DEPARTMENT OF HEALTH & HUMAN SERVICES

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Memorandum

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Subject Foreign Trip Report (AID/PSSA): Dominican Republic, Introduction of Computerized Patient Flow Analysis (PFA) Technique, October 17-29, 1982.

To William H. Foege, M.D.
Director, Centers for Disease Control
Through: Dennis Tolsma
Acting Director, CHPE Tolsma

SUMMARY

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SUMMARY

On October 17-29, 1982, Anthony A. Hudgins traveled to the Dominican Republic to introduce the computerized Patient Flow Analysis (PFA) technique to the National family planning agency, CONAPOFA. During the visit a CONAPOFA staff member was trained in collection of PFA data and studies were conducted in six family planning clinics. The data sets have been processed at the Centers for Disease Control. A return visit is planned to train CONAPOFA personnel in interpretation of results, to discuss the results with clinic staff, and to plan future activities.

I. PLACES, DATES, AND PURPOSE OF TRAVEL

At the request of USAID/Dominican Republic and AID/S&T/POP/FPSD, Anthony A. Hudgins traveled to the Dominican Republic on October 17-29, 1982, to provide technical assistance to the Consejo Nacional de Poblacion y Familia (CONAPOFA) in use of the computerized Patient Flow Analysis technique to analyze the efficiency and effectiveness of family planning clinic operations. This consultation was provided by Anthony A. Hudgins of the Program Evaluation Branch, DRH/CHPE/CDC. This travel was in accordance with the Resource Support Services Agreement (RSSA) between the Office of Population, AID, and CDC/CHPE/DRH.

II. PRINCIPAL CONTACTS

A. USAID/Dominican Republic
1. Dr. Oscar Rivera, Director, Health and Nutrition Office
2. Mr. John Thomas, Health and Nutrition Office
3. Ms. Dulce Jimenez, Health and Nutrition Office

B. Consejo Nacional de Poblacion y Familia (CONAPOFA)
1. Dr. Ramon Portes Carrasco, Executive Director
2. Lic. Leovigildo Baez, Director, Evaluation Division
3. Lic. Dioni Santos, Statistician, Evaluation Division

III. BACKGROUND ON COMPUTERIZED PATIENT FLOW ANALYSIS

Patient Flow Analysis (PFA) is a system which documents personnel utilization and patient flow in individual family planning clinics. Its use enables management to obtain data for statistical documentation and graphical representation of a clinic session, which can be used to identify problems in patient flow, determine personnel and space needs, and document personnel costs per patient visit. Family planning programs using PFA can measure the performance of individual clinics, design new clinics, initiate improvements in the clinic pattern and/or personnel needs that will increase overall clinic efficiency, and measure the results at minimal cost. Specific anticipated benefits to be derived from the use of PFA may include reduction of patient's waiting time (and frustration) in the clinic, a more equitable distribution of workload for each staff member during the work day, and reduction of personnel costs in the clinic. Additional patients may also be served for the same or even reduced costs.

Five forms are used for data collection, of which essentially only one form (Patient Register--Form 3) is used during the conduct of the clinic session. Therefore, data collection does not interrupt the clinic session to such a degree that clinic behavior is modified.

Data collection is relatively simple, and processing of the data has been computerized to handle large data sets and to insure rapid turnaround of results; proper interpretation of the results, however, requires training. Two types of output are produced by the computer programs written for PFA. One is a graphical representation of the clinic session created by an electro-mechanical plotter. The upper part of this graph illustrates the type, number, and length of each contact that the patient makes as the patient flows through the clinic, and waiting time preceding each contact. The lower part of the graph displays the staff time occupied with patients and the time spent otherwise for each staff member. In addition to the graph, the PFA system produces six tables and a statistical summary. These tables include data on: (1) Patient arrival as related to appointment time; (2) patient service time as related to the patient's time in the clinic by visit type; (3) mean personnel cost per patient by visit type; (4) personnel utilization in the clinic by task; (5) time and cost for each clinic station by visit type and total visits; and (6) each person who worked in the clinic on an individual basis.

The graphical and statistical output are examined together. In order to comprehensively interpret the output, information on personnel policy, size and arrangement of the facility, other programs conducted at the same location, personnel skills, and number of patients normally served during the clinic session should be taken into account. In addition, interpretation of the output should be done in conjunction with the clinic personnel who worked during the clinic session that was studied.

PFA was developed by DRH/CDC as a management tool for use in family planning clinics in the United States and Puerto Rico. During the development phase, over 700 data sets were collected and processed by CDC. Earlier consultations have introduced PFA in El Salvador, Brazil, Mexico, and Kenya.

IV. IMPLEMENTATION OF PATIENT FLOW ANALYSIS

Spanish language PFA forms that had been used during consultations in El Salvador and Puerto Rico were reviewed with CONAPOFA staff and found to be appropriate for use in the Dominican Republic. Code lists to be used for coding visit type, family planning methods, and clinic types were discussed and translated into Spanish.

A CONAPOFA staff member, Dioni Santos was trained in all aspects of PFA data collection, partially through one-on-one training, but largely through conducting PFA studies in six different clinics throughout Santo Domingo.

These six clinics in the Santo Domingo area were selected for studies because of their widely varying characteristics. Each was visited previous to the study to explain the study objectives and methodology and to collect necessary information regarding staffing. It should be noted that while the six clinics varied considerably, they all followed what is called the "medical model," namely that most service was provided by a physician with the patient having relatively brief preparatory contacts with non physician personnel. Each clinic is described below:

(1) Sub-Centro Las Minas: This facility in a suburban area of Santo Domingo holds a family planning clinic in the afternoons, while other clinics are held in the morning. On October 21, when the study was conducted, 38 patients were served. The staff considered this a rather light day.

(2) Sub-Centro Matahambre: This facility in a close-in residential area holds its family planning clinic in the morning at the same time as other clinics (Gynecological, Pediatric, Immunization, Prenatal). The result is very crowded physical facilities from the point of view of both patients, and staff. For example, two family planning physicians, and two Ob/Gyn physicians shared a single room with two examination areas behind curtains. On October 25, a study was done involving 24 family planning patients and 19 gynecological patients.

(3) Clinica Buenos Aires: This is a small clinic in a relatively poor area. On October 27 the clinic served 20 patients, including family planning patients. This was considered a relatively light clinic load for this day upon which immunizations were scheduled. Two other days of the week are scheduled specifically for prenatal patients, as well as family planning patients, and tend to be much busier.

(4) Hospital Maternidad: The National Maternity Hospital carries out surgical sterilization in the morning and serves patients using temporary methods in the afternoon. On October 26 the afternoon clinic was studied, during which 53 patients were served.

(5) Centro Sanitario: The largest public health center in Santo Domingo holds family planning clinics every weekday morning. On October 28 the clinic served 62 patients.

(6) Clinica Treinta de Mayo: This small clinic in a suburban area holds general clinics in the morning and family planning clinics in the afternoon. The number of patients served by the physician are limited to 21. On October 28 a total of 24 patients were served, including those served only by the nurse (resupply patients).

The six data sets have been processed at CDC. Table 1 shows selected statistical data for each of the six clinic sessions studied. The time spent by patients in the clinic is short relative to clinics in other countries, including the United States. This is due to the relatively simple clinic flow design in the Dominican Republic--usually two or three contacts with staff and most services provided in a single physician contact. The percent of time spent by patients actually in contact ranges from 11 percent to 50 percent. Previous work with clinics indicates that 50 percent is achievable in most clinics. The longest time spent by "initial" patients was 129 minutes in Clinica Treinta de Mayo. This is due to the fact that the physician limits herself to serving 21 patients each session, so that women tend to arrive early to be sure to be one of the 21.

Table 1

Selected Patient-Oriented Data

Site	Time in Clinic (Min.) Initial Patients	Time in Clinic (Min.) Resupply Patients	% of Time In Contact With Staff
Las Minas	22	8	50
Matahambre	88	13	17
Buenos Aires	66	12	29
Maternidad	58	33	19
Sanitario	79	23	32
Treinta de Mayo	129	*	11

*There were no resupply patients in this clinic.

Table 2 shows that the percentage of time that staff spend in face-to-face contact with patients ranged from 31 percent to 47 percent. It has been our experience that this percentage can be brought up to 65 percent through proper clinic flow design. The costs ranged widely from .91 $RD to 3.08 $RD for initial patients and .07 $RD to .47 $RD for resupply patients.

Table 2

Selected Staff and Cost Data

Site	% of Time In Contact With Patients	Mean Personnel Cost Initial Patients	Mean Personnel Cost Resupply Patients
Las Minas	44	2.82	.17
Matahambre	36	3.08	.07
Buenos Aires	39	2.77	.21
Maternidad	42	.91	.45
Sanitario	31	1.85	.47
Treinta de Mayo	47	1.15	*

*There were no resupply patients in this clinic.

FUTURE ACTIVITIES

A return visit will be scheduled during which CONAPOFA personnel will be trained in interpretation of the results, and results will be discussed with the staff of each clinic. At this point discussions will be held with CONAPOFA staff concerning the utility of the technique in the Dominican Republic, and future plans will be made for ongoing PFA activities.

Anthony A. Hudgins, M.D.S.