (3) advocacy for strengthening multi-disciplinary and integrated people-centered health care for people with diabetes.
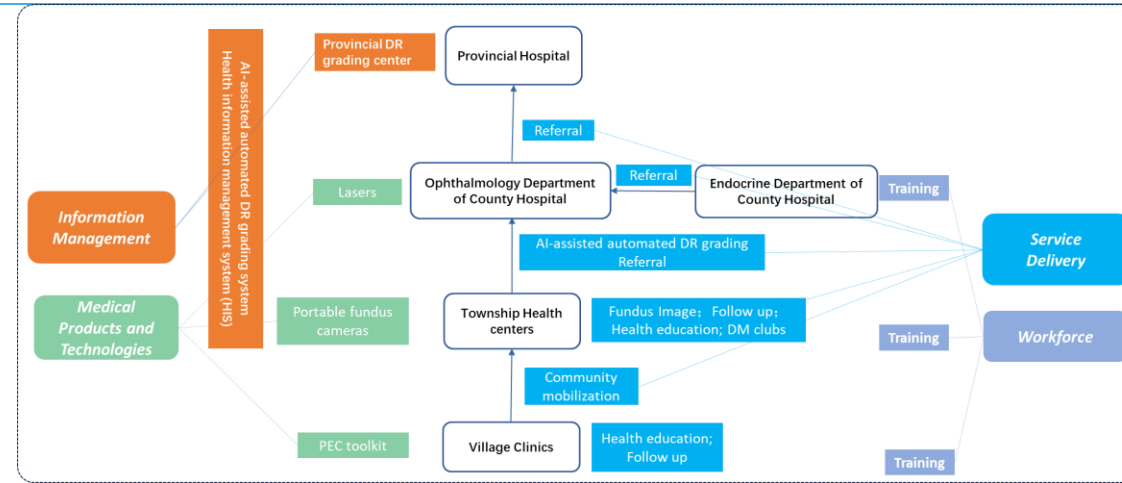

Figure. The Anhui Hierarchical Artificial Intelligence-Enabled Integrated Diabetic Eye Care Model

Results

The project enhances access to diabetic retinopathy (DR) education, free screenings, referral, treatment and on-going care follow-ups in rural regions by empowering primary and secondary **health** centers to implement **AI-enabled screening**, referral **and** health education initiatives. It established eye care services for people with diabetes through an integrated hierarchical healthcare system and built the capacity of ophthalmologists in secondary hospitals to manage DR treatment effectively. **Patient satisfaction** with AI-enabled screening is notably high, with 95.6% of respondents indicating a willingness to continue screening at primary health facilities. Additionally, 95.6% of patients express trust in township doctors, and 92.4% have confidence in the results generated by AI. Moreover, patients have demonstrated increased **health literacy** regarding diabetes and awareness of DR, as evidenced by the finding that 94.8% recognize the importance of regular eye check-ups for people with diabetes.

DR care	Total, N	Women, n (%)		≥50 years old, n (%)	
Participating in Health education activities	23284	12297	52.8%	19087	82.0%
DR screening at Primary level	47318	25847	54.6%	40965	86.6%
Referral form township health centers to county/city-level hospitals	3392	1870	55.1%	2817	83.0%
Diagnosed with DR	4444	2494	56.1%	3765	84.7%
Receiving Intravitreal Injection	1548	858	55.4%	1400	90.4%
Receiving Laser Treatment	791	408	51.6%	700	88.5%
Receiving Vitrectomy	123	72	58.5%	123	100%

Table. DR-Related Services Received by Patients, Stratified by Gender and Age Group (May 2022– April-2024)

Conclusion & policy recommendations

The project's success in enhancing holistic management of diabetic retinopathy (DR) including health education, screening, referral, treatment and on-going follow-up across rural China highlights the significance of integrated care interventions that incorporate technological innovations, such as **AI-assisted diagnosis**, alongside organizational innovations including the strengthening of primary eye health care, task-shifting, and the establishment of a people-centered integrated care approach. The application of AI effectively addresses healthcare workforce shortages and promotes health equity, thereby contributing to the advancement of **universal health coverage**.

Contact information: Phoebe Pu, Advocacy and Policy Manager | The Fred Hollows Foundation, wpu@hollows.org