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EVALUATION REPORT

Helen Keller International

PHILIPPINES

Integrated Primary Eye Health Care
and Blindness Prevention

James Sprague, MD
Nicholas Danforth
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SUITE 700, 1655 NORTH FORT MYER DRIVE, ARLINGTON, VIRGINIA 22209

(703) 841-0723

BOSTON

JAKARTA

PORT-AU-PRINCE

RABAT

SANA

TEGUCIGALPA

Helen Keller International

Philippines

Integrated Primary Eye Health Care
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ACRONYMS

AID	Agency for International Development, Washington, D.C.
BHA	Barangay Health Aide
BIHNPP	Bicol Integrated Health, Nutrition, and Population Project
EENT	Eye, Ear, Nose, Throat Specialist
HKI	Helen Keller International
IO	Institute of Ophthalmology, University of the Philippines
MOH	Ministry of Health
MSH	Management Sciences for Health
MSSD	Ministry of Social Services and Development
PEC	Primary Eye Care
PHC	Primary Health Care
RHU	Rural Health Unit
RRB	Rehabilitation of the Rural Blind
USAID	U.S. Agency for International Development Mission in Manila

FOREWARD

This report is one of a series of evaluation reports by Management Sciences for Health funded by the AID Bureau of Food for Peace and Voluntary Assistance. The series examines a sample of PVO health and nutrition projects which receive Matching Grant funds from AID. The report was prepared for AID by James Sprague, MD, an ophthalmologist with public health experience in Asia and Africa, and Nicholas Danforth, an evaluation specialist and Manager of the PVO Evaluation Project of Management Sciences for Health. They visited HKI headquarters in New York and Manila and the Bicol project site in the Philippines in September 1984. They were assisted by Jeffrey Watson, HKI Project Director in the Philippines, and Edward Glaeser, HKI Associate Director in New York. Comments are welcome and should be addressed to Nicholas Danforth at MSH.

I. EXECUTIVE SUMMARY

In September, 1984, Management Sciences for Health (MSH) evaluated a primary eye care (PEC) project in the Philippines which has been supported with AID matching grant funds. The grantee is Helen Keller International (HKI), a New York based PVO dedicated to blindness prevention. The project goal was to integrate PEC into an ongoing primary health care (PHC) scheme financed by USAID/Manila in the Bicol Region. The evaluation was designed to review the overall approach of the HKI project and to examine the quality and effectiveness of its training component. Since the project had only been in operation a year, impact of the training could not be assessed.

The HKI project developed low cost training methods and materials for PEC within the Philippine context. One manual has been translated into the local language. The basic training of PHC workers was low in cost, and done primarily by educators rather than by medical professionals. The program used an ad hoc surgical referral service and concentrated on basic training of village health workers rather than expansion of hospital based surgical services.

Evaluation of the training and of HKI's overall approach was strongly positive. The project stresses appropriate, replicable teaching methods. It hopes to create a grassroots constituency for eye care which will demand surgical services (primarily cataract extraction) in rural areas. The "vertical" eye care project has been well integrated into the "horizontal" PHC system already in place and seems to have helped improve it. The resources allocated by the MOH for eye care seem appropriate for the demand, and the MOH does not appear to be distracted from other duties by the PEC project. On the contrary, the PEC training appeared to strengthen the general clinical skills and confidence of the peripheral health care workers.

The project had not been active long enough to evaluate:

- systems for internal monitoring and evaluation of patient referral, in-service training, and clinical abilities of the trainees;
- surgical services;
- institutionalization of the training methods;
- sustainability of rural Philippine health services on which PEC is dependent.

Although we were not able to measure the quality of eye care services now becoming available, we believe that the training program is successful and should be continued in the Bicol target area.

Training activity should expand to new areas (such as Panay). But several improvements are needed in the existing project in Bicol, including:

- training host country counterparts to take over all training and project management functions;
- developing a health worker evaluation and monitoring system;
- improving the availability of surgical services; and
- developing a supply system for drugs and supplies to the health workers.

HKI is well aware of these and other project needs and is working rapidly to remedy them.

II. BACKGROUND

A. Helen Keller International (HKI)

HKI was founded in 1915 by Helen Keller and other Americans to assist allied military personnel blinded in World War I. It is currently involved in international technical assistance and development to solve worldwide problems of eye disease and blindness. Since 1972, HKI has introduced programs for blindness prevention in Latin America, Africa and Asia and has provided material and technical assistance to more than eighty countries. HKI first concentrated on xerophthalmia (nutritional blindness). Since 1976, HKI's blindness prevention programs have integrated eye care and basic rehabilitation services into the rural health and social service systems in developing countries.

B. HKI Matching Grant

In August 1981, HKI received a three year matching grant of \$1,500,000 from AID for use in countries where widespread eye disease and blindness are problems of public health magnitude. HKI projects supported by the matching grant are presently in place in four countries: Peru, Sri Lanka, Tanzania, and the Philippines. HKI also has projects in five other countries: Indonesia, Fiji, Papua New Guinea, Bangladesh and Haiti.

C. Environmental Constraints

Recently, the Philippines has faced serious and well publicized natural, economic, and political barriers to development which directly affect the HKI program. The Bicol Region is hit every year by typhoons. The mainstay crops of the area, coconut, abaca and rice, may be extensively damaged each year. During this evaluation the Mayon volcano adjacent to Legazpi erupted, forcing over sixty thousand people to evacuate their villages and move to makeshift refugee camps in Legazpi. Food shortages and unsanitary living conditions plague the areas. Roads between the larger towns and cities are quite good but roads to the municipalities and villages are poor and require the use of a rugged vehicle.

The Philippines is undergoing a severe economic crisis. With the inflation rate at 40 percent, food prices and the costs of basic commodities have sharply increased. Unemployment in the Bicol Region has been estimated as high as 60 percent. The conflict between the Philippine Constabulary Army and the opposition New People's Army affects many inhabitants although the HKI project has not been opposed by either side.

D. Health in the Philippines

The estimated population of the Philippines is more than fifty million, with an annual growth rate of 2.4 percent. More than 75 percent of the population is rural. The principal

causes of morbidity and mortality are respiratory ailments, gastro-intestinal disease and accidents. Low per capita income, lack of food and water, poor sanitation and hygiene are associated with preventable diseases. These factors also contribute to eye disease and blindness.

The Government of the Philippines is developing rural programs to reduce malnutrition and to bolster preventive and curative health services to the nation's rapidly growing at-risk population. Some progress is being made in improving the general quality of life in the Philippines. Life expectancy at birth is up from forty-nine years in 1960 to over sixty-two years in 1980; infant mortality is down from one hundred per thousand in 1960 to seventy per thousand in 1980.

Government agencies, including the MOH, have had considerable budget cuts. The public hospitals now require charity patients to purchase some of their own medical supplies needed for treatment and/or surgery. Since most of the medicines used are imported, there is a shortage of needed supplies in the pharmacies due to foreign exchange restrictions. Hospitals are understaffed and lack much of the equipment necessary to treat patients. Most of the elective surgeries are not done because the staff can only handle the emergencies. The HKI eye surgeries are an exception.

E. Eye Health and Blindness

The prevalence of eye disease among the Filipino population is high. One estimate of the prevalence of blindness in the Philippines is 2.13 percent - among the highest in the world. It is estimated that over one million Filipinos are blind, and this number is expected to double by the year 2000 with aging and rapid growth of the population. The leading causes of blindness are cataract, ocular trauma, glaucoma and corneal scars. Thirty to fifty percent of the blindness in the Philippines is thought to be preventable, and over half is remediable with surgery and visual aids.

However, there is little eye care available at the local level. Few ophthalmic specialists or properly trained paramedical personnel serve the rural population; the majority of the 350 trained ophthalmologists in the country work in the Metro Manila area. In theory, eye patients in rural barangays (villages) are referred to the Rural Health Unit (RHU) for simple eye treatment or referred to either a government hospital based specialist (for charity cases) or to a private specialist (for paying patients). Most surgeries are referred to Manila and only a few are done locally. Volunteer village health workers called Barangay Health Workers (BHWs) with limited training in basic curative and prevention medicine are supposed to make these referrals. Eye care is not presently in their curriculum.

F. Bicol Integrated Health, Nutrition and Population Project
(BIHNPP)

The HKI Matching Grant project integrates eye care into an existing PHC program, the BIHNPP, in the Bicol Region (see map, Appendix L). This USAID-assisted project is specifically designed to improve rural health services. Primary village level paramedical workers are trained to provide basic preventive, educational and rural health care services. The health care administration and delivery system for the Bicol Region is shown in Appendix B. The project was supported by USAID from 1980 to 1984, and the MOH has agreed to continue the financial support of the project.

G. Institute of Ophthalmology (IO), University of the Philippines

The major institutional link for HKI at the central level is the IO, an autonomous unit of the University of the Philippines. Its offices are located within the compound of the Philippines General Hospital in Manila. The IO is concerned primarily with eye research. Its goal is to be the national center for research on eye health and eye diseases relevant to the needs of the Philippines. Its main functions are:

- To undertake clinical, applied and epidemiological investigation of eye disease;
- To render tertiary patient care through referrals;
- To offer fellowship programs in the various subspecialties in ophthalmology;
- To collaborate with scientific research in other fields of medicine;
- To provide stimulation and assistance to any ophthalmic programs in the country;
- To extend facilities and expertise to outside local and foreign agencies.

III. HKI/PHILIPPINES PROJECT

A. Project Development Process

HKI's experience in the Philippines prior to this project was in training health workers for Rehabilitation of the Rural Blind (RRB) under an Operational Program Grant (OPG). These "RRBs" demonstrated more cost-effective rehabilitation techniques than those currently used by the Ministry of Social Services and Development (MSSD). Using its experience in other countries as a model, HKI expressed interest in village-level prevention and treatment of eye problems, and was asked by USAID/Manila to design a PEC component to be integrated into its BIHNPP program. HKI/NY staff made two visits to the Philippines in 1982 to hire staff and design the proposal for matching grant funds (approved in December, 1982).

B. Goals, Purposes, Objectives

The objective of the HKI project, as stated in HKI's Operational Framework (1982) was "to integrate a simple straightforward primary eye care and blindness prevention effort into the health care structure that is now being implemented in the Panay and Bicol areas of the Philippines. The project will initially focus on doing so in Bicol and possibly be extended to the Panay region."

C. Strategies

The principle activities planned were:

- eye disease assessment in the Bicol target area;
- curriculum development and production of training and public education materials;
- training of primary and secondary level health personnel and appropriate allied personnel;
- provision of medical equipment and supplies;
- logistical and administrative support.

D. Inputs

Full-time staff include the Project Director, a secretary and a driver. The Project Director, the sole expatriate, serves as technical and managerial advisor to the overall project. He handles financial support arrangements, aids in refining project plans and acts as an intermediary between the country project and the outside technical and managerial resources available from HKI Headquarters.

From 1981 to September 1984, HKI spent approximately \$103,000 in the Philippine Matching Grant program: \$53,000 in general operating costs including salaries; \$8,000 for the initial assessment; \$11,000 on training of health personnel, \$11,000 to develop the training curriculum and materials and \$20,000 on equipment and other supplies for the project. (See project costs to date in Appendix C and training materials costs in Appendix K.)

E. Summary of Project Activities

1st Quarter (January - March 1983)

- HKI/NY plans trip to Bicol
- Meeting of NY staff with Project Coordinator

2nd Quarter (April - June 1983)

- Preliminary assessment planned

3rd Quarter (July - September 1983)

- Assessment of eye conditions in the Bicol Region carried out

4th Quarter (October - December 1983)

- Presentation of assessment findings to HKI/NY
- Planning out of specific project strategies

5th Quarter (January - March 1984)

- Follow-up of assessment eye problems
- Monthly eye surgery clinics begin
- Training of hospital staff workers who give ideas for PEC project
- Municipal level health workers discuss PEC project possibilities
- Regional and provincial health staff discuss PEC project possibilities
- IO/HKI complete BHA manual draft outline
- IO/HKI complete RHU manual draft outline
- IO/HKI complete Trainers Manual draft outline

6th Quarter (April - June 1984)

- Regional trainers receive PEC training given by IO/HKI
- Regional trainers revise manuals and develop necessary teaching materials
- Regional trainers/IO/HKI train Provincial trainers - again revise materials
- Manuals and materials tested on BHAs and RHU staff experimental groups
- Forms for reporting, Training Kits, PEC Kits, flip charts field tested and revised
- Final drafts for all materials prepared for production
- All trainings scheduled
- Monthly eye surgery clinics continue

7th Quarter (July - September, 1984)

- RHU Physicians and Public Health Nurses trained in PEC (52 MDs and PHNs)
- Seven of the ten groups of BHAs trained in PEC (two-hundred-eighty of four hundred)
- Community eye care education materials developed and field tested
- Monthly surgical clinics continued

IV. RESULTS TO DATE

A. Impact

This evaluation occurred too early to assess the impact of HKI project activities on the prevalence of preventable or curable blindness in the target area. No statistically reliable baseline survey data is yet available in the Bicol; a useful eye health survey was done by HKI at the beginning of this project, but it was not adequate in size or in design as a baseline for impact evaluation.

Eventually such impact may be verifiable; documenting change in the prevalence of unoperated cataracts (the major cause of curable blindness), or in the rate of blindness secondary to xerophthalmia, requires a large survey. Such a survey could be attempted at the present time, prior to the completion of the project. But this would require a major commitment of manpower and money and would have to be done despite growing problems of law and order, so it is unlikely that "pure" impact data can be generated for some time.

Nevertheless some intermediate indicators of impact are being collected by HKI and will probably reveal project impact in the near future. These include the number of patients seen, referred, operated and the number with restored sight. For xerophthalmia, the total population reached by the vitamin A distribution program will be monitored. Other intermediate measures of impact might also be collected which might be valuable for long term follow-up. These include the incidence of curable blindness, the cost of each patient served, the proportions of patients unserved, and the availability of medical and surgical equipment.

B. Outputs by Component

1. Assessment of Eye Conditions in Bicol

The first component of the HKI project was an eye health assessment of 2000 people in rural barangays in Bicol. The major eye problems encountered during the survey were errors of refraction, cataracts and infection (see Appendix D). Night blindness and xerosis were commonly found in the 0-15 age group. The prevalence of blindness in the area was 2.65 percent, 1.65 percent more than WHO's acceptable prevalence in a depressed community. The prevalence of low vision was also high at 5.60 percent.

2. Curriculum Development

The HKI staff, in collaboration with the IO developed separate eye care manuals for the BHA, the RHU and MOH training staff.

Only the most basic eye conditions found in the Bicol Region were covered in the BHA and RHU manuals. Signs and symptoms, decisions for treatment and prevention methods for each condition were included. The trainers' manuals contained lessons and activities for a two-day PEC course.

The three manuals were revised by the Regional Health Training Task Force members who rewrote the manuals in their own style. The Provincial Health Training Task Force then revised the materials further and helped in the translation of the BHA manual into the Bicol language.

3. Development and Production of Training Materials

The IO/HKI staff trained the participants in PEC during the Regional and Provincial Health Training Task Force seminar. As the manuals were tested, the trainers saw the need for training materials to coincide with lessons and activities. An artist/illustrator present during these seminars developed various teaching aids to improve the learning of the BHA and RHU staff. A list of teaching materials produced during these seminars is included in Appendix E. The training materials developed during the regional and provincial trainers' seminar were tested on an experimental group of BHAs, then revised, prior to full production.

4. Training - Primary Level (BHAs & RRBS)

Training inputs and outputs are summarized in Appendix F. Training courses for BHAs were conducted by the provincial trainers under supervision of the regional trainers and IO/HKI staff. Two days of PEC training were given to ten groups of forty BHAs and RRBS.

Refresher and review lessons, which follow all training in the BIHNPP, are the responsibility of the MOH; they are provided by the RHU physicians during meetings every Saturday at the RHUs.

5. Training - Secondary Level (Nurses, MDs)

RHU physicians, Public Health Nurses, District Hospital chiefs and the head nurses of all the RHU clinics and hospitals in the two target provinces participated in the PEC courses. Regional and provincial trainers along with the IO/HKI staff conducted these courses using the teaching materials that had been developed. Lessons and activities were similar to the BHA courses but somewhat more sophisticated considering the level of the participants.

6. Eye Surgery

Eye patients referred from the villages and municipal health centers to the provincial hospital are screened by one of the local eye/ear/nose/throat (EENT) physicians. They are available

to these patients only one or two hours a day. If patients are able to pay, they are referred to the physician's private practice. These physicians have not performed surgery on charity patients in the hospital. Therefore, it has been necessary for the PEC program to bring in an ophthalmic surgeon monthly from the IO in Manila, to provide surgical services for indigent cases referred by the BHAs. This surgeon also trains local hospital personnel to assist in surgery and to follow post-operative patients.

From January to September 1984, 61 cataract patients and six pterygium patients were operated. The average age of the cataract patients was 60 years. HKI considers this monthly surgery to be a temporary solution. The HKI Project Coordinator, the hospitals, and the IO are all seeking the services of full time eye specialists to assume the EENT responsibilities of the two local hospitals.

7. Eye Health Education

Eye health education is being provided in the project communities. Cloth flip charts on eye health have been printed, field-tested and distributed to each of the BHAs. Posters, calendars, radio announcements, jingles, pamphlets and comic books are being produced by project staff. All materials are designed to increase awareness of proper eye health and the importance of seeking early treatment from trained health personnel.

8. Equipment and Supplies

All BHAs and RHUs are provided with a PEC kit upon completion of training. These materials provide health personnel with basic eye health care supplies for simple diagnosis, first aid, and treatment of eye conditions. The materials are contained in a portable case easily carried by the health workers. The provincial hospital has been provided with a slit lamp, ophthalmoscope, eye surgical instruments and basic eye medicines needed before, during and after ophthalmic surgery. (For list of eye care equipment supplied by HKI, see Appendix G.)

9. Patients Treated

BHAs with PEC training have been seeing eye patients and referring them since January, 1984. 72 patients were operated (through September, 1984). 67 of them had cataracts removed.

10. Patients Referred

The Bicol PEC referral system is shown in Appendix H, with the referral protocol and a list of common diagnoses and treatments (Appendix I). Referral forms are being sent in, but it will be several months before analysis of the number of treatments and referrals is possible.

11. Blind Persons Rehabilitated

Under the previous grant (OPG) from USAID, HKI trained seventeen Ministry of Social Services & Development (MSSD) Rehabilitation of the Rural Blind (RRB) workers in the Bicol Region. To date, less than 20 clients were assisted in rehabilitation. Upon completion of the RRB workers' PEC training, four of their clients were referred for successful cataract surgery.

According to an earlier evaluation of the RRB program, from October 1982 through June 1983, 228 blind people were identified in the region and were being served as follows:

- 115 - actively receiving rehabilitation services;
- 13 - in follow-up;
- 26 - rehabilitation completed;
- 39 - rehabilitation discontinued before completion;
- 35 - awaiting service.

228 (8 month period)

V. ANALYSIS OF RESULTS

A. Planning and Design

The HKI project was carefully planned and has used local resources in an innovative fashion. The original log frame in HKI's matching grant proposal was not specifically adapted to the Philippines. Instead, project planning started when HKI sent a public health ophthalmologist and a general health planner to do a feasibility study on southern Luzon. Their report suggested three project outlines. HKI's Associate Director then visited the Philippines for further talks with officials and produced an overall operational framework for the project. A prevalence survey of eye disease was done on contract. Only after analysis of these data was the Project Director hired and the present project begun. Therefore, HKI was not committed until it was clear that a project was possible.

After the decision was made to implement the operational framework for the PEC program, the Project Director was sent from the Philippines to a HKI meeting in the United States. He was able to discuss the project with headquarters staff, with project officers from other HKI projects, and with consulting ophthalmologists. This process identified many of the problems expected in the Bicol project. It also identified for the Project Director sources of technical support within HKI as well as the administrative system used by the home office.

The Project Director developed detailed operational plans with schedules, tasks, targets and assignments. Experience gained in the survey allowed realistic estimates of the start-up time needed. The overall plan called for integration of eye services at multiple levels which included the duties of rehabilitation workers, midwives, public health nurses, and trainers as well as the referral chain from the village to the hospital. The plan included funding for inpatient surgical care, since ophthalmic surgical services were not available in the project area for the indigent. However, the primary emphasis was on primary health worker training.

B. Management and Staffing

1. Field Office

The Project Director is hard working, sensitive to local needs and closely involved with the day-to-day operation of the program. His expenses have been appropriate and carefully controlled. He maintains positive communication with both the local MOH staff and the AID office. In addition, he has been successful in promoting a young woman as his assistant. She is expected to take over the evaluating and monitoring function.

2. Institute of Ophthalmology (IO)

The IO was responsible for producing the plan for eye care in the Philippines published in 1979. Since that time, however, little has been done to implement the plan. This apparently has resulted from lack of resources, rivalry among various factions interested in eye care and a lack of a clear initiative to do the work. The IO has provided assistance to HKI in collecting statistics and in providing surgical services. Although the IO's main role in the project had not fully begun at the time of this evaluation, it is clear that its commitment to the project would be vitally needed.

3. Home Office

HKI's New York office has technical depth focused on PEC training and education and clear organization. The Philippines project is directly supervised by the Associate Director, who has worked extensively overseas and has sixteen years prior experience with AID. The HKI home office has worked hard to find well qualified staff for specific positions, as in the recent hiring of a public health trainer and a training and materials development specialist. HKI staff rotate among projects and have met in the United States to exchange ideas.

Other HKI projects have provided training materials, operational lessons and program suggestions applicable to the Philippines. For example, HKI has been one of a number of agencies interested in developing equipment used for glass production which would be appropriate for Third World technology. This approach has not yet been tested in the Philippines; yet it should be directly applicable to the Bicol program.

C. Quality of Training

Although BHA training was not in progress during the evaluation visit, we reviewed a video tape of training activities and materials. We also visited the training materials production workshop, four RHUs, and six BHAs. There appeared to be reasonable retention of the eye training by the BHAs, although the sample was very limited. The training teams were from the MOH, therefore the training was adapted to the local situation and institutionalization was built into the HKI project. Similarly, the retraining activity was built on the system already used by the RHUs.

A recurrent problem in most PHC programs is worker overload. In the Bicol project, for instance, the BHA has training in health care delivery, and is also expected to maintain vital statistics and provide basic sanitation education. Nonetheless, BHAs did not appear overloaded and seemed competent in basic PHC services. The BHAs hired in Bicol, mostly females, were disproportionately represented by midwives. This was due to more midwives being trained in the area than jobs available. For that reason, the Bicol BHAs tended to have a medical background which comparable field workers in other provinces may not have.

PEC training may add to the clinical abilities of workers with non-clinical backgrounds. In Bicol, the training gave the BHA a level of clinical sophistication which rivaled or exceeded that of midwives and traditional healers. This seemed to increase the BHAs' confidence, as well as their credibility and the credibility of the system in general. Although information was not available about the proportion of BHAs who have dropped out of training or left their jobs after training (information which HKI should be monitoring), most BHAs appear to be pleased with their skills and community status.

Eye care training for the BHAs did not appear to overload them to the detriment of their other tasks. Because eye care was added at the end of the five year BIHNPP program, it was not implemented as a vertical program.

The referral and record keeping system set up for the eye care project is unique to the eye patients, and allows both training reinforcement and skill verification for BHAs. Reinforcement was also aided by a newsletter produced by the HKI office. This was distributed to all the BHAs and was used for technical information, schedule changes, award announcements, etc.

D. Eye Health Education

Public health education is a major part of the project design. The field workers are responsible for teaching their clients basic health principles. They use specially made flip charts which have been adapted for use in the Philippines. In addition to their interaction with clients, BHAs are expected to work with women's clubs and barangay health committees. They are also asked to interact with local school authorities. Two of the BHAs visited had worked with the local school systems, others had not. It is not clear how strong this cooperation is. Schools do give some emphasis to health onto which an interested BHA could add her message.

The importance of the health education component of the HKI project is evident. HKI staff are mostly educators; there are no full time staff physicians. The Project Director in the Philippines and most of his professional support staff in New York are health educators. Public health education is incorporated as a major component in training, not as an afterthought. BHAs do considerable public health education work, although the major focus of monitoring is on clinical referrals.

E. Quality of Eye Health Services

1. Out-patient Care

Patients seen by the BHA are examined using a visual acuity chart and penlight. Inflammatory disease such as allergy, conjunctivitis and nonspecific irritation are treated with tetracycline when available. Vitamin A appears to be used fairly indiscriminately when available. Unfortunately most BHAs have

run out of ointment and Vitamin A. Foreign bodies are removed by the BHA without topical anesthetic. Patients who do not respond to treatment, have operable cataracts or pterygia, unknown conditions, or possibly penetrating injuries are referred to the RHU.

RHU staff treat similar problems as the BHA, plus neonatal ophthalmia. Treatment at the RHU level may be more effective since more supplies are available than at the BHA level. The RHU refers the following: lid and globe trauma that require suturing, painful red eye with visual loss, entropion with trichiasis, hyphema, tumors, cataracts and unknown or refractory conditions.

The third step in the referral chain is the hospital outpatient unit, staffed by a physician with EENT training. This individual usually has a private practice and will operate cataract patients who can pay. He also operates emergency patients with lid or globe lacerations and most of the medical problems. The more difficult medical and surgical problems are referred to Manila. Indigent cataract and pterygium patients are referred to the HKI monthly surgical clinic (described below). Incurably blind patients are sent to MSSD. Paying patients with severe refractive errors are sent to an optometrist.

Each of these levels of service appears satisfactory but is not easy to quantify. The BHA training seemed adequate. However, any practitioner who does not offer services including medication is unlikely to be effective. At the time of this evaluation UNICEF had failed to fill orders from HKI, so the current lack of antibiotic ointment and Vitamin A capsules deprived the BHA of a credible clinical service. (However, supplies were received two months later, and HKI is taking steps to prevent future shortages.)

The RHU training also seemed adequate, yet the record keeping system has not been running long enough to evaluate it. So far each RHU has seen approximately five new eye care referrals a month; not a dramatic improvement, but adequate, and improving steadily. About seventy percent of the BHA diagnoses appear correct.

Physicians in the health units presumably have limited abilities in terms of specialty eye problems. PEC training was said to be very helpful in giving them a basic ability to handle ophthalmic problems. In theory the RHUs have a better supply of medication, and therefore are better able to handle referrals than rural health posts. In addition, they seem to serve appropriately as an entry point into the tertiary care system. The paperwork process between the BHA and the RHU, and from the RHU to the hospital seems appropriate for the system's needs. However, it has not been in operation long enough to be able to say that it is truly effective.

The BHAs and the RHUs are supposed to integrate eye health education with nutrition education and hygiene. Although included in the training, it is not clear if this integration is practical.

There has been no independent evaluation of this, nor of the nutrition education taught in the schools.

It is to HKI's credit that the BHAs' ability to handle eye problems after PEC training appeared superior to workers in higher positions who had not received the eye care training (e.g. untrained midwives and RHU physicians). The BHAs are also better trained than the voluntary Barangay Health Workers (BHWs) who have a shorter period of PHC training, no supervision, and no pay.

2. Referral System

The referral system usually works from the BHW to the BHA to the midwife to the RHU to the provincial hospital, but these levels are not in place in all areas. In the first two months after training, RHUs were receiving approximately five eye referrals each month from BHAs; the RHUs feel that approximately two-thirds of the BHA diagnoses are correct. Many of these were untreatable conditions. The paper trail appears to be well organized and is easy to follow.

One problem in the referral system is that it works only in the area around Legazpi, where there is a functioning surgical service. In Naga City, medications were not available at the RHU level and there was no surgical service. Poor patients were reluctant to take the day long trip to Legazpi for surgery. HKI recognizes this problem and is taking action to make surgical services available.

3. Management of Surgical Patients

Some surgical patients present to the BHA for evaluation. The BHA checks the vision and performs a penlight exam of the anterior segment. If the BHA feels cataract or pterygium surgery is indicated, she sends the patient to the RHU with a referral form. The evaluation is repeated by the RHU staff, which usually includes a physician. If the patient is still felt to be a surgical candidate, he is given instructions to report to the hospital two days before the surgeon is expected. The patient must provide transportation for himself and a "watcher". In theory, transport costs for indigent patients are reimbursable by the MSSD; however, the delays and difficulties of getting reimbursed usually preclude this.

At the hospital the patient is examined by an ophthalmologist. If he is still considered to be a surgical candidate he is admitted and examined by an internist. A chest x-ray, urinalysis and EKG are obtained. If he has hypertension or cardiac disease, as do 20-30 percent of patients, he is given appropriate medication and usually is discharged from the hospital. Surgery is cancelled for those with untreatable problems, and postponed for hypertensive patients until their blood pressure is lowered to safe levels. If approved, the patient is operated. Refraction is performed three months after surgery for cataract patients.

Since January 1984 the HKI project has provided ophthalmic surgical services once a month at the Albay Provincial Hospital. The hospital has provided a room to be used as a ward, an operating room and the services of operating room nurses, anesthesiologists, internists and pediatricians. The IO in Manila sends one or two of its staff to Bicol for five days a month to screen prospective patients, operate, initiate the follow-up care and collect data. HKI has provided air fare, per diem and a stipend for the surgeons and has supplied surgical instruments, ophthalmic medications and miscellaneous supplies.

4. Quality of Tertiary Eye Care Surgery at Legazpi

The quality of the actual surgical care in Legazpi is satisfactory. There is still a low demand for surgery since this early in the project referrals are few. Therefore, surgery is being done on an interim basis using IO personnel. However, the surgical services are not well institutionalized in the hospitals. HKI and the IO are seeking a local MD to do the surgery rather than bringing in surgeons from Manila. More rapid, low cost surgical techniques will be needed as demand grows.

In addition, the technology will have to be adapted to local conditions. At the present time, some of the equipment for the cataract extraction is imported. Low cost, locally produced equipment can be made available once the criteria for surgical services respond to local conditions. Inappropriate or excessive surgical requirements of the MOH include:

- Overly conservative concerns regarding general anesthesia which affect patient selection. For example, hypertension is considered a contraindication for procedures under local anesthesia because intravenous Ketamine is the drug of choice of the standby anesthetist if additional sedation is required during the case. As many patients have high blood pressure, this policy could be reconsidered.

- A complicated hospital record is generated for each patient which includes a face sheet, consent form, orders, history and physical examination, OR preparation forms, anesthesia record, progress notes and discharge summary. Some charts reviewed had no entries. These records are on inexpensive papers stored in a non-retrievable system. They too can be reconsidered.

- Unnecessary in-patient follow up care is required for all patients.

- The surgeons use swedged-on needles on two types of suture per patient and a disposable cryo probe per patient. Lower cost methods may be sufficient.

5. Provision of Glasses

Cataract patients operated by the HKI program are referred to a local optometrist for refraction three months after surgery. He provides glasses and is paid by one of six Albay Lions Clubs. The Lions pay the retail price of fifty pesos for the frame and five hundred pesos for the lenses. The supply of aphakic spectacles is a problem. The Lions Club optometrist and the Legazpi Bay Lions Club originally anticipated a very limited demand for their services, but are now concerned with the ongoing and presumably increasing cost.

In addition, the refraction service offered three months post operatively makes no provision for broken or lost glasses or for changes in refraction. Since the surgical technique uses buried, non-absorbable suture, it is quite possible that some significant change in refraction will occur after the first six months. One patient we examined in the field clearly required a different vertex distance than was originally prescribed.

Alternatives did not appear to have been investigated. For the short term, these include participation of other Lions Clubs; negotiation of a discount price; frames or spherical power glasses; and repeat refraction during the long term follow-up. (Subsequent to the evaluators' visit, frames worth \$300,000 have been donated to HKI by an American manufacturer.)

The long term solution is to include technology for the production of glasses within the project. HKI has begun to seek solutions to these problems in association with the Christoffel Blindenmission and other international groups.

F. Information Systems, Monitoring and Evaluation

The project includes a clinical reporting system in which each individual in the referral chain submits a form to the next station along the way (see list of referral forms, Appendix J). In the beginning, the BHA fills out a form for each patient she feels should be referred to the RHU. This allows for the monitoring of total number of patients referred, total number of patients seen and followed and the disposition of patients keeping follow-up appointments. In theory, this allows follow-up of patients not keeping appointments as well. The forms appear to be well designed and fairly easy to use, yet do require more paperwork than other BHA activities. The system is currently monitored carefully by the Project Director, and will eventually be handled entirely by the Administrative Assistant. The project had not been in effect long enough to ensure the the system's effectiveness. In addition, some of the forms seen by the evaluators had vague diagnoses which may lessen their value in determining the etiology of eye problems.

Data monitoring is encouraged by frequent visits by the Project Director. It is also encouraged by the newsletter providing

field workers throughout the region regular contact with the head office and with each other. Some incentives are planned to reward particularly effective workers. The IO is scheduled to become more involved with the overall data analysis as part of their contract with HKI.

Reports from the field to the home office were reviewed. These reports follow the AID logical framework ("log frame") format and provide a review of progress of individual problems. Because of the standard format, a reader unfamiliar with the program could readily review its progress.

G. Interagency Relations

1. Ministry of Health (MOH)

The Project Director had good relationships with regional and provincial MOH officers. In addition, HKI activity was well integrated into the BIHNPP. When the project has achieved more impact, more can and will be done by HKI to cultivate support for PEC in the central MOH in Manila. Project materials have been delivered to the MOH, and HKI staff have begun to cultivate a personal relationship with high level MOH personnel.

2. Institute of Ophthalmology (IO)

The Project Director has developed a functioning system for surgical service with the IO. HKI relations with the IO have been good and have brought effective collaboration. HKI pays the IO for the surgical and statistical services it provides to the Bicol program. It is not clear how well the IO can sustain those costs without continued HKI funding.

3. Other PVOs

The project has worked well with the Lions Club in Legazpi in establishing a system to provide aphakic spectacles to cataract patients. Cooperation with other Lions Clubs is probable. Other non-governmental agencies interested in blindness programs were named in the National Sight Plan. However, these PVOs seem to lack a cooperative relationship. It has been difficult for HKI to unite them behind this program, but an effort is being made by the Project Director.

4. USAID

HKI's relationship with AID is strong, particularly because the project was initially considered for addition to the BIHNPP at the suggestion of the USAID Mission Director, and the Project Director is a former USAID consultant in health education. HKI has managed to avoid some of the bureaucratic barriers faced by many bilateral programs and contractors. This project allows skill verification and ongoing education in a fashion USAID has found valuable in the past. There is strong interest in both USAID and AID in maintaining this relationship.

H. Costs and Cost-Effectiveness

Local costs of the project (Appendix C) have been moderate due to the use of national eye surgeons, and to the limited importation of "high tech" equipment for surgery or training. Day-to-day management of the project has included careful cost control by the Project Director. The training materials were designed locally, and show that instructional programs need not require expensive teaching materials. (For the costs of providing materials for training, see Appendix C.)

Current costs of providing travel and per diem to eye specialists and research analysts from the IO to the Bicol Region are temporary. The IO, HKI and the MOH are developing strategies for bringing full time eye specialists into the Region. Start-up costs were high because of HKI/NY staff travel to the Philippines, but these too were temporary, and should decrease when the project is under way and fully financed and managed by the MOH. The project seems well on the way to demonstrating that PEC training could be feasibly integrated into the MOH's PHC training at little additional cost.

I. Institutional Development

The HKI project is basically a pilot project. It has achieved its primary goal of demonstrating how PEC services can be integrated into the existing basic PHC program. There has been some government participation; MOH personnel have been involved in the training activities and have been able to support some of the out-patient services. At the time of the evaluation, the training activities had actively been handled by MOH trainers.

The OR services of the government hospital have been coordinated to provide basic eye surgical services. Without the continued pressure of the project, it is unlikely that the latter will be well maintained. However, basic PEC training can probably be institutionalized into the MOH ongoing, health care training activities. Effective institutionalization of such a project, however, requires demonstration of sustainability (see page 24).

HKI previously developed a project for the RRB which has been well institutionalized into the MSSD. This project is now completely self-sustaining. However, there is virtually no technology required and the outreach of workers trained and patients seen is limited compared to that required by a PHC program. Therefore, this model is not completely applicable to the institutionalization of PEC training.

A critical unknown for institutionalization is whether the involved communities will support the project with their own funds. During the AID-sponsored Bicol project, the salaries of the BHAs were completely covered by the MOH. These salaries are supposed to be assumed by the local governments in 1985, but the extent and permanence of this financial support is not clear.

The institutionalization of the eye care project will be aided by the enthusiasm for eye care shown by BHAs, midwives, and the RHUs. The eye care training seems to have extended their clinical confidence and they will probably support it.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. General Strengths

1. HKI has used appropriate, low cost training methods and materials to demonstrate the integration of PEC into PHC training, services and referral systems. The training has used pre-existing infrastructure and material resources.
2. Home and field office management and staffing have been effective. Planning, cost control and reporting have been positive.
3. HKI's emphasis on high quality PEC health education and training, and its experienced staff of health educators, both seem appropriate for the prevention of blindness in the Philippines.
4. The addition of the vertical PEC program to the pre-existing BIHNPP has strengthened the skills and status of the BHAs and the BIHNPP.
5. HKI has developed PEC at the village level where it is needed most, and at the secondary clinic level, to which referral is necessary. HKI has not put undue emphasis on building costly surgical services, but has tried to improve them at the same time it improves PEC.

B. General Weaknesses

1. The pre-training eye health assessment was useful in planning, designing curriculum and increasing awareness of eye problems. However, the survey data cannot be used as a baseline for later impact evaluation, and impact will not be measurable for some time because in-depth monitoring of field activities has only begun recently.
2. Because of delays in UNICEF shipments from overseas and logistical problems in the MOH, HKI has been unable to deliver eye care drugs to BHAs. This limits the ability of the BHAs and RHUs to provide basic curative services and damages their credibility.
3. Future MOH financial support for the BIHNPP (now inclusive of the HKI program) is not guaranteed; thus the current financial basis for the HKI project is not secured.
4. The HKI project currently depends upon a system of eye surgery which may have difficulty meeting the increased demand expected in the near future. (The present supply system for spectacles may also become inadequate as demand grows).

5. Although HKI is far ahead of most PVOs in integrating its activities into the government's, the project can build more support for PEC at the national level. More effort is needed to build a constituency within the MOH and the IO, and at the grassroots level.

C. Special Areas of Interest

1. Benefit Distribution and Spread Effects

HKI has developed a strategy for prevention of blindness among previously unserved populations in rural villages designated as among the poorest of the region. The project directly benefits those at high risk of blindness from Vitamin A deficiency (children 0-6 years, and those with acute conjunctivitis). The average age of the sixty-seven surgery patients (95 percent cataracts) operated since January 1, 1984 is fifty-eight. These patients are respected because of their age and should have years of productive life remaining. All are otherwise in good health.

A wide range of MOH and volunteer health workers, including traditional midwives, have benefited from the availability of eye health information. Fourteen provincial hospital OR staff (including OR and ward nurses) have been trained to provide special ophthalmic services. The eye newsletter is unique in providing information to paramedics.

2. Community Participation

The HKI project is integrated into the existing Bicol Program structure, which encourages the participation of Barangay PHC committees in program design, implementation, and support. These committees are in place although their effectiveness is not clear. At the time of this evaluation no committee had raised substantial funds for the costs of the BHA. HKI's evaluation of these committee's roles has not yet begun.

3. Spin-offs

This project may benefit other health activities outside its control. BHA eye care activities in the barangays might possibly increase support for the non-eye care activity of some BHAs. The most dramatic beneficiaries of this program are often the most respected members of their barangays: namely, older adults whose sight has been restored through cataract extraction, usually after long periods of partial or total blindness. Because the great majority of these adults are otherwise in good health (they do not have diabetes, hypertension, or TB), they also tend to be productive workers.

Although Vitamin A is included in this project to prevent blindness associated with xerophthalmia, it may also

reduce overall childhood mortality. Recent data from research in Indonesia strongly suggests that malnourished children with Vitamin A deficiency are at greater risk of death than children with malnutrition alone.

In addition, the HKI project has:

- stimulated planning of a similar eye care program by the IO in Metro Manila;

- improved school health education methods in the Bicol through the development of curriculum materials and by encouraging BHAs to work with schools;

- improved the quality of care provided to private (paying) patients by private ophthalmologists involved in the program by providing improved surgical instruments and techniques;

- helped MSSD caseworkers to refer blind clients to rehabilitation services, and has reinforced their concern for the blind;

- provided jobs in the private sector for the handicapped by stimulating the demand for education materials and medical supplies from local, private contractors.

4. Technology Transfer

Modern ophthalmic surgical equipment has been introduced into one provincial hospital. This includes surgical instruments, a slit lamp and a tonometer. Tetracycline ointment and high potency Vitamin A capsules should eventually become available in poor areas. HKI has initiated plans for using appropriate machinery for low-cost, local manufacture of eyeglass lenses.

Low-cost technologies for manufacture of visual aids for eye care, training, instruction and public education have been tested and implemented. For example, eye models are being created from coconuts, and silk-screened cloth eye charts which last longer than paper are being made in the BHAs kits. Finally, the Project Director is developing a computerized data tabulation and analysis program on his home computer for possible project monitoring use.

5. Sustainability and Replicability

HKI's Bicol project could become a model which the MOH should sustain in the Bicol and replicate elsewhere. However, the sustainability of this project requires at least four simultaneous features. First, there must be a constituency that supports the project; second, the project must be cost-effective; third, it must be inexpensive enough for the MOH to assume all costs when HKI moves its staff to other regions; and fourth, the project must have appropriate technology for both the resources and services available to maintain it. HKI has met the last three of

these requirements in the Philippines, but it still needs to build a stronger constituency for PEC.

A consumer constituency must advocate PEC on its own behalf. Expatriates working on eye care are not as effective as local groups drawing attention to eye problems. A local constituency could be built given the enormity of unnecessary blindness plaguing the Philippines. Although many of the blind have been so for many years, and have accepted blindness as a normal state, this may well change with time. However, there are many health problems other than blindness affecting a larger number of people. Therefore, the project will require much nurturing until the success rate of PEC treatment and cataract extraction has been documented and disseminated.

A sustainable PEC program will also require a national political action to provide momentum and protection at the planning level. This national interest may result from simple self-interest or may occur as a political response to a vocal constituency at the grassroots level. A national political commitment to support this local pilot project had not been developed at the time of this evaluation. Many other public health concerns attract more attention than PEC.

There is no functioning blindness prevention committee as advocated in the 1979 National Sight Plan. Eye health institutions seem well meaning, but ineffective and divided. The HKI project meets many of the requirements for eye programs laid out in the National Sight Plan advocated by the IO years ago. Yet the IO has provided only limited support to HKI, and has never been able to implement such a plan itself. HKI will have to work hard to ensure that national PEC programs become fully institutionalized with MOH and IO support.

Under the circumstances, the early establishment of either a grassroots or of a high level government constituency for PEC seems unlikely. A partial test of the former will come in 1985 when AID funding is withdrawn from the overall Bicol program. If the BHA stipends are assumed by local governments, there will be some indication of real local concern for this type of health care.

D. Recommendations

The following recommendations are based on our view that the current HKI project provides a valuable pilot function and that its achievements need to be considered before it is expanded.

1. HKI should work to institutionalize a credible, sustainable project. The project should continue its activities in Bicol until it is clear from monitoring and evaluation that PEC services are available and effective, that drugs are supplied and utilized properly, and that the surgical support services necessary to give credibility to the project are functioning. HKI should continue in the Bicol until the project can be sustained without its support.

The project should not be replicated in Panay or elsewhere unless this expansion helps to strengthen project sustainability and institutionalization by helping to build national support.

2. The project's information and monitoring system is incomplete and needs to be designed and tested thoroughly now that the project is under way. The present system of referral has not been tested; the quality of services provided by BHAs is not known; data are not yet available to measure the project's effective outreach or impact on blindness. The project does incorporate an independent review of the statistics being generated by collaborating with the IO to analyze data.

3. The project has to identify the problems of supply of ophthalmic medications, such as tetracycline ointment and vitamin A capsules to its field workers. Shortages or lack of these supplies, which may recur in the future, denies credibility to the field workers in providing simple curative services, and might indicate the need for alternative treatments (e.g. more nutrition education when vitamin A is unavailable).

4. The surgical services are provided on a western model with stringent western criteria for patient selection and anesthesia use. In addition, the technology used for cataract extraction is unnecessarily complex; HKI should extend its appropriate technology approach to surgical services.

5. The issue of a constituency advocating PEC should be addressed more systematically. The eye care in the Bicol need to be publicized, presumably by someone other than the expatriate Project Director. This will involve action at both the local and national levels.

6. After the information and monitoring system is working, it could provide many valuable opportunities for operations research in PEC. It should be able to provide demographic and clinical data from sentinel barangays. Possible studies based on this data include:

- drug costs, logistics and other drug management issues;
- use and effectiveness of nutrition services;
- effectiveness of health education, including school health programs; and
- epidemiological profiles of health care recipients and non-recipients.

A fringe benefit of this use of the monitoring system would be the evaluation of the overall BHA program after the withdrawal of USAID funding. The eye monitoring scheme is probably limited enough to be used effectively for spot checking the efficiency of the remaining BHAs.

APPENDICES

- A. Persons Contacted During the Evaluation Visit
- B. Bicol Integrated Health, Nutrition, and Population Project Organization Chart
- C. Project Costs, 1981 to June, 1984
- D. Types of Eye Problems in Ten Depressed Barangays in the Bicol Region, HKI Assessment, 1983
- E. List of Primary Eye Care Teaching Materials Produced by HKI
- F. HKI Training Inputs and Outputs (through September, 1984)
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- J. Bicol Primary Eye Care Referral Forms
- K. Costs of PEC Training Materials
- L. Map of Philippines (showing Bicol Region)

APPENDIX A

Persons Contacted During the Evaluation Visit

AGENCY	NAME OF PERSONNEL	DESIGNATION
1. Ministry of Social Services and Development	Mrs. Luvimin Custodio Mrs. Marita Capadocia Miss "Peachy"	Chief, Bureau of Rehabilitation Social Welfare Program Supervisor Assistant, Blindness Rehabilitation Officer
2. Institute of Ophthalmology	Dr. Rosie Noche Dr. Alex De Leon Dr. Fatima (Patty) Regala Mrs. Rosalita (Its) Tan	Secretary of IO Assistant Director, Institute of Ophthalmology IO Ophthalmologist, Researcher IO Researcher
3. USAID	Mr. John Dumm Ms. Joy Riggs-Perla Mr. Bryant George Mr. Dodong Capul	Chief, Office of Population, Health, and Nutrition Health Development Officer PVO Projects Coordinator PUSH, Project Coordinator

AGENCY	NAME OF PERSONNEL	DESIGNATION
4. Ministry of Health	Dr. Jesus Azurin Dr. Restituto Dr. Santiago (Agoy) Casin	Minister of Health Regional Director, MOH Region V Project Manager, BIHNPP
5. HKI Office	Miss Yolly Velasco Mr. Gerry Vibar Mr. Joe Epino	HKI Secretary Artist Illustrator MOH/HKI Driver
6. MOH Regional Training Task Force	Dr. Aster Reganit Mrs. Lily Tino Mrs. Elena Real Mrs. Josefina Salvador Miss Gilda Escipona Mrs. Jo Mendoza	Chief, Regional Health Training Health Educator Health Education Specialist Nurse Instructor Nurse Instructor Nurse Instructor
7. Provincial Health Office (PHO)	Dr. Jose N. Fernando Dr. Veronica Madulid Dr. Felipe del Rosario Dr. Rolando Romagosa	Provincial Health Officer Assistant Provincial Health Officer; Head of Training Chief of Hospital Provincial Health Officer
8. Albay Training Task Force	Dr. Veronica Madulid Mrs. Anita Lanuza Mrs. Olga Belen Miss Imelda Bonaobra	Chief, Trainer for Albay province Supervising Public Health Nurse Health Educator Nurse Instructor

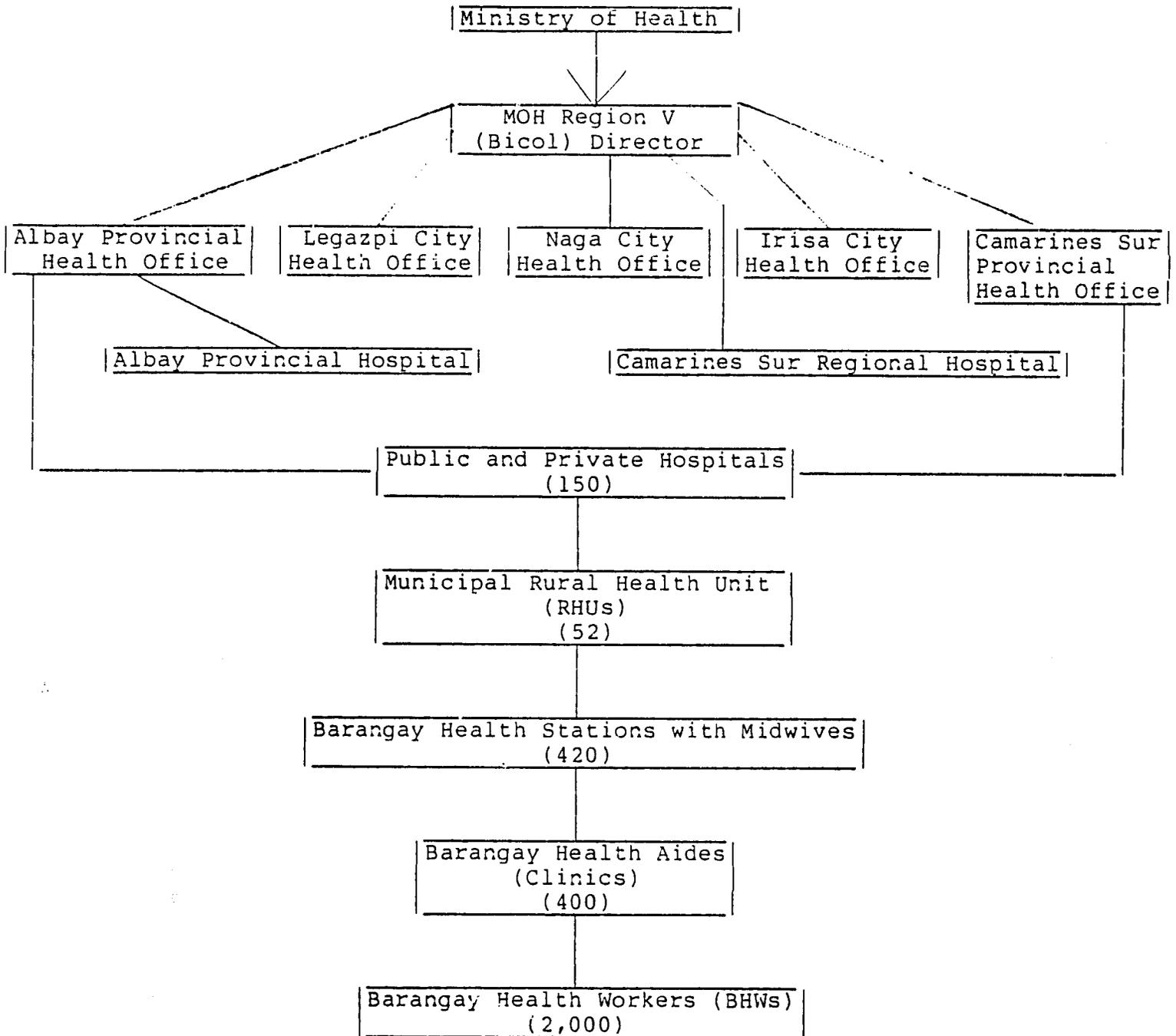
AGENCY	NAME OF PERSONNEL	DESIGNATION
9. OR and Ward Staff of Albay Provincial Hospital	Dr. Jose Daep Dr. Purificacion Mendiola Mrs. Gloria Arcos	Chief of Operating Room Chief, Anesthesiologist Chief Nurse OR Nurses Ward Nurses
10. MSSD Region V Office	Ms. Sonia Cueto Ms. Segundina Bajamundi	Director, MSSD Region V Rehabilitation Coordinator
11. MSSD Legazpi City Office	Mr. Elvin Morano Mrs. Gilda Banastao	Director, City Office Rehabilitation Social Worker
12. Simeoun of Cyrene	Mr. Vincente Loduvic Miss Eadie May Raneses	Project Director Project Nurse
13. Camarines Sur Provincial Trainers	Dr. Josefina Cereno Ms. Emilia Acompnado Ms. Melba Vera Cruz Ms. Crispina Alcala Mr. Hermenegildo Asor Ms. Feliza Fortuno Ms. Angela Ogawa Ms. Leonila Obias	Chief, Trainer Public Health Nurse Nutritionist Supervising Public Health Nurse Health Educator Supervising Public Health Nurse Health Educator Health Educator

AGENCY	NAME OF PERSONNEL	DESIGNATION
14. Camarines Sur Regional Hospital	Dr. Olivia Gaerlan Mrs. Rose Gardoce	Chief of Hospital Administrative Officer
15. Barangay Health Aides	Ms. Carazon Velasco Ms. Purificacion Baruedo Ms. Luziminda Palatan Ms. Yolly Arena Ms. Haydee Nocillado	BHA: Daraga PHA: Daraga BHA: Camaligan BHA: Maslog BHA: Bagacay

APPENDIX B

Bicol Integrated Health, Nutrition, and Population Project

Organization Chart



APPENDIX C

HKI Project Costs (1981 to June 8, 1984)

LINE ITEM	FIELD COST		HEADQUARTERS COST		TOTALS	
	AID	HKI	AID	HKI	AID	HKI
1981-82						
Personnel	-0-	-0-	\$ -0-	\$20,250	\$ -0-	\$20,250
Consultants	-0-	-0-	1,650	-0-	1,650	-0-
Travel	-0-	-0-	4,902	-0-	4,902	-0-
			<u>6,552</u>	<u>20,250</u>	<u>6,552</u>	<u>20,250</u>
1982-83						
Personnel	\$ 1,000	-0-	\$ 1,500	\$24,750	\$ 2,500	\$24,750
Consultants	-0-	-0-	3,200	-0-	3,200	-0-
Travel	-0-	-0-	5,600	-0-	5,600	-0-
	<u>1,000</u>		<u>10,300</u>	<u>24,750</u>	<u>11,300</u>	<u>24,750</u>
1983-84						
Personnel	\$22,500	-0-	\$11,600	\$31,500	\$34,100	\$31,500
Allowances	5,300	-0-	-0-	-0-	5,300	-0-
Equipment/ Supplies	24,000	-0-	-0-	-0-	24,000	-0-
Office Expenses	1,700	-0-	-0-	-0-	1,700	-0-
Training	10,000	-0-	-0-	-0-	10,000	-0-
Consultants	3,000	-0-	-0-	-0-	3,000	-0-
Travel	6,000	-0-	13,000	-0-	19,000	-0-
Other Direct Costs	500	-0-	-0-	-0-	500	-0-
	<u>\$73,000</u>		<u>\$24,600</u>	<u>\$31,500</u>	<u>\$97,600</u>	<u>\$31,500</u>
	\$74,000	-0-	\$41,452	\$76,500	\$115,452	\$76,500
August 1981 - July 1983 (Pre-Implementation)					\$ 17,852	\$45,000
August 1983 - July 1984 (Field Implementation)					\$ 97,600	\$31,500

APPENDIX D

Types of Eye Problems in Ten Depressed Barangays in the
Bicol Region; HKI Assessment, 1983

<u>Eye Problem/Finding</u>	<u>No. of Cases</u>	<u>Percentage</u>
Night blindness/xerosis	55	7.10
Infections/Deformities of Lids, Sclera or Eyelids	70	9.04
Pterygium	64	8.26
Corneal opacities, mild	6	0.77
Corneal opacities, moderate	9	0.13
Corneal opacities, severe	7	0.90
Staphyloma/atrophy of globe	12	1.55
Lens haziness	5	0.64
Cataracts	82	10.59
Refractive errors and presbyopes	446	57.62
Others	<u>18</u>	2.32
TOTAL	774	

APPENDIX E

List of PEC Teaching Materials Produces by HKI

Cloth Snellen Charts

PEC Flip Chart

Teaching Overhead Transparencies

PEC Slide Show for Training

Record Keeping Forms to RHU Hospital
Follow up BHA Follow up RHU

Referral Forms

Eye Models

Eye Posters

Anatomy and Function Learning Boards

Eye Diseases Simulated Glasses

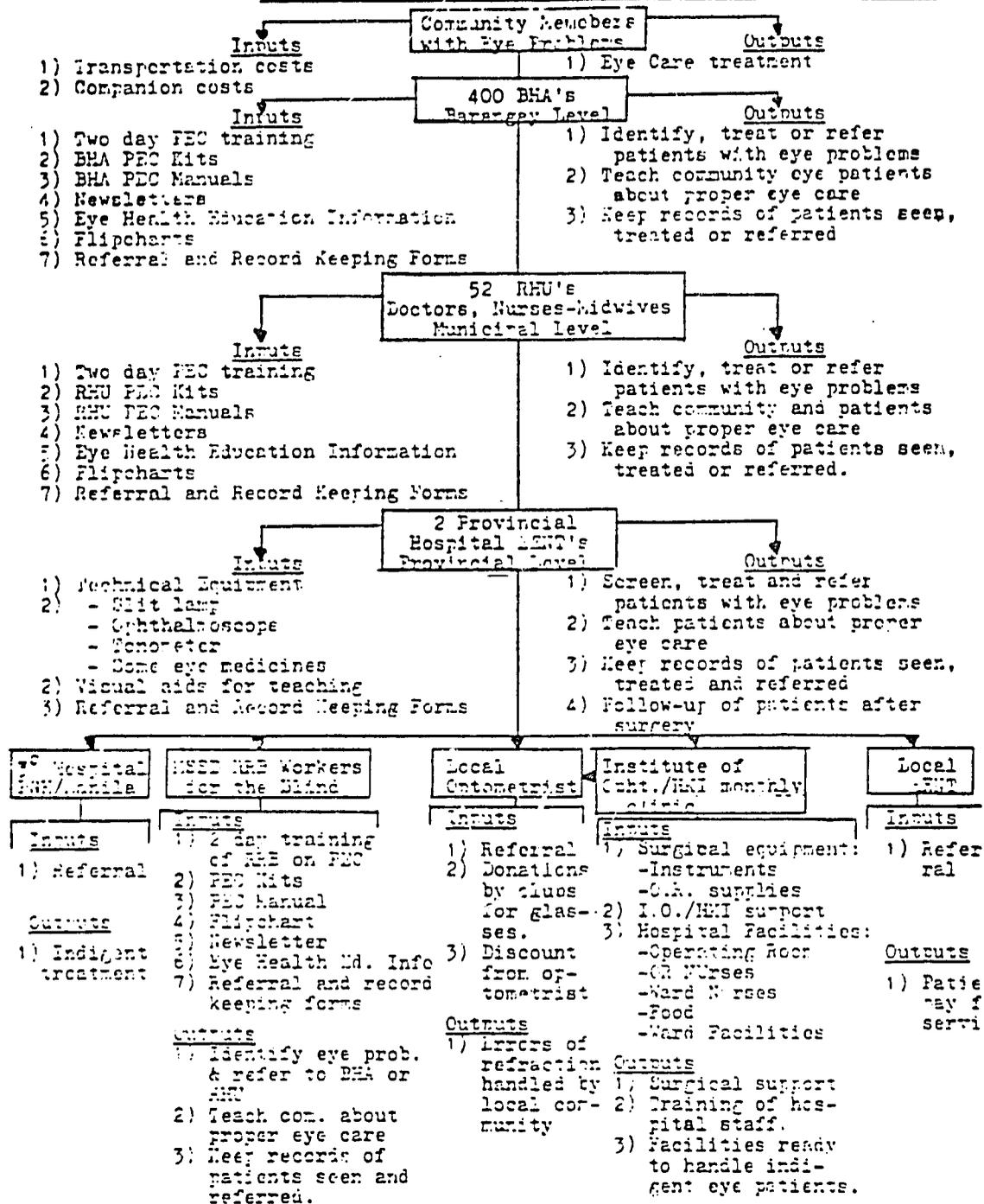
Case Study Cards

Manuals

BHA PEC Manual (Bicol)
BHA PEC Manual (English)
RHU PEC Manual
Training Manual

APPENDIX F

HKI Training Inputs and Outputs (through September, 1984)



APPENDIX G

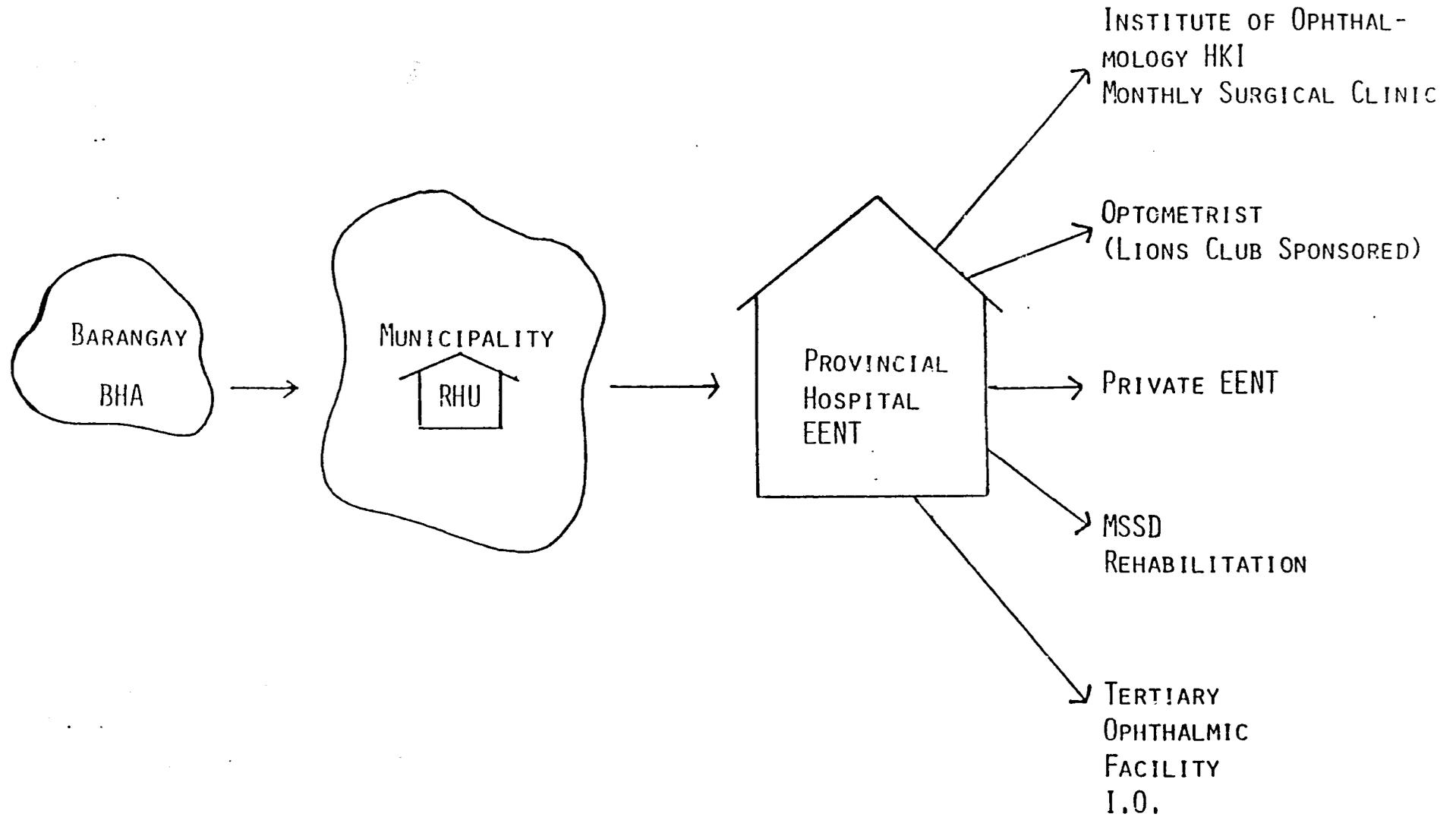
Eye/Care Equipment and Supplies

- A. RHU and BHA Kits:
 - Vision Testing Chart
 - Care Board E
 - 3 Meter Measuring String
 - Ocluder
 - Penlight and Batteries
 - Gauze
 - Cotton
 - Plaster Tape
 - Eye Patch Pattern
 - Eye Shield Pattern
 - Vitamin A Capsule
 - Antibiotic Eye Ointment
 - PEC Flip Chart
- B. Hospital Supplies:
 - Slit Lamp for Provincial Hospital
 - Tonometer
 - Ophthalmoscope
 - Cataract Sets and Surgical Supplies

APPENDIX H

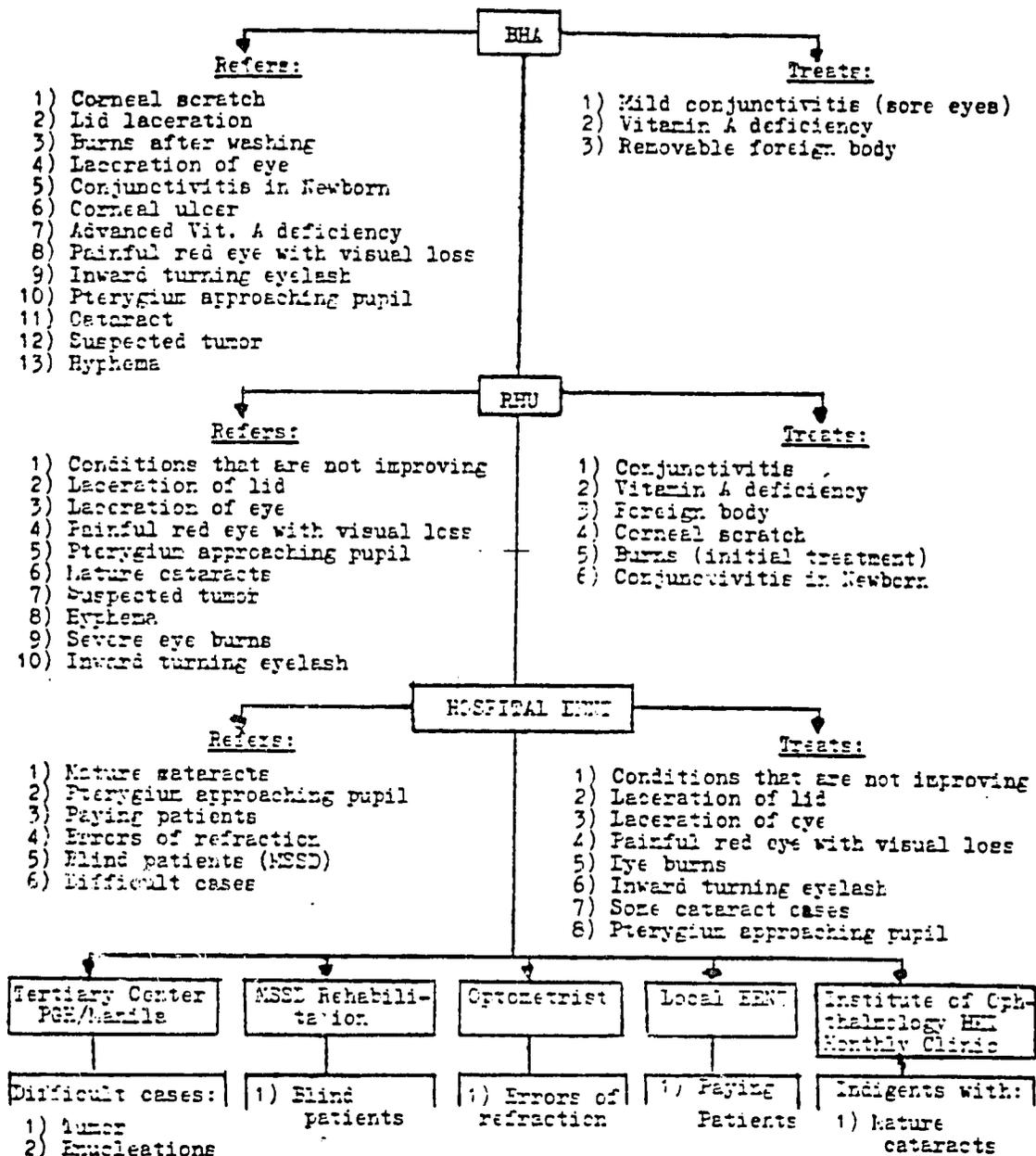
Bicol Primary Eye Care Treatment and Referral System

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APPENDIX I

Bicol Primary Eye Care Referral Protocol



APPENDIX J

Bicol Primary Eye Care Referral Forms

Eye Form	Title of Form	# Copies	Copies to be received	To be submitted	Purpose of Form
A-1 Yellow	BHA Eye Referral Form to the RHU	100 to each BHA	RHU	by the BHA when referring an eye patient to the RHU (carried by patient)	RHU to RHU monitoring
A-2 Yellow Detached from A-1	Return slip from RHU to BHA	100 for RHU to BHA	BHA	by the RHU to the patient for delivery back to the BHA	RHU back to BHA Follow-up
A-3 Blue Pink	List of all eye patient seen by BHA	50 to each BHA	PHU monthly	by BHA to the PHU at the end of the month	# and kinds of eye patients seen by BHA monthly
B-1 Green	RHU Eye Referral Form to the Hospital EENT Specialist	100 to each RHU	Hospital EENT	by RHU to Hospital EENT (carried by patient)	RHU to Hospital monitoring
B-2 Pink Blue	List of eye patients referred by BHA and seen in PHU	50 to each RHU	PHU monthly	by RHU to the PHU at the end of every month	# and kinds of eye patients referred by BHA who were seen at the RHU
C-1 White	Hospital EENT screening	200 for Hospital EENT	Referred Agency - I.O./HKI Clinic - Optometrist - EENT; HSSD RRB - BHA/PHU	by Hospital EENT to patient after screening for referral or treatment	# eye patients referred by RHU who were actually seen by the EENT and where they go from here.
C-2 White	Instructions to Patient before Operation	500 for Hospital EENT	Patients before cataract extraction	by EENT to patients referred to I.O./HKI surgery	Patient awareness of what is to be done <u>before</u> surgery.
C-3 White	Surgeon's Eye Referral form for follow-up after surgery.	200 for surgeon	Referred Personnel: -EENT -RHU; -BHA -Optometrist	by surgeon to patient who have had surgery	To tell the personnel what follow-up is required for the patient after surgery
C-4 White	Instructions to patients after operation.	500 for surgeon	Patients after cataract extraction	by surgeon to patient after surgery along with form C-3	Patient awareness of what they after the surgery
D	List of patients without necessary forms seen by Hospital EENT	100 for Hospital EENT	HKI as a list of backlog Waitlisted Patients	by EENT to HKI	To provide waitlist of patients who need surgery

APPENDIX K

Costs of PEC Training Materials

1. RHU Physician and Public Health Nurse Training (52 MD; 52 RHN)

<u>Item</u>	<u>Unit Cost</u>	
	<u>Pesos</u>	<u>US\$ *</u>
Training (2 days)	230	16.43
Training manual (1)	36	2.60
PEC Kit (without medication)	<u>154</u>	<u>10.75</u>
	P420	\$29.78
	x 104 RHU Staff	
		<u>\$3,097.12</u>

2. BHA Training (280 of 400 Trained as of September 1984)

<u>Item</u>	<u>Unit Cost</u>	
	<u>Pesos</u>	<u>US\$</u>
Training (2 days)	150	10.71
Training manual	36	2.60
PEC Kit	154	10.75
Vitamin A/Tetracycline **	<u>380</u>	<u>20.71</u>
	P720	\$44.77
	x 400 BHAs	
		<u>\$17,908.00</u>

3. Artwork/Production

Renewable Trainers Kit	P4,000	\$285.71
		x 2 kits for
		<u>each province</u>
		\$571.42

4. Training of Trainers (20 trainers)

	<u>Pesos</u>	<u>US\$</u>
Training (3 days)	300	21.42
Trainers bag	75	<u>5.36</u>
		26.78
		<u>x 20 trainers</u>
		\$535.60

* 1 US\$ = 14.002 Pesos

** Each BHA should receive 500 Vitamin A capsules
100 tubes of Ophthalmic Ointment

Costs of PEC Training Materials (Cont't)

5. Institute of Ophthalmology Staff

	<u>Pesos</u>	<u>US\$</u>
Ophthalmologist (1)	450	32.14
Researcher (1)	350	25.00
Travel expenses (2)	280	<u>20.00</u>
		\$ 77.14
		<u>x 5 days per month</u>
		\$385.70

6. Medicines and Surgical Supplies

	<u>Pesos</u>	<u>US\$</u>
Actual Cost of Articles bought	228.42	16.32
Approximate	560.00	<u>40.00</u>
		\$56.32

* 1 US\$ = 14.002 Pesos

** Each BHA should receive 500 Vitamin A capsules
100 tubes of Ophthalmic Ointment

Map of the Philippines Bicol Region (Shaded)

