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EVALUATION OF USAID (BHR/PVC)* GRANT #3077 TO
HELEN KELLER INTERNATIONAL
FOR EYE CARE IN MOROCCO
TRIP REPORT

May 22 - June 2, 1995
James B. Sprague, M.D.

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*United States Agency for International Development, Bureau of Humanitarian Resources, Private Voluntary Cooperation

SUMMARY

Helen Keller International (HKI) used funding from the United States Agency for International Development (USAID) to develop a program of primary eye care in Morocco. This evolved into a major part of the national blindness prevention program, which now includes expanded secondary and tertiary ophthalmology services, intensive cataract surgical campaigns and public education efforts. In addition, a blindness survey was conducted in 1992. These other program elements have been "leveraged" by the Ministry of Health (MOH) from the initial HKI effort with funding from France, from USAID, from other international donors and from private sources within the country. The HKI program is now well institutionalized within the MOH and has been replicated in half the provinces. The MOH considers the eye care program a model of development practice and plans to sustain it.

The primary eye care training supported by HKI is included in the training of basic health care personnel. Retraining is done appropriately; donated equipment is in place and is being used; a referral system is in place. Continued HKI support should be offered to complete primary eye care in provinces not yet covered and to consolidate the program in the provinces covered to date.

The current HKI grant also includes funding for ophthalmic surgical services for children. HKI helped two referral centers develop this expertise using the MOH program already in place to generate patients. This program started in 1994 and will be expanded to four regional eye centers. Immediate post operative care is provided but long term care needs to be developed. Specifically, the clinical skills of indirect ophthalmoscopy and retinoscopy should be taught at the post graduate level and introduced into the resident curriculum.

Patient statistics are kept in Rabat and need to be collated for use by HKI in New York.

Physician and patient education materials have been designed and should be published.

A follow up survey should be anticipated.

BACKGROUND

In 1984, the Moroccan Ministry of Health (MOH) and Helen Keller International (HKI) began a primary eye care program that evolved into a national blindness prevention program, *Programme National de Lutte contre la Cécité* (PNLC). HKI received support from the United States Agency for International Development (USAID BHR/PVC) with matching grants in 1984, 1986, 1989 and 1993, as well as direct mission support in 1991 and 1992. The first two grants supported the pilot program in Ouarzazate province, in the southeastern desert. The third, called PREYECARE (program for primary eye care), ran from 1987 to 1992, expanded the initial pilot program into other provinces and widened its curriculum. During this period, USAID - Morocco directly supported the expansion of the primary eye model in the northern part of the country and funded a blindness survey in 1992.

The current USAID matching grant to HKI (#3077), runs from 1993 to 1996. It is designed to duplicate the model in northern provinces and to provide surgical services to children, primarily for cataract. HKI calls this program Project SEE, "Sustainable, Efficient Eye Care.

In the spring of 1995, USAID - Washington requested an evaluation of HKI's support of primary eye care and children's surgical services in Morocco. The evaluation team was led by James B. Sprague, M.D. who had conducted the initial planning visits in Ouarzazate in 1985, but who has not been involved with the program since then. The team included Ms. Meredith Tilp, Director of Eye Care HKI - New York; Mine Fatima Akalay, Ph.D., HKI country director in Morocco; and Youssef Chami, M.D. chief of the MOH service for eye and ear diseases. This report is based on interviews with the following: the director of epidemiology; ophthalmologists in the two tertiary hospital centers in Rabat and Casablanca; the administrative and ophthalmic staff at the provincial level in Larache, Tangier, Tétouan, Chefchaouen and Fès; officials at USAID-Rabat; the permanent secretary of the MOH; and the American ambassador to Morocco.

Northern sites were chosen for this trip since the program was recently started in this area and USAID - Washington was interested in the questions of replicability and sustainability in a new area; the sites were chosen by Dr. Chami.

PROGRAM OVERVIEW AND DESIGN OF THIS REPORT

The blindness prevention program is organized within the Division of Epidemiology in the MOH and has a full time physician director; MOH direct costs are now over \$1.5 million. Although HKI's current grant is for primary eye care and childhood blindness, these activities are institutionalized into the overall MOH program. This program currently has seven *de facto* interrelated components:

1. Primary eye care
2. Childhood blindness initiative
3. Ophthalmic surgical services in provincial hospitals
4. Regional ophthalmic centers
5. Provincial cataract campaigns
6. Public education
7. Blindness survey (1992).

To understand the HKI contribution and to simplify this report, I will review each component separately. However, my conclusions and recommendations are directed to the HKI goals outlined in the detailed implementation program and to the questions set out in the scope of work for this evaluation.

PROGRAM COMPONENTS

Primary eye care (soins oculaires primaires)

In 1986, HKI proposed adding primary eye care material to the basic curriculum of primary health care doctors and nurses. Training started in the south in 1987, and a program was organized within the MOH in 1988. A national conference on primary eye care was held in 1990 for 60 *animateurs* (nurses with administrative responsibilities for the program) and 60 *medecins chefs* (provincial hospital physician administrators). The first primary eye care training in the provinces we visited was done in Tangier and Larache in 1991. in Chefchaouen in 1993 and in Fès in 1994.

This training has now evolved into a 5-day eye care course given by an ophthalmologist with assistance from an *animateur*. Although the training was initially funded entirely by HKI, HKI now provides only *per diem* for attendees and consultants, instruction manuals and basic instruments. The MOH organizes the sessions, pays the transport and the room and board for the participants as well as indirect costs. Program development has been gradual, expanding to meet the demand created, rather than imposing a final infrastructure from the beginning. The incremental growth of the program in Tangier is illustrative and is shown in Table 1.

We evaluated the extent of primary eye care training in terms of numbers trained (Table 2) and equipment distributed (Table 3). We looked at impact of the training by the use of the donated instruments; by the quality of referrals to the hospitals; by the use of "re-referral" forms (sent by the consultant to the primary care giver); and by the number of patients referred.

The *animateur* is responsible for implementing the training at the provincial level. In each province we visited, the *animateur* knew who had been trained, who had been missed, who was new or who otherwise needed to be retrained. This retraining is included as a part of continuing education and is well institutionalized in the system.

The equipment provided by HKI consists of a manual, a binocular loupe, a visual acuity chart, a scissors, a fine forceps and a foreign body spud. One hundred twenty-three sets have been distributed since 10/93, one to each health center which participated in the primary eye care training (Table 3). We found the instruments in use and properly cared for in each of the three primary centers we visited.

Patients presenting to a peripheral health care facility receive a form to take to the hospital-based ophthalmologist. The latter fills out the bottom of the form which the patient returns to the referring physician. There was general agreement from all levels that this system works fairly well. The exception was in Chefchaouen where Chinese physicians have been stationed; they have not taken part in the training.

The overall number of referrals increased dramatically at the primary, secondary and tertiary

levels since the program started. For example, visits to the Tangier ophthalmologists were 3,245 in 1992, 13,249 in 1993 and 21,482 in 1994. Nationally, a total of 206,024 primary eye visits was recorded in 1994. Anecdotally, there has been a "vertiginous" increase in the number of patients referred from the primary care system to teaching service in Casablanca. The eye service is the largest financial producer in this hospital, even though only 15% of the patients pay for their care. Last year the Casablanca service did about 5,500 operations, of which 2,500 were cataracts.

The MOH view of primary eye care was provided by the chief of the division of epidemiology and by the permanent secretary of the MOH. Both feel the eye program to be one of the most successful activities in the health care portfolio. They acknowledge that they were sensitized to the need for eye care by the blindness survey and by the success of the cataract campaigns. For example, the permanent secretary recounted a story of a post-operative patient who looked at his hands in wonder, saying he had not seen them for years. Both noted that the program grew gradually from the primary care system, and that HKI assistance was well integrated from the beginning. This was in specific contrast to foreign programs that emphasized equipment without support, and that used experts who were rarely seen.

Childhood Blindness Program

In the current grant, HKI received funding to provide surgical care for blind children with operable conditions, such as congenital cataract. In the past, surgery for blind children was offered on a limited basis because of poor anesthesia services, inadequate equipment and poor surgical training. Nonetheless, 204 congenital cataracts and 260 traumatic cataracts were operated in 1994 in children less than 15 years old. In the same time period, there were 116 cases of congenital glaucoma, 27 cases of retinoblastoma and 26 cases of rhabdomyosarcoma.

In March 1994, HKI developed guidelines for case selection, surgical technique, patient follow up, clinical records and surgical equipment; these recommendations were modified in April, 1995. In October 1994, a children's surgery program was started in the two teaching hospitals in Rabat and Casablanca. In January, 1995, two one-day meetings were held in Rabat for the chiefs of the ophthalmology services in 20 provinces. These sessions were led by two professors from each hospital as well as by the HKI director, the chief of the *PNLC* and a geneticist. The guidelines for congenital cataract surgery and for the data management system were reviewed. The following recommendations were made:

1. Increase case detection by including eye examinations in post natal care.
2. Create registers of afflicted families.
3. Use the HKI data collection forms.
4. Refer all children possible under the age of 2 to Rabat or Casablanca for their surgical care. Conduct follow up care at either the tertiary hospital or at the provincial hospital. Operate children with cataract over the age of 2 at the provincial level.
5. Provide glasses prescriptions for all operated children.

The surgical guidelines include posterior capsulectomy and anterior vitrectomy. Initially, only the hospital at Casablanca had a functioning vitrectomy unit. HKI provided a vitrectomy machine for the hospital in Rabat, and both hospitals now receive patients from their respective referral areas. Even well staffed facilities - such as Tangier - refer their youngest patients. However, the American ambassador offered to help fund a vitrectomy machine for Tangier so that this regional center will be able to operate congenital cataracts primarily. Patients whose families are unwilling or unable to come to the cities continue to be operated at the provincial level with a planned extracapsular procedure.

The following information is a summary of interviews with Professors Amraoui and Berraho-Hamani, the chiefs of service at Casablanca and Rabat respectively. Most children with cataract are seen after a year of age, and most have nystagmus. Many have other congenital deformities, and many have consanguineous parents. In addition, there are many with rubella. A pediatric anesthesia specialist is available at Casablanca. In Rabat, there is no one specifically designated, although there have been no anesthesia problems. In Casablanca, there are dedicated operating rooms and children are added to the schedule without difficulty. In Rabat, the operating room is shared with other surgeons, and there is difficulty finding operating room time.

I scrubbed on two pediatric cases with Professor Berraho-Hamani and the following summarizes her comments. Extracapsular surgery is done with either an anterior or a pars plana approach. If a small posterior capsulotomy can be done at the end of procedure without vitreous loss, a vitrectomy is avoided. Instrument sets are cleaned with alcohol on the Mayo stand and reused without being autoclaved. The Alcon vitrector purchased by HKI uses disposable tubing and handpieces. These are reused in the same day and gas sterilized for repeat use; a re-used handpiece failed on one case. The wounds are large enough to allow the use of capsular forceps and are closed with 3 10-0 nylon sutures. Sub-conjunctival antibiotic is used. The children are kept in the hospital for 48 hours.

About 80% of the children are seen for their initial postoperative care; few are seen after 6 months either at the central hospital or at a provincial hospital. Hospital care does not include medications or optical correction; 95% are given prescriptions to fill privately. The other 5% are given glasses and topical medications. This system works in part because the very poor probably do not come for any care at this time.

Refractions are supposed to be updated every 6 months; very few are done. Very little long term care is provided and very little amblyopia therapy is attempted. Indirect ophthalmoscopy and streak retinoscopy are rarely done, particularly outside the teaching hospitals. We only saw two indirect ophthalmoscopes, one in its case and the other broken; we also saw two non functioning streak retinoscopes. Retinoscopy with a flat mirror and a wall mounted lamp is occasionally done on adults.

The childhood blindness program has just started and no outcome data are available other than the number of patients operated. Although Dr. Berraho Hamani has completed the HKI

dossiers on 59 pediatric cataract cases, the data accumulated have not yet been analyzed. The data collection system will need to be reviewed for its usefulness.

The program has the important function of providing a path of referral for these patients and encourages the primary health workers to identify them. With no previous effort to treat congenital cataracts and with a large number of consanguineous marriages, there should be a significant number of patients currently unrecognized by the health care system. These patients will have better vision with a clear visual axis than with a totally opaque lens. However, late detection, poor optical correction, poor follow up and lack of amblyopia therapy argues against good post operative vision for most of these children.

Performing congenital cataract surgery at the four regional centers should improve access for patients and improve follow up care. This will require equipping each with a vitrectomy machine and will require a budget for service and for replacement of disposable parts. The surgical guidelines represent current American practice and will probably need to be modified with time to reflect local practice realities.

Congenital glaucoma patients are also referred to the two teaching centers. They represent about 60% of the population in the blind schools and frequently come from consanguineous marriages. They are diagnosed late and usually present with corneal opacity. The usual procedure is a trabeculectomy; mitomycin is not used. At least a third require more than one procedure. They rarely are followed for more than a few months, and success is defined by a clear cornea.

Provincial Hospital Services

The success of primary eye care training is shown by increased patient visits at the primary level and by increased demand for referral ophthalmic services at the secondary and tertiary levels. All 30 provincial hospitals have had ophthalmic equipment supplied and ophthalmic surgeons assigned. Most hospitals in populous areas have two ophthalmologists. Provincial hospitals that do not yet have surgical microscopes are budgeted to receive them.

We visited three strictly provincial hospitals, Larache, Tétouen and Chefchaouen, plus the provincial hospitals attached to the regional centers in Tangier and Fès. Each had different problems implementing the eye care program. For example, in Larache, surgical volume was limited by inadequate operating room space and anesthesia services. The *Médecin Chef* was not able to make operating room space available in the afternoons. In Chefchaouen, the Chinese ophthalmologist did little surgery, would not follow patients operated elsewhere and was ignorant of the Moroccan primary care referral system.

Regional Ophthalmic Centers

The development of secondary ophthalmic services in the provincial hospitals generated a referral population for the teaching services in Rabat and Casablanca. There is now a larger

need for referral services than exists and three regional centers are being developed based on the model of the center in Agadir. These are in Tangier, Fès and Marrakesh. The MOH secured funding from the French government in 1992 to equip them with diagnostic equipment such as angiography cameras, Goldman perimeters, YAG and argon lasers, autorefractors and extra slit lamps. Four ophthalmologists are posted to each and they are envisioned as providing a wide range of tertiary referral services. They still can refer to Rabat or to Casablanca.

Cataract Campaigns

Cataract campaigns bring one of the university ophthalmology teams to a provincial hospital for a week to operate 200 - 300 cataracts. About a third are with intraocular lenses (IOL) and about a third are intracapsular lens extractions (ICLE) done with loupes. The IOL, Healon (a lubricant that facilitates placement of the IOL) and suture are provided, rather than sourced by the patient. Outside of the campaigns, patients may have the surgery done by government ophthalmologists, but they must provide these materials. Local teams identify the patients in advance and follow them postoperatively. These campaigns were originally conceived to reduce the cataract backlog and to provide training. They have been universally popular, and in urban areas such as Fès, attract competing groups willing to support them. Community support now is estimated to provide about 60% of the total cost and is not seen in other government programs. After campaigns, patients continue to come in, both to the MOH hospitals and to private ophthalmologists as well. In Fès, where campaigns have been repeated, they had 400 surgical patients for the 300 procedures planned for the June effort.

The campaigns are now seen as a publicity effort conducted in addition to the regular cataract surgery. They are not seen as a short or medium term technique to reduce the cataract backlog, and are not expected to be continued. However, for the time being, they are part of the reason for the increased utilization of ophthalmology services.

Public Education

The provision of eye services at the primary level and the cataract campaigns are a major part of the current public education effort. In addition, there are posters encouraging the public to have cataract surgery. We saw publishers layouts for a booklet on cataracts and a poster on trachoma directed at the non-specialist physician and nurse. These await funding. At present, the demand for services generally exceeds supply so propaganda is not a pressing issue.

Blindness Survey

In 1992, the MOH undertook a point prevalence survey of the causes of blindness, use of glasses and the use of eye care facilities. Blindness was found in 0.76%, bilateral poor vision in 2.27% and unilateral visual loss in 2.8%. The most important causes of blindness were cataract (45%), glaucoma (14%) and corneal opacities (10%). Trachoma was present 1.4% overall, mostly in the south and only 40 % estimated to need glasses had them. Cataract extraction had been performed in 0.8% and "couching" had been done in additional 0.1%. The

backlog of unoperated bilateral cataract patients was estimated at 287,000.

This survey was done as a planning tool for the PNLC after the program started and the need for a survey was evident. This is in contrast to doing it in advance of starting a program. There is currently no plan to repeat a survey without additional funds.

CONCLUSIONS

This project is a model of development practice, both in my opinion and in that of the two highest government officials we met. It started as a small USAID grant to a private American voluntary agency to do primary eye care training in a remote area of rural Morocco. Initially, it provided care at the primary level and generated demand for more care and for more sophisticated care. As the MOH recognized the importance of eye care to the public occurred, a survey was conducted to identify the ocular problems in the country. The program presently includes primary eye care in half the provinces, secondary ophthalmic medical and surgical care at provincial hospitals around the country, speciality eye services in four cities and two teaching tertiary services. It is now a Moroccan government program supported by Ministry funds leveraged with other sources of outside aid, and only in small part by USAID.

Primary eye care worked well in the facilities we visited. Personnel had been trained, retraining covered personnel deaths and transfers, and health care workers seemed comfortable with the clinical responsibilities they were assigned. Donated equipment was in place and was used. The personnel understood the referral and counter referral system. Expansion of this training to the remainder of the country should be straightforward.

The children's surgical program has just started. Anecdotally, more children are coming in for care, but numbers are not yet available for 2 successive years. All the provincial hospital ophthalmologists understood the chain of referral; the regional eye centers were also referring their pediatric cataract patients. Surgical care and access can be improved if children are operated at the regional centers. This will require purchase of vitrectomy machines. The surgical guidelines have not yet been reviewed in Morocco and the use of the HKI dossiers is not widespread.

Lack of follow up is a major problem which has not been addressed. Follow up issues include glasses supply, postoperative vision checks, glaucoma and repeated refractions. Post operative management would be improved if the doctors used indirect ophthalmoscopy and streak retinoscopy.

Increasing services for children will increase congenital glaucoma referrals.

Ophthalmic surgical services at the provincial level were staffed and equipped, although the staffing was uneven. There were widely differing problems in running these services, which should respond to administrative management since the MOH is committed to keeping ophthalmologists in these hospitals.

The regional eye centers we visited in Fès and Tangier had received sophisticated diagnostic and therapeutic equipment. These centers eventually will have to treat the complications of the increased cataract surgery that is envisioned as well as congenital cataracts that come from their local referral areas. These complications include enophthalmitis and retinal detachment and their

management would be greatly facilitated by vitrectomy and indirect ophthalmoscopy. The only vitrectomy machines in the country are in the two teaching hospitals.

The cataract campaigns have sensitized the public, private benefactors and government decision makers to the potential benefits of eye surgery. They are not seen as a replacement for routine hospital based care and they are expected to be phased out in the next few years.

The public education activity has been limited to wall charts directed at patients. Since patient demand for ophthalmic services currently outstrips supply, there is no great priority to correct this problem.

The first blindness prevalence survey was successful in documenting the extent of visual problems in Morocco and in sensitizing the MOH to the problem.

The MOH appears committed to continuing the eye care project. However, it is possible that priorities will change if the present drought continues.

The following questions are included in the scope of work for this evaluation. Some of them are answered in the text.

1. (Especially for children) Are the targeted high risk groups being reached now? If not, what are the constraints to meet reaching these groups? What is HKI doing to alleviate these constraints?

The targeted high risk children with cataracts are being reached in increasing numbers. The infrastructure to identify them and bring them in for treatment is just being developed. Until now, there has been no specific program to find them and treat them. HKI has set up a treatment model which it is now attempting to replicate.

2. What data and how often is it being collected for the project? How is the data being used after it is collected? With whom and how is the data being shared?

Dr. Chami receives monthly statistics on number of trainings, outpatient visits, adult cataracts operated, children operated. These data are forwarded to Mme Akalay and by her to New York. HKI-New York does not currently collate these numbers in a useable manner.

3. Assess the IEC component of the project at the community level (Printed material, television\radio, etc.)

Word of mouth alone has generated patient demand in excess of supply for many eye services. The children's surgical program has not been running long enough to determine if extensive publicity will be necessary.

4. Assess the MOH's understanding of the project (At the district, regional and national level). Do they know the objectives of the project?

The HKI program is integrated into the MOH and is appreciated by the MOH. We may have interviewed a selected group, but they were knowledgeable about the aims of the project.

5. Assess the quality of the HKI trained doctors, primary nurses, school teachers, community volunteers and leaders to screen and treat eye patients.

Moroccan medical personnel are no longer trained by HKI *per se*, but rather by the MOH. This is a good example of how well the HKI model has been institutionalized into the MOH bureaucracy. The system relies on the *animateur* who is also responsible for other non ophthalmic training. He is also responsible for retraining. The personnel we met appeared to be well trained.

6. Assess the follow-up system for referred patients. Does the nurse know how a referred patient went on in the system and the treatment the patient received?

Most nurses said that they used the system. There is no system of recording referrals. Ophthalmologists said that they returned the referral forms.

7. Assess the flow of necessary materials, supplies, and equipment to carry out proper treatment.

HKI has supplied materials as noted in the discussion of primary eye care and in Table 3.

8. Appraise the nature of supervision and monitoring that goes on after the training of nurses and physicians. Is it adequate for assuring quality of services?

Even assuming that we interviewed the best of the *animateurs*, I was impressed how competent they seemed on questions of training and on the minutia of the program. The program director chose some of the *animateurs* and they know their individual project personnel. Retraining was done for new staff and for staff that missed the initial training.

9. Assess the administrative support and technical support the project has received from HKI New York office. Has it been adequate thus far during the life of the Project?

HKI - New York has been able to respond quickly and appropriately to requests from HKI Rabat. Since the HKI assistance is part of the overall MOH program, HKI has had MOH administrative support as needed.

10. What, if any, technical assistance has the project received to date? What are the technical assistance needs of the Project?

HKI has provided administrative and training support. The childhood surgery initiative currently provides guidelines and equipment. The ophthalmologists will need to be taught additional skills to provide clinical follow up. They do not know how to do indirect ophthalmoscopy or streak retinoscopy, techniques that are difficult to learn from a book. In addition, the MOH will need to develop the ability to recall post operative patients.

11. What is the nature of the relationship between the project and its chief counterpart? Has there been any exchange of money, materials, or human resources between the project and this counterpart?

HKI is integrated into the MOH program and supplies it with *per diem* for trainees and basic equipment sets. HKI does not provide any stipend or consideration for MOH employees.

12. Assess the rate of project expenditures appropriate considering the project's inputs. Are expenditures over or under projected expenditures?

HKI - New York is reviewing the budgets. The primary eye care budget should be simple. The needs of the children's blindness initiative need to be clarified.

13. Assess the prospects of sustainability. How will training continue after the projects end? What reassurances does the project have that materials currently being supplied by the PVO will be available after the project has ended?

Most of the costs are presently in the MOH budget, so the project should be continued. The MOH has been able to find funding from Moroccan private groups and from the French and Belgian governments once the program was started. Like everything else in Morocco at this time, this project may be effected by the continuing drought and the government's ability to provide services. Most of the materials supplied are simple and should not require expensive replacements. It should be remembered that the project for primary eye care has only covered half the country. If the remaining training is not funded by HKI, the government will have to find additional funding.

RECOMMENDATIONS

Continue primary eye care training until all provinces have been covered. This will require continued HKI funding if the current momentum is to be maintained. Without the primary care system, the secondary and tertiary systems do not function properly.

Improve access and quality of surgical care for children.

Decentralize surgical care to the four regional centers. This is a natural outgrowth of the initial success of the children's surgical program. However, it will require vitrectomy machines for each center if the current surgical guidelines are to be followed.

Review the surgical guidelines.

Develop training for congenital glaucoma surgery.

Improve the follow up of children operated for congenital cataract

Develop the infrastructure to find patients post operatively.

Teach ophthalmologists the medical clinical skills necessary, particularly indirect ophthalmoscopy and streak retinoscopy. This will require hands on teaching by Francophone ophthalmologists since these skills are not taught in Morocco and are difficult to learn from a book.

Review the use of the data collection forms for the children's blindness program.

Publish the teaching materials on cataract and trachoma that are prepared.

Anticipate the need for another blindness prevalence survey.

Use the American Academy of Ophthalmology's Committee on International Ophthalmology:

to find French speaking American ophthalmologists;

to request teaching materials (albeit in English) on retinoscopy and indirect ophthalmoscopy;

to request surplus books for the regional hospital libraries;

to consult on appropriate surgical technology and teaching strategies.

Include the current American ambassador in planning for the immediate future.

TABLES

Table 1. Primary Eye Care (PEC) Activities in Tangier Province

Table 2. Personnel Trained in Primary Eye Care, 1987-94

Table 3. Procurement Requests and Distributions
Project SEE-10/94-9/95

Table 1. Primary Eye Care (PEC) Activities in Tangier Province

| Date | Activity | Doctors | Nurses |
|------------|---|---------|--------|
| 11/90 | 1 day PEC | 7 | 24 |
| 3/91 | same | 6 | 14 |
| 12/91 | 5 day PEC | 6 | 17 |
| same | same | 7 | 16 |
| 2/92 | 1 day neonatal ophthalmia | 10 | 35 |
| 12/92 | 4 day trauma | 30 | |
| 12/92-1/94 | 1 month rotations on eye service for generalist doctors | 24 | |

Table 2. Personnel Trained in Primary Eye Care, 1987-94

| Year | Province | Doctors | Nurses | Totals |
|-------------------------|---------------|---------|--------|--------|
| 1987 | Ouarzazate | | 2 | 2 |
| 1988 | Ouarzazate | | 13 | 13 |
| 1990 | Ouarzazate | | 36 | 36 |
| | Errachidia | | 42 | 42 |
| | Taroudant | 2 | 1 | 3 |
| | Agadir | 14 | 129 | 143 |
| 1991 | Taroudant | 1 | 58 | 59 |
| | Tata | 7 | 47 | 54 |
| | Tétouan | 15 | 27 | 42 |
| | Tangier | 13 | 33 | 46 |
| | Larache | 10 | 25 | 35 |
| 1992 | Ouarzazate | 13 | 12 | 25 |
| | Taroudant | 13 | 2 | 15 |
| 1993 | Chefchouen | 10 | 36 | 46 |
| | Al Hoceima | 7 | 34 | 41 |
| | Sidi Kacem | 10 | 20 | 30 |
| 1994 | Wilaya de Fès | 56 | 67 | 123 |
| | Figuig | 6 | 21 | 27 |
| | Nador | 20 | 41 | 61 |
| | Taounate | 16 | 40 | 56 |
| 1995 June planned | Beni Mellal | 15 | 37 | 52 |
| | Azilal | 7 | 35 | 42 |
| | El Kalaa | 6 | 35 | 41 |
| | Srahna | | | |
| | Taza | 9 | 38 | 47 |
| | Oujda | 15 | 42 | 57 |
| 1996 Planned | Assa-Zag | 3 | 18 | 21 |
| | Guelmin | 3 | 20 | 23 |
| | Tantan | 4 | 12 | 16 |
| | Tiznit | 9 | 33 | 42 |
| Totals | | 284 | 956 | 1,240 |

**Table 3. Procurement Requests and Distributions
Project SEE-10/94-9/95**

| Item | Date sent | Quantity | Request | Value | Project | Source |
|--------------------|-----------|----------|---------|-----------|-------------------------------------|--------------|
| Cataract boxes | 7/14/94 | 2 | 2 | \$3,456 | Figuig Nador Taounate Fès | Procurement |
| Foreign body boxes | same | 123 | 99 | \$3,149 | same | same |
| Loupes | same | 356 | 238 | \$8,245 | same | same |
| Vision charts | same | 356 | 238 | \$3,329 | same | same |
| IOL | 9/28/94 | 215 | 1,000 | \$24,580 | Taroudant Agadir | gift in kind |
| IOL | 10/14/94 | 500 | 500 | \$58,230 | Sale, Meknes, Kinitra, Fès | same |
| Suture | same | 240 | 200 | \$1936 | same | same |
| Healon | same | 2,500 | 2,500 | \$125,000 | Agidir | same |
| Timolol | 7/1/94 | 10,080 | 4,320 | \$95,357 | national | same |
| Timolol | 9/1/94 | 4,320 | 4,320 | \$43,070 | same | same |
| Vitrector | 1/20/95 | 1 | 1 | \$20,000 | Rabat | Procurement |
| Shipping | | | | \$2,883 | | |
| Total | | | | \$389,235 | | |

INTERVIEWS COMPLETED

US State Department

Marc C. Ginsberg, Ambassador

Michael Farbman - USAID mission chief

Nancy Nolan - USAID Technical Advisor, AIDS and Child Survival

Donald Lauro, USAID

Kingdom of Morocco, Ministry of Public Health

Dr. Zahi Abderahmane, Permanent Secretary

Dr. Jaouad Mahjour, Ministry of Public Health, Epidemiology Division, Director

Dr. Youssef Chami Khazraji, Ministry of Public Health, Epidemiology Division, Chief of the service for ophthalmic and otolaryngologic diseases.

Dr. Mohammed Aouragh, Médecin Chef , Larache

Dr. Abdelkrim Jaafar, delegate of the MOH at Tangier

Dr. Md. Bekkali, chief at the Al Kortobi hospital, Tangier

Dr. Md. El Hannach, adjoint to the Médecin-chef at Tetouan

Dr. Mibarek Bagho, delegate of the MOH in Chechaouen

Dr. Md Bousfiha, chief of the SIAAP

Mr. Md Amallah, nurse head of the SIAAP

Dr. Fouad Bouchareb, delegate of the MOH at Fès-Medina

Dr. Abdellah, Médecin Chef for Omar Drissi hospital, Fès

Mrs. zhon Benzeroual, nurse in charge of the eye service at the civil hospital, Larache

Mr. Md. Achou, *animateur* for Tetouan

Mr. Abdelaziz Boumaaz, *animateur* for Chechaouen

Mr. Md.Senhaje, *animateur* for Fès

Dr. Lazaar, Medecin Chef of SIAAP for Fès-Ville Nouvelle

Mr. Haj Zeriou, Major of SIAAP, Fès

Ophthalmologists

Dr. Abdelwahed Amraoui Professor and Chairman, Dept of Opht Hopital 20 Aout

Dr. Amina Berraho Hamani, Professor of Ophthalmology, CHU Ibn Sina, Rabat

Professor Khalid Zaghloul, Professeur Agregé d'Ophtalmology, Hopital 20 Aout

Dr. Najia Batel and Dr. Abdelatof Mait, Hospital Lalla Merlem, Larache

Drs. Omar Derraz, Hassan Mouhcine, Abdellah Benchikh and Adil Kheirdine, Tanger

Dr. Allal Douhat, Tétouan

Dr. Chakib Touzani, chief of the ophthalmology service for Omar Drissi hospital

ABBREVIATIONS AND GLOSSARY

- angiography - method of showing abnormal vessels in the retina (\$15,000)
- animateur* - nurse responsible for training, usually at the provincial level
- argon laser - instrument to treat blood vessel anomalies in the retina (\$20,000 - \$30,000)
- autorefractor - instrument that figures out glasses prescriptions (\$10,000)
- boxes - in this context, the instruments necessary to do a procedure, ie a *boîte de cataract*
- cataract - opacity in the lens of the eye, preventing good vision
- couching - a "traditional" method of cataract treatment, done by pushing the lens out of the way rather than by removing it
- ECLE - extracapsular lens extraction. Removes the lens material inside the capsule, and then deals with the capsule. Needs a surgical microscope, but can be done through a small incision
- glaucoma - increased pressure inside the eye, leads to blindness if not treated
- Healon - a viscoelastic that greatly facilitates the placement of an IOL
- HKI - Helen Keller International
- ICLE - intracapsular lens extraction. A technique of removing a cataract with its surrounding capsule intact. Requires a large incision, but can be done quickly and without a surgical microscope
- IOL - intraocular lens. Plastic replacement for the cataract. Otherwise, the patient requires thick glasses.
- Indirect ophthalmoscope - instrument used to examine the retina binocularly. It greatly facilitates examination of infants and is required to examine the retinal periphery
- Major* - senior nurse with top administrative responsibilities
- Medecin chef* - physician with top administrative responsibilities in a hospital, health department or province
- MOH - ministry of health
- PEC - primary eye care. A system of teaching basic health care personnel simple eye care skills and providing a system of referral
- Perimeter - instrument used to measure visual field, usually for glaucoma patients (\$5,000)
- PNLC - Programme National de Lutte Contre la Cécité*. National program to prevent blindness.
- PREYECARE - HKI's program for primary eye care
- PROJECT SEE - HKI's program for sustainable, efficient eye care
- SIAAP - Service d'Infrastructure d'Action Ambulatoire Provincial slit lamp - instrument used to examine the eye binocularly with magnification (\$7,000)
- streak retinoscope - instrument used to estimate glasses prescriptions, virtually indispensable in dealing with children
- Timolol - topical drug used for glaucoma control
- USAID - United States Agency for International Development
- vitrector - instrument used to remove tissue, blood, cataract, etc. from inside the eye. (\$20,000-\$60,000)
- YAG - a laser used inside the eye to remove tissue