

Outcomes of a Novel Full-Service, Free Ophthalmology Clinic-Within-A-Clinic: A Four-Year Longitudinal Study

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ABSTRACT

PURPOSE: We evaluate the Clínica Esperanza Ophthalmology Service, a free service for uninsured patients in southern New England.

METHODS: The service operates monthly under a novel clinic-within-a-clinic model, existing as a subsidiary of a local free clinic. A mixed-methods program evaluation and a retrospective chart review from December 2021 to January 2025 were analyzed using descriptive statistics.

RESULTS: One hundred and forty-three (143) patients were scheduled during the study period, of whom 106 (74%) were seen. Median age was 51 years and 52/106 (49%) were female. Most patients (97%) identified Spanish as their primary language. There were no significant demographic differences between those seen and no-shows. Diabetic retinopathy was the most common diagnosis (37/106, 35%), followed by dry eye (35/106, 33%), and cataracts (29/106, 27%). Half of the patients (51/106, 48%) received a referral, most commonly for refraction (23/51, 45%). Ophthalmic medication was prescribed for 53/106 (50%) patients, most commonly for artificial tears (43/53, 81%). Qualitative strengths included education and low operational overhead. Qualitative challenges included long length of encounters and consequently, low patient volumes.

CONCLUSIONS: Our novel ophthalmology service supplements existing operations and helps meet an unmet public health need among its region's most vulnerable patients. Opportunities for improvement include improving clinic volumes and mitigating no-show rates.

KEYWORDS: Program evaluation; eye diseases; health equity; health disparities; diabetic retinopathy

INTRODUCTION

Free clinics play an increasingly important but understudied role in the United States safety-net healthcare system, emerging as access points for medically underserved populations.¹ Between 2005 and 2014, the number of free clinics in the United States has increased steadily.² Among these underserved populations, Latino communities face a

particularly high burden of preventable and treatable eye diseases, experiencing disproportionate morbidity compared to other racial and ethnic groups.³ Studies have shown that Latino adults are at increased risk for diabetic retinopathy, distance vision impairment, pterygium, and glaucoma, which can progress silently and lead to vision loss.⁴⁻⁷ However, individuals in this population often face barriers to ophthalmologic care, including insurance gaps, language discordance, and transportation challenges; as a result, eye conditions are often undetected until advanced stages, contributing to disparities in visual outcomes.^{8,9}

Ophthalmology-focused free clinic services are uniquely positioned to bridge the gap between community health and specialty care. In addition to addressing unmet needs in access, these clinics serve as important venues for both patient education and trainee development. Medical students have limited opportunities to practice ophthalmic skills during their clinical years, leading to measurable declines in proficiency.¹⁰ Student-run free clinics have been proposed as a way to address this gap by offering supervised, extracurricular exposure to ophthalmology while simultaneously expanding access for underserved patients.¹¹⁻¹³ At the same time, free clinic models emphasize health literacy and counseling, which have been shown to improve patient engagement and chronic disease management in vulnerable populations.^{11,14,15} In this setting, trainees gain experience caring for groups disproportionately affected by barriers to specialty care. However, prior evaluations of ophthalmology services in free clinics have been largely confined to administrative metrics or patient satisfaction surveys, with little characterization of the clinical spectrum of disease encountered.^{14,15} Further, there is a dearth of prior work characterizing the epidemiology of eye conditions in free clinic settings that primarily serve Spanish-speaking patients, an especially relevant group given the growing burden of preventable vision loss among Latino patients in the United States.

In particular, Rhode Island and the broader southern New England region are home to a large and growing population of Latino residents, many of whom face persistent barriers to accessing high-quality healthcare.¹⁶ Clínica Esperanza/Hope Clinic (CEHC) is a free, volunteer-run clinic located in Providence, Rhode Island, that provides primary care and health education to over 3,000 uninsured patients annually, over 90% of whom identify as Latino and speak Spanish

as their primary language.¹⁷ In 2021, a monthly ophthalmology service was launched within CEHC using a novel clinic-within-a-clinic model, in which the ophthalmology services operate as a subsidiary of the existing primary care infrastructure. This program seeks to address a paucity of available ophthalmological care by operating within CHEC, a well-known and trusted local institution. The monthly ophthalmology service continues to be in full operation at the time of publication.

This study aims to understand the impact of our program, in addition to identifying opportunities for growth and outlining the structure of our clinic-within-a-clinic framework. We further aim to evaluate clinical data to better characterize the ophthalmological care needs of a primarily low-income, Spanish-speaking, patient population.

MATERIALS AND METHODS

Data Collection

A retrospective chart review was conducted for all patients seen by the Ophthalmology Service from its inception in December 2021 through January 2025. Data was collected on patient demographics (i.e., age, sex, preferred language) and clinical parameters (i.e., diagnoses, prescriptions, referrals). Data was also collected on clinic resources, e.g., equipment and personnel, via review of clinic documentation. This study was deemed exempt by the Brown University Institutional Review Board and adhered to the tenets of the Declaration of Helsinki and all federal and state laws, including the Health Insurance Portability and Accountability Act of 1996.^{18,19} Informed consent was not required as the study involved retrospective analysis of de-identified data and did not include any intervention or collection of identifiable private information.

Statistical Analysis

Patient data were analysed using descriptive statistics in R. To compare characteristics between patients who were seen in clinic and those who were scheduled but never seen (i.e., those who canceled, no-showed, and never rescheduled), Wilcoxon test and Fisher's exact was used. A two-tailed *p*-value of < 0.05 was considered statistically significant.

RESULTS

Patient Demographic Characteristics

A total of 143 patients were scheduled for ophthalmologic evaluation during the study period. **Table 1** summarizes the demographic characteristics of the full scheduled cohort. The median age was 51 years (interquartile range [IQR], 42–60), and the gender distribution was approximately equal, with 49% female and 51% male. Most scheduled patients identified Spanish as their primary language, with the remainder reporting English (2, 1.4%), Arabic (1, 0.7%), or Russian (1, 0.7%).

Of the 143 scheduled patients, 106 unique individuals were seen in clinic, including 16 who were evaluated at least once for follow-up care (15.1% of unique patients seen), with a median interval of 98 days between visits. Annual follow-up visits per year are shown in **Figure 4**. Thirty-seven patients were scheduled but never seen. A Wilcoxon test showed no statistically significant differences in age between patients who completed at least one visit and those who were no-shows. Fisher's exact showed no significant differences in sex or primary language between patients who completed at least one visit and those who were no-shows.

Table 1. Demographics of Scheduled Patients. Results are shown as median (Q1, Q3) for age; as n (%) for all other demographic characteristics.

Characteristic	N = 143
Age	51 (42, 60)
Gender	
Female	70 (49%)
Male	73 (51%)
Primary Language	
Arabic	1 (0.7%)
English	2 (1.4%)
Russian	1 (0.7%)
Spanish	139 (97%)

Figure 1. Visit attendance by year

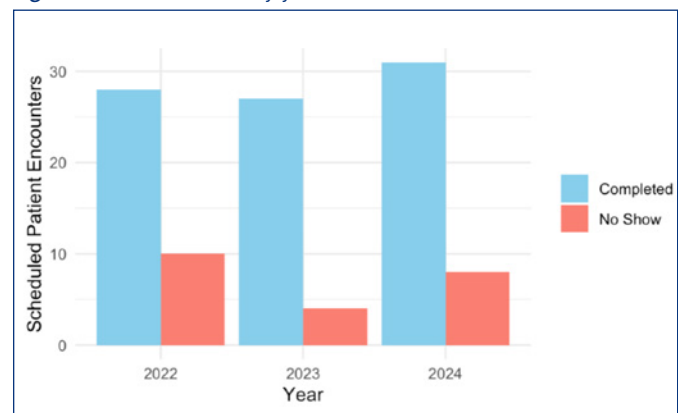
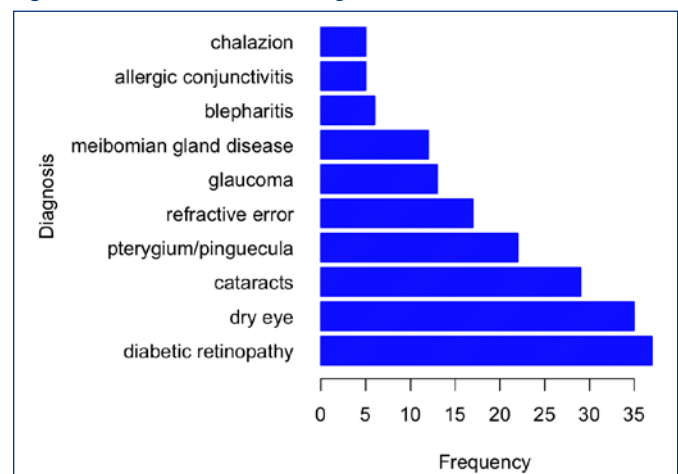


Figure 2. Most common clinical diagnoses



Visit attendance by year is shown in **Figure 1**. Visit attendance included only new patient visits and excludes follow-up encounters. In 2022, there were 28 completed visits and 10 no-shows; in 2023, 27 completed visits and 5 no-shows; and in 2024, 31 completed visits and 8 no-shows. No consistent upward or downward trend in no-show rates was observed over the study period. Data from 2021 and 2025 were omitted from **Figure 2** as the service was started in late 2021 and our data collection period concluded in early 2025.

Patient Clinical Characteristics

The most common clinical diagnoses among the 106 unique patients seen in clinic are shown in **Figure 2**. Diabetic retinopathy was the most frequent reason for evaluation and ultimately the most common diagnosis (37/106, 35%), followed by dry eye (35/106, 33%), cataracts (29/106, 27%), and pterygium or pinguecula (22/106, 21%). Nearly half of the patients (49/106, 46%) were seen for a single diagnosis, while 15 patients were diagnosed with two or more conditions (15/106, 14%). Less commonly encountered conditions included: lagophthalmos (1/106, 1%), pseudoexfoliation syndrome (1/106, 1%), pyogenic granuloma (1/106, 1%), intraocular lens (IOL) subluxation (1/106, 1%), vitreous degeneration (2/106, 2%), age-related macular degeneration (AMD) (4/106, 4%), optic nerve hemorrhage (1/106, 1%), posterior capsular opacification (4/106, 4%), retinal detachment (2/106, 2%), and strabismus (1/106, 1%).

At their most recent clinic visit, 51 out of 106 patients (48%) were referred for additional evaluation or specialty care. The most common referral destination was for refraction services (23/51, 45%), followed by glaucoma (9/51, 18%), retina (6/51, 12%), and cataract surgery evaluation (3/51, 6%). Other referrals included oculoplastics evaluation (2/51, 4%), pterygium/pinguecula (2/51, 4%), IOL subluxation (1/51, 2%), dry eye management (1/51, 2%), evaluation of optic disc anomaly (1/51, 2%), strabismus (1/51, 2%), and migraine management through neurology (1/51, 2%).

At their most recent visit, 53 out of 106 patients (50%) received a prescription for ophthalmic treatment. The most prescribed or recommended agents were lubricating eye drops, namely artificial tears (AT) (43/53, 81%). Antihistamine medications included ketotifen fumarate (4/53, 8%) and combination AT and ketotifen fumarate (1/53, 2%). Antibacterial therapies included erythromycin ointment (1/53, 2%) and neomycin-polymyxin B-dexamethasone (1/53, 2%). Glaucoma medications included timolol maleate (n = 1) and dorzolamide-timolol (1/53, 2%).

Program Review

In parallel with the chart review, we conducted a descriptive synthesis of programmatic documents and stakeholder feedback to qualitatively review clinic operations. Sources included staffing and equipment logs maintained by the service, internal clinic documentation, and discussions with

Table 2. Clinic equipment

Equipment	Method of Obtaining
Haag Streit slit lamp	Private donation
2 indirect ophthalmoscopes	Grant funding
1 gonioscope	Departmental donation
Fluorescein strips + proparacaine, phenylephrine, tropicamide	Departmental donation
Welch Allyn RetinaVue 700 Imager	Clínica Esperanza
2 Reichert Tono-Pen AVIA	Grant funding
Mobile phoropter	Private donation
Bawa 90D & 20D lenses	Departmental donation
Pinhole refractor	Departmental donation
Low-literacy vision chart	Grant funding

Figure 3. Organizational framework of the clinic

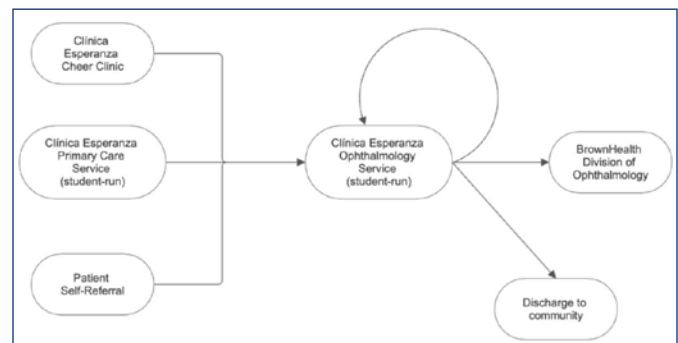
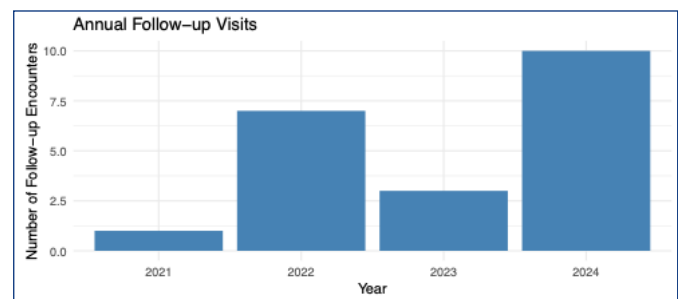


Figure 4. Annual follow-up visits



medical student volunteers. Records were collated to identify information about operational strengths and challenges.

Findings from this review informed our description of the service's organizational structure, personnel, and resources. The ophthalmology service is operated in partnership with the Brown University Health Division of Ophthalmology, with staffing that includes a medical student coordinator, medical student volunteers, a faculty ophthalmologist preceptor, ophthalmology residents, and core clinic staff. Key ophthalmic equipment [Table 2] was obtained through departmental and private donations as well as grant funding, including university-based programs supporting medical education and community engagement. To expand patient

access, a referral pathway was established in 2025 with the Rhode Island Lion's Club, connecting uninsured and Spanish-speaking patients to low-cost optometry services.

This organizational framework is complemented by defined patient flow pathways [Figure 3]. Patients are referred from multiple sources, including Clínica Esperanza's Primary Care Service, the Clínica Esperanza/Hope Clinic Emergency Room Diversion Project (CHEER Clinic), and self-referral. Following ophthalmologic evaluation, patients may be managed longitudinally within the clinic, referred to the Brown University Health Division of Ophthalmology for subspecialty care, or discharged to the community with follow-up as needed. Together, these pathways support continuity of care while enabling appropriate triage to higher levels of service.

Finally, the qualitative review identified education as a central strength of the ophthalmology service, with benefits for both patients and trainees. Visits routinely incorporate counseling on disease understanding, self-management, and follow-up, with attention to linguistic concordance through educational materials provided in Spanish. For example, patients with diabetic retinopathy received counseling on the importance of glycemic and blood pressure control, while those with dry eye were provided guidance on accessible, low-cost interventions such as artificial tears and low-cost warm compress and massage methods. Bilingual counseling and the use of low-literacy vision charts (i.e., using symbols or numbers) facilitated communication for patients with limited English proficiency, a population that comprised the vast majority of those seen in our clinic. The clinic also functioned as a supervised teaching environment for medical students and residents. Trainees received structured opportunities to practice core ophthalmic skills, including slit-lamp microscopy, tonometry, and ophthalmoscopy, under direct faculty and resident supervision. Each clinic session was typically conducted monthly and lasted three hours, with approximately four to five medical student volunteers, one attending ophthalmologist, and one to two ophthalmology residents present. On average, four to five patients were scheduled per session, which allowed adequate time for instruction, patient education, and documentation. Students were trained in charting methods that respected patient privacy, while learning to connect patients with local resources that provide low-cost follow-up, such as the Lions Club referral pathways.

CONCLUSION

This study characterizes the first four years of a free ophthalmology service operating within a local free clinic. Among the 143 patients scheduled during the study period, the majority were Spanish-speaking, middle-aged adults. Half of all seen patients were referred for further care, and half received prescription treatment. The most common

presenting conditions included diabetic retinopathy, dry eye, cataracts, and pterygium, though a broad spectrum of ophthalmic disease was identified. Service volume remains modest, and the no-show rate limits the number of patients reached. Our service leverages existing free clinic operations to run with minimal overhead and has successfully employed partnerships with community organizations, private donors, and an academic ophthalmology department to secure medical equipment and referral sites for escalation of care.

The proportion of patient's seen for follow-up may reflect early phase of program implementation and well-documented rates of no-show appointments in the free clinic patient population due to a variety of social challenges.^{20,21} In addition, follow-up was not clinically indicated for all patients, as many encounters served primarily as a screening entry point into specialty care, with nearly half of individuals appropriately referred to a nearby academic ophthalmology center for ongoing subspecialty care after initial evaluation at our clinic. Others had conditions that were sufficiently managed at the initial encounter. The proportion of patients returning for follow-up within this service is comparable to rates in similar student-run ophthalmology clinics and suggests a substantial subset of patients engaged longitudinally despite these structural barriers.^{14,22}

Unlike many vision screening programs, our program functions as an ophthalmology site, with access to slit-lamp examination, intraocular pressure measurements, and indirect ophthalmoscopy. Patients received on-site medications, counseling, and referrals to optometry or subspecialty ophthalmology as needed. As the in-house eye care service for our local free clinic, our Ophthalmology Service offers direct, language-concordant care to an established patient population already receiving primary care within the same setting. This integration allows for ongoing coordination with primary care and social services, reducing common access barriers such as transportation and insurance coverage.²³⁻²⁵ Nonetheless, perceived and structural barriers likely remain, including inflexible work schedules, caregiving responsibilities, and immigration-related concerns, which may contribute to missed appointments.²⁶⁻²⁸ Future directions include evidence-based approaches to mitigate no-shows, such as offering short-lead or open-access scheduling to minimize waiting times, implementing formal quality-improvement cycles to track attendance patterns, and incorporating risk-stratified outreach (such as additional reminder calls prioritized for patients with prior missed visits).²⁹⁻³¹

The ophthalmology service also functions as a teaching site. Patient-facing education empowers individuals to better understand and manage their conditions, while trainee-facing education provides learners with opportunities to develop both technical ophthalmic skills and competencies in culturally and linguistically concordant care. This

dual role of the service, as a site of both patient care and clinical education, supports a sustainable model by simultaneously meeting community needs and giving trainees patient exposure and technical skills that will serve them in future clinical practice.^{32,33} Future work could formally evaluate the influence of this teaching model on trainee skill development.

Compared to similar student-run or community-based eye care initiatives, our service provides an intentional focus on comprehensive care over high-volume patient screening. While many programs emphasize screening and referral only, our model emphasizes diagnosis, treatment, and longitudinal care.^{34,35} The relatively low patient volume reflects an intentional prioritization of comprehensive care delivery and our status as a teaching service. Our work contributes valuable epidemiologic data on the spectrum of eye disease within an underserved, primarily Spanish-speaking population, a group underrepresented in ophthalmic research.³⁶⁻³⁸ Our model may be scalable across other free clinic settings: by using a physical location and administrative support staff already employed by our local free clinic, the financial and logistical resources required to start and continue our ophthalmology service was minimized.

As a single-center program evaluation, our findings should be interpreted in the context of several limitations. First, we did not track patient outcomes following referral, which precludes assessment of the program's impact on more longitudinal measures such as referral completion or visual acuity improvement. Future implementation of standardized follow-up protocols will be critical to evaluate continuity of care, treatment outcomes, and patient satisfaction. Finally, the qualitative component relied on existing documentation and informal debriefs, which may not capture the full spectrum of stakeholder perspectives. Nonetheless, this pragmatic approach provided valuable insights into operational strengths and barriers that would not have been evident from chart review alone.

In summary, we describe the outcomes and longitudinal implementation of a comprehensive ophthalmology service embedded in a local free clinic. We find that diabetic retinopathy, dry eye, cataract, and pterygium/pinguecula are among the most common conditions in our patient population of primarily uninsured, Latino patients. We also find that our model demonstrates that comprehensive eye care can be delivered to high-need populations using a clinic-within-a-clinic framework. Our model is particularly well-suited for leveraging existing free clinic infrastructure and community and academic partnerships. The findings herein may serve both to better characterize common eye diseases in an underserved population and to provide a replicable model to deliver ophthalmic care to this patient cohort.

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