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ALLIED HEALTH MANPOWER TRAINING PROJECT
Combined Summary Evaluation Report

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

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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	ACTIVITY ^b 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	

^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

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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