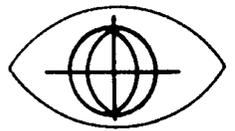


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International Eye Foundation

**FINAL REPORT ON THE
GRENADA BLINDNESS PREVENTION
AND TRAINING PROJECT**

USAID GRANT NO # 538-0120

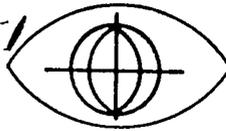
June 30, 1984 - December 31, 1987

January 1988

the
International
Eye Foundation

7801 NORFOLK AVENUE ■ BETHESDA, MARYLAND 20814 ■ TELEX 271588 IEF UR ■ (301) 986-1830

PD-ABK 651



International Eye Foundation

FINAL REPORT ON THE
GRENADA BLINDNESS PREVENTION AND TREATMENT PROJECT
GRANT # 538-0120

January 1988

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I. EXECUTIVE SUMMARY

In June, 1984, the International Eye Foundation signed an OPG, Grant Number 538-0120, for \$400,000 towards the support of a Grenada Blindness Prevention and Treatment Project. This grant extended from June 30, 1984 through December 31, 1987. Because projects funds were expended by October 15, 1987, the project ended officially somewhat earlier than originally planned, though IEF activities in Grenada continued and are currently operational.

Over the life of the project, the International Eye Foundation provided assistance to the Ministry of Health in developing preventive and curative eye health services. The IEF Project Director, an American ophthalmologist seconded to the Ministry of Health, played a central role in providing ophthalmological services to the public, training health care workers, and promoting blindness prevention as a community concern and focus for action.

As a result of the project, Grenada now has an eye care infrastructure which includes not only tertiary level care at the Eye Unit of the General Hospital in St. George's (also referred to as the St. George's Eye Unit) but also primary and secondary level care in the districts. Several resources have been integrated into the project's blindness prevention activities: notably the schools, the district health centers, the media, and local community groups.

Through the project, the nurses at the Eye Unit obtained specialized training in ophthalmology. They now form a core group of secondary level eye care providers with responsibility for handling the bulk of cases, as well as for training and supervising district health workers who serve as primary eye care providers. The nurses, together with a Grenadian ophthalmologist partially trained under IEF auspices who will return to Grenada on completion of advanced training in ophthalmology (and whose position will be covered by an IEF ophthalmologist until that time), comprise a team of eye care workers able to provide adequate eye care services to the people of Grenada.

II. PROJECT BACKGROUND

Following the American intervention in Grenada in the fall of 1983, Grenada was without eye care services. The Cuban ophthalmologist who had been working at the Eye Unit at the General Hospital in St. George's, the capital, had left, leaving a "vacuum" in terms of eye care services available to the general population. At that time, the IEF was involved in an inter-agency effort to provide training for physicians and nurses in the Eastern Caribbean in the delivery of preventive and curative eye health services. This program, which received partial funding from AID under OPG #538-0111 as the Caribbean Eye Care Project, was centered in Barbados. Under this OPG, physicians from the island-nations of St. Vincent, St. Lucia, St. Kitts, Antigua, and Dominica, and the nation of Belize were eligible to obtain specialized training in ophthalmology at the University of West Indies training hospital, Queen Elizabeth, in Bridgetown, Barbados.

In view of the support the IEF was already providing in the region, the IEF approached the U.S. Agency for International Development seeking additional support for a blindness prevention and treatment program in Grenada. To complement this program, a physician from Grenada would also be eligible to

participate in the training course in ophthalmology at the University of the West Indies under the auspices of the Caribbean Eye Care Project.

In January, 1984, the IEF formalized an agreement with the Ministry of Health in Grenada whereby both parties agreed on a collaborative program in which the IEF would assist in the development, implementation and administration of a national blindness prevention and treatment program. A proposal to support the Grenada Blindness Prevention and Treatment Program was subsequently developed and submitted to USAID for consideration as an OPG. The grant was approved for \$400,000, active as of June 30, 1984 through December 31, 1987.

Initially, as an interim measure, the IEF recruited a series of ophthalmologists as short-term consultants to provide tertiary level eye care services at the General Hospital Eye Unit in St. George's. Finally, the position of Project Director was filled and Dr. May Khadem was posted to Grenada in January 1985. Dr. Khadem served as Project Director through July, 1987.

III. PROJECT OBJECTIVES

The goal of the project as explicitly stated in the OPG proposal was to assist the government of Grenada in the provision of preventive and curative eye health services nationwide. This was to be achieved by:

- (1) providing long-term professional and technical assistance by stationing an IEF ophthalmologist in Grenada for a three-year period to assist in program planning, implementation and administration;
- (2) training local health care personnel in eye care appropriate to their function;
- (3) upgrading central and regional facilities to serve as eye care centers;
- (4) integrating and promoting preventive eye care in the community;
- (5) strengthening the capacity of the local voluntary agency, the Society of the Friends of the Blind, to contribute to the national blindness prevention and treatment program.
- (6) arranging for the training of a qualified Grenadian physician as a University of West Indies-certified eye specialist to assume responsibility for providing eye care services following the end of the project.

IV. PROJECT DESCRIPTION

The project fulfilled all objectives with some caveats. The following section describes in some detail the project's activities in relation to the objectives laid out in the project proposal.

(1) Provision of Long-term Professional and Technical Assistance:

Over the life of the project, the IEF Project Director was able to extend ophthalmic care to a greater portion of the population by actively promoting the establishment of a three-tiered referral system of eye care throughout the island. While the Eye Unit at the General Hospital in St. George's serves as the tertiary level referral center, district health workers now play an important role as primary and secondary level eye care providers. Dr. Khadem reorganized ophthalmological services at the Hospital's Eye Unit, extended services to district health centers, trained health care and community workers in eye care, and instituted various preventive measures including school and community screening programs.

During Dr. Khadem's period of service, 13,340 patients were seen and 570 operations performed. A significant number of these were extracapsular cataract extractions with intraocular lens implants, a technology which was previously unavailable in Grenada.

Through a series of recommendations to the hospital administration, Ministry of Health, and Society of the Friends of the Blind, the project director was also effective in highlighting the problems of blindness and eye care service delivery. By acting as advocate for blindness prevention, the project director sensitized policymakers and the community to the need to mobilize support for eye care services. The Ministry of Health, recognizing the value of the system of eye care services developed, has taken steps to ensure its continuity: retaining specialized ophthalmic nurses in eye care services and instituting fees for patients to generate income for the eye unit.

(2) Training of Local Health Personnel in Eye Care:

Over the life of the project, various categories of health care personnel were trained in primary and secondary eye care. Within the first few months of Dr. Khadem's arrival in St. George's, an IEF nurse training consultant, Ms. Tamara Oberbeck, who is a Certified Ophthalmic Medical Technician and Registered

Nurse, spent two weeks in Grenada assisting Dr. Khadem in planning training activities and designing appropriate training materials for nurses, nursing students and various community-based health workers. Training, especially of nurses as secondary level eye care workers, constituted a major program objective and activity.

Seminars in ophthalmology have been given to thirty-six physicians, primarily District Medical Officers and hospital registrars. This training included practical sessions on the eye exam as well as didactic lectures on common eye disorders, trauma, and emergencies.

One-day primary eye care seminars have been offered on a monthly basis. Participants in these seminars included 139 district nurses, community health aides, nursing tutors, nursing assistants, hospital staff nurse and ward sisters. Beginning in December, 1985, Dr. Khadem and Sister Joan Duncan, the head nurse at the Eye Unit, began making follow-up training visits to district health centers to continue working with those district nurses who had already received some initial eye care training through the project.

A more comprehensive two-week course was devised and given to two groups of nurse practitioners and public health nurses

who act as health team leaders. Twenty-seven nurses participated in this course. The purpose of this course was to equip these nurses to supervise monthly Eye Screening Clinics at the five major health centers throughout the island and in Carriacou as well as to supervise and direct School Vision Screening throughout the country.

These nurses were directly involved in the evaluation and care of patients in morning clinics followed by lectures, slide presentations, practical demonstrations and discussions in the afternoons. They learned how to do a complete eye exam with the instruments available to them at the health centers, to handle common minor eye problems and to recognize emergencies.

A separate seminar was held for 25 government-employed pharmacists and pharmacy students covering eye anatomy and physiology, common eye disorders, and general classes of drugs used in ophthalmology. Dr. Khadem also provided instruction to the School of Pharmacy to 11 pharmacy students on specific drugs used in ophthalmology, mechanisms of action, side-effects, indications, contraindications, toxicity, dosage, etc.

Instruction was also provided at the School of Nursing. The initial three lectures were given by Dr. Khadem. Since then, Sister Duncan has been primarily responsible for this teaching.

She has also helped produce a series of videotapes on primary eye care, ophthalmic nursing and procedures for the School of Nursing. A special training program was also held specifically for the nursing tutors to assist them in their teaching.

Over the life of the project, nurses in the Eye Unit at the General Hospital in St. George's received intensive training in ophthalmology through weekly teaching conferences, daily ward rounds and practical teaching in the clinics. This training covered the basics of an eye exam, diagnosis and management of emergencies, glaucoma, visual field testing, ocular pharmacology, optics, refraction, retinoscopy, strabismus, etc. The IEF provided certificates to five nurses in recognition of the advanced level of ophthalmic specialization they have acquired: Sister Joan Duncan, Nurse Carol Gibbs, Nurse Lydia LaTouche, Nurse Cynthia Mereigh, and Sister June DeRoche.

The ophthalmic nurses have been trained to provide the following services at the clinic:

1. Complete eye exams on patients on patients seen at the clinic utilizing specialized equipment including slit-lamps, tonometers, ophthalmoscopes, etc.
2. Detection and treatment of minor eye problems: uncomplicated conjunctivitis, hordeola, chalazia, foreign bodies, allergic conjunctivitis, minor chemical burns, corneal abrasions, etc.

3. Detection of major eye problems and emergencies and provide initial treatment for, among other conditions, corneal and lid lacerations, orbital cellulitis, acute dacryocystitis, strabismus, corneal ulcers, iritis, open-angle glaucoma, angle-closure glaucoma, nerve palsies, blow-out fractures, retinoblastoma, cataracts, refractive errors, hyphemas, retinal detachments, major burns, herpes corneal ulcers, etc.
4. Assistance in ophthalmic surgery.

Because of their highly specialized skills, these nurses, constituting the backbone of secondary eye care services in the country, represent a valuable resource to the Ministry of Health.

(3) Upgrading Central and Regional Facilities:

The Eye Unit at the General Hospital in St. George's, which was originally built and equipped with funding provided by the Society of the Friends of the Blind in Grenada and the Royal Commonwealth Society for the Blind in England, was lacking much basic equipment by the time Dr. Khadem began her assignment. On an initial site visit to Grenada in October, 1984, Dr. Khadem, in consultation with IEF headquarters staff, conducted an equipment survey, producing a detailed list of equipment required. The list of items subsequently purchased and delivered to the General Hospital by March, 1985, is included in this report as Appendix A.

The Eye Unit was fully equipped for modern eye surgery and patient care. Provision of a Weck surgical operating microscope permitted the IEF to provide "state of the art" surgical services. A new slit lamp, phoropter, lensometer, trial frame/lens set, retinoscope, new surgical instruments, intraocular lenses, medicines and suture materials permitted efficient and high quality care. Over the life of the project, defective instruments were repaired and replacements for consumable supplies provided on an "as needed" basis.

The five District Health Centers (Sauteurs, St. David's, Grand Bras, St. George's and Gouyave) and Carriacou were provided with Schiottz tonometers, visual acuity charts, and primary eye care ("red eye") charts. With such equipment in place, the staff trained at these centers have been able to work as secondary eye care providers--screening patients, treating common eye problems, and referring cases they cannot handle to the Eye Unit at the hospital in St. George's.

(4) Integration and Promotion of Preventive Eye Care:

Monthly Eye Screening Clinics have been established at the District Health Centers. Patients are screened for glaucoma and other visually debilitating eye diseases. A protocol was developed and provided to all health centers to ensure thorough

eye examinations and to provide guidelines for referral to the Eye Unit (see Appendix B). The ophthalmic nurses from the Eye Unit periodically visit these clinics to assist the district nurses, reinforce their skills and knowledge and provide a degree of supervision.

School vision screening programs were inaugurated in 1986. Such screenings target children aged 3 to 7 years since intervention at this phase of development is most effective in preventing blindness. By the end of July, 1987, 3,506 children had been screened for eye disease through this program. Children who failed the screening were referred to the district health centers. If they fail again, they are referred to the Eye Unit for a more extensive evaluation by the ophthalmologist or ophthalmic nurse. A protocol has been developed so that uniform methods are used in screening and referral (see Appendix B).

The nursing staff at the Eye Unit produced a series of six radio programs in local dialect on the subjects of glaucoma, cataract, and injuries. (The scripts are attached to this report as Appendix C.)

The Project Director also provided various lectures to local community groups. Two lectures were given to the Grenada

Diabetic Association dealing with diabetic retinopathy. A videotape was also prepared on diabetic eye diseases for use by the association in the community. A presentation on eye care was also given at a health fair sponsored by the Seventh Day Adventists in November 1986. During Health Week in July, 1986, the Project Director prepared a review of Eye Care in Grenada which was distributed to all the health centers to assist them in their efforts in public health education. (See Appendix D for a copy of this paper.)

In addition to the protocols prepared for school vision screening and eye screening at the health centers, the Project Director prepared protocols for the Casualty Department of the General Hospital and for prophylaxis of ophthalmia neonatorum (ocular infection in newborn infants) (see Appendix B). The project director also made a recommendation to Dr. Doreen Murray, Medical Officer of Health, about instituting a nationwide program of prophylaxis of ophthalmia neonatorum by utilizing the protocol advanced by the American Academy of Pediatrics.

(5) Strengthening the Society of the Friends of the Blind:

As part of an effort to assist the Society in developing its planning capacity, the Project Director and nursing staff at St. George's reviewed nearly 11,000 charts at the Eye Clinic. 155 legally blind individuals who could benefit from rehabilitation

and education programs for the blind were thus identified. A list of their names, ages, diagnoses, level of vision and resident addresses was prepared and presented to the Society with recommendations for its use and updating. This list is being used by Mrs. Neva Brown, a Peace Corps Volunteer and her Grenadian counterpart, Mrs. Rosamond George, who are responsible for developing programs for the handicapped. The initial list is being revised and continuously updated as nurses at the Eye Unit record the names and relevant information on the severely visually handicapped who are seen at the Eye Unit. (See Appendix E for a copy of this list.)

(6) Training to Develop a Grenadian Eye Specialist:

Under an extension of the terms of IEF's Caribbean Eye Care Project, OPG #538-0111, Dr. Elliott McGuire, a Grenadian physician, participated in the ophthalmic training program based in Barbados. In July, 1984, Dr. McGuire joined this program by undertaking a year of didactic and clinical training in the ophthalmology department at Queen Elizabeth Hospital in Bridgetown which serves as a teaching hospital for the medical school of the University of the West Indies.

In July, 1985, Dr. McGuire joined Dr. Khadem in the Eye Unit at the General Hospital in St. George's following successful completion of a year's ophthalmic training in Barbados. At that

point, Dr. McGuire worked with Dr. Khadem to hone his clinical and surgical skills, particularly in the areas of pediatric eye exams, refraction, retinoscopy, indirect ophthalmoscopy and neuro-ophthalmological evaluations. Dr. McGuire also assisted in surgery. In February, 1986, Dr. McGuire received the Diploma in Ophthalmology from the Royal College of Surgeons, London, England. (At this time, the University of West Indies had not yet established a certified course of study leading to the Diploma in Ophthalmology and physicians trained in the IEF's Caribbean Eye Care Project were examined and certified by the Royal College of Surgeons.)

Dr. McGuire continued to work at the Eye Unit until September, 1986, at which point he left for England to pursue studies leading towards an FRCS (Fellow of the Royal College of Surgeons, an advanced certification), in ophthalmology. During his period at the Eye Unit, he performed 39 major eye operations as the primary surgeon and assisted on many more. He participated in the out-patient services, in-patient care, and training programs for district and hospital health personnel. Dr. McGuire is receiving his training with the support of the Ministry of Health and he is expected to return to Grenada in July, 1989, to take charge of the ophthalmic services in the country.

The initial project design had assumed that the Grenadian eye specialist would stay in Grenada having obtained the Diploma in Ophthalmology. Dr. McGuire's absence from Grenada during his period of training in England has resulted in a different outcome to that anticipated at end of project status.

To fill the hiatus in availability of tertiary level care caused by Dr. Khadem's departure and Dr. McGuire's absence, the IEF arranged for ophthalmological services to be provided by short-term consultants for the period August 1987 through early January 1988. Dr. Annette Alexis, a Jamaican ophthalmologist, provided coverage from the beginning of August through mid-September and again from mid-December through the first weeks of January 1988 and intermittently between September and December.

In November of 1987, after continuing discussions with the Ministry of Health of Grenada regarding their concerns about a sudden termination in comprehensive eye care services, IEF proposed to AID that IEF continue to provide limited support to activities in Grenada under the Eastern Caribbean portion of IEF's Matching Grant with AID. This activity would allow an IEF ophthalmologist to continue to provide the clinical and surgical eye care, training and community education services during the

period until Dr. McGuire's return. (In addition, activities would be expanded to cover development of a low-cost spectacle program [an activity originally provided for in the OPG but not implemented due factors beyond the control of the project] and provision of supplementary and supervisory clinical and surgical services to an IEF-trained ophthalmologist on the island of St. Vincent).

The Ministry of Health of Grenada pledged to provide substantial financial and material inputs as support for the ophthalmologist and final agreement between AID, IEF and the Ministry was reached as to the continued activity. Dr. Baxter McLendon, an IEF ophthalmologist with considerable developing country experience, is scheduled to arrive in Grenada during the first few weeks of January. Since Dr. McGuire is not scheduled to return until 1989, funding to support Dr. McLendon through 1989 (after close-down of IEF's Matching Grant) will be developed through alternative sources.

V. PROJECT MANAGEMENT

The Project Director, Dr. May Khadem, was responsible for overall administration of the project in the field. She reported on project activities and finances on a monthly basis to IEF headquarters and to AID. A Caribbean Regional Program Manager at IEF headquarters in Bethesda, Marilyn Mayers, was responsible for backstopping the Grenada Blindness Prevention and Treatment Project.

Several management visits from headquarters staff were made to Grenada over the life of the project--after project start up in February 1985, in May 1985, and in October 1986. Because of the extensive communication between the field and headquarters through correspondence and telephone, it was felt that more such visits were not required for monitoring purposes. Again in view of the extensive communication concerning this project between the Project Director, IEF's Program Manager at headquarters and AID/RDO/Caribbean, AID waived the mid-term evaluation.

In September, 1986, upon the occasion of the American Academy of Ophthalmology meeting in San Francisco, the IEF also held a day-long meeting to review the IEF's activities in the Caribbean. Participants included staff and trainees from various IEF-assisted projects in the region including both Dr.

Khadem and Dr. McGuire. Their input was valuable in identifying further training needs and discussing service expectations and requirements.

IEF headquarters retained primary responsibility for the financial management of the project. Under the supervision of the Administrative Director, the Foundation's Accountant maintained all financial records pertaining to the project. Having received monthly financial reports and receipts from Grenada, IEF headquarters prepared the quarterly financial statements required by USAID. On a monthly basis, in-house financial statements were generated to facilitate monitoring of project expenditures and ensure compliance with grant regulations. A final financial report may be found in Appendix H.

VI. POST-PROJECT ACTIVITIES

Since Dr. Khadem's completion of her assignment in July, 1987, the IEF has continued to provide the services of an ophthalmologist at the Eye Unit at the General Hospital in St. George's. Dr. Annette Alexis, an ophthalmologist living in Jamaica, provided coverage from August 1st through mid-September, 1987 and from mid-December to early January 1988, and also provided intermittent coverage between September and December.

The IEF will support an ophthalmologist, Dr. Baxter McLendon, in Grenada until Dr. McGuire's return in 1989. Dr. McLendon's activities will include the continued provision of clinical and surgical services, training, and community education activities. In addition, the IEF is vigorously pursuing an inter-agency effort to establish a low-cost spectacle program in Grenada. In coordination with the Pan American Health Organization and the Royal Commonwealth Society for the Blind, the IEF is promoting the establishment of a simple low cost spectacle production unit under the auspices of the Ministry of Health and Society of the Friends of the Blind. A draft proposal for this purpose is attached to this report as Appendix F. Additional activities of the IEF Project Director will be periodic support to an IEF-trained ophthalmologist in

St. Vincent (an activity operated in collaboration with the Royal Commonwealth Society for the Blind - RCSB) and liaison with the IEF/RCSB Blindness Prevention Officer based at the Caribbean Council for the Blind in Antigua. The Blindness Prevention Officer, Mr. Dorbrene O'Marde, hired by IEF/RCSB in August, 1987, is responsible for promoting blindness prevention as a regional concern and focus for action. Both policymakers and medical personnel from Grenada will figure in the workshops and meetings being planned by the Caribbean Council.

VII. PROJECT IMPACT

The project has had an impact on two levels: service delivery and health care policy. In regard to the former, the range of eye care services has been expanded and the quality of care improved through the establishment of a referral system of eye care services that operates throughout the island. Through the project, a team of dedicated ophthalmic nurses has been formed. The ophthalmic nurses at the Eye Unit constitute a core group of eye care providers responsible not only for provision of secondary level eye care service at the Eye Unit but also for training and supervision of district health nurses and nursing students. Sister Duncan plays a central role in supporting eye care services at the district health centers as well as in training staff and students. By strengthening her skills, the project has enabled her to assume a clear leadership role as the de facto coordinator for primary and secondary care services in Grenada.

In recognition of the primary role the ophthalmic nurses play in provision of eye care services, the Ministry of Health and hospital administration at the General Hospital in St. George's have agreed to retain these nurses in the eye unit rather than assign them elsewhere. The value of retaining nurses in the service for which they are trained should become

increasingly evident in the course of the next few years. Insofar as it represents a commitment to utilizing nursing staff in the most appropriate manner, this decision has policy ramifications that extend beyond that pertinent solely to eye care services.

Because of the highly visible and valued services provided at the Eye Unit, the hospital administration and Ministry of Health are also committed to instituting a fee-for-service schedule at the eye unit to generate the additional income that will be necessary to continue to deliver high quality eye care services. (See Appendix G for MOH communications on this issue.) This too has implications that extend beyond the delivery of eye care alone. If this schedule proves to be an effective means of generating income for the hospital, it should serve to promote the acceptability of fee-for-service throughout the hospital and other clinical service facilities.

When Dr. McGuire returns to Grenada to assume his position as consultant ophthalmologist, the eye care infrastructure already in place will be able to utilize his specialized skills effectively and efficiently. This in turn, should serve to encourage him to devote as much time and energy as possible to public health service.

VIII. LESSONS LEARNED

The ability and integrity of the Project Director is essential to the success of a project. Dr. Khadem, because of her high degree of professional competence and dedication to the project's objectives, was able to inspire her coworkers to give their best. This was very important since financial incentives were not included in the project for nursing staff. Working with and learning from Dr. Khadem, the nursing staff acquired the skills and confidence necessary to continue--and want to continue--their work at the end of the project.

Secondly, project management is greatly facilitated by regular, frequent and extensive communication between the field and headquarters. In the case of Grenada, IEF headquarters-field communication was all of those things. That this was the case was primarily a function of the Project Director's readiness to articulate her needs and identify prospective problems. This obviated the need for more frequent management visits. The comprehensiveness of Dr. Khadem's monthly reports constitute a model of field reporting for other IEF project directors in other programs.

Third, a project design should include sufficient funds and time to ensure sustainability of activities generated by the

project. In the case of Grenada, the time frame may not have been long enough to accomplish all objectives fully: specifically, the training and integration of a Grenadian eye specialist and the routinization of countrywide screening and preventive programs. While provisions had been made to allow more than one Grenadian physician to receive further training in ophthalmology, only Dr. McGuire, in fact, did so. The initial project proposal had assumed that once trained to the level of a Diploma in Ophthalmology, the eye specialist would assume responsibility for eye care services. What the IEF and Inter-Agency Coordinating Group for the Caribbean had failed to take into account was a situation in which most Caribbean physicians with a Diploma in Ophthalmology have sought an advanced degree, requiring yet a longer period of absence from their home countries.

A longer time frame would have allowed, over a period of years, another physician to be identified and trained. Dr. McGuire's extended absence from Grenada for further training had the potential to weaken the eye care infrastructure considerably, leaving it unable to provide a full range of services and lessening the effectiveness, credibility and also the continued development of the other levels of service. As it happens, alternative sources of funding (including substantial commitments from the Ministry of Health) were secured.

A longer time frame for the original OPG would also have left more time to consolidate the incipient primary and secondary level services, a process which will also continue under the extended program.

The quality of the infrastructure created during Dr. Khadem's period of service and the competence of the Eye Unit nurses, along with the services of Dr. McLendon during the interim period and the increased financial commitment of the Ministry of Health will be adequate to provide appropriate eye care coverage until such time that Dr. McGuire returns to head eye care services in Grenada. These forces will also combine to further consolidate and develop primary and secondary level services and undertake development of additional eye care services.

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Appendix A

List of Basic Equipment Delivered to Grenada

Major Equipment

Slit Lamp	1
Operating Light	1
Retinoscope	1
Phoropter	1
Hruby lens attachment with grooved plate for the Mentor slit lamp	1
Honan Balloon	
Posner 4-mirror gonioscopy lens	1
Trial lens set with trial frame	1
Transformer for indirect ophthalmoscope	1
Weck Microscope and accessories	

Miscellaneous Equipment

Target and wand for tangent screen	1 set
Unlocking fine needle holder	1
Anterior chamber irrigation cannulae	2
Alpha-chymotrypsin irrigation cannula	1
Lacrimal probes (all sizes)	1 set
Iris Retractors (right and left)	1 set
Small lid speculum for infants	1
Straight 0.12 forceps	2
McPherson angled tying forceps	2 sets
0.3 locking forceps	2
DeWecker or Barraquer iris scissors	2
Vannas Scissors	
Blunt-tipped Wescott scissors	2
Curved corneal-scleral scissors (right and left)	1 set
Serrated angled iris forceps	1
Caliper (any kind)	1
Scleral depressor (Schocket double-ended)	1
Jameson muscle hooks	2
Lorgnette pinhole occluder	2
Worth 4-dot flash light and red-green glasses	1
Prism bars (vertical and horizontal)	1 set
Lacrimal intubation sets	4
Graefe knife handles and disposable blades	1 set

Disposables

Sterile Eye Pads	
scrubbing sponges	
non-allergic paper tape, 1"	
Microsharp blades (to enter anterior chamber)	
surgical blades, #57 and #64 with handles	
cautery	
Bulbs for fixation light on the Mentor slit lamp	
Equip. for Ben Venue Sterilizer	
steribulbs and steripeel	
blue seal packaging system	
Enucleation balls and conformers	

Special Equipment for Extracapsular Cataract Surgery

Irrigating cystotome			
Lieberman capsule	polisher	&	20 packs iris
retractor			2 packs
Disposable plastic syringes, 5cc, 3cc, & tuberculin			1 gross
Pearce irrigating vectus			2 packs
IOL Insertion forceps			1
Katena side-arm cannula			
Straight 23g olive-tip cannula with port at end and filed-down tip			1
5/8", 27g needles			3 gross
posterior chamber lenses			
Schepens retractor			1

Drugs

Prednisone Acetate 1.0%
 Prednisone Acetate 0.12%
 Flouromethalone
 10% viscous neosynephrine
 2.5% neosynephrine
 artificial tears
 erythromycin or tetracycline ointment
 gentamycin ointment
 decadron ointment
 lacrilube
 gentamycin solution injection
 decadron injection
 methicillin injection
 triamcinilone injection
 0.50% marcaine
 mydase
 Parke-Davis epinephrine (w/out bisulfite)
 15c bottles balanced saline injectable

*NOTE: List above only includes items from Dr. Khadem's original request list. Additional shipments of equipment, instruments, and drugs have been provided to the project since her arrival in Grenada.

Appendix B

Screening and Treatment Protocols Developed by the Project

Eye Screening

School Vision Screening

Management of Eye Emergencies

Management of Ophthalmia Neonatorum

INTERNATIONAL EYE FOUNDATION
GRENADA PROJECT

EYE SCREENING PROTOCOL

1. Select a regular date for eye screening at your health centre. Advertise this date in your district through posters, flyers, and word of mouth.
2. We will be promoting health education about eye diseases through the radio and will be encouraging people to come to the health centres for eye screening. When patients come to you with eye problems, give them an appointment to be seen at the eye screening clinic before you refer them to the General Hospital Eye Clinic.
3. Everyone should have a complete eye exam, with the findings recorded in his or her chart. This includes: visual acuity testing as well as testing with a pinhole, penlight exam, testing of intraocular pressure with the Shiotz tonometer, and fundus exam if possible. Everyone old enough to cooperate should have the pressure tested. Those especially at risk for glaucoma have a positive family history, are diabetics, are older than 45, or have a history of serious eye trauma.
4. Only the following patients should be referred to the Eye Clinic:
 - a. Vision less than 20/40 or 6/12 which is not improved with a pinhole.
 - b. Intraocular pressure greater than 20 (i.e. less than 4 with a 5.5 weight on the Shiotz scale). Reconfirm this using the next weight (i.e. 7.5).
 - c. Intraocular pressure equal to 20 on two separate readings (different days).
 - d. Cup/disc ratio greater than 0.5 (if you are able to see the fundus and feel confident evaluating this).
 - e. Children under the age of 7 with strabismus.
 - f. Any emergency or eye problem that does not respond to treatment.
5. In the course of your screening you may see patients with specific complaints. Please use the above guidelines for referrals. The eye clinic is overwhelmed with patients who have normal eye exams and could easily be taken care of at the health centre. We are currently booked 3 months in advance. Remember that a white eye with normal vision (especially with a normal penlight exam) is very unlikely to harbor a serious problem. Patients often complain of burning and grittiness. A lubricant, such as artificial tears (can be bought at the pharmacy without a prescription), is usually adequate to give relief. Those needing glasses or complaining of difficulty reading (if they are over 40), should be referred to the optometrist for glasses. We do not do routine refractions at the Eye Clinic.
6. When you refer a patient, please include a note with your findings on the eye exam and your signature. We see patients only through referrals from doctors, PNP's, or PHN's.

INTERNATIONAL EYE FOUNDATION
GRENADA PROJECT

SCHOOL VISION SCREENING PROTOCOL

1. Contact schools and preschools in your district for screening. At the present time we will concentrate on children 3-7, as intervention in the early years is most effective.
2. At the school select a well-lit area and measure out 20 feet or 6 metres to place the vision chart.
3. Tape the vision chart on the wall slightly above eye level.
4. Examine one eye at a time. You do not need to check pinhole vision at this time nor is it necessary to do an exhaustive penlight exam.
5. Passing: 6/9 or better in each eye.
Failure: Vision worse than 6/9 in either eye.
Note: to fail the 6/9 line the child must miss half or more of the figures on that line.
6. Keep a record of:
Name of the school
Number of children screened
Ages of the children
Number of failures
Names of the children who failed
7. First Referral: Make appointments for those failing to be seen at the closest health centre for a complete eye exam by the FNP or PHN.
8. Second Referral: Do a complete eye exam at the health centre including pinhole vision, penlight exam, and fundus exam if possible. If the child fails again (vision worse than 6/9 with a pinhole), or if other parts of the eye exam are suspect, refer to the eye clinic.

Please keep a record of all children seen in this manner so that we may modify future screenings if there are too many false-positives.

INTERNATIONAL EYE FOUNDATION
GRENADA PROJECT

MANAGEMENT OF EYE EMERGENCIES

TO: The Casualty Department Staff

FROM: May Khadem M.D., Consultant Ophthalmologist, Eye Department

When a patient come to the Casualty Department with an eye injury, please use the following guidelines:

1. Take a good history. If there is suspicion of a chemical burn, irrigate the eye immediately (before any further examination) with clean water or sterile saline if easily accessible. Use a drop of tetracaine to permit lid retraction and irrigate with a steady drip for at least 20 minutes. If the chemical is suspected to be alkalai, irrigate for 2 hours and check the conjunctiva with pH paper. Irrigate longer if necessary.
2. Do a good eye exam including testing of visual acuity, penlight exam of the lids, conjunctiva, cornea, and anterior chamber, as well as examination of the fundus.
3. If there is history of blunt trauma, make sure vision is unaffected and there is no hyphema present. If in doubt, call the Ophthalmic Nurse on call.
4. If you suspect a foreign body, evert the upper lid and check the fornices. For any foreign body embedded on the cornea, consult the Eye Department. If there is a history of particles flying at high speed and the eye exam is suspicious, call us.
5. If there is laceration of the eyelid, make sure it does not extend to the globe underneath by gently retracting the lid with pressure on the bones of the orbit and not on the globe. Please permit us to repair lacerations of the eyelid as improper repair can create sight-threatening and cosmetic problems later.
6. In any injury, if the vision is normal and the eye exam is normal but you want us to see the patient, make an appointment for the patient with the Eye Clinic.
7. Any patient with a painful red eye and poor vision must be considered an emergency. Please contact the Eye Department staff immediately.
8. Remember, the Eye Department staff is available and eager to help you in the emergency care of any patient with an eye problem. When in doubt, please call us. We are available 24 hours a day. If you wish to consult us, please use the following procedure:

CALL THE EYE WARD. AN OPHTHALMIC NURSE WILL BE EITHER ON THE PREMISES OR ON CALL. SHE WILL SEE THE PATIENT FIRST. IF NECESSARY, SHE WILL CONTACT DR. MCGUIRE WHO IS ON FIRST CALL. DR. MCGUIRE WILL THEN CALL ME IF NECESSARY.

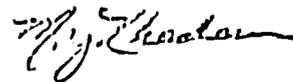
25 May 1986

Dr. Doreen Murray
Medical Officer of Health
Ministry of Health
St. Georges, Grenada

Dear Dr. Murray,

Thank you so much for your letter. We have been seeing a significant number of newborn eye infections. I appreciate that you are aware of this problem. It would indeed be wise to institute a nation-wide program of prophylaxis of ophthalmia neonatorum. The following is the recommendation of the U.S. Centers for Disease Control, the Committee on Drugs, the Committee on Fetus and Newborn, and the Committee on Infectious Diseases of the American Academy of Pediatrics: 1% tetracycline ointment, 0.5% erythromycin ointment, or 1% silver nitrate solution used as a single dose after birth. These are "effective and acceptable regimens for prophylaxis of gonococcal ophthalmia neonatorum." (American Academy of Pediatrics: Prophylaxis and Treatment of Neonatal Gonococcal Infections. Pediatrics, 65:1047, 1980).

Sincerely,



May Khadem M.D.

Appendix C

Radio Scripts on Eye Care

RADIO SCRIPTS: EYE CARE AND SERVICES IN GRENADA

Purpose: Two-minute dialogues, written and produced by Sister Joan Duncan and Eye Department staff for the purpose of teaching the public about eye care and the services available to them.

Program #1: Glaucoma

- Carol: Aye, aye, Joan, how you dress up so this morning, like things real good by you?
- Joan: Ah running by the eye doctor to come back. The eyes burning me for so and ah can't face the hot sun at all.
- Carol: Just that you going to town for? I say you sight gone or something hit you in it, or you having plenty pain.
- Joan: So how ah go know if something wrong, eh? I don't taking no chance with me eyes.
- Carol: Go to the Health Centre nuh girl, the nurse giving you a good check, and she will tell you whether you need to see the eye doctor or not.
- Joan: Health Centre? With me eyes? You joking or what?
- Carol: Joan you must remember that after the doctor is the nurse. Right, the doctor trains the nurse and so she knows exactly what to do.
- Joan: Suppose ah have cataracts, how she go know?
- Carol: Listen to me - when the nutmeg hit me in me eye the other day, I went to the Health Centre first. The nurse make me read and then she check the pressure in me eyes one time for glaucoma. The test was not hard at all.
- Joan: You mean she check the pressure in your eyes?
- Carol: Yes, that's exactly what she did. She checked for glaucoma. I got a good check. I can't complain.
- Joan: Pressure in your eyes? First time I hear that in all my life. I hear about high blood pressure but I never hear about high eye pressure called GLAUCOMA. More I live, more I hear.
- Carol: That is why you must go to the Health Centre to hear more. I will never forget that word - GLAUCOMA - meaning high pressure in the eyes.
- Joan: So you mean to say that the nurse do all that for you in the Health Centre?
- Carol: Yes, when she finished she told me that all was normal. I don't have cataracts or glaucoma.
- Joan: OK, I will go to the Health Centre and check my eyes first. Girl, under all the ole talk, those new Health Centres looking real good.
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RADIO SCRIPTS: EYE CARE AND SERVICES IN GRENADA

Program #2: Glaucoma

Carol: Vera, I hear you have glaucoma now.

Vera: Yes, girl, and nurse tell me I have the chronic type. So I would have to use drips for the rest of my life.

Carol: Is it painful?

Vera: Girl, no pain at all, not a warning! I just find that I not seeing as good as before. As usual, I run by nurse in the health centre, and when she check the eye pressure, it was very high. When she look in the back of me eyes she send me straight to the Eye Specialist. Ah sorry I did not go before.

Carol: But Vera, them nurses doing piece of everything in the health centres now. Long time, you had to run in hospital for everything!

Vera: Yes, those nurses now-a-days are trained to do almost anything, believe it or not.

Carol: So what the Eye Specialist tell you?

Vera: She tell me the same thing what nurse told me, that the pressure high and the nerve of sight was badly damaged because of it. Can't get me sight back but if I use drips regular so the pressure is controlled, then I won't lose more sight.

Carol: So girl, you really have to use drips for the rest of your life? I find they could do an operation or so instead.

Vera: As far as the doctor explained, there are drops that can lower the eye pressure and keep it that way for many years. But you must be prepared to use those drops every day as prescribed, never let it run out on you, and walk with it wherever you're going. Always remember that GLAUCOMA BLINDS!

RADIO SCRIPTS: EYE CARE AND SERVICES IN GRENADA

Program #3: Glaucoma

- Carol: Vera, lets get this thing straight. The other day you told me that the doctor put you on eye drops, but I meet Mr. Tom down the road yesterday and he tell us he had operation for glaucoma.
- Vera; Yes, Carol, that is quite true. Now some people does not use their drops as often as the doctor tells them or sometimes the drops does not work well enough on certain people and the nerve of sight continues to be damaged. So in order to save the sight left, the doctor will do the operation to keep the pressure down.
- Carol: You talk about high pressure and controlling pressure, but what causes this high pressure in the eyes?
- Vera: Glaucoma tends to run in some families. Mummy has it. Other people get it because of other eye diseases or injury. Nurse explained it this way: The eye produces a fluid called aqueous (ay-kwee-yus) which helps to maintain a constant eye pressure. This fluid must also have a free outlet to drain out of the eye. If there is some obstruction in the outflow of the fluid, then the eye pressure will build up and the optic nerve, which gives you sight, will be damaged.
- Carol: But, girl, my eyes cries all the time. They runs water so!
- Vera: Not tears, Carol. Don't confuse aqueous with tears. Aqueous is formed inside the eye. You can't feel it. Let's take one example: your kitchen tap. When you turn it on, the water will flow from the tap to the sink and escape through the tiny holes down to the drain. Now if the tiny holes in the sink are blocked, then the water will overflow. If your sink was covered tight, the pressure would build up. It's the same principle.
- Carol: I think I understand! The drops make it easier for the fluid to drain out of the eye, just like cleaning the drain in your sink!
- Vera: Exactly! If you so smart, then go to the health centre and test your eyes for glaucoma before there is much damage.

RADIO SCRIPTS: EYE CARE AND SERVICES IN GRENADA

Program #4: Cataracts

- Vera: Carol, can you imagine Joan in Buy-Rite shopping by herself, not even the walking stick she en take to help her?
- Carol: You joking, you mean Joan that does sit down by she house begging every body to help her do something or other? How come?
- Vera: Well, she been to hospital to remove her cataract and since she come back she washing, cooking, reading, and shopping by herself. So doe asking a bodyta question.
- Carol: But I don't see she wearing glasses. I know when my grand-mother cut she catareacts about 10 years ago the doctor gave her a pair of thick, thick glasses to wear.
- Vera: Girl, now-a-days things are uifferent. Miss Joan tell me the doctor put a lens inside she eye when she removed the cataract. So she en have to wear thick glasses and she see good, good! She only wear regular reading glasses to read small print.
- Carol: But Vera, I thought people had to go away to have this kind of operation.
- Vera: Girl, not now-a-days. We are second to none! Joan had her operation done right in our own hospital.
- Carol: Well yes, what next? Before I forget, what you call that operation again?
- Vera: It is called CATARACT OPERATION WITH LENS IMPLANT.

RADIO SCRIPTS: EYE CARE AND SERVICES IN GRENADA

Program #5: Cataracts

- Vera: Carol, I hear you have cataracts.
- Carol: Yes, girl. I took your advice and checked me eyes at the health centre. I couldn't see so good when nurse ask me to read, so she sent me to the Eye Specialist.
- Vera: So what did the Eye Specialist say?
- Carol: She say I have cataracts, not glaucoma, thank God!
- Vera: So when you going to cut them?
- Carol: The doctor say since my sight not so bad, as I can still see good enough to do my work, cook, shop, and work in my garden, there is no hurry for an operation. Cataracts does not permanently damage the sight like glaucoma does. So whenever I don't see good enough, I could cut it. It might be a few months or it might be a few years. I'm not in hurry. I see good and I'm glad I don't have glaucoma.
- Vera: True, true. But what is a cataract anyway? Big Joe say he have cataracts, that fleshy thing growing towards the baby of the eye.
- Carol: Big Joe is wrong. That is not a cataract. I ask the doctor. A cataract is inside the eye, not outside where you can touch it. Big Joe has a PTERYGIUM (te-ree-jee-um). Lots of people here have it. It makes the eye burn and water sometimes, but it's not so serious. Doctor said its better not to interfer with it unless it grows alot. See, I have one too.
- Vera: Yes, I see. But you still haven't told me what a cataract is. I know it's not a pterygium.
- Carol: Okay, you told me about glaucoma. I'll tell you about cataracts. The eye is like a camera. The camera needs a clear lens to focus the picture on the film. The eye also has a lens to focus the picture on the retina--that's like the film in the camera. When the lens gets cloudy, the picture gets fuzzy and dim. If it's a little cloudy, like mine, then you can still see good enough. When it gets very cloudy, it interferes too much with the sight. That's when I would cut mine.
- Vera: I see! If your camera has a very very dirty lens, the picture come out dim dim. You have to change the lens. A cataract is the lens of the eye that's not clear anymore.
- Carol: Exactly!
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RADIO SCRIPTS: EYE CARE AND SERVICES IN GRENADA

Program #6: Injuries

Vera: Carol, you hear Dexter in hospital with blood in his eye?

Carol: How he do that?

Vera: He does play cricket and the ball bounced him in the eye.

Carol: You know Gemma, Jackie's little girl? She went blind when she lash that child on the face!

Vera: My cousin, Tom, was hammering metal and a piece flew up and juke him in the eye. It cut the eye and he had to have an operation to sew it up. He was lucky he could see after. Sometimes people does go blind like that.

Carol: So what will happen to Dexter. Is he blind or what?

Vera: No, he was lucky, the bleeding stopped and is healing. But the doctor say he must wear protective goggles when he play sports. I wish Tom had worn them. If he had, his eye wouldn't be cut. He does wear them now though whenever he's working and when he plays sports.

Carol: I don't think Dexter will like wearing goggles to play cricket. He so proud. The boys will laugh and it does interfer with his side vision.

Vera: So he want to go blind instead?

Carol: I see what you mean. Anyone doing something where fast objects fly around should protect his eyes. And I wish parents would stop lashing children! At least not on the face!

Vera: Someone should tell them how dangerous it is!

Carol: EH-EH!

Appendix D

Statement on Eye Care in Grenada Prepared
for Health Week

INTERNATIONAL EYE FOUNDATION
GRENADA PROJECT

EYE CARE IN GRENADA:
STATEMENT PREPARED FOR HEALTH WEEK, 28TH JULY

Over the past year and a half, the eye care services in Grenada have been updated and expanded through the work of the International Eye Foundation which is operating a two-and-a-half year Blindness Prevention Project under the Ministry of Health. The programme is funded by USAID and is under the direction of Dr. May Khadem, an American trained Ophthalmologist. The surgical and clinical services have been modernized through the donation of a new \$50,000 operating microscope as well as numerous instruments, equipments, and supplies. The most common operation now performed at the Eye Clinic is cataract removal and insertion of a tiny artificial lens into the eye itself. This operation costs over \$8000 EC dollars in the United States, but through this project, it is being performed free in Grenada.

The Eye Clinic is staffed by Dr. Khadem and Dr. Elliot McGuire, a Grenadian who received special Ophthalmology training at University of the West Indies in Barbados. Sister Joan Duncan is the nurse in charge. She has many years of experience in eye care and several courses in Ophthalmic Nursing. She is ably assisted by eye nurses who have had intensive training in eye care over the past 18 months.

During the course of this project, training in eye care has been provided for government-employed physicians, nurses throughout the island, nursing assistants, community health aides, as well as pharmacists. In addition, courses have been taught in the Schools of Nursing and Pharmacy. Screening programmes for vision have been instituted in the schools and pre-schools. Glaucoma screening is now available through the health centres.

The two most common blinding eye diseases in Grenada are glaucoma and cataracts. Glaucoma is a blinding eye disease caused by very high pressures in the eyes. It tends to run in families. High pressures inside the eyes slowly and permanently damage the nerves of the eyes and the person gradually loses sight. The usual form of glaucoma has no symptoms to warn you that something is wrong. The person with this disease is unaware of the damage until the late stages. The disease can be controlled through the use of eye drops, tablets, and if necessary, an operation to lower the pressure inside the eye. The individual with glaucoma will usually need to be under treatment for the rest of his life. Everyone should have a test for glaucoma through their district health centre. If someone in your family has glaucoma, you should be tested every two years. The Family Nurse Practitioners and Public Health Nurses have been trained to do this test. If glaucoma is suspected, you will be referred to the Eye Clinic.

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After glaucoma, the other common blinding disease is cataracts. Cataracts cause blindness by clouding of the lens of the eye. The lens in the eye is normally clear and serves to focus what you see. If the lens loses its clarity, it is called a cataract. Unlike glaucoma, the blindness from cataracts is curable through an operation. The cloudy lens is removed and is replaced by an artificial lens. Cataracts cannot at the present time be treated with drops or other medicines. If you have a cataract but are seeing well enough to do your work and get around, you do not need an operation. An operation is performed only when you are handicapped by poor vision.

Screening for visual problems in children between the ages of 3 and 7 has begun in schools and pre-schools throughout the island as it is in these ages that blinding problems can be treated. You can take your children to your health centre to have their vision checked if they have not been checked in school. Babies and children with squints, that is eyes that turn in or out, should be examined for blindness. This form of blindness is curable if treated at a young age. If you have a child with a squint, you can get a referral to the Eye Clinic from your doctor or from the health centre nurses. A person who is not treated for a squint at an early age may end up irreversibly blind in one eye.

If you have a problem with your eyes that is not an emergency, go to your health centre first. If necessary you will be referred to the Eye Clinic. The nurses in your district have been trained to examine your eyes and screen for blinding diseases. Because of the heavy volume of patients seen at the Eye Clinic, it has become necessary for patients to be referred by a physician or by the health centre nurses before they will be given an appointment. Most of the new patients seen at the Eye Clinic could be easily cared for by their physicians or at the health centre. It is necessary to institute this referral policy so that patients who need to be seen do not have to wait months for an appointment. Emergencies, of course, are seen at any time and do not require referrals.

Many people who live in a tropical climate experience burning, watering, itching, and irritation of the eyes. These are very common complaints and not serious. They have to do with exposure to the sun, wind, pollen, mold, and other outdoor irritants. Occasionally a growth may appear in the corner of the eye that causes more irritation. This is called a pterygium* and also very common. The growth does not have to be removed unless it threatens to grow over the pupil. A pterygium tends to grow back after it is removed. For this reason, it is removed only when necessary. You can protect your eyes and relieve the burning and irritation by wearing sunshades that block the ultraviolet rays. Also try using cold compresses over the eyes. If your eyes really bother you, you can lubricate them with artificial tears. This is a non-prescription drop that can be bought at most pharmacies.

*Pronounced "te-rij'e-um"

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Appendix E

Report on Blindness in the Eye Clinic Population
in Grenada

INTERNATIONAL EYE FOUNDATION
GRENADA PROJECT
JULY 1986

BLINDNESS IN THE EYE CLINIC POPULATION IN GRENADA

A person is considered legally blind, using the U.S. definition, when the best vision obtained in the better eye is 20/200 (6/60) or less or when the field of vision of the better eye is 20 degrees or less (regardless of the visual acuity). Such persons are severely visually handicapped and are candidates for rehabilitation and educational programs to improve their functional capacity. The purpose of this study is to provide the Society of the Friends of the Blind with the names of those individuals in Grenada who might benefit from such programs. The following names have been culled from charts of the Eye Clinic through the cooperative efforts of Sister Joan Duncan, the Eye Clinic nurses, Mrs. Nancy Leary, and myself. It represents only those individuals with vision worse than 20/200 in the better eye. Unfortunately, visual field testing has not been consistently available at the Clinic, so patients legally blind by virtue of extremely narrow field of vision are not included. Also excluded are those who have never attended the Eye Clinic. A total of 155 individuals have been identified from the review of 10,967 charts (9,738 in the active files; 1,229 in the inactive files).

ACTIVE FILES: Patients seen at least once in the past 5 years (total number of patients: 113).

<u>NAME</u>	<u>AGE</u>	<u>SEX</u>	<u>DIAGNOSIS</u>	<u>VISION (CD:OS)</u>	<u>ADDRESS</u>
Austin LaBarrie	85	M	?	CF:LP	Beaulieu
Catherine James	80	F	Glaucoma	LP:20/200	Snug Harbour
Catherine Douglas	74	F	Cataracts	CF:CF	Dudmar
Agatha Charles	61	F	Glaucoma	20/200:20/200	Morne Jaloux
Kenneth Charles	29	M	Diabetic Retinopathy	20/200:HM	Bellevue
Ignatius McBain	83	M	Glaucoma	CF:CF	Waltham
Adalbert McDonald	80	M	?	CF:CF	Calvigny
Annie MacDonald	79	F	Glaucoma	?	Perdmontemps
Violet McFarland	70	F	Glaucoma	NLP:NLP	Carriacou
Mark McQueen	85	M	Cataracts	CF:CF	St. Georges
Gladys Mahon	55	F	Retinal Detachments	CF:LP	Morne Lounge
Edgar Mark	74	M	Optic Atrophy, U.E.	LP:HM	St. David's
Vernon Mark	50	M	Diabetic Retinopathy	HM:HM	Grand Mal
Annie Marryshow	88	F	Glaucoma	NLP:HM	Mt. Gay
Mason Decas	80	M	Cataracts	HM:CF	Grand Bras
Charles Morris	73	M	Optic Atrophy, U.E.	LP:CF	Beaulieu
Juanita Moore	69	F	Glaucoma	CF:LP	Beaulieu
Netta Mauricette	92	F	Cataracts	CF:CF	St. Georges

<u>NAME</u>	<u>AGE</u>	<u>SEX</u>	<u>DIAGNOSIS</u>	<u>VISION (OD:OS)</u>	<u>ADDRESS</u>
Frances Fraser	83	F	Glaucoma	HM:LP	St. Patrick's
Alexandrina John	73	F	Glaucoma	LP:LP	Mt. Craven
Beatrice Jeffrey	75	F	Chorioretinitis, U.E.	CF:CF	Victoria
Valerie James	32	F	Congenital Cataracts	NLP:NLP	Beaulieu
Valentine James	78	M	Glaucoma	NLP:HM	Grand Mal
William Noel	75	M	Glaucoma	HM:HM	Munich
Joseph Noel	75	M	Cataracts	CF:HM	Mt. Craven
Ethel Marie Noel	84	F	Cataracts	CF:CF	Pomme Rose
Evelyn Noel	80	F	Glaucoma	LP:LP	St. Georges
Ambrose Nimrod	72	M	Optic Atrophy, U.E.	NLP:CF	Carriacou
Veronica Lumsden	63	F	Optic Atrophy, U.E.	20/200:20/200	Grand Anse
McCloud Lucas	82	M	Glaucoma	NLP:CF	Gouyave
Veronica Lindsey	73	F	Cataracts	HM:CF	Byelands
Holdey Lewis	82	M	Corneal Scars, U.E.	CF:NLP	Mt. Craven
Linda Lessey	38	F	congenital Blindness	NLP:NLP	Mt. St. Evans
Lettitia Lessey	85	F	Glaucoma	CF:NLP	Perdmontemps
Eileen Lambert	48	F	Congenital Blindness	HM:HM	Mardigras
Patricia Baptiste	21	F	Optic Atrophy, U.E.	CF:CF	Belmont
Cornelius Bain	68	M	Glaucoma	CF:CF	Paddock
Joseph Budd	34	M	Vitrio-retinopathy (hereditary)	HM:LP	Victoria
Andrew Budd	48	M	"	NLP:NLP	Victoria
Sylvia Budd	44	F	"	NLP:HM	Victoria
Isaac Budd	37	M	"	NLP:NLP	Victoria
Joseph Benjamin	82	M	Glaucoma	HM:NLP	St. David's
Frank Bell	77	M	Glaucoma, Macular Holes	CF:LP	Woburn
Fitzgerald Belgrave	86	M	Optic Atrophy, U.E.	NLP:LP	Melville
Lionel Bartholomew	54	M	?	LP:NLP	St. David's
Lucy Charles	20	F	?	CF:CF	Victoria
Frances Charles	77	F	Glaucoma	HM:NLP	Mt. Alexander
Eldica Charles	82	F	Macular Degeneration	LP:CF	LaBorie
David Charles	63	M	Choroiditis, U.E.	CF:CF	DeBlandeau
June Celestine	36	F	Optic Atrophy, U.E.	CF:CF	Morne Jaloux
Veronica Carter	76	F	?	LP:LP	Richmond Home
Christiana Clouden	75	F	Glaucoma	HM:NLP	Westerhall
Frederick Cadore	77	M	Optic Atrophy, U.E.	CF:LP	Grand Bacolet
Alstan Duncan	46	M	Congenital Cataracts	20/200:HM	Douglaston
Althea Dannah	14	F	Congenital Cataracts	CF:CF	Douglaston
Amelia Darbeau	70	F	?	20/200:20/200	Victoria
Jay Pierre	21	F	?		

<u>NAME</u>	<u>AGE</u>	<u>SEX</u>	<u>DIAGNOSIS</u>	<u>VISION (OD:OS)</u>	<u>ADDRESS</u>
Marva Thomas	17	F	Corneal Scars, U.E.	CF:CF	Hermitage
Tobias Lawrence	75	M	Macular Holes	20/200:20/200	Grenville
Phillip Williams	64	M	Choroidal Sclerosis	CF:CF	Victoria
Verna Phillips	47	F	?	CF:CF	Grand Roy
Belinda Paul	62	F	?	HM:HM	Mt. Gay
Ivy Thomas	76	F	Glaucoma	HM:HM	Tivoli
Franklin Thomas	61	M	Optic Atrophy, U.E.	CF:CF	Mt. Camel
Bernadette Thomas	67	F	Chorioretinitis, U.E.	HM:HM	Chantimelle
Tudor Walker	70	M	Glaucoma	CF:NLP	Paddock
Nora Warren	80	F	Glaucoma	CF:CF	Sauteurs
Serapine Wharton	76	F	Glaucoma	CF:NLP	Gouyave
Nipier Wiltshire	71	M	Glaucoma	NLP:HM	Carenage
Esther Wilson	80	F	Cataracts	CF:CF	LaBorie
Veronica Zephrim	74	F	Cataracts	HM:LP	Byelands
Mary Williams	71	F	Cataracts	LP:HM	LaPaterie
Mark Alexis	?	M	?	HM:CF	Munich
Eslyn Alexis	60	F	Cataracts	CF:HM	Madeys
Nellie Andrews	81	F	Senile Macular Degen.	CF:CF	Ruer
Margaret Andrews	61	F	Glaucoma	HM:HM	LaDigue
Hilton Andrews	61	M	Glaucoma	HM:HM	Woodlands
Louisa Abraham	71	F	Diabetic Retinopathy	LP:LP	Gouyave
Suzanna Aind	79	F	Diabetic Retinopathy	HM:CF	Belmont
Cardinal Alexander	77	M	Glaucoma	NLP:CF	Fontenoy
Denise Alexander	20	F	?	CF:CF	Munich
Doreen Regis	34	F	Retinitis Pigmentosa	NLP:HM	Belmont
Anthony Richards	58	M	Glaucoma	HM:NLP	Victoria
Augustine Richards	80	M	Diabetic Retinopathy	CF:CF	LaTante
Elfreda Richard	80	F	Senile Macular Degen.	CF:CF	Perdmontemps
Theresa Robertson	43	F	Retinal Detachments	HM:NLP	Grand Bras
Cedric Ross	60	M	Diabetic Retinopathy	HM:CF	St. Georges
Theresa Hercules	55	F	Diabetic Retinopathy	HM:HM	Perdmontemps
Clifton Seales	71	M	Retinitis Pigmentosa	LP:HM	Mt. Moritz
Edward Rupert	56	M	Glaucoma	NLP:NLP	Grand Mal
Eldica Cox	75	F	Glaucoma	LP:CF	Belmont
Cynthia Mitchell	53	F	Glaucoma	HM:CF	Beaulieu
Raquel Paul	4	F	Rubella Syndrome	CF:CF	Marian
Sydney Gumbs	62	M	Glaucoma	CF:HM	St. Georges
Cuthbert George	70	M	Retinal Detachments	LP:LP	Mt. Moritz
Delana Duncan	4	F	Rubella Syndrome	HM:HM	Carenage Hill

<u>NAME</u>	<u>AGE</u>	<u>SEX</u>	<u>DIAGNOSIS</u>	<u>VISION (OD:OS)</u>	<u>ADDRESS</u>
Herbert Matheson	72	M	Cataracts	CF:HM	Carriacou
Maud Raeburn	75	F	Cataracts	CF:CF	Sauteurs
Kenneth Reche	65	M	Glaucoma	HM:CF	Victoria
Lily Recheau	79	F	Glaucoma	CF:NLP	Gouyave
Andrew Frederick	18	M	Optic Atrophy, U.E.	LP:CF	La Tante
Osment Farell	53	M	?	CF:CF	St. John's
Morra Francois	67	F	Diabetic Retinopathy	CF:CF	?
Standley Flemming	76	M	?	HM:LP	Sauteurs
Collins James	64	M	Glaucoma	NLP:CF	Marigot
Maywn Phillip	62	F	Glaucoma	HM:NLP	St. Andrew's
Roslyn Jeremiah	54	F	Diabetic Retinopathy	CF:CF	Providence
Felicity John	87	F	Diabetic Retinopathy	?	?
John Johnson	53	M	Diabetic Retinopathy	CF:HM	Beaulieu
Earnest Noel	31	M	Glaucoma	20/200:20/200	Gouyave
Rennie Paul	58	F	Optic Atrophy, U.E.	HM:HM	St. Mark's
Lewis Peterkin	39	M	Optic Atrophy, U.E.	NLP:NLP	St. Andrew's
Altheus Peters	67	M	Glaucoma	CF:HM	St. Patrick's

INACTIVE FILES: Patients who have not attended clinic for more than 5 years (total number: 4

Edna St. John	72	F	Glaucoma	LP:HM	River Sallee
Estazie Smith	77	F	Cataracts	CF:CF	Coast Guard
Elvie Slinger	88	F	Cataracts	20/200:20/200	Victoria
Ernestine Stout	67	F	Diabetic Retinopathy	CF:20/200	River Road, St. Geo
Nelcia Strachan	80	F	?	CF:CF	Boca, St. Geo.
Vera St. Louis	75	F	Cataracts	CF:CF	Pearls
Gladys Simeon	83	F	Cataracts	CF:CF	Victoria
Alice Simon	25	F	?Congenital Cataracts	CF:CF	St. Georges
Lawrence Charles	76	M	?Diabetic Retinopathy	LP:20/200	Birchgrove, St. Anc
Elunia Charles	69	F	Cataracts	CF:CF	St. Andrew's
Albertina Courtney	66	F	Cataracts	20/200:20/200	Woodlands
Georgiana Cox	68	F	Cataracts	20/200:20/200	St. Georges
Dolman Carles	46	M	?	20/200:20/200	New Hampshire
Mandlyn Charles	76	F	Cataracts	CF:CF	Grand Anse
Martin Charles	72	M	Cataracts	LP:CF	Byelands
Mathew Charles	74	M	Cataracts	Prosth:CF	Grand Roy
May Charles	78	F	Glaucoma	LP:LP	Springs
Curtis Charles	52	M	Glaucoma	CF:CF	St. John's

<u>NAME</u>	<u>AGE</u>	<u>SEX</u>	<u>DIAGNOSIS</u>	<u>VISION (OD:OS)</u>	<u>ADDRESS</u>
Mintrude Cornwall	47	F	Diabetic Retinopathy	HM:HM	Paradise
Alfred Cornwall	70	M	Glaucoma	LP:HM	Perdmontemps
Ellie Cox	70	F	Cataracts	CF:CF	Woburn
John Cummings	43	M	?	NLP:20/200	Gouyave
Ivy Hopkin	79	F	Cataracts	CF:LP	Munich, St. And.
Ivan Telesford	70	M	?	CF:HM	Providence, St. Dav.
Benezer Thompson	64	M	?	?	Tivoli, St. And.
Rose Baptiste	85	F	Cataracts	HM:HM	Minich
Edgar Belfon	88	M	Cataracts	LP:HM	Victoria
Osbourne Belton	61	M	Glaucoma	CF:CF	St. Georges
Theresa Bishop	21	F	Marfan's (?Lens disl.)	CF:HM	Springs
Sylvia George	75	F	?	CF:CF	Aprestent
Collingwood George	?	F	Glaucoma	NLP:NLP	Hermitage
Florence George	86	F	Cataracts	CF:20/200	Munich
Agatha George	70	F	Cataracts	CF:CF	River Road, St. Geo.
Emerald Jones	76	M	Cataracts	20/200:20/200	Happy Hill
Adina John	74	F	?	CF:20/200	Maloney St.
Beatrice Jones	70	F	Diabetic Retinopathy	CF:20/200	Richmond Hill
Ellen John	70	F	Glaucoma	CF:CF	River Sallee
Joseph St. Bernard	75	M	Cataracts	CF:CF	Happy Hill
Verona Lendore	55	F	Cataracts	CF:CF	Belmont, Carriacou
John Lalsee	88	M	Glaucoma	HM:HM	Industry St. Mark's
Mary Lewis	63	F	Cataracts	CF:CF	Florida
Elizabeth Ramdeen	62	F	Cataracts	CF:CF	Telleries, St. And.

COMMENTS

I wish to emphasize the following points:

1. Patients blind with cataracts (21 from the inactive files and 13 from the active files) may have been operated on elsewhere and improved to the sighted category since blindness from cataracts is surgically curable.
2. Some patients may no longer be living.
3. I estimate there are probably as many people who are legally blind by virtue of very narrow field of vision not included on this list.
4. The survey significantly under-reports childhood blindness. As screening in pre-schools, schools, and Health Centers is now available throughout the country, case identification should improve.

5. The information about each patient was derived sometimes from very sketchy and incomplete notes. The inactive files were especially difficult to decipher and the cause of blindness was often unclear.
6. This listing is at best only a rough estimate of blindness in the Eye Clinic population in Grenada. I have purposely not analyzed the data because this is not a scientific study. It is no more than a list from which the Society can begin its work to aid the blind. No hard conclusions can be drawn about the prevalence of blindness or certain blinding diseases in Grenada or even in the Eye Clinic population since the listing is only partial and is drawn from a non-random group. Periodic revision and updating would improve its value as an indicator of blindness in this population.

I would like to make the following recommendations to the Society of the Friends of the Blind:

1. When the individuals on this list are located, they should be referred to the Eye Clinic if they have not been seen in the last 18 months. This will permit us to confirm the diagnosis and offer surgery to those with cataracts and to others who may benefit from some form of intervention. We will also be able to verify their handicap.
2. The Society might consider publicity, especially over the radio, requesting that blind persons who have not been seen at the Eye Clinic in the past 18 months identify themselves through the mail. These individuals can then be referred to the Eye Clinic. We will evaluate the visual status and degree of handicap of such persons and offer treatment if indicated. In this manner, we can update the list and identify new cases.

Finally, I wish to acknowledge the dedicated and tireless efforts of Sister Duncan and the Eye Clinic nurses in the preparation of these data. This list represents 155 individuals who would benefit from programs for the blind. There are undoubtedly more. It is through our desire to help the Society advance opportunities for the blind that we undertook this project. We hope it will provide the stimulus for rehabilitation as well as vocational and educational programs.

Respectfully submitted,



May Khadem M.D.

Project Director, IEF Grenada Project

ADDENDUM: GUIDE TO THE ABBREVIATIONS USED IN THIS REPORT

OD:	right eye	HM:	hand motion	U.E.:	unknown etiology
OS:	left eye	LP:	light perception	Prosth:	prosthesis
CF:	counts fingers	NLP:	no light perception	disl.:	dislocation

Appendix F

Draft Low-Cost Spectacle Program Proposal for Grenada

DRAFT

A Proposal for the
Development of a
Low-Cost Spectacle Program,
St. George's, Grenada, West Indies

International Eye Foundation

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The International Eye Foundation
7801 Norfolk Ave.
Bethesda, MD 20814
(301)986-1830

Contact: Marilyn A. Mayers, Ph.D.
Administrative Manager/Caribbean and Latin America

Organization: A non-profit private voluntary organization which provides long-term and short-term technical assistance to governments in all levels of eye care.

Program Purpose: Reduction, prevention and treatment of blindness in developing countries.

Tax Status: Tax-exempt. (501)(C)(3)

Amount requested: \$38,225

Annual Total Budget: \$110,625

Fiscal year: 1987

Period of Time covered by Grant: January - December, 1987

Purpose of Grant: Development of a low-cost spectacle program on the island nation of Grenada.

Other Sources of Income: U.S. Agency for International Development

I. History

Since 1983, the International Eye Foundation has been continuously involved in providing the only eye care services available on the island of Grenada. Following the American intervention there, the IEF began an intensive search to identify a full-time ophthalmologist under the terms of a grant funded by the U.S. Agency for International Development. Dr. May Khadem, the IEF ophthalmologist assigned in January, 1985, has worked out of the Eye Clinic at St. George's General Hospital, the public hospital in the capital, since then.

After an initial assessment of the island's needs, the IEF with assistance from the Royal Commonwealth Society for the Blind supplied the island's current ophthalmic equipment for the hospital and district health centers. Once the basic equipment was in place, the IEF ophthalmologist began conducting normal clinical and surgical activities. From March, 1985, through July, 1986, 7,000 patients were seen at St. George's Eye Unit, and 317 surgical cases were performed.

Aside from these clinical tasks, the IEF ophthalmologist has carried out extensive training in eye care oriented to different audiences. While nurses have been the principal target of this training, district medical officers, community action groups, school teachers, the Grenadian Society of Friends of the Blind, pharmacists and medical and nursing students have also been oriented in primary eye care and blindness prevention through the IEF's training programs.

During the period Dr. Khadem has worked on the island, the IEF also sponsored the training of a local Grenadian physician in ophthalmology under the auspices of the Department of Ophthalmology, University of West Indies, in Barbados. Having obtained a Diploma in Ophthalmology in 1986, this individual is currently in England pursuing further education towards an FRCS (certification as a Fellow of the Royal College of Surgeons). It is anticipated that he will return to Grenada in July, 1988. At that point, he will assume full responsibility for providing eye care services to the local population.

In this manner, the IEF has developed the capacity of local health personnel to provide adequate eye care. Grenada now possesses a network of eye care services which covers the island. Nurses and health officers working in the districts treat basic eye problems and appropriately refer cases they cannot handle to St. George's.

While the IEF has developed a system of eye care on Grenada, the needs of the Grenadians for eye care have not been met in one critical area: the provision of corrective spectacles for the visually handicapped.

II. Needs and Problem

The cost of spectacles for visual rehabilitation after cataract surgery is approximately EC \$180-250 (US \$90-125) in Grenada. Single-vision glasses to correct refractive errors in school children and to correct presbyopia in middle-aged and elderly patients cost on the average EC \$100-150 (US \$50-75).

While many patients can afford to purchase spectacles from the private optical sources available on Grenada, there are many persons with significant visual impairment which can be corrected by glasses who are not able to afford such glasses. When such refractive errors are not corrected, there is a significant drop in performance of school tasks by children and loss of productivity among adults.

The Ministry of Health has estimated that the existing backlog involves approximately 20,000 people in need of reading or close-working spectacles and some 2,000 school children require visual correction. In addition, Grenada requires approximately 2,000 new and replacement spectacles per annum.

Consequently, the Ministry of Health requested that the International Eye Foundation provide assistance in developing a program to provide low-cost spectacles to those unable to afford them from private sources. After extensive discussions with the Ministry of Health, the Pan American Health Organization and the World Health Organization, an agreement was reached through which the International Eye Foundation would assist in developing a low-cost spectacle program under Ministry of Health auspices.

At the end of 1985, the Grenadian Parliament approved the establishment of a low-cost spectacle program under Ministry of Health auspices. In September, 1986, the World Health Organization sent Professor R. A. Weale, an expert consultant in low-cost spectacle workshops in developing countries, to determine the feasibility of and design for a low-cost spectacle program in Grenada. Professor Weale studied the needs of the island as to volume of demand, space requirements, suitability of proposed sites, and equipment necessary to establish the laboratory. He also investigated the qualifications of proposed shop employees. The IEF's plan to implement a low-cost program follows closely the recommendations in his final report to the World Health Organization and Grenadian Ministry of Health.

III. Goals and Objectives

The IEF seeks to establish a refraction unit/spectacle workshop within the Ministry of Health's ophthalmic services. This spectacle workshop will provide the following: standard frames for men, women and children; corrective lenses on the prescription of a qualified physician or technician; fitting and repair/replacement services for dispensed spectacles.

Professor Weale has estimated that the cost of producing a pair of spectacles through the workshop will be approximately EC \$20 (US \$10). In order to recover costs, some spectacles will be sold at EC \$50 (US \$25). The "profit" will contribute towards the remuneration of personnel and maintenance of the program, including the purchase of new frames and lens blanks.

Such a program will not only provide low-cost spectacles to persons in need, but will also expand the range of skills of the eye unit nurses. Revenues generated by the program will allow the program to continue with relatively little additional expenditure on the part of the Ministry of Health. A successful program will also serve as a model for other island countries interested in undertaking a similar program.

It is important to note that this program will not compete with private sector sources of spectacles for those who can afford them. Only patients certified by the Ministry of Health to be qualified for participation will be served by this program.

IV. Plan of Action

In order to establish a low-cost spectacle program, personnel need to be recruited and trained. Professor Weale suggested that three well-motivated members of the nursing staff at St. George's Eye Clinic be trained to refract eye by retinoscopy. Dr. May Khadem, the IEF ophthalmologist in Grenada, will identify and train these nurses in the first six months of the project. A volunteer optician will further provide assistance in training and establishing operational procedures.

The trainee refractionists will receive a financial incentive during their course of training and a larger one on passing a suitable test in June, 1987. Either a volunteer from the Society for the Friends of the Blind or a nurse will be designated as a shop manager, responsible for preparing orders for spectacles and for maintaining accounts and inventory. Record-keeping procedures for maintaining records of recipients and inventory will be established in the initial month of the project.

In addition to training three nurses in refraction, the project will provide the basic technical equipment necessary for training staff and for subsequent clinical use in the initial month. The equipment includes: one phoropter, a sight-testing chart, three retinoscopes, a near vision test chart, a warming frame for the insertion of lenses into frames and four copies of a Manual for Teaching of Refraction.

Low-cost spectacle frames and lenses will be ordered in early 1987 from optical suppliers of low-cost optical appliances based in India and the Philippines. These sources have already been identified. To keep down costs, a limited range of standard frames will be ordered in three sizes--for six and ten year old children and for adults. The nurses will also be taught how to fit the lenses to these frames.

In December, 1987, an evaluation of the project will be carried out. This evaluation team will include a volunteer optician, and IEF management staff.

V. Past Year's Accomplishments:

Over the last year, the IEF has contributed significantly towards the development of a multi-level referral system of eye care on the island of Grenada. The IEF ophthalmologist on Grenada, Dr. May Khadem, has trained 113 district and public health nurses in primary eye care. Since December, 1985, Dr. Khadem and the Eye Unit's chief nurse have carried out refresher training visits to district health centers to continue working with nurses who had already received some initial eye care training through the project.

Dr. Khadem has given lectures and conducted short courses in ophthalmology for nursing students at the nursing school adjacent to St. George's Hospital. In March, 1986, Dr. Khadem designed and gave a special three-day course for tutors at the nursing school to enable them to teach subsequent ophthalmology courses at the nursing school. A booklet produced by the IEF, entitled Primary Eye Care and Blindness Prevention Notes for Nursing Students, has served as a basic reference in these courses.

The IEF has also produced a series of video tapes on ophthalmology for the School of Nursing to ensure that ophthalmology is permanently incorporated into the nursing school curriculum. The series includes coverage of a primary eye care seminar, eye procedures and nursing care, and details of the eye exam and emergency procedures.

A comprehensive two-week course has been given to two groups of health team leaders. By the end of the course, participants are able to do complete eye exams, evaluate and treat routine eye problems and recognize emergencies.

Plans for establishing school vision screenings were developed in early 1986. To date, school vision screening has been completed in all ten schools in the town of St. George's. School screenings for the other school districts in Grenada are currently underway.

In addition, Dr. Khadem has reviewed 11,000 clinic charts in order to identify those patients who are severely visually handicapped and likely candidates to benefit from a low-cost spectacle program. This review was conducted in conjunction with assistance from the Society for the Friends of the Blind, a community group very much interested in providing ongoing voluntary assistance to the low-cost spectacle program.

VI. Method of Evaluation

Nurse trainee refractionists will be examined in June, 1987, to assess their level of competence in refraction. Dr. Khadem and a volunteer optician will carry out the evaluation and provide further supervision and monitoring of the nurse trainees as needed.

Progress in establishing an operating refraction unit will be assessed in the summer to determine what other, if any, additional support or actions are necessary to ensure program continuation. A final evaluation at the end of the year will assess the effectiveness of the program. This will be a team effort involving a volunteer optician and IEF staff member. Recommendations in this evaluation will be addressed to the Ministry of Health and to prospective governments in the region interested in developing a comparable service.

VII. Continuation of Program

Once initial start up costs have been covered for the purchase of basic equipment and nurses have been trained in refraction, the cost of continuing the low-cost spectacle program as a service to the community will be minimal.

Financial remuneration will have to be provided, however, to the nurse refractionists on an ongoing basis as refraction will constitute a considerable addition to their work load. While a portion of this will be met through revenues recovered by selling the spectacles at a small profit, the Ministry of Health and Society for the Friends of the Blind will provide any additional funding necessary.

Over the long run, the International Eye Foundation will continue to provide intermittent technical and advisory support to the low-cost spectacle program. The IEF will recruit and send volunteer opticians to Grenada once or twice a year for a week at a time to monitor the service. In regular management visits to the Caribbean, the IEF will also visit Grenada periodically to ensure that the program continues to proceed as planned.

Appendix G

**Ministry of Health Correspondence Regarding
Establishment of Fees for Ophthalmic Services**

Ref. No. MIT 40/S
In replying the above
Number and date of this
letter should be quoted



MINISTRY OF HEALTH
ST. GEORGE'S,
GRENADA, W.I.

RECEIVED MAY 2 1986

February 17, 1986.

Dear Dr. Khadem

I am pleased to inform you that Cabinet has approved the rates of fees payable for Ophthalmic services and for the funds collected to be placed under the control of the Permanent Secretary, Medical Superintendent and Ophthalmologist.

The hospital Administrator has been informed and has been requested to take the necessary action.

Sincerely,



.....
Ruth Rahim (Mrs.)
PERMANENT SECRETARY.

RR/lv.

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COPY

CABINET CONCLUSION

DATE: 13 JANUARY 1986

MINISTRY OF HEALTH, HOUSING WOMEN'S AFFAIRS
AND COMMUNITY DEVELOPMENT

Ophthalmic Services
General Hospital recommendations
for payment of fees

030

Cabinet considered this Submission by the Minister for Health and on the Ministry's recommendation approved that the following charges be made for ophthalmic services at the General Hospital -

Cataract and other major operations (lens implants)	- \$250 Residents \$500-1000 Non-Residents
Minor Operations	- \$10-15 Residents - \$40-200 Non-Resident
Clinic Visits	- \$5 Residents - \$10-20 Non-Resident

These fees will not be charged to Grenadians who cannot pay and that the funds collected be placed under the control of the Permanent Secretary, the Medical Superintendent and Ophthalmologist.

(Sgd.) Margaret Dove
FOR Secretary to the Cabinet

23 January 1986

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Appendix H

Financial Report

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RECIPIENT ORGANIZATION (Name and complete address, including ZIP code)
 INTERNATIONAL EYE FOUNDATION
 7801 NORFOLK AVE
 BETHESDA MD.20814

AGENCY FOR INTERNATIONAL DEVELOPMENT (GRENADA OPG 11) 538-0120 No. HO-110180

4. EMPLOYER IDENTIFICATION NUMBER 52-0742301
 5. RECIPIENT ACCOUNT NUMBER OR IDENTIFYING NUMBER 52-0742301

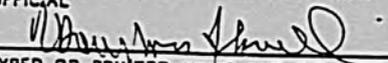
6. FINAL REPORT YES NO
 7. BASIS CASH Acc

8. PROJECT/GRANT PERIOD (See instructions)
 FROM (Month, day, year) 06/30/84 TO (Month, day, year) 12/31/87
 9. PERIOD COVERED BY THIS REPORT
 FROM (Month, day, year) 07/01/87 TO (Month, day, year) 09/30/87

PROGRAMS/FUNCTIONS/ACTIVITIES ▶	STATUS OF FUNDS						TOTAL (f)
	(a)	(b)	(c)	(d)	(e)	(f)	
Net outlays previously reported	\$ 392,445	\$	\$	\$	\$	\$	
Net outlays this report period	7,555						\$ 392,445
Less: Program income credits	-----						7,555
Net outlays this report period (Line b minus line c)	7,555						-----
Net outlays to date (Line a plus line d)	400,000						7,555
Less: Non-Federal share of outlays	-----						400,000
Total Federal share of outlays (Line e minus line f)	400,000						-----
Total unliquidated obligations	-----						400,000
Less: Non-Federal share of unliquidated obligations shown on line h	-----						-----
Federal share of unliquidated obligations	-----						-----
Total Federal share of outlays and unliquidated obligations	400,000						-----
Total cumulative amount of Federal funds authorized	400,000						400,000
Obligated balance of Federal funds	-0-						400,000

10. TYPE OF RATE (Place "X" in appropriate box) PROVISIONAL PREDETERMINED FINAL FIXED

11. CERTIFICATION
 I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.

12. SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

 TYPED OR PRINTED NAME AND TITLE
 R. Douglass Arbuckle, Adm. Director

DATE REPORT SUBMITTED
 10/30/87

TELEPHONE (number and ex)
 986-1830

13. Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with 48 CFR 101-11.6

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