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A.I.D. EVALUATION SUMMARY PART I

(BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS)

PD - AAX - 619
XD - A - C

IDENTIFICATION DATA

A. REPORTING A.I.D. UNIT: <u>RDO/C/HPE</u> <small>(Mission or AID/W Office)</small> (ISS# 538-88-01)	B. WAS EVALUATION SCHEDULED IN CURRENT FY ANNUAL EVALUATION PLAN? yes <input type="checkbox"/> slipped <input checked="" type="checkbox"/> or not <input type="checkbox"/> Eval. Plan Submission Date: FY <u>87</u> @ <u>2nd</u>	C. EVALUATION TIMING interim <input type="checkbox"/> final <input checked="" type="checkbox"/> on post <input type="checkbox"/> other <input type="checkbox"/>			
D. ACTIVITY OR ACTIVITIES EVALUATED (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report)					
Project #	Project/Program Title <small>(or title & date of evaluation report)</small>	First PROAD or equivalent (FY)	Most recent PACO (mo/yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
538-0055	Allied Health Manpower Training	FY 80	10/85	1,103	1,103

ACTIONS

E. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR <p style="text-align: center;">Action(s) Required:</p> <p style="text-align: center;">No action decisions were required as a result of this evaluation</p>	Name of officer responsible for Action	Date Action to be Completed
(Attach extra sheet if necessary)		

F. DATE OF MISSION OR AID/W OFFICE REVIEW OF EVALUATION: mo <u>12</u> day <u>12</u> yr <u>86</u>			
G. APPROVALS OF EVALUATION SUMMARY AND ACTION DECISIONS:			
Project/Program Officer Signature: <i>Gail A.W. Goodridge</i> Typed Name: Gail A.W. Goodridge Date: <u>1/14/88</u>	Representative of Borrower/Grantee Signature: _____ Typed Name: _____ Date: _____	Evaluation Officer Signature: <i>Darwin Clarke</i> Typed Name: Darwin Clarke Date: <u>01/15/88</u>	Mission or AID/W Office Director Signature: <i>James S. Holtaway</i> Typed Name: James S. Holtaway Date: <u>1/19/88</u>

Clearances: Holly Wise; C/HPE
Date: 1/18/88

David Mutchler C/PRM
Date: 1/15/88

Alfred Bisset, D/DIR
Date: 1/15/88

II. EVALUATION ABSTRACT (do not exceed the space provided)

The Allied Health Manpower Training Project (538-0055) was designed to train Eastern Caribbean health workers in environmental, child, and dental health. Initiated in response to the lack of training opportunities for allied health workers outside of the major university system, the project not only sought to train health workers but also to develop an alternative regional training site. Between 1980 and 1985 nearly 100 environmental health officers and environmental health assistants were trained by Project HOPE educators at a St. Lucia training facility at the Morne complex outside of the capital, Castries. A dental auxiliary program was discontinued after the mid-term evaluation and the child health program was dropped.

In 1983 funds allocated to the abandoned dental and child health activities were reprogrammed to provide emergency medical training to the Queen Elizabeth Hospital Accident and Emergency Department. Over two years 14 physicians and 6 nurses were trained in emergency medicine and 42 emergency medical technicians were hired and trained in pre-hospital emergency care. Separate efforts were made in April 1985 and October 1985 to evaluate each of these two main program components. The major findings and conclusions are:

The St. Lucia activity was successful in providing training opportunities to health workers who were not fully qualified to enter more formal and more laborious university training. Most graduates were willingly accepted by their Ministries of Health for employment upon completion of the studies with the exception of the St. Lucia class of environmental health assistants of whom 25% had dropped out of environmental health by one year after completing their training.

The training facility and materials developed under the grant can be used for follow-on training and in fact is being assumed under the Health Sciences Division of the newly-established Sir Arthur Lewis Community College.

The emergency medical services training program was successful in upgrading the skills of physicians, nurses and other emergency medical personnel working in the Queen Elizabeth Hospital.

The evaluators noted the following recommendations and lessons learned:

Follow-up, in-service training is critical for maintaining and further upgrading skills of health workers.

On-going internal evaluations and assessments are required to ensure that training curricula are still relevant to changing health needs.

The support and collaboration of local professionals are essential to ensure appropriateness, continuity and acceptance of training and technical assistance programs.

ABSTRACT

I. EVALUATION COSTS

1. Evaluation Team Name	Affiliation	Contract Number (2) TDY Person Days	Contract Cost (2) TDY Cost (\$/DD)	Source of Funds
G.R. Wilensky, Project HOPE		30 (est.)		Project
S.H. Chapman, Project HOPE		30 (est.)		Project
G.S. Cooper, Project HOPE		30 (est.)		Project
John Porvaznik, Consultant		10		Project

2. Minister/Clinical Professional
(Staff Person-Days (estimate)) 20

3. Supporter/Consultant Professional
(Staff Person-Days (estimate)) 15

COSTS

A.I.D. EVALUATION SUMMARY PART II

I. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS AND RECOMMENDATIONS (Try not to exceed the 3 pages provided) Address the following items:

- Purpose of entity(ies) evaluated
- Purpose of evaluation and Methodology used
- Findings and conclusions (relate to questions)
- Principal recommendations
- Lessons learned

Mission or Office: RDO/C/ Date this summary prepared: November 1987

Title and Date of Full Evaluation Report: ALLIED HEALTH MANPOWER TRAINING PROJECT
Combined Evaluation Summary Report, April 1986

The Allied Health Manpower Training Project (538-0055) was originally designed to provide training opportunities in St. Lucia for the islands of the Eastern Caribbean and Belize in the areas of environmental, child and dental health. The Program was initiated in response to the lack of training opportunities for the OECS countries in allied health fields and both the development of trained personnel and of a regional educational resource were seen as goals of the Project.

Between 1980 and 1985, 3 Public Health Inspector (PHI, later called Environmental Health Officer or EHO) training classes were held in St. Lucia. A total of 40 EHOs were trained in these classes. Two classes of Environmental Health Assistants (EHAs) were held, one each in St. Lucia and Antigua at the request of those governments resulting in 58 graduates from this program. The dental health auxiliary program initiated under the project was cancelled after the mid-term evaluation however the students enrolled finished their training outside of the OECS. The proposed child health program, seen to be a St. Lucia-specific project, was not initiated as the later request of the government.

The programs in St. Lucia provided teaching equipment, library facilities, textbooks, curricula, and clinics for dentistry and pharmacy (a non-project funded training area) which continue to be utilized in-country. Counterpart trainers assigned by the Ministry of Health were trained to assume continuing educational responsibilities after the project.

Physical facilities provided by the St. Lucia Ministry of Health adjacent to the Morne educational complex include 4 classrooms, five offices, an on-campus library, and a laboratory. Additional classrooms are available for future expansion.

The work of the project at the St. Lucia training center was facilitated by the establishment of a Program Council comprised of representatives of each participating country who consulted on selection of students and overall training objectives, as well as a Technical Advisory Committee (TAC) comprised of select technical experts who provided guidance to the project on the technical aspects of the training curricula. The TAC was a product of the 18-month evaluation of the project.

In 1983 and as an indirect result of the abandonment of the dentistry and child health training components, the decision was taken to reprogram funds allocated to dental and child health for an emergency medicine training program in Barbados. This activity, however, differed from the by-then established St. Lucia program in several critical ways as it was not designed to be a regional training effort, nor was it guided by a Program Council or Technical Advisory Committee. The Barbados training component more closely resembled a one-time technical assistance effort designed to improve the emergency medical services of the Queen Elizabeth Hospital. The design called for the services of a Project HOPE physician to introduce new emergency room (ER) protocols, to train physicians, and to collaborate with a to-be-hired ER Director in developing his position. Technical inputs were hampered somewhat owing to the delays in identifying an ER Director, however protocols were written and 14 physicians received some training although the long term HOPE advisor was unable to complete his scope of work due to illness. Building on the initial work of the HOPE advisor, the project was later expended to include an ER nurses training program and a pre-hospital phase which broadened the project goals to improving the full EMS system of the QEH Accident and Emergency Department. Over the course of the two-year activity, an AED (ER) Director was hired and trained, 14 physicians and 26 nurses were trained in emergency medicine, and 42 emergency medical technicians (EMTs) were hired and trained to provide pre-hospital emergency medical (ambulance) services. Minor renovations to the physical facilities were undertaken at the AED and EMS equipment (including radio communications) were provided to 4 QEH ambulances.

Evaluation Methodology and Findings

The final training class in St. Lucia was graduated in 1985 and the program was evaluated by the study team of G.R. Wilensky, G.S. Cooper and S. Chapman of Project

HOPE's Health Affairs Center who collected assessments and information on responsibilities of and job performance by graduates, supervisors, and Ministry representatives. Personal interviews and written surveys were conducted during site visits to St. Lucia, Antigua, and St. Kitts/Nevis in April 1985. A mailed questionnaire was sent to members from other participating countries. A high rate of return was obtained from both the mailed and personal surveys: about 80 percent of the EHO graduates and 55-60 percent of the EHAs.

At the time of the evaluation most of the graduates were employed in their respective fields and countries--the St. Lucia EHA program being the only one with a relatively high post-graduate drop-out rate (25 percent). The EHOs and Antiguan EHAs have remained in their positions or been promoted within their departments.

Although a few problems with the St. Lucia program were identified by graduates, for the most part the course content and teaching were rated highly. The specific problems (e.g., inadequate facilities, delays in certain phases of the program) were concentrated in the early years of the program and improved over time. Several factors limiting the effectiveness of the trainees were identified by both graduates and department chiefs. In environmental health, lack of proper equipment, problems with supervision, and sample and specimen collection inadequacies were cited although both relationships among and level of knowledge of workers were thought to be good.

Long-term TA advisors and short-term consultants were found to be appropriate in quality and quantity and supplied generally in a timely fashion however project implementation was affected by turnover of training personnel, particularly the long term advisors. With the exception of the long term project manager, there was considerable turnover of U.S. personnel which resulted in delays in program implementation. A factor which affects long term sustainability of the training program is the participating countries' lack of absorptive capacity for the skilled manpower they need. As mentioned above, St. Lucia was unable to support all of the EHAs they asked be trained and there was no support for dental assistants. The countries continue to express the need for these types of health workers but have overriding budgetary constraints.

The Project purposes have been mostly accomplished and the Ministries of Health have been strengthened by the EHOs and EHAs trained. These graduates represent a major step towards the establishment of effective environmental health departments. Other steps still to be taken include development of clear goals, objectives and responsibilities of EHOs and EHAs, more consistent planning and greater cooperation between EHOs and EHAs, and better administrative procedures.

In October 1985 an evaluation of the Barbados BMS program was performed by Dr. John Porvaznik, Director of Surgical Services, Gallup Indian Medical Center, New Mexico. Dr. Porvaznik reviewed project documentation and discussed the project with HOPE staff in Millwood before spending 4 days in Barbados to meet with RDO/C and QEH staff. His report concludes that overall the project made substantial improvements and had a high degree of success in meeting program objectives. The program transformed an unsatisfactory casualty area with inadequate staffing and inefficient organization into an AED with improved quality of care, defined goals and more leadership. An impressive pre-hospital program with trained BMTs has been established, and a heightened sense of awareness of what is needed for a safe and efficient BMS system has been instilled in QEH AED staff.

The evaluation notes a few outstanding problems, some of which are inherent in AED type (i.e., high demand/low satisfaction) systems and others which can be ameliorated only by longer term solutions. Some which are noted in the evaluation include the tendency of staff to have low commitment to AED work, the absence of specialized AED training and physician and nursing curricula, poor physical infrastructure, limited hours of laboratory and x-ray services, and an excessive number of non-emergency visits by patients who could use primary health care systems. The evaluator notes that a new

AED facility is being planned as part of the QEH expansion (expected completion in 1988) however recurrent cost limitations have precluded hospital administrators from expanding the hours of laboratory and x-ray services and to date AED training has not been incorporated into standard physician and nursing curricula. Also, despite the Ministry of Health's expansion of hours at the nation's polyclinics, the daily number of non-emergency visits still averages between 200-300.

Recommendations

As no follow-on activity is planned for this project, in the strict sense of the term no recommendations are proposed "for this activity or its offspring." However the evaluators of both project activities do make recommendations relevant to future training needs in the region. The evaluators agree on the perspective that training is a dynamic and on-going process which requires continual refresher/continuing education. They both suggest a program of in-service training for graduates of training programs. Both the St. Lucia and Barbados evaluators recommend on-going internal evaluation of systems which have been established. In St. Lucia the evaluators recommend on-going follow-up of graduates and the offices in which they work to ensure that the training curricula is maximally relevant to their eventual needs; in Barbados the evaluator recommended use of information systems of the AED to ensure that procedures introduced were being followed and were still appropriate for maximum efficiency. A third area of similarity in these two separate evaluations is the recommendation that local support and cooperation be sought to achieve the greatest benefits. In the case of St. Lucia the evaluators report that support of local professional associations will be important to ensure continuity and appropriateness of whatever training program is revived through the Sir Arthur Lewis Community College; in Barbados the evaluator noted that unless AED training was incorporated into local physician and nursing education curricula, the level of professionalism in AED was bound to slide. St. Lucia also found that a Technical Advisory Committee and a Program Council comprised of local professionals were critical to their success.

The only major area of difference in each team's recommendations was in the level of skill and focus of training: the St. Lucia team felt broader, generalized training might be more appropriate to allow Ministries greater flexibility in planning and use of EHO and EHA graduates, while the Barbados evaluator felt improvements to the AED required greater refinement of and focus on EMS as a medical specialty with advanced training in preparation for a career in emergency medicine.

Lessons Learned

1. The St. Lucia program illustrates that it is possible to design training programs that increase competence and are rewarding to the trainees, and which are specific to the needs of the region yet do not facilitate graduates seeking greater opportunities in developed countries. On the other hand, the denial of professional certification of graduates by the Caribbean Association of Public Health Inspectors continues to be a problem for graduates and the absence of regionally-accepted accreditation prevents graduates from entering post-basic university training except on an individual review basis.
2. The importance of thorough investigation of the positions for which one is designing a training program cannot be overstated. In some cases job responsibilities of graduates (e.g., EHAs) are still not clearly delineated, resulting in professional anxieties and less than optimal use of these trained health workers.
3. The important role of social norms and behaviors in effecting development change is underscored in the Barbados project where attitudes about one's job and culturally-specific interpersonal dynamics were seen to be equal or more critical determinants of whether innovation is adopted or resisted.

K. ATTACHMENTS (List attachments submitted with this Evaluation Summary; attach each copy of full evaluation report, even if one was submitted earlier)

ALLIED HEALTH MANPOWER TRAINING PROJECT, Combined Evaluation Summary Report*

An Evaluation of the Eastern Caribbean Regional Training Program for Allied Health Professionals by the Center for Health Affairs, Project HOPE

EVALUATION, Barbados Emergency Medical Systems Project, John Porvaznik

NOTE: The Combined Evaluation Summary Report was prepared by RDO/C to integrate the two separate evaluation reports. The document was shared with the Grantee who offered editorial comments which were incorporated into the Combined Report.

L. COMMENTS BY MISSION, AID/W OFFICE AND BORROWER/GRANTEE

The evaluation methodologies employed for the final evaluation of this project were both somewhat unusual and less than optimal: the St. Lucia program component was evaluated by an in-house (Project HOPE) team and the Barbados component was evaluated by one external evaluator. Despite these limitations, it is fair to say that a significant amount of useful information was gathered during the exercises. The Project HOPE Center for Health Affairs did implement a research strategy which was developed jointly by and with the final approval of the Program Council of the St. Lucia training program. This effort provides valuable follow-up information about the relevance and adequacy of training seen from both graduates and their employers and provides rare insights not often available in a standard evaluation design. It's perhaps greatest omission is the absence of a financial analysis of the relative cost-effectiveness of the training program vis-a-vis other regional or extra-regional options with the exception of indirect reference to the diversity of training programs requested by governments and the relatively small number of persons which governments could support during training and place thereafter. This issue was well covered in the interim evaluation which questioned the overall economics of the training program.

The EMS evaluation is far less rigorous and unfortunately unaided by the observations and collaboration of additional evaluators. (The decision to use a single evaluator was based on insurmountable scheduling constraints at the end of the program.) His report reflects a more personal and experiential assessment, and some hints of bias towards the grantee as reflected in his hesitance to review some of the more potentially critical issues of grant management. However it too, provides useful, if somewhat superficial, analysis of the critical issues.

The broad conclusions, recommendations and lessons learned which are reported in the evaluation reports are shared by the Mission.

As a footnote to this evaluation it is observed that since the introduction of this program, the only other hospital on the island has been closed due to financial difficulties. This closure has placed more demand on the QEH AED and ambulance capabilities and made the upgrading of emergency services at QEH an even higher priority.

ATTACHMENTS

MISSION COMMENTS ON FULL REPORT

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ALLIED HEALTH MANPOWER TRAINING PROJECT
Combined Summary Evaluation Report

A final evaluation of Project No. 538-0055
combining evaluations by

The Center for Health Affairs, Project HOPE
and John Porvaznik, M.D.

April 1986

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DESCRIPTION AND HISTORY OF THE PROJECT

St. Lucia Training Component

The Eastern Caribbean Regional Training Program for Allied Health Workers was established in May 1981 through the combined efforts of the St. Lucian government, Project HOPE and the U.S. Agency for International Development. This program has provided training for environmental health, dental health and pharmacy workers from St. Lucia and other Windward and Leeward Islands. Because of their size, available resources, and level of economic development, these islands were considered to be among the "lesser developed" of the region. The St. Lucia training program was designed to answer both the health and general development needs of these countries.

Training programs for these allied health workers exist at the Barbados Community College and at the West Indies School of Public Health in Jamaica. However, financial and academic considerations, as well as concern over the potential "brain drain", limited the opportunities for training health personnel from the LDCs. These factors, as stated in the 18-month evaluation, included:

- o Shortage of money to fund scholarships or fellowships to the existing training programs in the region.
- o No indication that the Barbados Community College would be able to meet St. Lucia's needs within an acceptable timeframe.
- o Prerequisites (5 "O" levels) could not be met by many available candidates from the LDCs. These potential trainees would need to spend an additional year away from their home countries and jobs supplementing their general education before entering the existing programs.

The possibility of in-service training in the LDCs was also limited, due to the lack of financial and educational resources and suitably trained teachers in these countries.

These factors served as the basis for the decision of the St. Lucian government to develop, with the aid of Project HOPE, an initial training class for Public Health Inspectors in 1979. During the subsequent year, a proposal between Project HOPE and USAID was designed to expand this class, add other training programs, and further develop the training facilities within St. Lucia. This proposal was accepted in August of 1980 and became the Allied Health Training Project, 538-0055.

The original proposal included 5 components:

1. Public Health Inspector (now called Environmental Health Officer, EHO) training for up to 40 students from the LDCs in a series of 22 month programs.
2. Environmental Health Assistant (EHA) training for up to 40 students from St. Lucia in a series of 3 month programs.

3. Pharmacist training for up to 27 students from the LDCs in a series of 2 year programs. (This was eventually funded through another mechanism than this project.)
4. Dental nurse and dental hygienist training, and development of a national dental care program in St. Lucia.
5. Child health care training and program development in St. Lucia, with some help for other LDCs.

The dental health and child health components were discontinued in 1982, and an Environmental Health Assistant component was added for Antigua. Over the course of the 5-year grant approximately \$960,000 was expended on the St. Lucia training component. The following table shows the total number and nationalities of participants trained under the grant at the St. Lucia training center.

Table 1
Public Health Inspector
Training Classes, St. Lucia
1981-1985

GRADUATES	1981-82	1982-83	1983-85
Antigua	4	3	2
Dominica	2	2	2
Grenada	4	2	1
Montserrat	1	0	1
St. Lucia	0	3	0
St. Kitts/Nevis	2	2	2
St. Vincent	0	4	3
TOTAL	13	16	11

Environmental Health Assistants
Graduates
St. Lucia and Antigua

	1981	1983
St. Lucia	36	--
Antigua	--	22

Barbados Emergency Medical Services EMS Component

In May 1983, the grant agreement between Project HOPE and USAID/RDO/C was expanded to respond to the request for assistance from the government of Barbados to improve the provision of services through the Accident and Emergency Department (AED -- formerly called the Casualty Department) of the Queen Elizabeth Hospital. This EMS component provided the services of a long term physician and later an emergency medical technician (EMT) as well as short term nurses training. Additionally four ambulances were upgraded including radio communications equipment and limited hospital equipment was provided to the AED over the last 2.5 years of the grant.

Under this activity a total of 42 EMTs, 26 nurses and 12 physicians assigned to the AED were trained and new protocols and procedures for dealing with AED situations were developed.

PREVIOUS PROJECT EVALUATIONS

A mid-term project evaluation was prepared in November 1982 which focused primarily on the implementation of the environmental health and dental health programs. The evaluators found that the training conducted was judged to be of high quality and the staff was deemed both dedicated and competent. Concerns ranging beyond the educational aspects of the project itself such as costs, government commitments, the capability of governments to sustain the program and related issues of the students' professional credentials and certification of the program were pointed out as potential problems for the continuing validity of the original project design. The overall recommendations of the interim evaluation were:

1. Conduct a cost-effectiveness study of the EHO program and a needs assessment of the EHO manpower needs of LDCs to be used as a basis for future modifications or elimination of this program element.
2. Discontinue dental hygiene training.
3. Determining feasibility of other programs such as the Child Service Program.
4. Attempt to initiate discussions and input from other Caribbean educational institutions, particularly relating to establishing a regional certification process.

As part of the final evaluation, these recommendations, and the subsequent actions taken in response to the report were reviewed by the study team. Positive action had been taken to address the specific problems cited in the interim report which strengthened the administration and content of the program.

The admission criteria of 3 "0" levels which had not been universally applied at first were adhered to in the latter EHO classes. A Technical Advisory Committee as formed for each program, which provided the Program Council with input on matters such as curriculum, field work opportunities, and certification standards, and served as a forum for exchange of information and ideas among educational leaders in the region. Although discussions of regional certification were held, the problem was not resolved.

The lack of library resources within each country was noted in the interim report and a recommendation was made to provide a set of core textbooks to each country for the use of the graduates. The Ministry of Health within each participating country did receive these books, however the extent to which they were available to the graduates and other health workers is not clear. The inaccessibility of the books was raised as a complaint by a graduate during the evaluation.

FINAL EVALUATION METHODOLOGY

This evaluation is intended as an end of project evaluation, as called for in the Grant Agreement. The scope of work for the project component was developed collaboratively by USAID/RDO/C and Project HOPE and is presented in Attachment A.

St. Lucia Training Component

Activities for the evaluation of the St. Lucia training program were performed between January and May, 1985. Project HOPE internal evaluators obtained information from project documents, available health statistics, survey interviews of trainees, supervisors, Ministers of Health and other key personnel in the Caribbean nations, and from site visits to the participating countries.

Planning for this program evaluation began in November 1984 and the objectives and the methodology were established by January 1985. The objectives were to:

- o Assess the implementation of the programs, problems and accomplishments,
- o Assess the results of the programs, both at the trainee level and societal levels (local, national and regional), and
- o Assess the implications of this experience for future manpower training and development efforts.

The study design primarily involved personal interviews with and surveys of program graduates, department chiefs, and government officials (see Attachment A). This plan was presented to the St. Lucia project's Programme Council at their January 1985 meeting and initial interviews with the faculty and ministry representatives were conducted at this time. From January through April, project documents were reviewed, and the questionnaires were drafted and pre-tested. During a two-week trip to St. Lucia, Antigua, and St. Kitts/Nevis in late April, 58 graduates and 4 department chiefs were contacted and participated in the questionnaires. Those who could not be reached during this trip were sent individual letters and surveys. The response rate for this second phase was quite high: 11 of the 17 graduates (65%) completed and returned the mailed survey. The number of people surveyed, by country and program, is shown in Table 2.

TABLE 2
Public Health Inspector
Training Classes, St. Lucia
1981-1985

GRADUATES	<u>1981-82</u>	<u>1982-83</u>	<u>1983-85</u>	<u>Total Trained</u>	<u>Total Surveyed</u>	<u>Percent Survey</u>
Antigua	4	3	2	9	9	100
Dominica	2	2	2	6	4	67
Grenada	4	2	1	7	6	86
Montserrat	1	0	1	2	1	50
St. Lucia	0	3	0	14*	9	64
St. Kitts/Nevis	2	2	2	6	6	100
St. Vincent	0	4	3	7	6	86
TOTAL	13	16	11	51	41	80

* 11 students from St. Lucia under the 1979 project were also interviewed in this survey

Environmental Health Assistants
Graduates
St. Lucia and Antigua

	<u>1981</u>	<u>1983</u>	<u>Surveyed</u>	<u>% Surveyed</u>
St. Lucia	36	--	20	56
Antigua	--	22	12	67

The evaluation team for the St. Lucia component consisted of three members of the Center for Health Affairs (CHA), the policy research division of Project HOPE. Glinda S. Cooper, a policy analyst with CHA served as Project Coordinator. She has expertise in statistical analysis and survey methodologies, and experience in health policy research and program evaluation. Dr. Gail R. Wilensky, the Director of CHA, provided senior analytic consultation to the project. Steve Chapman, a research assistant with CHA, participated in the survey development, implementation, and analysis.

In addition, the research team was able to draw on the expertise of numerous people within the Eastern Caribbean. During the January and April trips interviews were held with:

Mr. Dorbene O'Marde, Health Planner, Ministry of Health, Antigua
Mr. G.M. Cassell, Permanent Secretary, Ministry of Health, Montserrat
Dr. H.A. Jesudason, Senior Medical Officer, St. Vincent and the Grenadines
Mr. Oriel Hector, Permanent Secretary, Ministry of Health, St. Kitts/Nevis
Mr. Cornelius Lubin, Permanent Secretary, Ministry of Health, St. Lucia
Mr. Joseph Reid, Chief Environmental Health Officer, Antigua
Mr. Cochran, Minister without Portfolio, Antigua
Mr. Fletcher, Chief Environmental Health Officer, St. Lucia
Mr. Edward Emmanuel, Environmental Health Counterpart, St. Lucia
Mr. Eldridge Poyotte, Senior Public Health Inspector, St. Lucia
Mr. James Hodge, Chief Public Health Inspector, St. Kitts/Nevis
Mr. Robert Bowry, Pharmacist, St. Kitts/Nevis

Barbados EMS Component

The evaluator of the EMS component was Dr. John Provaznik. Dr. Provaznik is the Medical Director for Emergency Medical Services for the Indian Health Services of the U.S. Public Health Service and Director of Surgical Services of the Gallup Indian Medical Center in New Mexico.

The following steps comprised the evaluation methodology for this component of the grant:

1. Review by Provaznik of materials sent by USAID to consultant.
2. Overview and orientation at HOPE Headquarters in Millwood, VA, where goals, philosophy, and accomplishments were outlined, October 15, 1985.
3. October 16-21: On-site visit to Barbados with HOPE EMT-trainer Mr. Warren Schaub which included:
 - o Daily hospital visits; interviews with AED staff, hospital administration, Chief of Staff, Professor of Surgery; review of AED log.
 - o Ladymeade polyclinic visit
 - o Review of pre-hospital program (geography and roads by tour of island; ambulances; radio communications; interviews with EMTs; review of ambulance runs)
 - o Visit and discussions with USAID staff
 - o Attendance at multi-agency Disaster Preparedness Panel
4. Phone discussion with HOPE consultant trainer Karess Ebert in Minnesota; and with Don Weaver, HOPE, October 25.

FINDINGS AND RECOMMENDATIONS

St. Lucia Training Component

The contract and amendments between USAID and Project HOPE specify the goals and objectives of each component of the training program. The original purpose was to train and promote the effective use of personnel in order to improve the delivery of health care services in St. Lucia and the other LDCs.

Up to 40 Public Health Inspectors (PHIs) from the participating countries were to be trained in three 22-month classes. The first was to begin in early 1981, the second in August 1981, and the third in August 1982. However, the implementation of the classes was delayed, and consequently the third class graduated in 1985, preventing an assessment of work experiences of the last graduates in this evaluation.

The Environmental Health Assistant courses in St. Lucia were designed as three-month training programs to be held in 1981. Three classes were conducted with a total of 41 enrollees and 36 graduates. The EHA program in Antigua was designed in 1982 and implemented in 1983. This program included training of new workers, the EHAs, and an additional continuing education component for the Antiguan PHIs. Two 10-week EHA classes and one 17-week PHI continuing education course were to be held. The first EHA class actually began ahead of schedule and was larger than originally planned. Upon its completion, a second class was not seen as necessary.

The training program was facilitated by establishment of a Programme Council and a Technical Advisory Committee, both of which met bi-annually. The Programme Council, proposed in the 1980 grant, was made up of representatives of the participating countries to oversee the selection of students and development of the training activities, as well as to provide continuing evaluation and needs assessment. The Technical Advisory Committee for environmental health was created at the recommendation of the 18-month evaluation and consisted of members of education and health fields to provide input into decisions regarding technical aspects of the training.

Public Health Inspectors. The PHI training programs were conducted in St. Lucia resulting in 40 graduates under the grant. (In addition, 11 PHIs from St. Lucia were trained in the initial pre-grant HOPE/St. Lucia training class of 1979-1981.) Information on their perceptions of the course content and teaching was obtained through a written, confidential questionnaire.

They were asked to rate, on a poor/fair/good/excellent basis, parameters of course content: four aspects of teaching, six areas of facilities, and eight factors relating to the program's effect on personal development. (See Table 3) In general, course content and teaching categories were rated well, while aspects of the facilities (e.g., living conditions) received a slightly less positive response. The students' perceptions of the impact of the program were also very good. (See Table 4)

Table 3

PHI Graduates' Ratings of Training Program:
Content, Teaching and Facilities

Number and Percent (%) of Responses

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
COURSE CONTENT					
Usefulness	0 (0.0)	0 (0.0)	12 (29.3)	26 (63.4)	3 (7.3)
Thoroughness	0 (0.0)	0 (0.0)	22 (53.7)	17 (41.5)	2 (4.9)
Mix of Coursework (Theoretical and Practical)	1 (2.4)	14 (34.1)	16 (39.0)	9 (22.0)	1 (2.4)
Internship - ^a Organization	0 (0.0)	6 (20.0)	18 (60.0)	1 (3.3)	5 (16.7)
Internship - ^a Supervision	2 (6.7)	5 (16.7)	14 (46.7)	1 (3.3)	8 (26.7)
Preparation for PHI work	0 (0.0)	3 (7.3)	18 (43.9)	19 (46.3)	1 (2.4)
Overall Course Content	0 (0.0)	1 (2.4)	25 (61.0)	13 (31.7)	2 (4.9)
TEACHING					
Lectures	0 (0.0)	1 (2.4)	21 (51.2)	18 (43.9)	1 (2.4)
Availability of Help	2 (4.9)	15 (36.6)	18 (43.9)	4 (9.8)	2 (4.9)
Relevance of Assignments	0 (0.0)	4 (9.8)	18 (43.9)	17 (41.5)	2 (4.9)
Overall Teaching	0 (0.0)	4 (9.8)	24 (58.5)	10 (24.4)	3 (7.3)
FACILITIES					
Lab	5 (12.2)	21 (51.2)	10 (24.4)	2 (4.9)	3 (7.3)
Supplies	2 (4.9)	13 (31.7)	21 (51.2)	4 (9.8)	1 (2.4)
Classroom	0 (0.0)	4 (9.8)	29 (70.7)	7 (17.1)	1 (2.4)
Library	0 (0.0)	7 (17.1)	23 (56.1)	10 (24.4)	1 (2.4)
Living Conditions	2 (4.9)	13 (31.7)	15 (36.6)	7 (17.1)	4 (9.8)
Overall Facilities	0 (0.0)	6 (14.6)	28 (68.3)	5 (12.2)	2 (4.9)

^a Was not asked of the 11 students just finishing their coursework.

Table 4

PHI Graduates' Ratings of Impact
of Training on Personal Development

Number and Percent (%) of Responses

	MADE WORSE	NO EFFECT	SOME IMPROVE- MENT	GREAT IMPROVE- MENT	DID NOT ANSWER
Practical Knowledge	0 (0.0)	0 (0.0)	6 (14.6)	34 (82.9)	1 (2.4)
Confidence	0 (0.0)	1 (2.4)	13 (31.7)	25 (61.0)	2 (4.9)
Communication Skills	0 (0.0)	5 (12.2)	7 (17.1)	28 (68.3)	1 (2.4)
Job Effectiveness	0 (0.0)	0 (0.0)	8 (19.5)	32 (78.0)	1 (2.4)
Managerial Skills	0 (0.0)	3 (7.3)	22 (53.7)	15 (36.6)	1 (2.4)
Problem Solving Ability	0 (0.0)	2 (4.9)	12 (29.3)	26 (63.4)	1 (2.4)
Professional Development	0 (0.0)	0 (0.0)	9 (22.0)	30 (73.2)	2 (4.9)
Overall Impact	0 (0.0)	0 (0.0)	11 (26.8)	29 (70.7)	1 (2.4)

Of the 40 trainees who graduated on or before 1983, two members of the first class have left St. Lucia, but the remaining are currently employed by the Ministry of Health in their respective countries. One in St. Lucia is currently awaiting assignment to the environmental health department from a position in vital statistics. Five of the PHIs from Antigua have been promoted one or more levels, to Grade 1 or Acting Senior Public Health Inspector. The PHIs in the remaining countries are all still employed with their departments. Several from Grenada have also participated in additional training courses. (See Table 5)

Table 5

Employment Status of the HOPE Trained PHIs

Enrolled	51
Graduated	51
Employed as PHI After Graduation	50
Currently Employed as PHI	42
Promoted within Environ. Health Department	6
No longer Working in Environ. Health	0
Known to Have Left Country	2

The graduates were also asked their current and pre-training salaries. The mean monthly salary for the 28 PHIs who provided this information was EC\$1055. Pre-training salaries were much lower, reflecting both general inflation and a direct effect of training on earnings. The mean monthly pre-training for the 25 respondents providing this information (assuming the unemployed and students had no earnings) was EC\$385. Excluding the students and unemployed, the average monthly salary was EC\$507.

On the issue of relevance of training received to the actual type of work performed, the PHIs reported performing a variety of duties involving the specific material included in the curriculum. (See Table 6) However, many areas were suggested as useful subjects for additional training indicating that the PHI training program provided a basic level of skills and knowledge, but given the actual responsibilities of the PHIs, additional training opportunities are warranted. When comparing their actual work experiences with their expectations, the only area with a substantial level of negative ratings was "Supervision Received." (Almost 40 percent felt this was less or worse than expected.) The other areas, particularly job effectiveness and responsibilities, were generally perceived as surpassing expectations. (See Table 7)

Table 6
Responsibilities of
Public Health Inspectors^a

PROGRAM OR ACTIVITY	INCLUDED	LISTED AS	
	IN WORK N (%)	MAIN ACTIVITY ^b N	RANK
Housing Inspections	24 (80.0)	17	3
Water Quality and Supply	25 (83.3)	8	
Solid Waste Management	25 (83.3)	17	2
Vector Control	25 (83.3)	9	
Food Handling Establishments (e.g. stores, restaurants, bakeries)	27 (90.0)	26	1
Institutional Inspections (e.g. hospitals, prisons)	24 (80.0)	1	
Public Education	27 (90.0)	13	5
In-service Training/ Continuing Education	11 (36.7)	1	
Meat Inspection	23 (76.7)	12	
Air Quality Management	2 (6.7)	0	
Hazardous Waste Disposal	6 (20.0)	0	
Recreational Health and Safety	16 (53.3)	0	
Supervision of Auxiliary Workers	20 (66.7)	5	
Nuisance Investigations	28 (93.3)	13	4
Sewage Disposal (Public)	25 (83.3)	10	
Occupational Health	14 (46.7)	0	
Epidemiological Investigations	22 (73.3)		
Accident Prevention	16 (53.3)	0	
Radiation Protection	0 (0.0)	0	
Community Environmental Health Surveys	29 (96.7)	1	
Port Health	8 (26.7)		
Rabies Control Program	6 (20.0)	0	
Disaster Preparedness	16 (53.3)	2	

^a29 St. Lucia - HOPE graduates currently employed as PHI and 1 PHI trained elsewhere.

^bEach responder could list up to five activities, and there were 138 total responses.

Table 7
PHIs' Perceptions of Work

Number and Percentage (%) of Responses^a

	LESS/WORSE THAN EXPECTED	SAME AS EXPECTED	MORE/BETTER THAN EXPECTED	DID NOT ANSWER
Overall Responsibilities	6 (20.7)	11 (37.9)	11 (37.9)	1 (3.4)
Supervision Received	10 (34.5)	15 (51.7)	3 (10.3)	1 (3.4)
Amount of Community Work	4 (13.8)	12 (41.4)	11 (37.9)	2 (6.9)
Amount of Time Spent on Routine Inspection	3 (10.3)	14 (48.3)	12 (41.4)	0 (0.0)
Relationships with Co- Workers	5 (17.2)	16 (55.2)	7 (24.1)	1 (3.4)
Effectiveness in Job	4 (13.8)	13 (44.8)	11 (37.9)	1 (3.4)

^a29 St. Lucia - HOPE graduates currently employed as PHIs.

Environmental Health Assistants. Three classes of EHAs were trained in St. Lucia, all in 1981. There were 41 enrollees, of which 36 graduated. (Thirteen other EHAs trained under a separate program in 1979 were also interviewed as part of this evaluation.) In Antigua, one EHA class was held in 1983.

The course evaluation was divided into four sections: course content (five measures), teaching (four measures), facilities (three measures), and the program effect on personal development (eight measures). Also, open ended questions were asked to elicit more detailed responses.

According to information found in the survey and as shown in Tables 8 and 9 (St. Lucia), and Tables 10 and 11 (Antigua), the graduates' comments were generally very positive. Responses were for the most part either "good" or "excellent". A few areas, e.g., availability of help, preparation for EHA work, and development of managerial skills elicited fewer "excellent" or "great improvement" and more "fair" or "some improvement" ratings than other areas. The Library was the only measure that received more than three "poor" ratings. Particularly highly rated were "Usefulness of Course Content" and "Lectures".

Thirty-two of the 36 St. Lucian EHA graduates worked as an EHA immediately after graduation although nine of them have since left the EHA staff, eight of whom were fired. In St. Lucia, no HOPE EHA graduates -- or any EHA -- has been trained for or promoted to the position of PHI. (See Table 12)

In Antigua, however, of the 18 originally employed as EHAs, two were promoted to acting PHI and two others sent for full PHI training. Two others left the service for other jobs within Antigua, and one has left the country. The four who were initially employed in community health or family planning positions are still working in those departments according to the table.

Table 8

St. Lucia EHA Graduates' Ratings of
Training Program:
Content, Teaching and Facilities

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
COURSE CONTENT					
Usefulness	0 (0)	1 (6)	7 (41)	7 (41)	2 (12)
Thoroughness	0 (0)	4 (24)	10 (59)	3 (18)	0 (0)
Mix of Coursework (Theoretical and Practical)	0 (0)	3 (18)	5 (29)	6 (35)	30 (18)
Adequate Preparation	1 (6)	4 (24)	5 (29)	3 (18)	4 (24)
Overall Course Content	0 (0)	1 (6)	7 (41)	5 (29)	4 (24)
TEACHING					
Lectures	0 (0)	2 (12)	5 (29)	8 (47)	2 (12)
Availability of Help	1 (6)	4 (24)	6 (35)	2 (12)	4 (24)
Relevance of Assignments	0 (0)	4 (24)	5 (29)	3 (18)	5 (29)
Overall Teaching	0 (0)	1 (6)	6 (35)	4 (24)	6 (35)
FACILITIES					
Classroom	0 (0)	3 (18)	8 (47)	3 (18)	3 (18)
Library	6 (35)	0 (0)	3 (18)	2 (12)	6 (35)
Overall Facilities	0 (0)	3 (18)	6 (35)	2 (12)	6 (35)

^a17 identified St. Lucia - HOPE graduates.

Table 9

St. Lucia EHA Graduates' Ratings of
Impact of Training on Personal Development

Number and Percent (%) of Responses^a

	MADE WORSE	NO EFFECT	SOME IMPROVE- MENT	GREAT IMPROVE- MENT	DID NOT ANSWER
Practical Knowledge	0 (0)	1 (6)	11 (65)	4 (24)	1 (6)
Confidence	0 (0)	1 (6)	10 (59)	5 (29)	1 (6)
Communication Skills	0 (0)	1 (6)	8 (47)	4 (24)	4 (24)
Job Effectiveness	0 (0)	1 (6)	9 (53)	5 (29)	2 (12)
Managerial Skills	0 (0)	3 (18)	10 (59)	2 (12)	2 (12)
Problem Solving Ability	0 (0)	3 (18)	10 (59)	4 (24)	0 (0)
Professional Development	0 (0)	4 (24)	7 (41)	3 (18)	3 (18)
Overall Impact	0 (0)	2 (12)	7 (41)	4 (24)	4 (24)

^a17 identified St. Lucia - HOPE graduates.

Table 10
Antigua EHA Graduates' Ratings of
Training Program:
Content, Teaching and Facilities

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
COURSE CONTENT					
Usefulness	0 (0)	1 (10)	3 (30)	6 (60)	0 (0)
Thoroughness	0 (0)	3 (30)	1 (10)	5 (50)	1 (10)
Mix of Coursework (Theoretical and Practical)	0 (0)	1 (10)	1 (10)	7 (70)	1 (0)
Adequate Preparation	0 (0)	1 (10)	3 (30)	6 (60)	0 (0)
Overall Course Content	0 (0)	1 (10)	4 (40)	5 (50)	0 (0)
TEACHING					
Lectures	0 (0)	1 (10)	4 (40)	5 (50)	0 (0)
Availability of Help	3 (30)	1 (10)	1 (10)	5 (50)	0 (0)
Relevance of Assignments	0 (0)	2 (20)	3 (30)	5 (50)	0 (0)
Overall Teaching	0 (0)	2 (20)	3 (30)	5 (50)	0 (0)
FACILITIES					
Classroom	0 (0)	4 (40)	4 (40)	0 (0)	2 (20)
Library	6 (60)	0 (0)	1 (10)	1 (10)	2 (20)
Overall Facilities	2 (20)	4 (40)	1 (10)	1 (10)	2 (20)

^a10 HOPE graduates

Table 11
Antigua EHA Graduates' Ratings of
Impact of Training on Personal Development

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
Practical Knowledge	0 (0)	0 (0)	4 (40)	6 (60)	0 (0)
Confidence	0 (0)	0 (0)	1 (10)	9 (90)	0 (0)
Communication Skills	0 (0)	1 (10)	2 (20)	7 (70)	0 (0)
Job Effectiveness	0 (0)	0 (0)	3 (30)	7 (70)	0 (0)
Managerial Skills	0 (0)	3 (30)	5 (50)	1 (10)	1 (10)
Problem Solving Ability	0 (0)	2 (20)	6 (60)	2 (20)	0 (0)
Professional Development	0 (0)	0 (0)	4 (40)	6 (50)	0 (0)
Overall Impact	0 (0)	0 (0)	5 (50)	5 (50)	0 (0)

^a10 HOPE graduates

Table 12

Employment Status of HOPE Trained EHAs

	<u>Antigua</u>	<u>St. Lucia</u>
Enrolled	24	41
Graduated	22	36
Employed as EHA After Graduation	18	36
Currently Employed as EHA	11	23
Promoted Within Envir. Health Dept.	4	0
No Longer Working in Envir. Health	2	9
Known to have Left Country	1	0
Situation Unknown	0	4

The HOPE EHAs in St. Lucia seemed to have higher incomes than before the training program. The current median income in St. Lucia for ten EHAs who provided this information is EC\$449 per month, compared to EC\$216 (based on only two responses) before the HOPE program. In Antigua, EHA incomes have not risen. The current median income in Antigua for thirteen respondents is EC\$460, compared to EC\$462 (based on eight responses) before the HOPE program.

According to information found in the survey (see Table 13), two activities were identified by St. Lucia EHAs most often as one of their main activities: housing inspections and vector control. Among the main activities identified by Antiguan EHAs were solid waste management, housing inspections, water quality and supply, and nuisance investigations. (See Table 14)

PHIs, asked to describe and rate the work performance of the EHAs, generally were positive with the exception of performance in public education and sewage disposal where the responses were mixed. (See Table 15)

In general, the EHA position has met or exceeded the expectations of HOPE EHA graduates, however Antigua EHAs were not as satisfied as St. Lucia EHAs with their jobs relative to their expectations before the program. See Tables 16 and 17) Thirty-six percent expressed disappointment with their overall responsibilities and 36 percent expressed disappointment with the amount of community work they do. However 86 percent found that their effectiveness in their jobs met or exceeded their expectations. St. Lucian EHAs, however, complained that they were not respected enough by the rest of the department, that the position of EHA had not yet been accepted as legitimate within the department, and that they were not making the contribution that they might to environmental health. Both St. Lucian and Antiguan EHAs cited the lack of continuing education as a problem, and nearly all expressed interest in further training.

Other Results. The actual training of health care workers is just one aspect of the full program undertaken. Curriculum and course syllabi for the PHI and EHA classes were proposed, reviewed, and improved during the course of each program. A "counterpart" system in training allowed HOPE faculty to work with health care providers and teachers within the country, expanding the skills and experiences of the counterparts, and enabling them to take over the responsibilities and activities of the HOPE faculty. The three environmental health counterparts in St. Lucia (Mr. Allen Philogene, Mr. Eldridge Poyotte, and Mr. Edward Emmanuel) and two in Antigua (Mr. Melrose Limerick and Mr. Lionel Michael) are still working in environmental health in their respective countries, and could serve as available resources for future training efforts (in-service and instructional).

Table 13
 Responsibilities of St. Lucia
 Environmental Health Assistants^a

PROGRAM OR ACTIVITY	INCLUDED		LISTED AS	
	N	(%)	N	RANK ^b
Housing Inspections	30	(91)	26	1
Water Quality and Supply	23	(70)	0	
Solid Waste Management	22	(67)	5	
Vector Control	28	(85)	22	2
Food Handling Establishments (e.g. stores, restaurants, bakeries)	9	(27)	0	
Institutional Inspections (e.g. hospitals, prisons)	3	(9)	0	
Public Education	19	(58)	7	
In-service Training/ Continuing Education	10	(30)	0	
Meat Inspection	3	(9)	0	
Air Quality Management	1	(3)	0	
Hazardous Waste Disposal	20	(61)	2	
Recreational Health and Safety	12	(36)	0	
Nuisance Investigations	29	(88)	11	3
Sewage Disposal (Public)	23	(70)	2	
Occupational Health	4	(12)	0	
Epidemiological Investigations	9	(27)	0	
Accident Prevention	18	(55)	0	
Radiation Protection	7	(21)	0	
Community Environmental Health Surveys	27	(82)	5	
Port Health	3	(9)	1	
Disaster Preparedness	17	(52)	1	

^a Includes EHAs trained by St. Lucia Ministry of Health, total of 33 respondents.

^b Each respondent could list up to three activities, and there were 82 total responses.

Table 14
Responsibilities of
Antigua Environmental Health Assistants^a

PROGRAM OR ACTIVITY	INCLUDED	LISTED AS	
	IN WORK N (%)	MAIN ACTIVITY ^b N	RANK
Housing Inspections	9 (64)	7	2
Water Quality and Supply	8 (57)	6	3
Solid Waste Management	12 (86)	9	1
Vector Control	7 (50)	3	
Food Handling Establishments (e.g. stores, restaurants, bakeries)	6 (43)	1	
Institutional Inspections (e.g. hospitals, prisons)	5 (36)	0	
Public Education	7 (50)	2	
In-service Training/Continuing Education	3 (21)	0	
Meat Inspection	0 (0)	0	
Air Quality Management	0 (0)	0	
Hazardous Waste Disposal	8 (57)	2	
Recreational Health and Safety	6 (43)	0	
Nuisance Investigations	13 (93)	5	
Sewage Disposal (Public)	9 (64)	2	
Occupational Health	4 (29)	0	
Epidemiological Investigations	2 (14)	0	
Accident Prevention	4 (29)	0	
Radiation Protection	1 (7)	0	
Community Environmental Health Surveys	11 (79)	1	
Port Health	9 (64)	0	
Disaster Preparedness	4 (29)	1	

^aIncludes EHAs not trained by HOPE, total of 14 respondents.

^bEach responder could list up to three activities, and there were 39 total.

Table 15

PHI Assessment of EHA Performance
in St. Lucia and Antigua

Number and Percent (%) of Responses^a

PROGRAM OR ACTIVITY	Not Part of EHA Work	EHA Work, Substandard Performance	EHA Work, Good Performance	Did Not Answer
Housing Inspections	1 (7)	1 (7)	12 (86)	0 (0)
Water Quality and Supply	9 (64)	0 (0)	1 (7)	4 (20)
Solid Waste Management	2 (14)	1 (7)	9 (64)	2 (14)
Vector Control	3 (21)	2 (14)	6 (43)	3 (21)
Food Handling Establishments (e.g. stores, restaurants, bakeries)	12 (86)	0 (0)	0 (0)	2 (14)
Institutional Inspections (e.g. hospitals, prisons)	12 (86)	0 (0)	0 (0)	2 (14)
Public Education	1 (7)	4 (29)	6 (43)	3 (21)
In-service Training/ Continuing Education	8 (57)	3 (21)	0 (0)	3 (21)
Meat Inspection	13 (93)	0 (0)	0 (0)	1 (7)
Air Quality Management	13 (93)	0 (0)	0 (0)	1 (7)
Hazardous Waste Disposal	13 (93)	0 (0)	0 (0)	1 (7)
Recreational Health and Safety	11 (79)	0 (0)	2 (14)	1 (7)
Supervision of Auxiliary Workers	8 (57)	1 (7)	3 (21)	2 (14)
Nuisance Investigations	0 (0)	3 (21)	11 (79)	0 (0)
Sewage Disposal (Public)	2 (14)	3 (21)	6 (43)	3 (21)
Occupational Health	12 (86)	0 (0)	1 (7)	1 (7)
Epidemiological Investigations	11 (79)	1 (7)	0 (0)	2 (14)
Accident Prevention	9 (64)	1 (7)	2 (14)	2 (14)
Radiation Protection	8 (57)	0 (0)	1 (7)	5 (36)
Community Environmental Health Surveys	0 (0)	0 (0)	9 (64)	5 (36)
Port Health	12 (86)	0 (0)	1 (7)	1 (7)
Disaster Preparedness	9 (64)	1 (7)	1 (7)	3 (21)

^a14 PHIs who work directly with EHAs.

Table 16
St. Lucia EHAs Job Expectations
Number and Percent (%) of Responses^a

	Less/Worse than Expected		Same as Expected		More/Better than Expected		Did Not Answer	
Overall Responsi- bilities	1	(6)	4	(24)	10	(59)	2	(12)
Supervision Received	0	(0)	9	(53)	7	(41)	1	(6)
Amount of Community Work	1	(6)	3	(18)	12	(71)	1	(6)
Amount of Time Spent on Routine Inspections	0	(0)	8	(47)	9	(53)	0	(0)
Relationship with PHIs	1	(6)	7	(41)	9	(53)	0	(0)
Effectiveness in Job	1	(6)	3	(18)	11	(65)	2	(12)

^a17 identified St. Lucia - HOPE graduates.

Table 17
Antigua EHAs Job Expectations

Number and Percent (%) of Responses^a

	Less/Worse than Expected		Same as Expected		More/Better than Expected		Did Not Answer	
Overall Respon- sibilities	5	(36)	7	(50)	1	(7)	1	(7)
Supervision Received	2	(14)	8	(57)	1	(7)	3	(21)
Amount of Community Work	5	(36)	2	(14)	5	(36)	2	(14)
Amount of Time Spent on Routine Inspections	2	(14)	7	(50)	3	(21)	2	(14)
Relationship with PHIs	2	(14)	6	(43)	4	(29)	2	(14)
Effectiveness of Job	1	(7)	4	(43)	6	(43)	1	(7)

^aIncludes EHAs not trained by HOPE, total of 14 respondents.

Project HOPE also provided textbooks, library materials, audio-visual equipment, a dental clinic, and other resources at the main training center in St. Lucia including specimens, film and slide sets, portable field testing equipment, and microscope mounter slide sets. In addition, a library of basic and applied science textbooks was given to the Ministry of Health in each country which could help maintain the quality of the training program and further the development of continuing education opportunities in the health sciences.

As detailed above, the assessment of the St. Lucian PHI program provides ample evidence of generally high quality training; the faculty consistently received good ratings by both students and the outside reviewers. Problem areas identified during the first two years of the program (such as facilities and duration of training) were improved and the students did well on the Royal Society of Health examination. The content and teaching of the EHA program was also highly regarded by reviewers and students, but the performance of students is more varied.

Recommendations for Future Programs in St. Lucia

Health conditions and care are dynamic. They evolve from changes in resources, technology, and general development. Education of health care professionals should be viewed as an ongoing process in order to respond to these changes. Given this, the following recommendations for future training efforts can be made:

Program Development

- o Opportunities for in-service training and continuing education should be created providing both refresher courses and new materials. This would ensure that the graduates' skills and interests remain sharp.
- o Development of generalized training programs, particularly at the para-professional or assistant level, should be considered. This would allow for greater flexibility in planning and use of workers.
- o Responsibilities and activities of workers in relation to current health conditions should be regularly examined. This can involve a simple, subjective assessment such as was included in this report, or a more comprehensive and rigorous analysis.
- o A systematic follow-up of all graduates should be included as part of any training program. This is not a difficult undertaking, and could be conducted by the program faculty at regular (e.g., yearly) intervals.

Program Implementation

- o An advisory board such as the Technical Advisory Committee, should be established as part of the initial phase of any training project. This will foster the exchange of ideas, provide expertise in technical matters, and enhance the quality of the program.

- o Support from local professional associations should be sought as a means of establishing a base of resources and advice for the programs. Use of local human resources as adjunct professors lessens the cost of the external inputs and, most importantly, fosters local responsibility for operation of the program.

Three aspects of this project should be noted for consideration in future programs:

- o A Program Council, consisting of ministers from each participating country, helped guide the program and enhanced regional cooperation and development.
- o Identification of appropriate local counterparts is essential. Counterparts commitment and release from other government duties will result in better training of the counterpart and less frustration on the part of the educators. The counterpart system has worked well as a means of institutionalizing development of training resources.
- o Field experiences, laboratory work, and library resources are important components of a training program. Appropriate arrangements, materials and equipment should be obtained prior to the beginning of the coursework. A variety of field work opportunities can be designed within each country using local professionals and organizations.

Barbados Emergency Medical Services Component

Overall this activity resulted in substantial improvements to problems in the AED outlined in the pre-project assessment. The project had a high degree of success in meeting the stated objectives of the grant. This section reviews the problems identified in the preliminary needs assessment for the project and delineates the activities undertaken to ameliorate them.

Manpower. The pre-project assessment reported problems with insufficient physician staff including the absence of a full-time director to provide leadership, supervision, etc. Additionally the assessment identified an "inefficient triage, an insufficient number of trained ambulance attendants, and a lack of secretaries forcing nurses away from necessary clinical duties." Finally, poor scheduling led to inadequate physician coverage occasionally.

Under the project, a full-time director and 42 emergency medical technicians (EMTs) were hired and trained. Additionally 14 physician positions were established with staggered workshifts to allow increased coverage at peak times (although only 12 of the physician posts were filled at the time of the evaluation). An AED secretary/clerk was hired to relieve the nursing staff and a triage nurse position was developed and assigned.

The manpower problem was also manifest in the pre-project assessment observation that it "often takes many hours to obtain lab reports and x-rays" due to the absence of technicians on evenings and weekends. Identified as a problem requiring immediate attention, the Memorandum of Understanding establishing the responsibilities of all parties to the project stated that

the Ministry of Health was responsible for hiring further technicians to assure 24-hour coverage of these important services. At the time of the evaluation the posts still had not been established due to a lack of funding, according to the hospital administrators. This critical need remains.

Training. The pre-project assessment stated that "basic and advanced training in Emergency Medicine is lacking at all levels including physicians, nurses, house officers. In addition, basic level training should be given to ambulance attendants."

During the project 42 EMTs were trained in the initial class (Autumn 1984) including four EMT instructors. The instructor group have themselves subsequently trained another group of EMTs in Summer 1985. Nurses training was carried out in the Summer of 1985 for 26 nurses. Interviews with nurses and physicians suggested that this training was well-received and very successful in heightening awareness and performance.

The training provided to nurses could not be expected to be sufficient to bring about wholesale modifications in behavior, however, unless there is continued encouragement by physician staff and nursing leadership. The concepts of AED skills and EMS management should be incorporated into nursing and medical school curricula. As this is done, a quantum leap will be made in the efficiency and quality of emergency care.

It is also to be noted that physicians do not receive formal EMT training as part of their regular academic program and thus many of them are not well-suited to a career in Emergency Medicine. In fact, several of the physicians have other specialty interests, are desirous of transferring to these areas at their soonest opportunity, and as the AED is a post all physicians rotate through as they begin working in the hospital, long term commitment by physicians to the AED is not present. Additionally, the physicians are still relatively weak in the area of major trauma and intensive care. Despite these limitations, however, the evaluator felt that physicians give good service and hard work on a day to day basis but under the circumstances one would not expect long term commitment.

Communications. The assessment found a need for a radio communications system between the ambulances and the AED to facilitate the delivery of life-saving measures before patients arrive at the hospital. Also a lack of immediate, constant contact with on-duty physicians who may not be physically present in the AED at all times was seen as a major problem.

During the project ambulances were upgraded with radio communications systems and an ambulance base station was established. Due to delays in ordering and installing the equipment, however, (installation finally occurred 12 months after originally scheduled), QEH was unable to secure placement of the radio antenna on the island's main radio tower. This resulted in a decrease of coverage from 100% to 85% of the island. This coverage is equivalent to police radio coverage. Also, at the time of the evaluation the hospital radio had not been hooked up due to the lack of a transformer, thus preventing full implementation of this critical control element. Hospital administrators reported that the system would be completely operational in the near future. Physicians were fitted with pagers to allow constant communication possibilities.

Transportation. The condition of the ambulances prior to the project initiation was very poor with inadequate supplies and equipment. During the project three ambulances were refitted for service with radios and standard ambulance equipment. At the time of the evaluation a fourth ambulance was down for repairs. It was reported that rather than repair this vehicle, the hospital had plans to purchase four new ambulances and to retire two older vehicles. The hospital was unsure of where they would find sufficient funds to outfit the vehicles, however.

Emergency Facilities. The assessment estimated that between 300-400 patients came to the AED daily and while a "theoretical" triage system was in place, "the reality is that patients are seen on a first-come, first-served basis, with inadequate attention given to the seriously ill or injured." The report also claimed that the AED space was laid out inefficiently with an inadequate number of rooms, and no separation of patients between urgent and less-urgent which "predisposes to chaotic, inefficient, and unsafe management." The assessment also identified unsafe and wasteful drug supply management practices which resulted in frequent stock-outs.

At the time of the evaluation, a still heavy patient load of 200-300 persons daily existed at QEH although this represents a reduction in patient load by approximately 30%. The majority of patients are typical "out-patient" types with some needing more urgent care, but relatively few with life-threatening emergencies. (For perspective, in the U.S. about 80% of all patients who access emergency services are not true emergencies; about 15% require urgent care, and about 5% are critically ill and injured. This pattern is similar at QEH.)

Under the project several improvements and interventions were introduced. First, a triage system was firmly established and some internal physical renovations were made to allow more efficient use of space for this procedure, and more examining rooms were added. Improvements were made in materials management including inventory, ordering, control and restocking of drugs, supplies and equipment. Physicians have been assigned on staggered shifts to meet the needs of peak loads and are to be available in the department at all times while on duty.

The ambulance service was improved with the opening of a new dispatching center. Although improvements were made to better use existing space in the department, the AED is still an inefficient layout for handling the large number of patients seen daily. Further significant improvements will be realized with the major extension of the hospital funded by the Inter-American Development Bank.

To reduce the use of the AED for non-emergency purposes, the polyclinics have extended their hours to 8 p.m. each evening. The immediate results were a drop in the pediatrics clinic by almost 50%. Although one of the main objectives of this project was to reassign non-emergency AED patients to the polyclinics, QEH health professionals are loathe to turn away someone seeking assistance. On the other hand, with a seemingly never-ending line of patients, there is a tendency for physicians to ask "Why are you here?" rather than "What seems to be the matter?". In the case of the critically ill, there is no question and the patients are well-accepted. But the less ill are often met with an attitude (spoken or unspoken) of "You should not be here." This

problem is not unique to QEH but can happen in inner city AED settings in developed countries as well. A major effort was made to modify attitudes and behaviors in many of the hospital and AED staff -- a difficult task anywhere. Many of the staff have been at QEH for many years, have set patterns and attitudes, and plans for change are often met with passive resistance. AED staff similarly complain about poor bedside manner of consultant physicians. The project worked on this but on-going efforts are still needed in this area.

Medical records. The project assessment reported that record-keeping for AED was poor and confused. "Emergency record cards are kept in Records Department in the AED, separate from in-patient records which could provide valuable information regarding previous illnesses, medications, allergies. This in-patient record is not routinely available except by request and only during weekday hours."

This practice continued at the time of the evaluation. The lack of a unified medical record makes the present system unacceptable. The goal is to develop a system which can tract the patient from ambulance system through the AED system and should be integrated with the polyclinics. This is a major task which remains for hospital administration.

Other issues. In addition to the above problem areas addressed during the project, interventions were undertaken in several other areas. Specifically, a multi-agency group of fire, police, ambulance service, MOH and defense agencies have combines efforts in an emergency communications program and have jointly participated in disaster preparedness activities including joint fire drills, disaster drills, cooperative training efforts, and joint planning activities for an EMS Week. Although this group pre-dated the project, its activities and interactions have increased during the project. Additionally, public education presentations have been run on radio, TV and in the press.

An unplanned effect of this activity has been a tremendous dose of goodwill established through the very dedicated efforts of the Project HOPE consultants: the late Dr. Robert vanTyn who undertook the major long-term staff training and introduced most of the modified protocols and procedures; Mr. Warren Schaub, who trained the emergency medical technicians and provided the radio installation training; and nurses Chris Thompson and Kari Ebert who provided nurses training and inventory management and refurbishing.

Despite the successes of the above personnel, the overall design of the activity resulted in a few management and implementation snags which could have been avoided under a modified implementation strategy. Specifically, after the project began, it became clear that efforts at program development had to be more comprehensive than could be expected of and originally planned for a lone consultant physician. Hence the later introduction of additional staff and a sequential, somewhat piecemeal schedule of technical assistance. Future EMS efforts should be conceptualized as team efforts by medical, pre-hospital (EMT), and nursing consultants. The absence of an overall comprehensive strategy also resulted in a less-than-desireable management and oversight system for the EMS component which resulted in difficulties in trying to oversee day-to-day problems by long distance telephone.

Recommendations for future EMS programming. Based on the observations of the evaluator and his efforts in conducting the evaluation of this component, the following recommendations are proposed:

- o Future EMS projects should be preliminary assessed by and designed in conjunction with the standard Essential Components of an EMS System. This mechanism will often reveal the need for a comprehensive approach, and will involve the team of medical, pre-hospital and nursing consultants early in the project.
- o The University of the West Indies Nursing and Medical Schools should include emergency medicine in their curricula. Attachment B provides the American College of Emergency Physicians recommendations "Core Content for Undergraduate Education in Emergency Medicine."
- o Every effort should be made to encourage the development and professionalism of emergency medicine to facilitate greater interest by medical professionals in this critical field.
- o QEH, USAID, and others must recognize that an EMS system is dynamic and requires continuing efforts just to maintain the present level of improvement. Such efforts would include (1) on-going training of physicians, nurses and EMTs (possibly such as the American College of Surgeons Advance Trauma Life Support); (2) regular meetings of AED staff to review, revise, and further develop policies, procedures, and protocols; (3) on-going evaluation including periodic reviews of daily AED logs which can provide such valuable information as how long patients are waiting; what percent receive consultation, x-rays, or are admitted; how well the current triage classifications correlate; as well as periodic reviews of ambulance runs; and (4) development of ambulance maintenance, repair, and replacement scheduling.
- o The manpower needs to provide 24-hour daily coverage of laboratory and x-ray facilities as well as further attention to medical records needs should be addressed immediately.
- o Prior to the move to the new AED facilities, an intensive effort should be made to assure that services start off with immediate implementation of appropriate policies and procedures. Another training session for AED nurses would be helpful as well as special care to assure the pre-hospital (EMT) component is well-integrated into the new system, etc.
- o The Standards for Emergency Services (JCAH Accreditation Manual for Hospitals, 1985) should be adopted to guide monitoring and evaluation and for making further improvements to the AED.
- o It is important to involve in-patient clinical services in maintaining quality services in the AED. A suggested mechanism is to have in-patient consultants given lectures to the AED staff in such areas as "initial management of pediatric emergencies," or "initial management of surgical emergencies."

DEVELOPMENT IMPACT

St. Lucia Training Program

Many changes have occurred in the Eastern Caribbean nations since 1980, and it is difficult to determine which changes resulted from this specific training project and which changes would have occurred in the absence of the training project. The establishment of the Health Sciences Division of the Sir Arthur Lewis Community College in St. Lucia is the primary educational development which may have been fostered by the training programs of the previous five years.

This Division, initially covering nursing, pharmacy, and environmental health, signals the acceptance of formal, standardized training programs within the health field. The need for pre-requisites, a mechanism for testing and certification, and continually developing curricula and educational resources, can be readily seen within the structure of a community college setting. These are some of the concepts which were developed by the work with the St. Lucia/HOPE/USAID program.

The graduates of the training program have exhibited competence in and dedication to their work. Besides contributing to the specific jobs for which they were trained, they have the base of knowledge to broaden the scope and impact of their efforts. A certain level of flexibility and common activities exist within individual health and management fields, and these can benefit from the general development of human resources achieved through this project.

Barbados EMS Component

The ambulance service has been particularly received both by the Ministry of Health and by the public at large. This very visible system of health care -- with its flashing lights and sirens -- is always popular and is viewed with pride as a sign of progress. The AED improvements have similarly benefitted the population: patients needing urgent care are seen more rapidly; the enhanced organization, training, and staffing have improved the quality and efficiency with which patients are seen. Additionally, the very least visible components of this program -- improvements to drug storage and inventory management, and increased emergency room equipment -- may perhaps make the greatest contribution to improved patient care as an assured supply of medical equipment and materials are on hand, and stored properly for assured effectiveness.

Additionally, since the introduction of this program, the only other hospital on the island has been closed due to financial difficulties. This closure places more demand on the QEH AED and ambulance capabilities. Also despite the increased hours of polyclinics around the country, the QEH AED is the only 24-hour facility open on the island for emergency care. Thus the efforts of Project HOPE and USAID to upgrade the emergency services of the Queen Elizabeth Hospital have been crucial to the improvement of emergency medical services delivery.

Table 2.1
Study Design

WHO	Pharmacists Trainees: EH Officers EH Assistants	Dept. Chiefs/Supervisors	Ministries	Program: Faculty and Advisor
WHAT	Background Info - education experience, salary, etc. Work Assessment - Activities, tasks performed Environment (physical and interpersonal) Program Assessment - Usefulness (theoretical and practical coursework) Perceived need for continuing education Perceived outcomes Overall impressions	Background Info - dept. size type, experience of personnel Needs Assessment - Manpower Continuing Education Equipment Administrative, planning, record keeping, reporting supervisory functions Financial situation Other support requirements Program Assessment - Trainee knowledge, skills, actual work performance Perceived outcomes Overall impressions	Background Info - national health, education and manpower plans, health and development info from mid to late 1970's Needs Assessment - Current health environment and manpower status National health policies plans, priorities Manpower needs, potential for recruitment, training and continued employment Plans for education/ training facilities Regional development Program Assessment - Perceived outcomes Overall impressions	Program Assessment Adequacy of facilities Future needs, changes course content/design continuing education student recruitment teacher training Perceived outcomes Overall impressions
HOW	Review program records Develop new questionnaire draft conduct follow-up personal interviews	Review previous survey (Jan '84) Develop new questionnaire draft conduct follow-up personal interviews	Review written materials Personal interviews	Interviews Site visit

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SCOPE OF WORK
PROJECT HOPE EVALUATION

The Evaluation team shall address both the St. Lucia training component as well as the Barbados Emergency Medical Services training component of the Health Manpower Training Project.

It is expected that evaluation methodology for addressing the former component shall include (a) reviewing quarterly reports, quantitative research analyses and the final report emanating from the Mourne Complex program; (b) assessing other documentation at HOPE Center as appropriate; and (c) conducting interviews with HOPE, AID/LAC/HN and USAID/RDO/C personnel. To conduct the evaluation of the latter component it is expected that documentation reviews and discussions with HOPE (particularly those who participated in training physicians, and nurses and EMT's) and USAID will be accompanied by discussions with the Queen Elizabeth Hospital administrative and Accident and Emergency Department personnel.

The evaluation will address the following scope of work:

1. Assess the validity of the project design and assumptions. Were project objectives and implementation plans clear, realistic, reasonable?
2. Evaluate the grantee's level of success in achieving the project objectives, e.g., have required actions been carried out? Were activities consistent with expectations? If not, why not?
3. Examine the efficiency of project management in implementation and achievement of intended results.
4. Assess the impact of the project components on the intended beneficiaries. Note also, where appropriate, the effects of external and unanticipated actions and/or events on project efforts and unplanned benefits.

A summary evaluation of this project shall also be completed using the AID Project Evaluation Summary format attached.

Core Content for Undergraduate Education in Emergency Medicine

[Society of Teachers of Emergency Medicine (STEM): Core content for undergraduate education in emergency medicine. *Ann Emerg Med* May 1985; 14:474-476.]

Society of Teachers of Emergency
Medicine
Dallas, Texas

Address for reprints: Society of Teachers
of Emergency Medicine, PO Box 619911,
Dallas, Texas 75261-9911.

INTRODUCTION

The Undergraduate Curriculum Promotions Committee of the Society of Teachers of Emergency Medicine (STEM) developed the following core content knowledge base and skills list for undergraduate education in emergency medicine. No specific recommendation was made as to how the curriculum should be structured to include this material. A draft document was sent to the ACEP Graduate/Undergraduate Education Committee and all emergency medicine residency directors for comments and suggestions. The final document was then formulated and approved by the STEM board of directors.

KNOWLEDGE BASE

- I. Orientation to Emergency Medicine
 - A. Principles of Emergency Care
 1. Recognition of threats to life and limb
 2. Evaluation of the emergency department patient
 - B. Emergency Medical Services
 1. Prehospital care
 2. Model systems/local system
 3. Paramedic, EMT — training and function
 4. Regionalization/categorization of care/trauma centers/disaster planning/triage
- II. Cardiovascular Diseases
 - A. Cardiopulmonary Resuscitation
 1. One- and two-rescuer CPR
 2. Conscious and unconscious victim
 3. Choking victim
 4. Infant CPR
 - B. Advanced Cardiac Life Support
 1. Coordination and priorities in cardiac arrest
 2. Drugs
 3. Treatment of ventricular fibrillation/ventricular tachycardia/asystole/electromechanical dissociation/bradyarrhythmias
 - C. Chest Pain Evaluation
 - D. Recognition of Supraventricular Arrhythmias
 - E. Recognition of Hypertensive Emergencies
- III. Trauma — Recognition and Initial Treatment
 - A. Priorities in Multiple Trauma
 - B. Head and Facial Trauma
 - C. Spinal Trauma
 1. Normal C-spine radiographs

- E. Cerebral Vascular Accident
- F. Altered Mental Status
- XV. Musculoskeletal
 - A. Neurovascular Extremity Examination
 - Recognition of:
 - B. Strains/Sprains/Fractures
 - C. Septic Joint
 - D. Dislocations
 - E. Soft Tissue Injury/Infection

- XVI. Behavioral Emergencies
 - A. Recognition of Acute Psychosis
 - B. Suicidal and Homicidal Evaluation
 - C. Recognition of Behavioral Disorders Caused by Organic Illness
 - E. Performance of Mental Status Examination

SKILLS

- I. Laceration Repair
 - A. Suture Material, Needles, Instruments
 - B. Types of Wounds
 - C. Wound Preparation
 - D. Tetanus Prophylaxis
 - E. Local Anesthesia

- II. Cardiopulmonary Resuscitation
- III. Megacode Training (ACLS)
- IV. Electric Countershock
 - A. Defibrillator Operation
 - B. Indications
- V. Vascular Access
- VI. Airway Control
 - A. Bag-Mask Ventilation
 - B. Intubation
 - C. Cricothyroidotomy
 - D. Esophageal Obturator Airways
- VII. Splinting/Immobilization
- VIII. C-spine Immobilization
- IX. Gastric Lavage
- X. MAST Suit Application
- XI. Superficial Abscesses — Incision/Drainage
- XII. Nasal Packing
- XIII. Pericardiocentesis
- XIV. Needle Thoracostomy
- XV. Thoracostomy Tube Drainage

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**An Evaluation of the
Eastern Caribbean Regional Training
Program for Allied Health Professions**

**Glinda S. Cooper, M.S.
Steven H. Chapman, A.B.
Gail R. Wilensky, Ph.D.**

**Center for Health Affairs
Project HOPE**

Millwood, Virginia 22646

December 1985

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1.0 EXECUTIVE SUMMARY

Since 1980, the St. Lucian government, Project HOPE, and the U.S. Agency for International Development (AID) have worked together to design and implement a multi-dimensional training program for allied health professionals. The major emphasis has been on environmental health and pharmacy training. This program was initiated in response to the lack of training opportunities for some of the smaller countries of the Eastern Caribbean. Both the development of trained personnel and of educational resources were seen as goals of the project.

Three Public Health Inspector (PHI) training classes (a total of 40 students) were held in St. Lucia between 1980 and 1985. (An additional 11 students completed the initial class (1979-1981) conducted by Project HOPE and St. Lucia.) Environmental Health Assistant (EHA) classes were held in St. Lucia and Antigua, resulting in 36 and 22 graduates, respectively. A total of 17 graduates were produced by the two pharmacist classes held in St. Lucia, conducted under a separate grant.

The study team (Gail R. Wilensky, Glinda S. Cooper, and Steve Chapman, all of Project HOPE's Center for Health Affairs) collected course assessments and information on responsibilities, and job performance from the graduates, supervisors, and ministry representatives. Personal interviews and written surveys were conducted during site visits to St. Lucia, Antigua, and St. Kitts/Nevis in April 1985. A mailed questionnaire was sent to members from the other participating countries. A high rate of return was obtained from both the mailed and personal surveys. About 80 percent of the PHI graduates

completed the survey, 55-65 percent of each EHA Program, and 60 percent of the pharmacists.

Most of the graduates of the St. Lucia training programs are employed in their respective fields and countries. The St. Lucia EHA program is the only one that has experienced a relatively high post-graduation drop-out rate (25% no longer employed in environmental health). The PHIs and Antiguan EHAs have remained in their positions or been promoted within their departments.

Although a few problems with the St. Lucia program were identified by the graduates, for the most part the course content and teaching were rated highly. The specific problems (e.g., inadequate facilities, delays in certain phases of the training program) were concentrated in the early years of the program, and have generally improved over time.

Several factors limiting the effectiveness of the trainees were identified by both the graduates and the department chiefs. In environmental health, lack of proper equipment, problems with supervision, and sample and specimen collection inadequacies were cited, although both relationships among and level of knowledge of workers were thought to be good. In pharmacy, understaffing and problems obtaining and storing drugs adversely affect the pharmacists' work.

There is a continuing need for training of additional personnel and of furthering the education of previously trained workers. This will enable workers to develop their skills and respond to new or changing demands of

their job. The human resources, such as the counterparts involved in the training programs, could be well used in this process.

This evaluation has demonstrated that it is possible to conduct a comprehensive follow-up examination of program graduates. The experiences of these trainees may well be useful in the development of other training programs.

Two of the specific factors responsible for the positive results of this program were:

- o A Program Council, made up of representatives of each participating nation, was created to oversee the development of the program and foster discussions and exchange of information within the region.
- o Classroom training is only one part of training: library resources, laboratory work, and internship or field training opportunities were also developed as part of the program.

In addition, two lessons learned during the course of this program, which may help future training efforts are:

- o A Technical Advisory Committee, responsible to the Program Council and consisting of education and health professionals, can provide necessary analysis and recommendations concerning subject-specific aspects of the training program. This should be created during the initial planning phase of the project.
- o Periodic and systematic efforts to contact former students should be made by the program faculty. Information on post-graduation work experiences, adequacy of the training, and unmet needs would serve to update and improve the current programs.

2.0 BACKGROUND INFORMATION

2.1 Description and History of Program

The Eastern Caribbean Regional Training Programme for Allied Health Workers was established in May 1981 through the combined efforts of the St. Lucian government, Project HOPE, and the Agency for International Development (AID). This program has provided training for environmental health, dental health, and pharmacy workers from St. Lucia and the other Windward and Leeward islands (Antigua, Dominica, Grenada, Montserrat, St. Kitts-Nevis, and St. Vincent). Because of their size, available resources, and level of economic development, these islands were considered to be among the "lesser developed" of the region. The St. Lucia training program was designed to answer both the health and the general development needs of these countries.

The nations of the Caribbean do not constitute a homogeneous region. The history and culture of each country is unique. The bigger countries, Jamaica, Trinidad and Tobago, Guyana, and Barbados, contain natural resources, such as bauxite and alumina, and large population bases to help support economic development. The Leeward and Windward islands are much smaller, in terms of both land and population, and have a lower rate of exports and per capita GDP (Laskin, 1977). These distinctions serve as part of the classification of the region into "more developed countries" (MDC) and "lesser developed countries" (LDC).

The health conditions in the late 1970s also differed among these countries. Infant mortality, communicable diseases, and environmental health factors

(water and food supply, waste disposal) were important concerns throughout the Eastern Caribbean. The MDCs, however, were also addressing needs for rehabilitation, geriatric services, and care for mental illness (Laskin, 1977). The need for skilled physicians, nurses, and allied health workers (including pharmacists and environmental health officers) was evident in all of these nations.

Migration plays a large role in shaping the dynamics of population growth and availability of health manpower within the region. The large urban port areas of the MDCs serve as a ready point of departure. Emigration from Barbados has contributed to the decline in that country's growth rate (Ebanks, 1975). The migration of physicians, nurses, and other health professionals from the Caribbean to the more developed countries (primarily Canada and the United States) is also an important factor influencing the region's health systems. Studies of the loss of physicians and nurses have been reported (Bruinsmo, 1970; Seivwright, 1965), but it is unclear how applicable these findings are to environmental health and pharmacy professions. There was some concern expressed by the LDCs, however, over the potential loss of these workers to the MDC in the Caribbean and other developed countries.

Training programs for these allied health workers exist at the Barbados Community College (BCC) and at the West Indies School of Public Health (WISPH) in Jamaica. However, financial and academic considerations, as well as concern over the potential "brain drain," limited the opportunities for

training health personnel from the LDCs. These factors included (18 Month Evaluation, 1982):

- o Shortage of money to fund scholarships or fellowships to the existing training programs in the region.
- o No indication that BCC would be able to meet St. Lucia's needs within an acceptable time frame.
- o Prerequisites (5 "O" levels) could not be met by many available candidates from the LDCs. These potential trainees would need to spend an additional year away from their home countries and jobs supplementing their general education before entering the existing programs.

The possibility of in-service training in the LDC was also limited, due to the lack of financial and educational resources and suitably trained teachers in these countries.

These factors served as the basis for the decision of the St. Lucian government to develop, with the aid of Project HOPE, an initial training class for Public Health Inspectors in 1979. During the subsequent year, a proposal between Project HOPE and AID was designed to expand this class, add other training programs, and further develop the training facilities within St. Lucia. This proposal was accepted in August of 1980.

The original proposal included 5 components:

1. Public Health Inspector (now called Environmental Health Officer, EHO) training for up to 40 students from the LDCs in a series of 22 month programs.
2. Environmental Health Assistant (EHA) training for up to 40 students from St. Lucia in a series of 3 month programs.
3. Pharmacist training for up to 27 students from the LDCs in a series of 2 year programs.

4. Dental nurse and dental hygienist training, and development of a national dental care program in St. Lucia.
5. Child health care training and program development in St. Lucia, with some help for the other LDCs.

Since the initial program plan, the dental health and child health components have been significantly modified, and an Environmental Health Assistant component has been added for Antigua.

2.2 Evaluation Design

Planning for this program evaluation began in November 1984, and the objectives and methodology were established by January 1985. The objectives were to:

- o Assess the implementation of the programs, problems, and accomplishments.
- o Assess the results of the programs, both at the trainee level and societal levels (local, national and regional).
- o Assess the implications of this experience for future manpower training and development efforts.

The study design primarily involved personal interviews with and surveys of program graduates, chiefs, and government officials (Table 2.1). This plan was presented to the Programme Council at their January 1985 meeting and initial interviews with the faculty and ministry representatives were conducted at this time. From January through April, project documents were reviewed, and the questionnaires were drafted and pre-tested. (Two counterparts and two graduates participated in the pre-test). During a two week trip to St. Lucia, Antigua, and St. Kitts/Nevis in late April, 58 graduates and 4 department chiefs were contacted and participated in the

questionnaires. Those who could not be reached during this trip were sent individual letters and surveys. The response rate for this second phase was quite high: 11 of the 17 graduates (65%) completed and returned the mailed survey. The number of people trained and surveyed, by country and program, is shown in Table 2.2.

Table 2.1
Study Design

WHO	Pharmacists Trainees: EH Officers EH Assistants	Dept. Chiefs/Supervisors	Ministries	Program: Faculty and Advisor
WHAT	Background Info - education experience, salary, etc. Work Assessment - Activities, tasks performed Environment (physical and interpersonal) Program Assessment - Usefulness (theoretical and practical coursework) Perceived need for continuing education Perceived outcomes Overall impressions	Background Info - dept. size type, experience of personnel Needs Assessment - Manpower Continuing Education Equipment Administrative, planning, record keeping, reporting, supervisory functions Financial situation Other support requirements Program Assessment - Trainee knowledge, skills, actual work performance Perceived outcomes Overall impressions	Background Info - national health, education and manpower plans, health and development info from mid to late 1970's Needs Assessment - Current health environment and manpower status National health policies plans, priorities Manpower needs, potential for recruitment, training and continued employment Plans for education/ training facilities Regional development Program Assessment - Perceived outcomes Overall impressions	Program Assessment Adequacy of facilities Future needs, changes course content/design continuing education student recruitment teacher training Perceived outcomes Overall impressions
HOW	Review program records Develop new questionnaire draft conduct follow-up personal interviews	Review previous survey (Jan '84) Develop new questionnaire draft conduct follow-up personal interviews	Review written materials Personal interviews	Interviews Site visit

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Table 2.2

Public Health Inspector
Training Classes, St. Lucia
1979-1985

	ST. LUCIA- HOPE	ST.LUCIA-AID-HOPE			Total	Total	%
	1979-81	1981-82	1982-83	1983-85	Trained	Surveyed	Survey
Graduates							
Antigua	0	4	3	2	9	9	100.0%
Dominica	0	2	2	2	6	4	66.7%
Grenada	0	4	2	1	7	6	85.7%
Montserrat	0	1	0	1	2	1	50.0%
St. Lucia	11	0	3	0	14	9	64.3%
St. Kitts-Nevis	0	2	2	2	6	6	100.0%
St. Vincent	0	0	4	3	7	6	85.7%
TOTAL	11	13	16	11	51	41	80.4%

Environmental Health Assistant
Graduates
St. Lucia and Antigua

	1981	1983	Surveyed	% Surveyed
St. Lucia ^a	36	--	20	55.6%
Antigua	--	18 ^b	12 ^c	66.7%

^a13 graduates of the MOH program (1979) were also surveyed.

^bFour additional EHA graduated, but were employed in other community health positions.

^cIncludes 2 members of the 1983-85 PHI class.

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Table 2.2 (Continued)
 Pharmacist Training Classes
 St. Lucia, 1981 to 1985

<u>Graduates</u>	<u>1981-83</u>	<u>1983-85</u>	<u>Total Trained</u>	<u>Surveyed</u>	<u>Percent Surveyed^a</u>
Antigua ^b	--	--	--	--	--
Dominica	1	1	2	1	100 %
Grenada	1	1	2	0	0
Montserrat	1	0	1	0	0
St. Lucia	4	7	11	3	75
St. Kitts-Nevis	1	0	1	1	100
St. Vincent ^b	--	--	--	--	--
TOTAL	8	9	17	5	62.5%

^aPercentages based on 1981-83 class only. 1983-85 class was not surveyed due to timing of evaluation and graduation.

^bAntigua and St. Vincent did not participate in this program, due to the availability of other training arrangements within these countries.

Evaluation Team

The evaluation team consisted of three members of Center for Health Affairs (CHA), the policy research division of Project HOPE. Glinda S. Cooper, a policy analyst with CHA served as Project Coordinator. She has expertise in statistical analysis and survey methodologies, and experience in health policy research and program evaluation. Gail R. Wilensky, Ph.D., is the Director of CHA, and provided senior analytic consultation to the project. A nationally recognized health economist, she has extensive experience in the design, management, and analysis of problems involving health care, public policy and economics. Steve Chapman, a research assistant with CHA, participated in the survey development, implementation, and analysis. His background is in political science and health economics.

In addition, the research team was able to draw on the expertise of numerous people within the Eastern Caribbean. During the January and April trips, interviews were held with:

Mr. Dorbene O'Marde
Health Planner, Ministry of Health
St. John's Antigua

Mr. G. M. Cassell
Permanent Secretary, Ministry of Health
Plymouth, Montserrat

Dr. H. A. Jesudason
Senior Medical Officer
Kingston, St. Vincent

Mr. Oriel Hector
Permanent Secretary, Ministry of Health
Basseterre, St. Kitts/Nevis

Mr. C. Lubin
Permanent Secretary, Ministry of Health
Castries, St. Lucia

Mr. Joseph Reid
Chief Environmental Health Officer
St. Johns, Antigua

Mr. Cochran
Minister without Portfolio
St. Johns, Antigua

Mr. Fletcher
Chief Environmental Health Officer
Castries, St. Lucia

Mr. Edward Emmanuel
Environmental Health Counterpart
Castries, St. Lucia

Mr. Eldridge Poyotte
Senior Public Health Inspector
Vieux Forte, St. Lucia

Mr. James Hodge
Chief Public Health Inspector
Basseterre, St. Kitts/Nevis

Mr. Robert Bowry
Pharmacist
Basseterre, St. Kitts/Nevis

2.3 Previous Evaluations

A mid-term program evaluation was prepared in November 1982 (Eighteen-month Evaluation, 1982). This focused primarily on the implementation of the environmental health and dental programs. The first classes ended in late 1982; so little effort was put into assessing the trainees post-graduation experiences. The overall recommendations of the interim evaluation included:

- o Conduct a cost-effectiveness study of the EHO program to be used as a basis for future modifications or elimination of this program.
- o Discontinue dental hygienist training.
- o Determining feasibility of other programs such as the Child Service Program.

- o Attempt to initiate discussions and input from other Caribbean educational institutions, particularly relating to establishing a regional certification process.

As part of the final evaluation, these recommendations, and the subsequent actions taken in response to the report were reviewed by the study team. Positive action had been taken to address the specific problems cited in the interim report. The successful adoption of these recommendations strengthened the administration and content of the program.

The admission criteria (3 "O" levels) were adhered to in the latter EHO classes. A Technical Advisory Committee was formed for each program, providing the Program Council with input on matters such as curriculum, field work opportunities, and certification standards, and serving as a forum for exchange of information and ideas among educational leaders in the region. This has improved the quality and credibility of the program. However, although discussions of regional certification have been held, the problem remains. The initiatives made by this program should be viewed as part of a process which can continue separate from the specific requirements of this project.

The lack of library resources within each country was noted in the interim report and a recommendation was made to provide a set of core textbooks to each country for the use of the graduates. The Ministry of Health within each participating country did receive these books. However, the extent to which they are available to the graduates and other health workers is not clear. The inaccessibility of the books was raised as a complaint by a graduate during this final evaluation. Although the recommendation was followed, it may not have created the intended positive result.

3.0 PROGRAM DETAILS

3.1 Goals, Objectives, and Activities

The contract and amendments between AID and Project HOPE specify the goals and objectives of each component of the training program. The original purpose was to train and promote the effective use of personnel in order to improve the delivery of health care services in St. Lucia and the other countries.

To accomplish this goal, specific objectives were established for the different projects. This includes design of the curricula and training programs, training of appropriate counterpart educators, and provision of faculty and administrative staff, student fellowships and transportation, equipment, supplies, and library materials. Schedules for the different classes were proposed and plans for the 18-month and final evaluations were mentioned.

Up to forty PHIs from the participating countries were to be trained in three 22-month classes. The first was to begin in early 1981, the second in August 1981, and the third in August 1982. However, the implementation of the classes was delayed, and consequently the third class graduated in 1985, rather than in 1984. Thus the work experiences of the last graduates could not be included in this evaluation.

The Environmental Health Assistant courses in St. Lucia were designed as three-month training programs to be held in 1981. Three classes were conducted with a total of 41 enrollees and 36 graduates.

The environmental health program in Antigua was designed in 1982 and implemented in 1983. This program included training of new workers, the EHAs, and an additional continuing education component for the Antiguan PHIs. Two 10-week EHA classes and one 17-week PHI continuing education program were to be held. The first EHA class actually began ahead of schedule, and was larger than originally planned. Upon its completion, a second class was not seen as necessary.

The pharmacy program was initiated in 1981. Originally, four two-year classes, each with 6 or 7 students were planned. Only two classes were held though, with a total of 17 students.

Two other components of the training program are the Programme Council and the Technical Advisory Committee. The Programme Council was proposed in the 1980 contract. It is made up of representatives of the participating countries and oversees the selection of students and development of the training activities, as well as providing continuing evaluation and needs assessment. The Technical Advisory Committees (for environmental health and pharmacy) were created at the recommendation of the 18 month evaluation. This consists of members of the education and health fields and provide input into decisions regarding technical aspects of the training. Each of these groups meets twice a year.

4.0 PROGRAM RESULTS

4.1 Public Health Inspector (PHI) Training

Three PHI training programs were conducted in St. Lucia since the beginning of this contract period, August 1980. The 40 graduates include representatives from each of the seven countries involved in the Eastern Caribbean training program. In addition, 11 PHIs from St. Lucia were trained in the initial pre-contract HOPE-St. Lucia training class (1979-81). Information on the make-up of these classes, and of the survey sample, was presented in Table 2.1.

4.1.1 PHI Course Evaluation

The class of 1985 had just completed their coursework when this evaluation was conducted. Information on their perceptions of the course content and teaching was obtained through a written, confidential questionnaire. For obvious reasons, they were not asked to provide information on their post-training work experiences.

In all, 41 of the 51 students (80.4%) completed this part of the questionnaire. They were asked to rate, on a poor/fair/good/excellent basis, parameters of course content: four aspects of teaching, six areas of facilities, and eight factors relating to the programs effect on personal development (Table 4.1 and 4.2). In general, course content and teaching categories were rated well, while aspects of the facilities (e.g., living

Table 4.1

PHI Graduates' Ratings of Training Program:
Content, Teaching and Facilities

Number and Percent (%) of Responses

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
COURSE CONTENT					
Usefulness	0 (0.0)	0 (0.0)	12 (29.3)	26 (63.4)	3 (7.3)
Thoroughness	0 (0.0)	0 (0.0)	22 (53.7)	17 (41.5)	2 (4.9)
Mix of Coursework (Theoretical and Practical)	1 (2.4)	14 (34.1)	16 (39.0)	9 (22.0)	1 (2.4)
Internship - ^a Organization	0 (0.0)	6 (20.0)	18 (60.0)	1 (3.3)	5 (16.7)
Internship - ^a Supervision	2 (6.7)	5 (16.7)	14 (46.7)	1 (3.3)	8 (26.7)
Preparation for PHI work	0 (0.0)	3 (7.3)	18 (43.9)	19 (46.3)	1 (2.4)
Overall Course Content	0 (0.0)	1 (2.4)	25 (61.0)	13 (31.7)	2 (4.9)
TEACHING					
Lectures	0 (0.0)	1 (2.4)	21 (51.2)	18 (43.9)	1 (2.4)
Availability of Help	2 (4.9)	15 (36.6)	18 (43.9)	4 (9.8)	2 (4.9)
Relevance of Assignments	0 (0.0)	4 (9.8)	18 (43.9)	17 (41.5)	2 (4.9)
Overall Teaching	0 (0.0)	4 (9.8)	24 (58.5)	10 (24.4)	3 (7.3)
FACILITIES					
Lab	5 (12.2)	21 (51.2)	10 (24.4)	2 (4.9)	3 (7.3)
Supplies	2 (4.9)	13 (31.7)	21 (51.2)	4 (9.8)	1 (2.4)
Classroom	0 (0.0)	4 (9.8)	29 (70.7)	7 (17.1)	1 (2.4)
Library	0 (0.0)	7 (17.1)	23 (56.1)	10 (24.4)	1 (2.4)
Living Conditions	2 (4.9)	13 (31.7)	15 (36.6)	7 (17.1)	4 (9.8)
Overall Facilities	0 (0.0)	6 (14.6)	28 (68.3)	5 (12.2)	2 (4.9)

^aWas not asked of the 11 students just finishing their coursework.

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Table 4.2

PHI Graduates' Ratings of Impact
of Training on Personal Development

Number and Percent (%) of Responses

	MADE WORSE	NO EFFECT	SOME IMPROVE- MENT	GREAT IMPROVE- MENT	DID NOT ANSWER
Practical Knowledge	0 (0.0)	0 (0.0)	6 (14.6)	34 (82.9)	1 (2.4)
Confidence	0 (0.0)	1 (2.4)	13 (31.7)	25 (61.0)	2 (4.9)
Communication Skills	0 (0.0)	5 (12.2)	7 (17.1)	28 (68.3)	1 (2.4)
Job Effectiveness	0 (0.0)	0 (0.0)	8 (19.5)	32 (78.0)	1 (2.4)
Managerial Skills	0 (0.0)	3 (7.3)	22 (53.7)	15 (36.6)	1 (2.4)
Problem Solving Ability	0 (0.0)	2 (4.9)	12 (29.3)	26 (63.4)	1 (2.4)
Professional Development	0 (0.0)	0 (0.0)	9 (22.0)	30 (73.2)	2 (4.9)
Overall Impact	0 (0.0)	0 (0.0)	11 (26.8)	29 (70.7)	1 (2.4)

conditions) received a slightly less positive response. "Poor" ratings on any factor were rare, though. Similarly, the students' perceptions of the impact of the program were very good. The open ended questions asking about comments, suggestions, and complaints about the program also elicited comments which support the favorable impressions generated by this data.

4.1.2 PHI Employment Information

Of the 40 trainees who graduated on or before 1983, 30 (75.0 %) completed surveys for this evaluation. In addition, employment information was verified for the remaining graduates. Two members of the first class (1979-81) have left St. Lucia, but the remaining are currently employed by the Ministry of Health in their respective countries. One in St. Lucia is currently awaiting assignment to the environmental health department from a position in vital statistics. Five of the PHIs from Antigua have been promoted one or more levels, to Grade 1 or Acting Senior Public Health Inspector. The PHIs in the remaining countries are all still employed with their departments. Several from Grenada have also participated in additional training courses (Table 4.3).

The 29 graduates currently employed as PHIs were asked whether the type of area they usually worked in was rural, urban, or both. Only 5 (17.2 %) indicated they usually worked in urban areas, but 11 (37.9%) usually work in rural areas. The other 13 (44.8%) said they work in both locations. This is encouraging because the lack of trained environmental health workers in rural areas has historically been an important concern.

Table 4.3

Employment Status of the HOPE Trained PHIs

Enrolled	51
Graduated	51
Employed as PHI After Graduation	50
Currently Employed as PHI	42
Promoted within Environ. Health Department	6
No longer Working in Environ. Health	0
Known to Have Left Country	2

Survey respondents were asked to describe their employment experience before entering the training program. Fourteen had been employed as environmental health workers, 8 had been employed in other fields (e.g. factory, teaching), 3 had been students, 3 were unemployed, and 2 were employed, but did not indicate the type of job.

The graduates were also asked their current and pre-training salaries. The mean monthly salary for the 28 PHIs who provided this information was EC \$1055. Pre-training salaries were much lower, reflecting both general inflation and a direct effect of training on earnings. The mean monthly pre-training for the 25 respondents providing this information (assuming the unemployed and students had no earnings) was EC \$385. Excluding the students and unemployed, the average monthly salary was EC \$507.

4.1.3 PHI Description of Work

The survey respondents were asked whether each of 23 activities was included in their regular work, and asked to designate five main activities. Inspections of houses and food handling establishments, solid waste management, public education, and inspection and nuisance investigations were activities mentioned most often. The frequency of these and other responses is presented in Table 4.4.

The degree to which the training of environmental health officers matches the actual type of work performed should be considered. Both over-training and under-training produces an inefficient and unfavorable situation. The PHIs are performing a variety of duties involving the specific material included in the curriculum. However, many of these areas were suggested as useful subjects for additional training. This indicates that the PHI training program provides a basic level of skills and knowledge, but, given the actual responsibilities of the PHIs, additional training opportunities are warranted (see Section 4.1.4).

The PHIs were also asked to compare their actual work experience with their expectations (Table 4.5). The only area with a substantial level of negative ratings was "Supervision Received." Almost 40 percent felt this was less or worse than expected. The other areas, particularly job effectiveness and responsibilities, were generally perceived as surpassing expectations. Although specific frustrations and disappointments were raised in the open-ended questions and interviews, this level of satisfaction is encouraging.

Table 4.4
Responsibilities of
Public Health Inspectors^a

PROGRAM OR ACTIVITY	INCLUDED		LISTED AS	
	N	(%)	N	RANK ^b
Housing Inspections	24	(80.0)	17	3
Water Quality and Supply	25	(83.3)	8	
Solid Waste Management	25	(83.3)	17	2
Vector Control	25	(83.3)	9	
Food Handling Establishments (e.g. stores, restaurants, bakeries)	27	(90.0)	26	1
Institutional Inspections (e.g. hospitals, prisons)	24	(80.0)	1	
Public Education	27	(90.0)	13	5
In-service Training/ Continuing Education	11	(36.7)	1	
Meat Inspection	23	(76.7)	12	
Air Quality Management	2	(6.7)	0	
Hazardous Waste Disposal	6	(20.0)	0	
Recreational Health and Safety	16	(53.3)	0	
Supervision of Auxiliary Workers	20	(66.7)	5	
Nuisance Investigations	28	(93.3)	13	4
Sewage Disposal (Public)	25	(83.3)	10	
Occupational Health	14	(46.7)	0	
Epidemiological Investigations	22	(73.3)		
Accident Prevention	16	(53.3)	0	
Radiation Protection	0	(0.0)	0	
Community Environmental Health Surveys	29	(96.7)	1	
Port Health	8	(26.7)		
Rabies Control Program	6	(20.0)	0	
Disaster Preparedness	16	(53.3)	2	

^a29 St. Lucia - HOPE graduates currently employed as PHI and 1 PHI trained elsewhere.

^bEach responder could list up to five activities, and there were 138 total responses.

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help were the underlying problems with the prescription packaging system. These are all important factors influencing the effectiveness and impact of the pharmacists and the training program.

4.5. Pharmacy Conditions

The pharmacists were asked to rate specific aspects of their work and the changes which had occurred during the past year. The availability of equipment and the number of pharmacists working received mostly "poor" ratings, although the quality of pharmacists was generally thought to be good. Specific changes depend largely on the individual, with some reporting improvements and others reporting worsening of availability of drugs and numbers of pharmacists. Overall level of service was generally thought to be "somewhat better."

The pharmacists were also asked about the importance of several factors to the delivery of health care. The availability of drugs, the number of pharmacists, and the quality and availability of pharmacist training and continuing education were the greatest priorities, while the addition of pharmacy and hospital facilities were viewed as least important.

Table 4.5
PHIs' Perceptions of Work

Number and Percentage (%) of Responses^a

	LESS/WORSE THAN EXPECTED	SAME AS EXPECTED	MORE/BETTER THAN EXPECTED	DID NOT ANSWER
Overall Responsibilities	6 (20.7)	11 (37.9)	11 (37.9)	1 (3.4)
Supervision Received	10 (34.5)	15 (51.7)	3 (10.3)	1 (3.4)
Amount of Community Work	4 (13.8)	12 (41.4)	11 (37.9)	2 (6.9)
Amount of Time Spent on Routine Inspection	3 (10.3)	14 (48.3)	12 (41.4)	0 (0.0)
Relationships with Co- Workers	5 (17.2)	16 (55.2)	7 (24.1)	1 (3.4)
Effectiveness in Job	4 (13.8)	13 (44.8)	11 (37.9)	1 (3.4)

^a29 St. Lucia - HOPE graduates currently employed as PHIs.

4.1.4 Factors Affecting PHI Job Performance

Training is just one element of successful, effective health programs. The actual impact of newly trained workers will be influenced by the conditions and environment of the workplace. Of course, a "trickle-up" style of change may take place. In this way, the graduates' skills and knowledge would be incorporated by others, fostering broader improvements in the department's work activities.

The Public Health Inspectors were asked to rate and describe certain work conditions within their departments. In general, the factors which could be more directly influenced by the training programs received better ratings than factors which are somewhat removed from the trainees' responsibilities (Table 4.5). Availability of equipment and proper sample and specimen collection were the most commonly cited problems. However, knowledge of disease causation and control methods and relations among environmental health workers received favorable ratings. The poorer areas do indicate problems and limitations to the effectiveness of the trainees and training program.

The Public Health Inspectors were also asked to describe specific changes, (e.g., number, type, methods, records of inspections) which had occurred in the last two years. In St. Lucia, several people noted the recent development of new inspection forms and acquisition of equipment to improve the thoroughness of the inspections. Also, a food handlers training program was initiated. The number of inspections (housing and other) was

bc

Table 4.6
PHIs' Department Ratings

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCEL- LENT	DID NOT ANSWER
Availability of Equipment	18 (60.0)	9 (30.0)	1 (3.3)	0 (0.0)	2 (6.7)
Record Keeping	8 (26.7)	12 (40.0)	5 (16.7)	2 (6.7)	3 (10.0)
Supervision	5 (16.7)	14 (46.7)	8 (26.7)	1 (3.3)	2 (6.7)
Morale	6 (20.0)	7 (23.3)	9 (30.0)	4 (13.3)	4 (13.3)
Knowledge - Causation/ Control Methods	3 (10.0)	3 (10.0)	15 (50.0)	6 (20.0)	3 (10.0)
Knowledge - Administrative Law and Practice	5 (16.7)	15 (50.0)	7 (23.3)	1 (3.3)	2 (6.7)
Availability of Consultative Services	18 (60.0)	6 (20.0)	4 (13.3)	0 (0.0)	2 (6.7)
Public Relations	5 (16.7)	11 (36.7)	9 (30.0)	3 (10.0)	2 (6.7)
Relations Among Envir. Health Workers	4 (13.3)	4 (13.3)	14 (46.7)	6 (20.0)	2 (6.7)
Communications Among Envir. Health Workers	7 (23.3)	8 (26.7)	9 (30.0)	4 (13.3)	2 (6.7)
Evaluation of Inspection Findings	5 (16.7)	14 (46.7)	5 (16.7)	4 (13.3)	2 (6.7)
Sample and Specimen Collection	11 (36.7)	10 (33.3)	7 (23.3)	0 (0.0)	2 (6.7)

^a29 St. Lucia - HOPE graduates currently employed as PHIs, and 1 PHI trained elsewhere.

said to have increased in both St. Lucia and Antigua and the contribution of the EHAs was often cited as a factor in this change. In Dominica, new inspection forms and procedures were also introduced, and in Antigua, solid waste management equipment was obtained and new services offered to businesses. Refuse service was also expanded in St. Kitts-Nevis. It was also noted in St. Kitts-Nevis that the number of housing inspections had decreased because of staffing shortages.

The scope and level of training, in relation to actual job responsibilities, is an important factor in the evaluation of a training program. The PHIs were asked to rate their interest in specific subject areas. Meat inspection, occupational health, and health systems management received the most interest (Table 4.7). Meat inspection is an established area of advanced training, and management programs have also been offered. However, the clear identification of occupational health as an area of interest may reflect an unmet need in environmental health.

Table 4.7

Public Health Inspectors'
Interest in Additional Training

Number and Percent (%) of Responses^a

SUBJECT	NOT VERY INTERESTED	SOMEWHAT INTERESTED	VERY INTERESTED	DID NOT ANSWER
Meat Inspection	1 (3.3)	7 (22.6)	23 (74.2)	0 (0.0)
Port Health	2 (6.5)	9 (29.0)	15 (48.4)	5 (16.1)
Solid Waste Management	2 (6.5)	11 (35.5)	14 (45.2)	4 (12.9)
Pesticides	3 (9.7)	13 (41.9)	11 (35.5)	4 (12.9)
Water Quality	1 (3.3)	10 (32.3)	16 (51.6)	4 (12.9)
Health Systems Management	2 (6.5)	8 (25.8)	17 (54.8)	4 (12.9)
Occupational Health	1 (3.3)	8 (25.8)	19 (61.3)	3 (9.8)
Epidemiology	2 (6.5)	5 (16.1)	15 (48.4)	9 (29.0)

^a30 St. Lucia - HOPE graduates and 1 PHI trained elsewhere.

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4.2 Environmental Health Assistant (EHA) Training

Three classes of EHAs were trained in St. Lucia, all in 1981. There were 41 enrollees, of which 36 graduated. Thirteen other EHAs, trained under a separate program in 1979, were also interviewed as part of this evaluation. In Antigua, one EHA class was held during 1983.

4.2.1 EHA Course Evaluation

The data discussed in this section were collected in April, 1985 through a written, confidential questionnaire. We interviewed 20 HOPE graduates in St. Lucia and 10 in Antigua. They represent 51 percent of all HOPE EHA graduates and 81.1 percent of HOPE EHA graduates still working in environmental health. Two additional EHAs from Antigua were interviewed as part of the 1983-85 PHI class in St. Lucia, but are not included in these quantitative results. The course evaluation was divided into four sections: course content (five measures) teaching (four measures), facilities (three measures), and the programs effect on personal development (eight measures). Also, open ended questions were asked to elicit more detailed responses.

As shown in Tables 4.8 and 4.9, (St. Lucia), 4.10, and 4.11 (Antigua), the graduates' comments were generally very positive. Responses were for the most part either "good" or "excellent." A few areas, namely availability of help, preparation for EHA work, and development of managerial skills elicited fewer "excellent" or "great improvement" and more "fair" or "some improvement" ratings than other areas. The Library was the only measure that received more than one "poor" rating. Particularly highly rated were

Table 4.8

St. Lucia EHA Graduates' Ratings of
Training Program:
Content, Teaching and Facilities

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
COURSE CONTENT					
Usefulness	0 (0)	1 (6)	7 (41)	7 (41)	2 (12)
Thoroughness	0 (0)	4 (24)	10 (59)	3 (18)	0 (0)
Mix of Coursework (Theoretical and Practical)	0 (0)	3 (18)	5 (29)	6 (35)	30 (18)
Adequate Preparation	1 (6)	4 (24)	5 (29)	3 (18)	4 (24)
Overall Course Content	0 (0)	1 (6)	7 (41)	5 (29)	4 (24)
TEACHING					
Lectures	0 (0)	2 (12)	5 (29)	8 (47)	2 (12)
Availability of Help	1 (6)	4 (24)	6 (35)	2 (12)	4 (24)
Relevance of Assignments	0 (0)	4 (24)	5 (29)	3 (18)	5 (29)
Overall Teaching	0 (0)	1 (6)	6 (35)	4 (24)	6 (35)
FACILITIES					
Classroom	0 (0)	3 (18)	8 (47)	3 (18)	3 (18)
Library	6 (35)	0 (0)	3 (18)	2 (12)	6 (35)
Overall Facilities	0 (0)	3 (18)	6 (35)	2 (12)	6 (35)

^a17 identified St. Lucia - HOPE graduates.

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Table 4.9

St. Lucia EHA Graduates' Ratings of
Impact of Training on Personal Development

Number and Percent (%) of Responses^a

	MADE WORSE	NO EFFECT	SOME IMPROVE- MENT	GREAT IMPROVE- MENT	DID NOT ANSWER
Practical Knowledge	0 (0)	1 (6)	11 (65)	4 (24)	1 (6)
Confidence	0 (0)	1 (6)	10 (59)	5 (29)	1 (6)
Communication Skills	0 (0)	1 (6)	8 (47)	4 (24)	4 (24)
Job Effectiveness	0 (0)	1 (6)	9 (53)	5 (29)	2 (12)
Managerial Skills	0 (0)	3 (18)	10 (59)	2 (12)	2 (12)
Problem Solving Ability	0 (0)	3 (18)	10 (59)	4 (24)	0 (0)
Professional Development	0 (0)	4 (24)	7 (41)	3 (18)	3 (18)
Overall Impact	0 (0)	2 (12)	7 (41)	4 (24)	4 (24)

^a17 identified St. Lucia - HOPE graduates.

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Table 4.10

Antigua EHA Graduates' Ratings of
Training Program:
Content, Teaching and Facilities

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
COURSE CONTENT					
Usefulness	0 (0)	1 (10)	3 (30)	6 (60)	0 (0)
Thoroughness	0 (0)	3 (30)	1 (10)	5 (50)	1 (10)
Mix of Coursework (Theoretical and Practical)	0 (0)	1 (10)	1 (10)	7 (70)	1 (0)
Adequate Preparation	0 (0)	1 (10)	3 (30)	6 (60)	0 (0)
Overall Course Content	0 (0)	1 (10)	4 (40)	5 (50)	0 (0)
TEACHING					
Lectures	0 (0)	1 (10)	4 (40)	5 (50)	0 (0)
Availability of Help	3 (30)	1 (10)	1 (10)	5 (50)	0 (0)
Relevance of Assignments	0 (0)	2 (20)	3 (30)	5 (50)	0 (0)
Overall Teaching	0 (0)	2 (20)	3 (30)	5 (50)	0 (0)
FACILITIES					
Classroom	0 (0)	4 (40)	4 (40)	0 (0)	2 (20)
Library	6 (60)	0 (0)	1 (10)	1 (10)	2 (20)
Overall Facilities	2 (20)	4 (40)	1 (10)	1 (10)	2 (20)

^a10 HOPE graduates

"Usefulness of Course Content" and "Lectures." The teaching and course content ratings were generally rated higher for the Antigua program than for the St. Lucia program, but the small sample sizes limit the inferences which can be made from these trends.

4.2.2 EHA Employment Information

Every St. Lucian HOPE EHA graduate whose employment status we were able to verify (as was the case with 32 out of the 36 graduates) worked as an EHA immediately after graduation. Nine of them have since left the EHA staff, eight of whom were fired. In St. Lucia, no HOPE EHA graduates--or any EHA--has been trained for or promoted to the position of PHI. (See Table 4.12)

In Antigua, however, the experience of the EHAs has been different. Of the 18 originally employed as EHAs, two were promoted to acting PHI and two others sent for full PHI training. Two others left the service for other jobs within Antigua, and one has left the country. The four who were initially employed in community health or family planning positions are still working with these departments (Table 4.12).

The HOPE EHAs in St. Lucia seemed to have higher incomes than before the training program. The current median income in St. Lucia for ten EHAs who provided this information is EC \$449 a month, compared to EC \$216 (based on only two responses) before the HOPE program. In Antigua, EHA incomes have not risen. The current median income in Antigua for thirteen responders is EC \$460, compared to EC \$462 (based on eight responses) before the HOPE program.

Table 4.11

Antigua EHA Graduates' Ratings of
Impact of Training on Personal Development

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
Practical Knowledge	0 (0)	0 (0)	4 (40)	6 (60)	0 (0)
Confidence	0 (0)	0 (0)	1 (10)	9 (90)	0 (0)
Communication Skills	0 (0)	1 (10)	2 (20)	7 (70)	0 (0)
Job Effectiveness	0 (0)	0 (0)	3 (30)	7 (70)	0 (0)
Managerial Skills	0 (0)	3 (30)	5 (50)	1 (10)	1 (10)
Problem Solving Ability	0 (0)	2 (20)	6 (60)	2 (20)	0 (0)
Professional Development	0 (0)	0 (0)	4 (40)	6 (50)	0 (0)
Overall Impact	0 (0)	0 (0)	5 (50)	5 (50)	0 (0)

^a10 HOPE graduates



Table 4.12

Employment Status of HOPE Trained EHAs

	<u>Antigua</u>	<u>St. Lucia</u>
Enrolled	24	41
Graduated	22	36
Employed as EHA After Graduation	18	36
Currently Employed as EHA	11	23
Promoted Within Envir. Health Dept.	4	0
No Longer Working in Envir. Health	2	9
Known to have Left Country	1	0
Situation Unknown	0	4

It should also be remembered when assessing the impact of training on the income of the graduates that the St. Lucia EHA training program took place in 1981, and the Antigua EHA training program in 1983. Also, the incomes cited above are not in constant dollars. Nearly all EHAs were employed in the Department of Environmental Health (in St. Lucia as Aedes Inspectors) before their HOPE training. Sixty percent of Antiguan EHAs felt that they would still be EHAs without the HOPE program, contrasted with seven percent of St. Lucian EHAs.

4.2.3 Description of Work

There were two activities that were identified by St. Lucia EHAs most often as one of their main activities: housing inspections and vector control (Table 4.13). Antigua EHAs spend their time on a wider range of activities (Table 4.14). Among those identified as main activities by Antiguan EHAs were solid waste management, housing inspections, water quality and supply, and nuisance investigations.

PHIs were asked to describe and rate the work performance of the EHAs (Table 4.15). In general, the ratings for the EHAs main activities were very good, and PHI comments on EHA performance were virtually uniformly positive. Public education and sewage disposal were the areas in which there was more disagreement about the quality of the EHAs' work. The mean percentage of time that the surveyed EHAs were under the direct supervision of an PHI was 56 percent.

Table 4.13

Responsibilities of St. Lucia
Environmental Health Assistants^a

PROGRAM OR ACTIVITY	INCLUDED	LISTED AS	
	IN WORK N (%)	MAIN ACTIVITY ^b N	RANK
Housing Inspections	30 (91)	26	1
Water Quality and Supply	23 (70)	0	
Solid Waste Management	22 (67)	5	
Vector Control	28 (85)	22	2
Food Handling Establishments (e.g. stores, restaurants, bakeries)	9 (27)	0	
Institutional Inspections (e.g. hospitals, prisons)	3 (9)	0	
Public Education	19 (58)	7	
In-service Training/ Continuing Education	10 (30)	0	
Meat Inspection	3 (9)	0	
Air Quality Management	1 (3)	0	
Hazardous Waste Disposal	20 (61)	2	
Recreational Health and Safety	12 (36)	0	
Nuisance Investigations	29 (88)	11	3
Sewage Disposal (Public)	23 (70)	2	
Occupational Health	4 (12)	0	
Epidemiological Investigations	9 (27)	0	
Accident Prevention	18 (55)	0	
Radiation Protection	7 (21)	0	
Community Environmental Health Surveys	27 (82)	5	
Port Health	3 (9)	1	
Disaster Preparedness	17 (52)	1	

^aIncludes EHAs trained by St. Lucia Ministry of Health, total of 33 respondents.

^bEach respondent could list up to three activities, and there were 82 total responses.

Table 4.14
Responsibilities of
Antigua Environmental Health Assistants^a

PROGRAM OR ACTIVITY	INCLUDED	LISTED AS	
	IN WORK N (%)	MAIN ACTIVITY^b N	RANK
Housing Inspections	9 (64)	7	2
Water Quality and Supply	8 (57)	6	3
Solid Waste Management	12 (86)	9	1
Vector Control	7 (50)	3	
Food Handling Establishments (e.g. stores, restaurants, bakeries)	6 (43)	1	
Institutional Inspections (e.g. hospitals, prisons)	5 (36)	0	
Public Education	7 (50)	2	
In-service Training/ Continuing Education	3 (21)	0	
Meat Inspection	0 (0)	0	
Air Quality Management	0 (0)	0	
Hazardous Waste Disposal	8 (57)	2	
Recreational Health and Safety	6 (43)	0	
Nuisance Investigations	13 (93)	5	
Sewage Disposal (Public)	9 (64)	2	
Occupational Health	4 (29)	0	
Epidemiological Investigations	2 (14)	0	
Accident Prevention	4 (29)	0	
Radiation Protection	1 (7)	0	
Community Environmental Health Surveys	11 (79)	1	
Port Health	9 (64)	0	
Disaster Preparedness	4 (29)	1	

^aIncludes EHAs not trained by HOPE, total of 14 respondents.

^bEach responder could list up to three activities, and there were 39 total.

Table 4.15

**PHI Assessment of EHA Performance
in St. Lucia and Antigua**

Number and Percent (%) of Responses^a

<u>PROGRAM OR ACTIVITY</u>	<u>Not Part of EHA Work</u>	<u>EHA Work, Substandard Performance</u>	<u>EHA Work, Good Performance</u>	<u>Did Not Answer</u>
Housing Inspections	1 (7)	1 (7)	12 (86)	0 (0)
Water Quality and Supply	9 (64)	0 (0)	1 (7)	4 (20)
Solid Waste Management	2 (14)	1 (7)	9 (64)	2 (14)
Vector Control	3 (21)	2 (14)	6 (43)	3 (21)
Food Handling Establishments (e.g. stores, restaurants, bakeries)	12 (86)	0 (0)	0 (0)	2 (14)
Institutional Inspections (e.g. hospitals, prisons)	12 (86)	0 (0)	0 (0)	2 (14)
Public Education	1 (7)	4 (29)	6 (43)	3 (21)
In-service Training/ Continuing Education	8 (57)	3 (21)	0 (0)	3 (21)
Meat Inspection	13 (93)	0 (0)	0 (0)	1 (7)
Air Quality Management	13 (93)	0 (0)	0 (0)	1 (7)
Hazardous Waste Disposal	13 (93)	0 (0)	0 (0)	1 (7)
Recreational Health and Safety	11 (79)	0 (0)	2 (14)	1 (7)
Supervision of Auxiliary Workers	8 (57)	1 (7)	3 (21)	2 (14)
Nuisance Investigations	0 (0)	3 (21)	11 (79)	0 (0)
Sewage Disposal (Public)	2 (14)	3 (21)	6 (43)	3 (21)
Occupational Health	12 (86)	0 (0)	1 (7)	1 (7)
Epidemiological Investigations	11 (79)	1 (7)	0 (0)	2 (14)
Accident Prevention	9 (64)	1 (7)	2 (14)	2 (14)
Radiation Protection	8 (57)	0 (0)	1 (7)	5 (36)
Community Environmental Health Surveys	0 (0)	0 (0)	9 (64)	5 (36)
Port Health	12 (86)	0 (0)	1 (7)	1 (7)
Disaster Preparedness	9 (64)	1 (7)	1 (7)	3 (21)

^a14 PHIs who work directly with EHAs.

In St. Lucia, although all EHAs are based in either Castries or Vieux Forte (urban centers), slightly more EHAs work in rural than urban areas. In Antigua, equal numbers work in rural and urban area.

In general, the EHA position has met or exceeded the expectations of HOPE EHA graduates (Tables 4.16 and 4.17). Relationship with PHIs, as well as overall responsibilities and effectiveness in job were all better than expected for most. Supervision received was the one expectation explored in this evaluation that was rated the "same as expected" (53 percent) more often than "better than expected" (41 percent).

Antigua EHAs were not as satisfied as St. Lucia EHAs with their jobs relative to their expectations before the program. Thirty-six percent expressed disappointment with their overall responsibilities and 36 percent expressed disappointment with the amount of community work they do. However, 86 percent found that their effectiveness in their jobs met or exceeded their expectations.

Table 4.16
St. Lucia EHAs Job Expectations
Number and Percent (%) of Responses^a

	Less/Worse than Expected		Same as Expected		More/Better than Expected		Did Not Answer	
Overall Responsi- bilities	1	(6)	4	(24)	10	(59)	2	(12)
Supervision Received	0	(0)	9	(53)	7	(41)	1	(6)
Amount of Community Work	1	(6)	3	(18)	12	(71)	1	(6)
Amount of Time Spent on Routine Inspections	0	(0)	8	(47)	9	(53)	0	(0)
Relationship with PHIs	1	(6)	7	(41)	9	(53)	0	(0)
Effectiveness in Job	1	(6)	3	(18)	11	(65)	2	(12)

^a17 identified St. Lucia - HOPE graduates.

Table 4.17

Antigua EHAs Job Expectations

Number and Percent (%) of Responses^a

	Less/Worse than Expected		Same as Expected		More/Better than Expected		Did Not Answer	
Overall Respon- sibilities	5	(36)	7	(50)	1	(7)	1	(7)
Supervision Received	2	(14)	8	(57)	1	(7)	3	(21)
Amount of Community Work	5	(36)	2	(14)	5	(36)	2	(14)
Amount of Time Spent on Routine Inspections	2	(14)	7	(50)	3	(21)	2	(14)
Relationship with PHIs	2	(14)	6	(43)	4	(29)	2	(14)
Effectiveness of Job	1	(7)	4	(43)	6	(43)	1	(7)

^aIncludes EHAs not trained by HOPE, total of 14 respondents.

4.2.4 Factors Affecting EHA Job Performance

Both St. Lucian and Antiguan EHAs cited poor availability of equipment and record keeping as factors that affect their job performance (Tables 4.18 and 4.19). Both also seemed positive about working relationships among Environmental Health workers. Open ended questions and interviews prompted comments on problems of transportation (EHAs in both countries often walk to inspection sites up to fifteen miles away), follow-up on reported problems, and lack of uniforms or other proper identification. St. Lucian EHAs also complained that they were not respected enough by the rest of the department, that the position or EHA had not yet been accepted as legitimate within the department, and that they were not making the contribution that they might to environmental health. Both St. Lucian and Antiguan EHAs cited the lack of continuing education as a problem, and nearly all expressed interest in further training.

Table 4.18

St. Lucia EHA's Assessment of
Environmental Health Department

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
Availability of Equipment	15 (45)	10 (30)	5 (15)	3 (9)	0 (0)
Record Keeping	5 (15)	6 (18)	12 (36)	9 (27)	1 (3)
Supervision	2 (6)	3 (9)	17 (52)	9 (27)	2 (6)
Morale	3 (9)	4 (12)	8 (24)	5 (15)	13 (39)
Knowledge of Proper Control Methods	2 (6)	7 (21)	17 (52)	3 (9)	4 (12)
Knowledge of Administration Law and Process	10 (30)	11 (33)	6 (18)	3 (9)	3 (9)
Availability of Consultative Services	6 (18)	8 (24)	8 (24)	1 (3)	10 (30)
Public Relations	2 (6)	5 (15)	7 (21)	8 (24)	11 (33)
Working Relationship Among EH Workers	3 (9)	2 (6)	13 (39)	13 (39)	2 (6)
Communication of Info Among EH Workers	2 (6)	6 (18)	15 (45)	6 (18)	4 (12)
Evaluation of Inspection Findings	1 (3)	6 (18)	13 (39)	8 (24)	5 (15)
Sample and Specimen Collection	6 (18)	5 (15)	11 (33)	8 (24)	3 (9)

^aIncludes EHAs trained by the St. Lucia Ministry of Health, total of 33 respondents.

Table 4.19

**Antigua EHAs' Assessment
of Environmental Health Department**

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	DID NOT ANSWER
Availability of Equipment	9 (64)	3 (21)	1 (7)	0 (0)	1 (7)
Record Keeping	9 (64)	1 (7)	3 (21)	0 (0)	1 (7)
Supervision	4 (29)	4 (29)	5 (36)	0 (0)	1 (7)
Morale	2 (14)	7 (50)	4 (29)	0 (0)	1 (7)
Knowledge of Proper Control Methods	3 (21)	5 (36)	4 (29)	1 (7)	1 (7)
Knowledge of Administration Law and Process	3 (21)	4 (29)	4 (29)	1 (7)	2 (14)
Availability of Consultative Services	5 (36)	3 (21)	4 (29)	0 (0)	2 (14)
Public Relations	2 (14)	7 (50)	2 (14)	1 (7)	2 (14)
Working Relationship Among EH Workers	3 (21)	1 (7)	6 (43)	4 (29)	0 (0)
Communication of Info Among EH Workers	4 (29)	4 (29)	3 (21)	3 (21)	0 (0)
Evaluation of Inspection Findings	2 (14)	5 (36)	4 (29)	2 (14)	1 (7)
Sample and Specimen Collection	7 (50)	2 (14)	3 (21)	1 (7)	1 (7)

^aIncludes EHAs not trained by HOPE, total of 14 respondents.

4.3 Environmental Health Conditions

The underlying objective of any health manpower training program is to improve the health status of the community. Working and living conditions are the areas which could be affected by the work of environmental health trainees. The PHIs and EHAs were asked to evaluate the environmental health conditions found in their work, and to identify areas of change within the past two years.

Prisons, occupational environment, and recreational hygiene were the only areas in which a majority of responses indicated either no change or a worsening of conditions over a two year period (Table 4.20). These areas were also among those receiving the poorest overall ratings for current conditions (Table 4.21). Other areas receiving a large share of "poor" or "fair" ratings were hospitals, solid waste management, and sewage disposal.

Table 4.20

Changes in Environmental
Health Conditions,
1983 to 1985

Number and Percent (%) of Responses^a

	Much Worse	Somewhat Worse	No Change	Somewhat Improved	Greatly Improved
Food Handling					
Establishments	0 (0.0)	0 (0.0)	7 (14.9)	26 (55.3)	14 (29.8)
Housing					
Hotels	1 (2.1)	1 (2.1)	6 (12.8)	21 (44.7)	18 (38.3)
Prisons	1 (2.5)	1 (2.5)	7 (17.5)	16 (40.0)	15 (37.5)
Schools	2 (6.9)	2 (6.9)	17 (58.6)	4 (13.8)	4 (13.8)
Hospitals	0 (0.0)	2 (4.3)	13 (28.3)	16 (34.8)	15 (32.6)
Occupational Environment	0 (0.0)	1 (2.8)	13 (36.1)	15 (41.7)	7 (19.4)
Meat Hygiene	0 (0.0)	1 (2.7)	16 (43.2)	9 (24.3)	11 (29.7)
Water Quality	1 (2.6)	1 (2.6)	12 (30.8)	10 (25.6)	15 (38.5)
Farming Practices	0 (0.0)	1 (2.2)	15 (31.1)	18 (35.6)	14 (31.1)
Solid Waste Management	0 (0.0)	1 (3.1)	13 (40.6)	8 (25.0)	10 (31.3)
Rodent/Insect Control	1 (2.2)	3 (6.5)	11 (23.9)	22 (47.8)	9 (19.6)
Sewage Disposal	2 (4.3)	1 (2.2)	13 (29.3)	19 (41.3)	11 (23.9)
Recreational Hygiene	0 (0.0)	0 (0.0)	20 (43.5)	15 (32.6)	11 (23.9)
Community Participation	1 (2.6)	0 (0.0)	19 (50.0)	13 (34.2)	5 (13.2)
Public Education	0 (0.0)	2 (4.3)	11 (23.9)	15 (32.6)	18 (39.1)
Epidemiological Investigations	0 (0.0)	1 (2.3)	6 (14.0)	22 (51.2)	14 (32.6)
Public Education	0 (0.0)	0 (0.0)	15 (28.8)	14 (26.9)	23 (44.2)

^aTotal responses varies by question, depending on number of responders with relevant experience.

Table 4.21

**Current Environmental
Health Conditions,
1985**

Number and Percent (%) of Responses^a

	POOR	FAIR	GOOD	EXCELLENT	TOTAL
Food Handling					
Establishments	15 (28.8)	9 (17.3)	21 (40.4)	7 (13.5)	52
Housing					
Hotels	3 (7.9)	6 (15.8)	17 (44.7)	12 (31.6)	38
Prisons	4 (25.0)	4 (25.0)	6 (37.5)	2 (12.5)	16
Schools	6 (13.6)	14 (31.8)	23 (52.2)	1 (2.3)	44
Hospitals	4 (14.3)	9 (32.1)	11 (39.3)	4 (14.3)	28
Occupational					
Environment	6 (33.3)	9 (50.0)	2 (11.1)	1 (5.5)	18
Meat Hygiene	6 (20.7)	8 (27.6)	12 (41.4)	3 (10.3)	29
Water Quality	2 (4.3)	8 (17.0)	25 (53.2)	12 (25.5)	47
Farming Practice	8 (22.2)	12 (33.3)	13 (36.1)	3 (8.3)	36
Solid Waste					
Management	9 (22.0)	19 (46.3)	11 (26.8)	2 (4.9)	41
Rodent and Insect					
Control	10 (20.4)	21 (42.9)	14 (28.6)	4 (8.2)	49
Sewage Disposal	11 (25.0)	14 (31.8)	16 (36.4)	3 (6.8)	44
Recreational					
hygiene	5 (12.8)	17 (43.6)	13 (33.3)	4 (10.3)	39

^aTotal responses varies by question depending on number of responders with relevant experience.

4.4 Pharmacist Training

Two pharmacy classes were conducted in St. Lucia (1981 to 1983 and 1983 to 1985), producing a total of 17 graduates. This second class was completed in May of 1985, and so they were not included in the follow-up survey used in this evaluation. Written questionnaires were received from five of the eight members of the first class, and two interviews were conducted. Additional information on pharmacy conditions and needs was obtained from surveys and interviews of chief pharmacists.

Because the number of graduates and surveys is small, an extensive quantitative analyses of the results is not warranted. However, the general findings and trends will be presented and discussed.

4.4.1 Pharmacist Course Evaluation

As with the environmental health programs, the students were asked to evaluate the content, teaching and impact of the training program. The only areas which received "poor" ratings were the lab facilities and the organization and supervision of the internship. The other dimensions of the program were generally good, with the facilities including some "fair" ratings and content and teaching a number of "excellents." Time limitations and teacher turnover were two specific problems mentioned. The personal impact of the program was also rated highly, with only a few "fair" and "poor" responses for the development of specific skills (managerial, communication, and problem solving).

4.4.2 Pharmacist Employment Information

Four of the pharmacists had been employed as pharmacy trainees before entering the program, and the other had been working as an assistant teacher. Their mean monthly salary is now EC \$1268, up from the pre-training average of EC \$608.

4.4.3 Pharmacist Description of Work

One pharmacist is working at a hospital, and the four others work in other clinic settings. One is located in a rural area, one rotates between locations, and the remaining three work in urban areas. Most work alone or with one assistant. The pharmacists reported that most of their work time is spent preparing prescriptions (ranging from 30 to 94.5%), with smaller amounts of time spent on management (inventory, purchasing, and record review), and staff or public education (1 to 10% for each of these three categories).

4.4.4 Factors Affecting Pharmacist Job Performance

The pharmacists were asked to describe specific policies, practices, and problems encountered in their work. The areas most frequently described as inadequate were storage of drugs and labeling and packaging of prescriptions. Problems with inventory control and central supply, refrigeration and space limitations were cited as causes of improper storage, although the frequency of ordering and turnover rate of drugs was consistently described as satisfactory. The limitations of supplies and

4.6.4 Educational Materials

Project HOPE has provided textbooks, library materials, audio-visual equipment, a dental clinic, and other resources at the main training center in St. Lucia. This includes specimens, film and slide sets, portable field testing equipment, and micro-scope mounted slide sets. This help provides a comprehensive learning experience for the students. For example, the pharmacy students were able to prepare materials for public education with the audio-visual equipment. In addition, a library of basic and applied science textbooks was given to the Ministry of Health of each country. These resources will help maintain the high quality of the training program and further the development of continuing education opportunities in the health sciences.

5.0 DISCUSSION OF ISSUES

The underlying question in manpower training is: "Are adequate numbers of the right types of personnel being trained and used?" Population growth, migration, attrition, and changes in resources make manpower requirements a varying quantity. Two areas will be considered. One is the continued need for the training programs currently operating in St. Lucia (environmental health and pharmacy). The other is the potential usefulness to St. Lucia and the region of other types of training.

5.1 Environmental Health

5.1.1 Training Program

The assessment of the St. Lucia PHI program provides ample evidence of the generally high quality of training. The curriculum was reviewed and approved by the 18 month evaluators and the TAC. The faculty have consistently received good ratings by both students and outside reviewers. Problem areas identified during the first two years of the program (such as facilities and duration of training) were improved. The students have done well on the Royal Society of Health examinations. The content and teaching of the EHA program was also highly regarded by reviewers and students, but the performance of students is more varied.

The desire for continuing education or in-service training was raised repeatedly in the course of the evaluation. This could provide a chance for review of basic coursework, new or updated material, and a framework for

preliminary training of new workers. The counterparts have been trained for this work, and at present are untapped resources within the departments. Efforts to develop this service would prove to be a valuable addition to the overall training opportunities and capabilities of the region.

5.1.2 Trainee Roles and Impact

HOPE environmental health graduates have generally been quite successful at acquiring and retaining positions in environmental health. (The only possible exception to this is the experience of HOPE EHA graduates in St. Lucia.) These graduates represent a major step toward the establishment of effective Environmental Health Departments. Other steps, however, remain to be taken.

In addition to future training (basic training for workers new to environmental health and continuing education for those already trained) it is also important to assess the respective roles of PHIs and EHAs, recognize the major obstacles to the satisfactory execution of those roles, and anticipate the planning changes that will be necessary in the future.

PHIs perform a wide variety of duties (see Table 4.4). Their one real complaint about performing these duties was with "Supervision Received," (Table 4.5) and one of the major areas of criticism for their Departments was "Availability of Consultive Services" (Table 4.6). These comments, taken with other comments elicited from EHAs and Chief Public Health Inspectors, indicate that the Departments may benefit from clearer delineation of responsibilities, more consistent planning, and greater

cooperation within the Department. In Antigua, a representative of the MOH suggested that technical consulting to develop administrative procedures-- rather than further training of graduates--would be most beneficial to the Department of Environmental Health.

In St. Lucia, it is important to resolve questions about the role of EHAs, and to work toward making that role descriptive of their actual activities. It is especially important after a period of expansion in personnel to concentrate on developing an organizational structure that maximizes the effectiveness of the Department's activities. This development involves utilizing EHAs--and other health professionals--to their potential. There is awareness throughout the Departments of the need for greater organization, which improves the chances of significant progress in this area.

Certain types of equipment and supplies would increase the effectiveness of the Departments. Water testing kits and Aedes sprayers are two examples of the type of equipment that is often lacking. Additional needs include cards and uniforms to facilitate good public relations, better transportation arrangements to minimize the time spent walking, and a better designed filing system and place to keep documents which would improve record keeping, increase planning possibilities, and encourage follow-up on identified environmental health problems.

It should be remembered that as environmental health conditions change, the role of the Environmental Health Departments also changes, as do the roles of the various personnel within the Department. Currently, there is a great

deal of emphasis on housing inspections. Perhaps, as housing conditions improve, the locus of activity may shift to institutional inspections, occupational health, or some other environmental health concern.

5.1.3 Trainee Requirements

The future market for PHIs in the region will depend on the need for this type of workers and the specific job opportunities available within the departments. Table 5.1 presents information from several recent assessments of the training needs during the next five years.

In 1984, the Chief PHI in each country completed a questionnaire for Project HOPE. They were asked to assess the total number of PHIs needed to provide good environmental health services in 1984 and 1989. This was followed by the 1985 survey, in which the Chiefs were asked for the number of trained PHIs currently working and for the number likely to be sent for training between 1985 and 1989. The difference between the number of trained PHIs in 1985 and the needs assessment for 1989 represents an unconstrained estimate, whereas the 1985 estimates of the future training positions reflects judgements which include availability of candidates, jobs, and other resources.

The figure representing total assessed need was much larger (38) than the total number of expected graduates (14). The actual number of people which would be sent for PHI training is likely to be between these estimates, but closer to the lower figure. The backlog of untrained PHIs has decreased since 1980: 12 untrained PHIs are currently working in the region, whereas

Table 5.1
Environmental Health Officers:
Current Status and Future Projections

	Antigua	Dominica	Grenada	Montserrat	St. Kitts- Nevis	St. Lucia	St. Vincent	Total
1980 Population	78,000	80,000	110,000	12,000	45,000	125,000	115,000	565,000
Needs Assessment 1984 ^a	22	20	16	5	20	25	15	123
Trained, 1984 ^a	12	17	12	4	10	24	14	93
Trained, 1985 ^b	16	15	13	5	14	22	16	101
Untrained, 1985 ^b	6	1	-- ^c	0	2	0	3	12
Needs Assessment 1989 ^a	26	22	23	5	22	25	17	140
Trainees Needed 1985-89	10	7	10	0	8	3	0	38
Expected Trainees ^d 1985-89 ^d	2	2	2	0	3	2	3	14

^aBased on Project HOPE Chief PHI Survey, 1984.

^bBased on Project HOPE Chief PHI Survey, 1985.

^cInformation unavailable.

at least 29 of the members of the previous classes were employed as PHIs prior to training. Such a decrease in the backlog of untrained PHIs indicates that fewer graduates need to be produced by future training programs, although the need for newly trained PHIs to replace those who retire or leave, as well as to allow for department expansion, remains.

The situation for environmental health assistants is less clear, and differs between Antigua and St. Lucia. In Antigua, several openings for EHA were created as EHAs were promoted to the PHI position. These have been filled, but only sporadic on-the-job training has been provided for these new workers. They have much to gain from a more systematic approach to training. In St. Lucia, however, the commitment to the EHA position is less clear. None of the 20-30 openings (resulting from the dismissal or departure of trained EHAs), have been filled. Without a commitment to the position, it would be unwise to establish an on-going EHA training program in St. Lucia.

5.2 Pharmacy

5.2.1 Training Programs

As with the environmental health program, efforts of the TAC, faculty, and Programme Council have assured that the pharmacy curriculum is comprehensive and appropriate for the region. Individual teachers were highly regarded, although the turnover of HOPE faculty during the program did cause some discontinuity. The first class seemed to experience some difficulties with the facilities and coursework. These problems were less evident during the

second class. The pharmacy program has developed into a full and rigorous course.

5.2.2 Trainee Roles and Impact

Members of the first class have had more than one year of post-graduate work experience. It is likely that the second class will experience similar situations and will undertake the same type of activities. The addition of these new pharmacists will help alleviate problems of understaffing. Additional training of new personnel would address some of the problems currently encountered by the pharmacists. Other limitations, such as availability and storage of drugs, require different efforts. The appropriateness of additional mid-level personnel (i.e. pharmacy assistants) depend on the volume of service at each location. The pharmacists may not currently perform a wide variety of duties (such as public and staff education) because of the demands of prescription preparation. Developing opportunities for this work will require joint efforts by the pharmacists and administrative departments, along with the provision of additional personnel.

5.2.3 Trainee Requirements

The 1982 evaluation included estimates of training needs in pharmacy for the period between 1981 and 1983. At that time, 20 trainee positions were identified in St. Lucia, six each in Dominica and Grenada, four in St. Kitts/Nevis, and one in Montserrat. During the 5-year course of this project, around 48 percent of these 37 positions have been trained.

Information from the Chief Pharmacists and pharmacists in the region substantiate the continued need for addition pharmacist training. It would be realistic to expect that the number of trainees during the next five years would be similar to the number of recent graduates.

5.3 Other Training Needs

The issue of training needs in areas other than Environmental Health and Pharmacy is tangential to the primary goal of this report, which is the evaluation of the HOPE training programs. Evidence of other training needs in St. Lucia and the Eastern Caribbean gathered as a result of this program evaluation is anecdotal. We will, however, summarize our impressions of these needs.

One overall theme emerged from responses to our questions about future training. Many people we spoke with emphasized the need for general rather than specific training. Broad knowledge, such as that resulting from double training, seemed desired. For example, the distinction between community health, environmental health, and family planning assistants were identified as inefficient specialization. In Antigua, laboratory needs, such as equipment and training in cytology and histology were identified. Also, technical assistance, or consulting, was required to help structure department organization and planning.

In St. Lucia, training needs for laboratory technicians, psychiatric nurses, and epidemiologists were mentioned. Also, cited was assistance in management organization and planning, although not to extent as in Antigua.

Elsewhere, Montserrat pointed to current problems in solid waste disposal, and St. Kitts also mentioned a lack of psychiatric nurses.

In sum, it appears that the regional training needs are evolving. As environmental health and pharmacy manpower shortages become less severe and conditions in both these areas improve, the attractiveness of other types of training programs heightens. As long as efforts are made to consolidate gains achieved by programs such as these, the Eastern Caribbean region may soon be ready to address a new level of health care needs, such as psychiatric nursing, lab technicians and geriatrics.

5.4 Developmental Impact

Many changes have occurred in the Eastern Caribbean nations since 1980, and it is difficult to determine which changes resulted from this specific training project and which changes would have occurred in the absence of this training effort. The establishment of the Health Science Division of the Sir Arthur Lewis Community College in St. Lucia is the primary educational development which may have been fostered by the training programs of the previous five years.

This Division, initially covering nursing, pharmacy and environmental health, signals an acceptance of formal, standardized training programs within the health field. The need for pre-requisites, a mechanism for testing and certification, and continually developing curricula and educational resources, can be readily seen within the structure of a

community college setting. These are some of the concepts which were developed by the work with the St. Lucia HOPE-AID program.

The graduates of the training program have exhibited competence in and dedication to their work. Besides contributing to the specific jobs for which they were trained, they have the base of knowledge to broaden the scope and impact of their efforts. A certain level of flexibility and common activities exist within individual health and management fields, and these can benefit from the general development of human resources achieved through this project.

6.0 LESSONS LEARNED AND RECOMMENDATIONS FOR FUTURE PROGRAMS

Health conditions and care are dynamic. They evolve from changes in resources, technology, and general development. Education of health care professionals should be viewed as an ongoing process in order to respond to these changes. Given this, the following recommendations for future training efforts can be made:

Program Development

- o Opportunities for in-service training and continuing education should be created providing both refresher courses and new material. This would ensure that the graduates' skills and interest remain sharp.
- o Development of generalized training programs, particularly at the para-professional or assistant level, should be considered. This would allow for greater flexibility in planning and use of workers.
- o Responsibilities and activities of workers in relation to current health conditions should be regularly examined. This can involve a simple, subjective assessment such as was included in this report, or a more comprehensive and rigorous analysis.
- o A systematic follow-up of all graduates should be included as part of any training program. This is not a difficult undertaking, and could be conducted by the program faculty at regular (e.g., yearly) intervals.

Program Implementation

- o An advisory board such as the Technical Advisory Committee, should be established as part of the initial phase of any training project. This will foster the exchange of ideas, provide expertise in technical matters, and enhance the quality of the program.
- o Support from local professional associations should be sought as a means of establishing a base of resources and advice for the programs. Use of local human resources as adjunct professors lessens the cost of the external inputs and, most importantly, fosters local responsibility for operation of the program.

Three aspects of this project should be noted for consideration in future programs. These are:

- o A Program Council, consisting of ministers from each participating country, helped guide the program and enhances regional cooperation and development.
- o Identification of appropriate local counterparts is essential. Counterpart commitment and release from other government duties will result in better training of the counterpart and less frustration on the part of the educators. The counterpart system has worked well as a means of institutionalizing development of training resources.
- o Field experience, laboratory work, and library resources are important components of a training program. Appropriate arrangements, materials and equipment should be obtained prior to the beginning of the coursework. A variety of field work opportunities can be designed within each country using local professionals and organizations.

7.0 REFERENCES

- Bruinsma, John H. "A Study of the Movement and Location of UWI Medical Graduates, Classes 1954-1965." West Indian Journal of Medicine, Vol. 19, June 1970, pp. 91-93.
- Ebanks, G.C. et al. "Emigration and Fertility Decline, The Case of Barbados." Demography 12:3, 431-45, August 1975.
- Eighteen Month Evaluation of the Allied Health Manpower Training Project Commissioned Under Grant Agreement 538-0055 Between USAID and Project HOPE, Dated August 30, 1980. Barbados, West Indies. November 5, 1982.
- Laskin, Mark. Commonwealth Caribbean Health Sector Study, Vol. 1, HEW/OIH 1977.
- Parker, David A. "Cost-Effectiveness Analysis of Project HOPE Environmental Health Officer Training Program Saint Lucia. Barbados, West Indies, December 2, 1982.
- Seivwright, M. "Project Report on Factors Affecting Mass Migration of Jamaican Nurses to the U.S. Jamaican Nurse, Vol. 5, December 1965, p. 8-13.

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EVALUATION

Barbados Emergency Medical Systems Project

**John Porvaznik, M.D., F.A.C.S.
Medical Director FMS, Indian Health
Service, USPHS**

and

**Director Surgical Services, Gallup
Indian Medical Center**

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Evaluation Summary

During Spring and Summer 1983 a cooperative program was developed to improve Emergency Medical Services at Queen Elizabeth Hospital, Barbados. The initial surveys revealed many problems of organization, quality of care, and efficiency with the result that "patients do not receive necessary, rapid, and adequate care". The project was later expanded to cover the pre-hospital phase, thus establishing the goal of improving the full, comprehensive EMS System.

Based upon my evaluation, which included site visit, interviews, and review of documents, my finding is: Overall the project has made substantial improvements and has had a high degree of success in meeting program objectives. The project has transformed what was an unsatisfactory casualty area with inadequate staffing, inefficient and chaotic organization, into an Emergency Department with improved staffing and organization, improved quality of care, defined goals, and leadership. An impressive pre-hospital ambulance program with trained EMTs has been established. Further, a heightened sense of awareness of what is needed for a safe and efficient EMS System has been instilled in the staff.

Remaining problem areas are discussed. Several of these are inherent in the 'emergency-room system', compounded in this facility with its unsatisfactory and too small Emergency Room physical plant.

Though these substantial improvements have occurred, the Emergency Department has not yet achieved its full potential of a high-quality E.R. A series of recommendations is presented: first, to help in maintaining and improving the present levels of achievement; a major one being the importance of recognizing that EMS is a dynamic system requiring significant effort just to maintain improvements that have been made and secondly to give suggestions that might help future projects.

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Introduction

During the spring and summer of 1983 a Cooperative Program was developed among Barbados Ministry of Health, U.S.A.I.D., University of West Indies School of Medicine, and Project Hope to provide technical assistance and training to improve Emergency Medical Services at the Queen Elizabeth Hospital (Q.E.H.). This initial plan was subsequently expanded to develop a pre-hospital program as well. The initial evaluation documents developed in March-April, 1983 accurately describe the problems. The plan for improvement was formalized in the memorandum of understanding signed by the four parties noted above. Upon completion of the project, U.S.A.I.D. has requested an evaluation of its success and impact. This evaluation was performed by me during October, 1985.

I. Method of Evaluation

1. Review of documents mailed to me by U.S.A.I.D.
2. Overview and orientation at Hope Headquarters in Millwood, VA., where goals, philosophy, and accomplishments were outlined, October 15.
3. October 16-21: On-site visit to Barbados which included:
 - A. Daily hospital visits; interviews with ER staff, hospital administration, Chief of Staff, Professor of Surgery; review of E.R. Log.
 - B. Polyclinic visit (Ladymeade), 10/21
 - C. Review of pre-hospital program (geography and roads by tour of Island; ambulances; radio communications; interviews with EMT's; review of ambulance runs.)
 - D. Visit and discussions with U.S.A.I.D. staff, October 17, 18, 21, 25.
 - E. Attendance at Multi-Agency Disaster-Preparedness Panel, October 21.
4. Phone discussion with Karess Ebert, R.N., Minnesota - October 25.
Phone discussion with Don Weaver, HOPE - October 25.

II. Findings

1. Overall, the assessment of the problem was accurate, and the project objectives and implementation plans were clear, reasonable, and for the most part achievable.
2. Overall the project has made substantial improvements and has had a high degree of success in meeting the objectives. These achievements are well seen by applying the standard EMS evaluation with its review of the components of an EMS System. The problem outlined in the initial surveys will be summarized, then accomplishments noted.

A. Manpower

Problem: "Insufficient physician staff. No full-time Director and therefore lack of leadership, supervision, and administration; inefficient triage and identifying patients in need of urgent care; insufficient number of trained ambulance attendants; lack of secretary forces nurses away from necessary clinical duties; adequate number of nurses, but inadequate training".

Accomplishments

- A full-time Director has been hired. The department affiliation with W.I.U. will further help in maintaining quality standards.
- 42 EMTs were hired and trained.
- 14 physician positions established, with work shifts staggered to give increased coverage at peak times. (12 employed at time of survey).
- An E.R. secretary/clerk has been hired, thus relieving the busy nursing staff.
- A triage - nurse position has been developed and assigned.

B. Training

Problem: "Basic and more advanced training in Emergency Medicine is lacking at all levels, including physicians, nurses, house officers. In addition, basic level of training should be given to ambulance attendants".

Accomplishments

42 EMTs were trained in the initial class (Fall-1984), including four EMT Instructors. The instructor group have themselves subsequently trained another group of EMTs (Summer-1985).

- Nurse training carried out in summer 1985 for 26 nurses. Interviews with nurses and physicians suggests that this training was not only well-received, but was quite successful in heightening awareness and performance.
- E.R. Director meets monthly with EMTs, weekly with E.R. physicians, weekly with E.R. nurses. He has also presented at the General Hospital conference.

C. Communications

Problem: "Need a simple radio communication system between E.R. and ambulance". "Need pagers to contact on-call consultant staff".

Accomplishments

- Radios have been installed in ambulances and at ambulance base station to allow efficient dispatch. The hospital radio has not yet been hooked up (awaiting a transformer); thus the critical element of medical control is not yet effected. Hospital plans to have the radio installed soon. On-call consultants now have pagers.

D. Transportation

Problem: "Old ambulances, frequently broken down; need for minimum equipment".

Accomplishments

Three ambulances are now in service, with radios and standard ambulance equipment. It was disconcerting to hear that the 4th ambulance, which is down for repairs, had a disapproval of the funds necessary to get it back in service. Plans are to purchase four new ambulances, and two older ambulances will no longer be regularly used. For the resulting fleet of five there are radios, but added equipment will be needed.

E. Emergency Facilities

Problem: "300-400 patients per day; theoretical triage program in place, but in reality patients are seen on first-come, first-serve basis, with inadequate attention given to seriously ill or injured. Inefficient layout of space, inadequate number of rooms, and no separation of patients into urgent v.s. less-urgent. This predisposes to chaotic, inefficient, and unsafe management. Physician availability occasionally not assured due to lack of staff and improper scheduling".

Unsafe and wasteful mechanisms of drug ordering and control; E.R. not infrequently runs out of needed medical supplies. Polyclinic initially planned to be source of primary care, but inadequately staffed and open only noon to 4:00 p.m.

Accomplishments

- **Queen Elizabeth Hospital Emergency Room.**
A heavy patient load still presents here, but now 200-300 patients per day. The majority of these are of the clinic/dispensary type with some needing more urgent care; relatively few present with life-threatening emergencies (for perspective, throughout the U.S. about 80% of patients who access emergency services are not true emergencies, about 15% require urgent care, and about 5% are critically ill and injured. This pattern is similar at Q.E.H.) To cope with this the following have been successfully instituted:
 - a. A triage program is in place whereby a triage nurse assigns patients by urgency of care needed and directs them to designated areas of urgent or less urgent. Internal renovations were made to allow this more efficient use of space, and more examining rooms were added.

- b. Improvements have been made in materials management including inventory, ordering, control, and re-stocking of drugs, supplies and equipment.
 - c. Physicians are assigned on staggered shifts to meet the needs of peak loads, and physicians are now available in the department at all times.
 - d. E.R. policies are developed such that most patients needing surgical intervention are taken to the surgical ICU: i.e., chest tube insertion, central-line, peritoneal-lavage, etc. (This practice is presently under consideration by clinical chiefs of services as to whether better to use E.R. or ICU; I favor the use of the E.R.).
2. A new, and impressive ambulance center has just opened, which also serves as the dispatch center. This is located across the street from hospital.
 3. The polyclinics have now extended hours to 8:00 p.m., to help in taking some of the load from the E.R. This has resulted in E.R. load dropping from about 300-400 per day to about 200-300 per day. The pediatric clinic load has been almost halved. One of the goals was to re-appoint many of the patients from the E.R. to the polyclinics; however, the health professional is loath to turn away someone asking to be seen. Partly this is based upon compassion, partly upon the knowledge that though the problem may sound routine, the patient could have something more serious. Obvious non-urgent problems are re-appointed, but if there is any question, the staff will work the patient in at the time and this is right. The system of triage has helped in decreasing the numbers going to urgent areas, but the overall load remains high. The increased use of polyclinics is primarily by self-referral through public education and awareness.

F. Critical Units (In-patient Services)

Problem: Not discussed.

Accomplishments

This was not an area to be specifically evaluated, however it is important to know how the in-patient units work with the E.R.: In general, I feel the hospital is adequately staffed and prepared to handle the type of patients presenting at Q.E.H. E.R.; patients needing more sophisticated care are referred to U.S., Canada, Great Britain, etc. Inter-relationship problems are discussed later.

G. Medical Records

Problem: "Recordkeeping is poor and confused. Emergency records cards are kept in Records Department in casualty area, separate from in-patient record which could have valuable information re: previous illness, medications, allergies. This in-patient record is not routinely available except by request and only during week day day-hours".

Accomplishments

This same practice continues. The lack of a unified medical record makes the present system unacceptable. The goal here is to develop a system which can track the patient from ambulance system through the E.R. and should be integrated with polyclinics. This is a major task for hospital administration.

H. Coordination with Public Safety Agencies and Disaster Planning

Accomplishments

A multi-agency group of Fire, Police, Ambulance Service, M.O.H., Defense, Emergency Communication is in place, and they have jointly participated in disaster preparedness. Documented activities have included joint fire drills, disaster drills, cooperative training efforts, joint activities planned during EMS Week. Though this group pre-dated the project, its activities and interactions have increased during the project.

I. Public Education

Problems: Not discussed.

Accomplishments

Efforts have included presentations on radio, T.V., and the press. I am not aware of formal efforts at including public representation in planning and review activities, but the recent EMS panel discussion during EMS Week gave opportunity for a public forum.

In summary, the above achievements have transformed what was an unsatisfactory Casualty Area with inadequate staffing, inefficient and chaotic organization into an Emergency Department with improved staffing and organization, defined goals, improved quality of care, and leadership...And, have developed and implemented an impressive pre-hospital system of response and transport. Further, though less tangible, the project has developed a heightened sense of awareness of what is essential for a safe and efficient EMS System.

These are a direct result of the project.

III. Remaining Problem Areas

Though the above improvements are in place, is the system functioning as all had hoped for or expected?

For the pre-hospital program, in general the answer is yes; there is an adequate number of trained EMT's with high morale, esprit-de-corps, who seem eager to serve and eager to learn. Mr. Warren Schaub is to be complimented. We will be anxious to see when the hospital-based radio is installed; what will be the response to those situations where maintenance and repair is needed; what will be the success in maintaining present staff and recruiting for vacancies.

For the hospital, E.R. problem areas remain, and it is important to explore and discuss these.

1. First and very importantly, we must recognize there are problems that are inherent in a busy city or county-hospital type E.R., whether this is Boston City, Cook County Chicago, New York, or Barbados, Q.E.F. In a phrase, this can be summarized as departments with "high professional demand/low professional satisfaction".

There is a large flow of patients, many of whom do not need to be there. For the professional there is not time to develop rapport with patients that does occur on in-patient services. With long lines of seemingly never-ending patients, there is a psychologic tendency to ask "why are you here" rather than "what seems to be the matter". In the case of the critically ill there is no question, therefore the patient is well-accepted, and the professionals give their all. But the less-ill are often met with an attitude (spoken or un-spoken) of "you should not be here". Indeed this problem is now affecting the more affluent HMO populations, and the Kaiser Health Group has discussed their problems with the "walking well" in a system where emergency care is free.

2. Physician staff - the physicians do not have formal E.R. training, and many are not oriented to a career in E.R. Medicine. Several have other specialty interests and are desirous of getting positions in these areas. They give good service and hard-work on a day-to-day basis, but under such circumstances one would not expect long-term committment. They are relatively weak in the area of major trauma and intensive care, but as noted, these types of cases are not common.
3. A major task was to modify attitudes and behavior in many of the hospital and E.R. staff, and of course , this is a difficult task anywhere. Many of the staff have been there many years, have set attitudes and patterns of action; and plans for change are often met with passive resistance. The Project worked on this, and I observed that there are on-going efforts in this area.
4. The recent nurse training has gone far to heighten awareness, and improve performance, but in and of itself is not enough to expect major modifications in behavior unless there is continued encouragement by physician staff and nursing leadership. These concepts of E.R. skills and EMS management should be incorporated into nursing school and medical school curricula. As this is done we will see a quantum jump in the efficiency and quality of emergency care.
5. Laboratory and X-ray

Problem: "Often takes many hours to obtain lab and x-rays due to fact that technicians not in hospital nights and weekends. A problem requiring immediate correction". In the M.O.U: "M.O.H. will seek to have established sufficient positions to allow 24-hour coverage of these important services".

These plans have not materialized. Lack of funds was the given reason. The need remains for improved responsiveness both during day and after-hours.
6. Inter-relations with in-patient services remain less than optimal. Consultants do not respond with the rapidity which E.R. staff expects. The planned inter-department meetings have just started, and I am told this issue will be presented.
7. Though not a 'remaining problem', it is worth noting: after the Project started it became clear that efforts at program development had to be more comprehensive than could be expected of a lone physician consultant. For future EMS efforts it may be appropriate to start with the team concept of medical director, pre-hospital consultant, and nursing consultant.

8. **Physical Plant:** Improvements have been made to better use the existing space in this inefficiently laid out E.R. Still, it remains a difficult, cluttered, and inefficient area for handling the large numbers of patients. Further significant improvements will be dependent upon the major renovation program now underway. Some further modifications of the present department are being considered and they will be of some help; the major need is for more room.

IV. Project Administration

I have been charged with responsibility to comment on this topic. This is an area that is best addressed and monitored through internal controls on a day-to-day basis, rather than after-the-fact where it is often difficult to reconstruct situations. The U.S.A.I.D. mission official who briefed me expressed criticisms of "project oversight and accountability", primarily in the closing months of the project. She proposed the question to me: "Is this reflected in a deleterious way in program accomplishments?" My answer is: No.

During the main time of the project there was on-site program direction, and from what I can see, Project Administration during this time was appropriate and effective. Once the primary program at the Emergency Department and pre-hospital phase ended, the decision was made that it would not be cost-effective to maintain a project administrator on-site. I concur with this judgment. Once this decision was made, the project participants committed themselves (whether they realized it at the time or not) to the need for cooperative partnership. It thus became a "foregone conclusion" that there would be difficulties in trying to oversee day-to-day problems by long-distance phone, and more of the on-site work would thus fall to A.I.D. staff. This trade-off was done in the name of cost-efficiency, and in retrospect it still seems to be a reasonable decision.

A.I.D. staff therefore were called upon more than usual, and they should be credited for their response and performance.

I do not mean to gloss over any rough edges, but more importantly I do not want to lose sight of the ultimate result that this is a successful program that reflects well upon the AID-HOPE partnership.

The frustration with getting the radios installed seems to be a major focus of criticism. I am perhaps not as surprised or upset by this, because in my experience in trying to get communications established in many areas of rural U.S., I am aware of the many roadblocks that delay this. Many of these same blocks occurred during the project: Problems and errors in ordering; Delays in purchasing and accepting the radios; obtaining frequencies; installing repeaters; etc., etc. I am not certain that even if people were assigned exclusively to radios that the process would have significantly speeded.

It may be helpful for representatives from A.I.D. (D.C.) and H.O.P.E. to review and discuss some of the mutual expectations and/or misunderstandings in this broad area of Program Administration. Lessons learned here may be of significant benefit to any possible future ventures.

In this area I wish to discuss another Program Administration element: Selection and assignment of project people. This was excellent, and all of the staff receive excellent recommendations from hospital staff:

Dr. Van Tyne: "He certainly put his stamp of good influence on this hospital for time to come".

Nurses Ebert and Thompson: "Their efforts were outstanding not only technically and professionally, but also personally in the way they integrated themselves into the staff".

Warren Schaub: "Not only was he an outstanding consultant and teacher, he was truly an ambassador for good will. In addition to this primary mission of developing an EMT cadre, he participated with Fire Department, Police Department and citizens groups for CPR teaching, other teaching efforts, and overall developing a team spirit of togetherness and good will". His 'rescue at sea venture' was appropriately recognized by the U.S. Ambassador. From my observations he indeed entered the hearts of the people.

The above was an unplanned effect of the program, but one which reflects well upon U.S.

V. Impact Upon Beneficiary Population

The ambulance service has been particularly well received. This very visible system of flashing lights and sirens is always popular and is viewed with pride as a sign of progress, in addition to its primary life-saving purpose.

The Emergency Department improvements have similarly benefitted the population: Patients needing urgent care are seen more rapidly; the improved organization, training efforts, and increased staffing appear to have improved the quality and efficiency with which patients are seen. These are less visible to the general public, whose criteria are often: "How quickly am I seen", and "How pleasantly am I treated", and indeed with the present triage system, many less urgent cases have a long time to wait.

VI. Recommendations

1. In future projects, the initial survey should review the program or problems by the standard Essential Components of an EMS System. This will often reveal the need for a comprehensive approach, and will involve the team of Medical Director, Pre-hospital Consultant, and Nursing Consultant early in the project.
- 2.a) Encourage West Indies University and the Nursing School to include Emergency Medicine in their curricula. Attached is the American College of Emergency Physicians recommendations: "Core Content for Undergraduate Education in Emergency Medicine".
- b) As physicians and nurses with special interests and skills in EMS become available, recruit them to Q.E.H.
3. Recognize that an EMS system is dynamic, and requires continuing efforts just to maintain the present level of improvement. This includes:
 - a) On-going training of physicians, nurses, EMTs. A course such as the American College of Surgeons Advanced Trauma Life Support would be very helpful, using a faculty of outside consultants plus Q.E.H. Surgeons.
 - b) Regular meetings of E.R. staff to review, revise, further develop policies, procedures, protocols.
 - c) On-going evaluation: Daily E.R. logs should be periodically reviewed and can give such valuable information as: how long are patients waiting; what percent receive consultation, x-rays, or are admitted; how does the initial triage classification correlate; etc. Similarly, the ambulance runs should be periodically reviewed on a random sampling basis. The E.D. Director should oversee this, but could be assigned to a staff physician.
 - d) Development of ambulance maintenance, repair, and replacement schedule.
4. Meet the needs as outlined in topics of Lab., X-ray, Medical Records. Technical Assistance would be helpful.
5. Prior to the move into the new E.R. Department (scheduled for about 1 1/2 years from now), an intensive effort should be made to assure that services start off with immediate implementation of appropriate policies and procedures, and protocols. The hospital administration and E.R staff recommended that another training session, especially for E.R. nurses, would be helpful. I concur. Nurses Ebert and Thompson did such a fine job that I feel they would be excellent for any further efforts. Mr. Schaub would be very helpful in assuring that the pre-hospital system is integrated with the new department; and a physician consultant would be helpful in that final push to integrate the Emergency Department with in-patient services, with lab x-ray and other support services, and with the polyclinics.

6. It will be helpful to adopt (or adapt) an E.D. Standard to guide in monitoring and evaluation and toward making further improvements. One such guide is the U.S. Joint Commission on Accreditation of Hospitals Standards for Emergency Services. (JCAH Accreditation Manual for Hospitals, 1985, pgs. 17-29).

7. It is important to involve the in-patient clinical services in maintaining quality services in the E.D. A suggested mechanism is to have in-patient consultants give lectures to the E.D. staff such as:

Pediatric Consultant: "Initial management of pediatric emergencies".

Surgical Consultant: "Initial management of surgical emergencies," etc.

Core Content for Undergraduate Education in Emergency Medicine

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Society of Teachers of Emergency
Medicine
Dallas, Texas

Address for reprints: Society of Teachers
of Emergency Medicine, PO Box 619911,
Dallas, Texas 75261-9911.

INTRODUCTION

The Undergraduate Curriculum Promotions Committee of the Society of Teachers of Emergency Medicine (STEM) developed the following core content knowledge base and skills list for undergraduate education in emergency medicine. No specific recommendation was made as to how the curriculum should be structured to include this material. A draft document was sent to the ACEP Graduate/Undergraduate Education Committee and all emergency medicine residency directors for comments and suggestions. The final document was then formulated and approved by the STEM board of directors.

KNOWLEDGE BASE

- I. Orientation to Emergency Medicine
 - A. Principles of Emergency Care
 1. Recognition of threats to life and limb
 2. Evaluation of the emergency department patient
 - B. Emergency Medical Services
 1. Prehospital care
 2. Model systems/local system
 3. Paramedic, EMT — training and function
 4. Regionalization/categorization of care/trauma centers/disaster planning/triage
- II. Cardiovascular Diseases
 - A. Cardiopulmonary Resuscitation
 1. One- and two-rescuer CPR
 2. Conscious and unconscious victim
 3. Choking victim
 4. Infant CPR
 - B. Advanced Cardiac Life Support
 1. Coordination and priorities in cardiac arrest
 2. Drugs
 3. Treatment of ventricular fibrillation/ventricular tachycardia/asystole/electromechanical dissociation/bradyarrhythmias
 - C. Chest Pain Evaluation
 - D. Recognition of Supraventricular Arrhythmias
 - E. Recognition of Hypertensive Emergencies
- III. Trauma — Recognition and Initial Treatment
 - A. Priorities in Multiple Trauma
 - B. Head and Facial Trauma
 - C. Spinal Trauma
 1. Normal C-spine radiographs

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- E. Cerebral Vascular Accident
 - F. Altered Mental Status
 - XV. Musculoskeletal
 - A. Neurovascular Extremity Examination
 - Recognition of:
 - B. Strains/Sprains/Fractures
 - C. Septic Joint
 - D. Dislocations
 - E. Soft Tissue Injury/Infection

- XVI. Behavioral Emergencies
 - A. Recognition of Acute Psychosis
 - B. Suicidal and Homicidal Evaluation
 - C. Recognition of Behavioral Disorders Caused by Organic Illness
 - D. Performance of Mental Status Examination

SKILLS

- I. Laceration Repair
 - A. Suture Material; Needles, Instruments
 - B. Types of Wounds
 - C. Wound Preparation
 - D. Tetanus Prophylaxis
 - E. Local Anesthesia

- II. Cardiopulmonary Resuscitation
- III. Megacode Training (ACLS)
- IV. Electric Countershock
 - A. Defibrillator Operation
 - B. Indications
- V. Vascular Access
- VI. Airway Control
 - A. Bag-Mask Ventilation
 - B. Intubation
 - C. Cricothyroidotomy
 - D. Esophageal Obturator Airways
- VII. Splinting/Immobilization
- VIII. C-spine Immobilization
- IX. Gastric Lavage
- X. MAST Suit Application
- XI. Superficial Abscesses — Incision/Drainage
- XII. Nasal Packing
- XIII. Pericardiocentesis
- XIV. Needle Thoracostomy
- XV. Thoracostomy Tube Drainage