DATA FOR DECISION MAKING Project

USAID
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

United States Agency for International Development
Project Number 936-5991
PASA Number DPE-5991-X-HC-1038-00
Report of PASA Activities
October 1, 1991–June 30, 1994

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
Epidemiology Program Office
Atlanta, Georgia 30333

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Project

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Abbreviations

ACS	American Cancer Society
AIDS	Acquired Immunodeficiency Syndrome (Honduras)
CAPME	Le Centre d'Approvisionnement des Medicaments Essentials (Cameroon)
CAR	Central African Republic (Africa)
CAR	Cordillera Autonomous Region (Philippines)
CCCD	Combatting Childhood Communicable Diseases (Nigeria)
CCH Project	Child and Community Health Project (Bolivia)
CDC	Centers for Disease Control and Prevention, Atlanta, Georgia
DECAID	Multi-Attribute Utility/Decision Making
DDM	Data for Decision Making
DDM/CDC	DDM Project/CDC
DGE	General Directorate of Epidemiology (Mexico)
DHS	Demographic and Health Surveys (Central African Republic)
EPI	Expanded Programme on Immunizations
EPO	Epidemiology Program Office, CDC
FCFA	Franc CFA (Cameroon)
FHSIS	Field Health Service Information System (Philippines)
FNRI	Food and Nutrition Research Institute (Philippines)
HC	Harvard Consortium
HAMIS	Health and Management Information System (Philippines)
HHRAA	Health and Human Resource Analysis for Africa (WHO, AFRO)
HIS	Health Information System
HIV	Human Immunodeficiency Virus
IHPO	International Health Program Office, CDC
INCLEN	International Clinical Epidemiology Network
INEGI	National Institute of Geographic Statistics and Information (Mexico)
INSP	National Institute of Public Health (Mexico)
LGA	Local Government Area (Nigeria)
LGU	Local Government Unit (Philippines)
MIPH	Management for International Public Health Course, Emory University and CDC
MIS	Management Information System (Peru)
MDA	Management Development Activity

MOD-COMM	A Communication Module in Public Health
MOH	Ministry of Health
MOPH	Ministry of Public Health
NCHS	National Center for Health Statistics
NGO	Non-governmental Organization
NSO	National Statistics Office (Philippines)
OFDA	Office of Foreign Disaster Assistance
PAHO	Pan American Health Organization
PASA	Participating Agency Service Agreement
PHLI	Public Health Leadership Institute
PIO/T	Project Implementation Order/Technical Services
PHPPO	Public Health Practice Program Office
Projet CIM	Belgian Center for Medical Instruction (Cameroon)
PVO	Private Voluntary Organization
RAPID	Rapid Appraisal for Priority Setting and Informed Decision Making
REU	Regional Epidemiology Unit (Philippines)
SAF	Smoking-Attributable Fraction (Mexico)
SAM	Smoking-Attibutalble Mortality (Mexico)
SAMMEC	Smoking-Attributable Morbidity, Mortality and Economic Cost
SIR	Smoking Impact Ratio (Mexico)
SSA	Secretariat of Health (Mexico)
TAACS	Technical Advisor on AIDS and Child Survival
TDRC	Tropical Diseases Research Centre (Zambia)
UNICEF	United Nations Children's Fund
USAID/R&D/ H/AR	United States Agency for International Development, Bureau of Research and Development, Office of Health, Division of Applied Research
WHO	World Health Organization
WHO, AFRO	World Health Organization, Africa Regional Office

I. INTRODUCTION

BACKGROUND

If public health policy makers and practitioners are to be able to make informed decisions for public health, they need to use epidemiologic, economic, management, demographic, and other types of information. This information, derived from health- and management-information systems, public health surveillance systems, special registries, surveys, and studies, provides a basis for

- setting health priorities
- formulating health policies
- obtaining and allocating resources
- planning, implementing, monitoring, managing, and evaluating public health prevention and disease-control interventions and programs.

In September 1991, the Agency for International Development, Bureau of Research and Development, Office of Health, Division of Applied Research (USAID/R&D/H/AR), funded a 5-year Data for Decision Making (DDM) Project (936-5991). The purpose of this project is stated as follows: to develop and test different approaches and tools to increase the use of epidemiologic, economic, demographic, and other needed data for formulating and implementing public health policies and programs.

On September 20, 1991, a Participating Agency Service Agreement (PASA) was established between USAID/R&D/H/AR and the Epidemiology Program Office of the Centers for Disease Control and Prevention (CDC) to carry out the "Info-Tech" component of the DDM Project (group referred to as DDM/CDC).* CDC is collaborating with other DDM implementing partners supported by the Office of Health,

*"Data for Decision Making in the Health Sector" Project Paper; "Data for Decision Making in the Health Sector" Project Paper, Amendment #1 (10/92).

USAID, which are carrying out complementary components of the DDM Project (See Appendices B and C for a complete list of DDM participating staff).

DDM/CDC PURPOSE AND MISSION

DDM/CDC seeks to increase the effective use of data in setting health priorities and policies; in making cost-effective decisions on the allocation of resources; and in planning, implementing, monitoring, and evaluating health programs. The project aims to achieve these outcomes in decision-making environments in which economic, political, cultural, and social factors have a substantial influence on decisions.

The DDM/CDC Project addresses the need to build the capacity of decision makers and their advisors in participating countries to a) identify health priorities and problems, b) identify useful information for solving those problems, c) understand how to use this information in the decision making process, and d) persuasively convey technical information on public health problems to decision makers at successively higher levels. In concert, DDM/CDC also addresses the need to improve timely access to available and valid data.

DDM/CDC PROJECT GOALS

The use of data for decision making in the health sector will be enhanced if the following practices are implemented. First, decision makers need to be able to articulate the issues and problems they are facing, understand what types of information will be useful in solving problems, identify information needs, and know how to use the information appropriately in making and implementing decisions. Second, technical advisors need to provide decision makers with valid and appropriate information in a timely manner and in a coherent, concise, and compelling form. Finally, information systems need to provide timely access to and facilitate analysis, interpretation, and presentation of data needed for decision making (see box on page 3).

DDM/CDC Goals

The goals of DDM/CDC are to

- Build the capacity of decision makers at policy, program, and facility levels so that they can identify information needs and use epidemiologic, management, economic, demographic, and other relevant information for
  - identifying and setting priorities
  - formulating health policies
  - identifying cost-effective health interventions
  - planning, implementing, monitoring, evaluating public health programs
  - obtaining and allocating resources
  - building consensus and constituencies
  - advocating for public health
- Enhance the skills of technical advisors in
  - collecting valid data
  - improving the quality of data
  - conducting appropriate analyses
  - using appropriate software
  - communicating clearly with decision makers about technical information
  - advocating for public health
- Strengthen information systems and enhance use of tools to facilitate and/or improve
  - availability of needed data
  - access to multi-source data
  - management of data
  - quality and timeliness of data
  - interpretation and presentation of data

THE DDM/CDC PROJECT STRATEGY

DDM/CDC Project staff are developing and testing several approaches and tools (see Section IV) that will increase data-based decision making in participating countries. The Project strategy is to

- Develop the following approaches to increase the use of data by public health decision makers:
  - Training modules and courses
    - — applied epidemiology
    - — applied program management
    - — communications
    - — economic evaluation
    - — epidemic preparedness and response
    - — public health surveillance
  - Interactive problem-solving exercises
  - Supervised, in-service application of skills to solving current public health problems
  - Public health leadership programs
  - Public health bulletins
- Develop or enhance tools to increase availability of and access to data
  - Epi Info and Epi Map
  - Guidelines for evaluating public health surveillance systems
  - Smoking-Attributable Morbidity and Mortality and Economic Costs (*SAMMEC* 2.1) Software
  - Public health computer work station
    - — Provides easy access to and analysis of multi-source data
    - — Facilitates interpretation of data
    - — Provides tools for the effective presentation of technical information
    - — Provides easy access to appropriate software packages
      - » *Epi Info* and *Epi Map*
      - » Communication module (*MOD-COMM*)
      - » *SAMMEC*
      - » Other software for data analysis and presentation
      - » Public health bulletins
- Test the effectiveness of these approaches and tools in increasing the use of data in decision making in participating countries. The process

described below is used to select countries for participation and to test the effectiveness of DDM/CDC approaches and tools.

- A country expresses interest to USAID/G/PHN/HN and invites a country assessment

■ DDM/CDC

- Carries out a country assessment
  - — Identifies and studies decision-making processes, including lines of authority for making decisions
  - — Inventories sources of data
  - — Assesses access to data
  - — Assesses channels, mechanisms, and practices of communications
  - — Identifies factors that encourage or limit the use of data
  - — Identifies training and tools needed to overcome barriers
- Identifies a topic area or issue as a framework around which technical assistance will be structured
- Develops a country work plan and budget in collaboration with the particpating country
- Implements the work plan
- Provides supervision and technical assistance for in-service application of skills and tools in the decision-making process
- Evaluates effectiveness of strategies, approaches, and tools to increase effective use of data in decision making

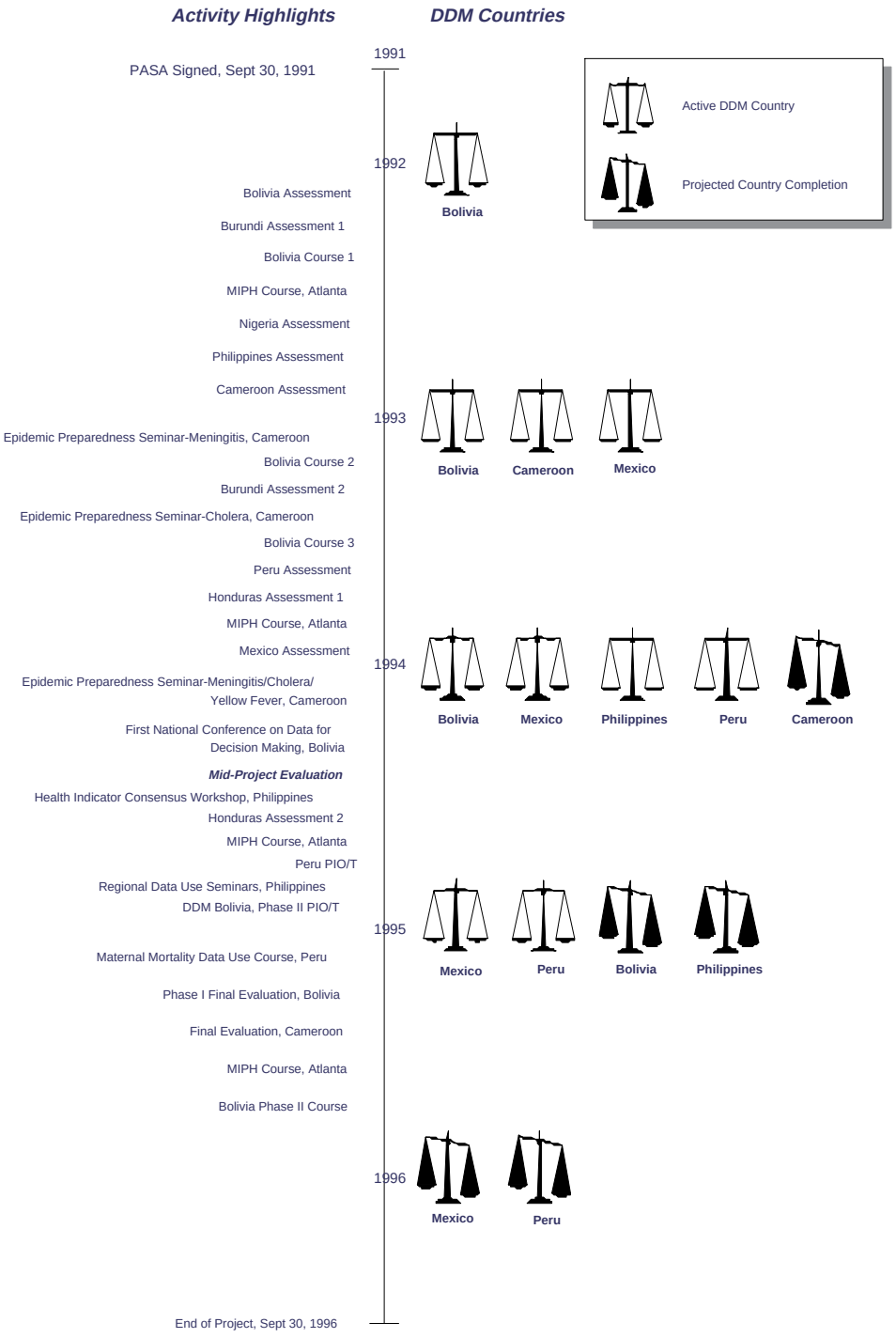
■ Provide tools and materials to other interested countries once effectiveness is demonstrated.

FOCUS OF REPORT

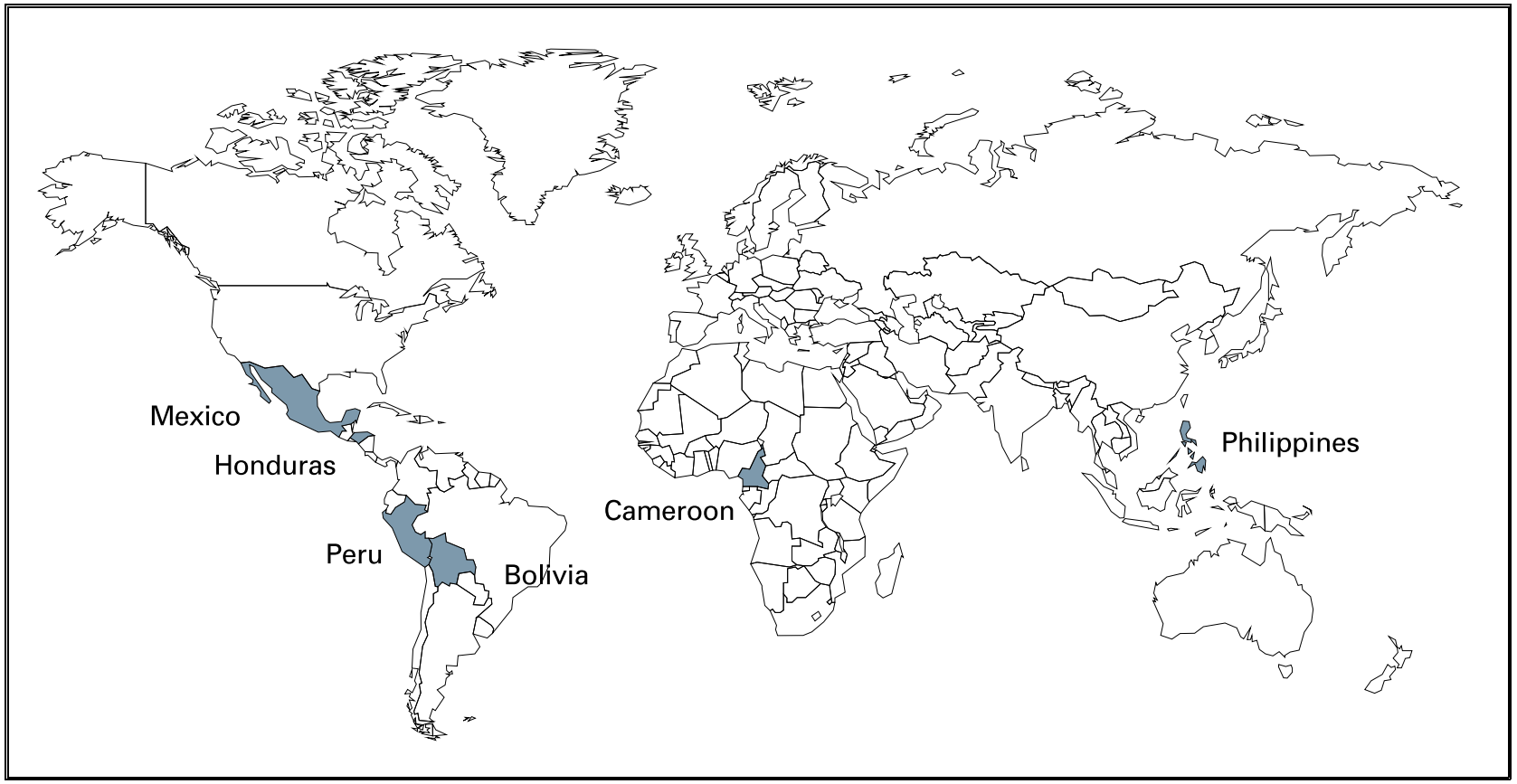
The report that follows summarizes the achievements of the DDM/CDC Project for the period October 1, 1991, through June 30, 1994. Project goals and strategies, achievements, lessons learned, sustainable capacity-building efforts, and future directions are all described. Project activities and achievements are organized for presentation under the following headings: Country-specific Reports, and Development of Approaches and Tools. Appendices provide detailed accounts of activities and training related to country-specific projects, as well as directories of partners and staff who are participating in the DDM Project.

II. DDM/CDC Timeline and Map

DDM CDC Timeline



Current DDM Country Activities



III. COUNTRY-SPECIFIC REPORTS

Country-Specific Reports

The DDM/CDC Project has been well-received by Ministries of Health (MOH) and USAID missions in Latin America, Africa, and Asia since its implementation October 1, 1991. Requests for assessments have been received from 15 countries and one international agency at the regional level, i.e., the World Health Organization, Africa Regional Office (WHO, AFRO) (Table 1).

As of June 1994, DDM/CDC staff are providing technical assistance in Bolivia, Mexico, Peru, Honduras, Cameroon, and Philippines. Assessment visits have been conducted in Burundi and Nigeria, but, because of political issues in those two countries, complete work plans have not been developed or implemented.

Table 1. Countries that have requested DDM/CDC assistance

Latin America:	Africa:	Asia:
Bolivia	Burundi	Philippines
Brazil	Cameroon	Thailand
Honduras	Central African Republic	
Mexico	Guinea	
Peru	Nigeria	
	Rwanda	
	World Health Organization African Regional Office	
	Yemen	
	Zambia	

LATIN AMERICA

BOLIVIA

Background

A country assessment was carried out during visits in February and March 1992 (See *Reference Documents*). During the assessment, it was determined that national, regional, and selected district decision makers in EPI, diarrheal-disease, and other programmatic areas in Bolivia were in need of improved skills for a) objective-based program planning; b) developing budgets; c) planning for emergency situations; d) allocating resources; e) targeting, monitoring, tracking, and accounting for commodities distributed and administered by the programs; f) monitoring and evaluating program effectiveness; g) identifying information needs and knowing how to obtain, validate, and analyze data from different data sources; and h) identifying and communicating with senior decision makers about program achievements and resource needs clearly and compellingly. In September 1992, the Bolivian Ministry of Public Health (MOPH), in collaboration with the Child and Community Health (CCH) Project, and USAID/La Paz initiated a DDM Project. The implementing partners in the project are DDM/CDC and the CCH Project.

DDM/CDC Bolivia Project Goals

The DDM/CDC Bolivia Project was originally envisioned as a 2-year program of training in applied epidemiology, management, and communications, with the following goals:

- To improve data-based public health decision making by health program directors at national, regional, and district levels
- To improve the ability of program directors to use data effectively to influence decision making at successively higher levels
- To improve the epidemiologic, management, and communications capabilities of key public health decision makers in Bolivia

Accomplishments

1. Increased the capacity of decision makers to identify information needs, understand better how data can be applied for decision making, and advocate effectively for public health.

2. Increased the capacity of technical advisors to perform appropriate analyses and to convey technical information to decision makers effectively.

- A program to train 41 mid-level ministry of health decision makers in applied epidemiology, applied management, and communications, with supervised application of skills for public health programmatic problem solving was designed, implemented, and assessed.

Targeted Audience. The MOPH selected 41 decision makers at different levels of the health system in Bolivia to participate in the program (38 of whom successfully completed the program). Participants included

- National directors of prevention/control programs and epidemiologists (N = 10)
- Health officers and epidemiologists from partner agencies (two)
  - Regional chiefs of epidemiology and health services, and program directors (21)
- District-level chiefs (seven)
- District medical directors (one)

DDM/CDC Bolivia Training Program

- Three 2-week workshops were developed and conducted at CDC approximately 6-month intervals. The first was on applied epidemiology, biostatistics, and communications. The second was on applied management. The third was primarily on communications, although topics from the first two workshops were reviewed, and participants practiced managing and analyzing data in a supervised setting. (See Appendix A: Bolivia).
- Specific learning objectives were set for each workshop. (See Appendix A: Bolivia).
- After each workshop, participants were required to apply their skills to solving a problem they had encountered in their work. (See Box; See Appendix A: Bolivia).

Application of Skills to Problem-Solving

Based on a review and analysis of relevant data, particpants identified:

- a real-life problem;
- desired outcome objectives
- determinants of the problem and possible interventions;
- a plan of action;
- available resources to implemnt the proposed solution
- additional resources required to implement, monitor, and evaluate the proposed solution; and
- next steps needed to implement the intevention strategy or plan.

- Two to three supervisory visits in the intervals between workshops allowed DDM/CDC staff and consultants to meet with participants in small groups and review their progress on projects, discuss problems they were encountering, and plan the activities to follow.

National Conference on Data for Decision Making

- The DDM/CDC Bolivia Project culminated in a National Conference on Data for Decision Making in La Paz, Bolivia, March 21-23, 1994.
  - — 100 health professionals (including 72 from Bolivia and 27 representatives from international partner agencies) attended.
  - — DDM/CDC Bolivia participants applied their newly learned communication skills to present their data-based plans and recommendations to key top-level decision makers from the Bolivian Secretariat of Health and from international partner agencies. (See Appendix A: Bolivia).
  - — Decision makers in the audience who wanted to learn more about the specific presentations and proposals of any of the participants met with those participants on an individual basis.

Building Sustained Capacity in Applied Epidemiology, Applied Management, and Communications

Training Trainers in the Areas of Applied Epidemiology, Biostatistics, Communications, and Computer Use

For Workshops #1 and #3, because of lack of local expertise in these areas, instructors were provided primarily by CDC, with Bolivian nationals serving as facilitators. A Bolivian national attended a Training of Trainers Course on Applied Epidemiology in Atlanta in preparation for teaching part of Workshop #1 in Bolivia. CDC instructors included two epidemiologists, a communications specialist, a biostatistician, and a computer (*Epi Info*) specialist.

Training Trainers in Applied Management

Nur University, in Santa Cruz, was identified as a Bolivian resource to provide some management training for district-level personnel in their Master's degree program on Health Systems Management. The staff at Nur were interested in collaborating with CDC to improve the management component of their curriculum and to expand their training resources in the management area. Consequently, the Bolivia DDM coordinator and a faculty member from Nur University with experience in teaching management science attended the Management for International Public Health course offered by Emory University/CDC in November 1992. Following the course, they developed and refined the training materials for the DDM/CDC Bolivia Applied Management Workshop #2. The CCH Project contracted Nur University to organize and teach the workshop. NUR faculty were assisted by two cofacilitators from CDC.

Retention of Skilled Human Resources

After a national election resulted in a change of government, 35 of the 38 persons who finished the DDM/CDC Bolivia training program, have been retained in positions in the Ministry of Health.

DDM/CDC Bolivia Project Evaluation

Assessment of the Impact of DDM Interventions on Decision Making Behavior of DDM/Bolivia Participants (See *Reference Documents*)

Midway into the project (in August 1993 just before Workshop #3), DDM/CDC contracted with an evaluation specialist to assess the decision-making behavior of the Bolivian participants. The purpose of the assessment was to ascertain their current decision-making practices, identify variables affecting their decision making, and determine to what extent they were applying the newly acquired concepts and skills being taught in the DDM/CDC Bolivia program.

Data were obtained through a combination of in-depth interviews with nine participants (three each randomly selected from district, regional, and central levels) and with their immediate supervisors or co-workers. Group discussions were held with the other DDM/CDC Bolivia participants. The assessment was based on the hypothesis that "if DDM/CDC Bolivia is successful, it should be possible to see increased use of data in reported decision-making behavior among the Ministry of Health participants."

Results

Participants reported the following areas as those that describe changes in behavior they felt resulted from their participation in the project:

- A broadened, more technical perspective
- Improved management skills
- Increased analysis and use of data
- Increased use of *Epi Info*
- Improved scientific report writing and presentations
- More open relations with colleagues

At the time of the assessment, the training program was found to have had a noticeable positive impact on the decision-making behavior of the participants. For most participants, this program was their first introduction to epidemiologic concepts and data analysis. Exposure to these new concepts and techniques — which they described as being practical and applicable in their jobs — literally opened a new world for them and gave new meaning, confidence, and a new outlook on their professional lives.

The participants reported that before the DDM training program they made decisions impulsively and intuitively, without analyzing the data at their disposal or questioning directives from their superiors. Data were not applied to problem solving. Rather, the participants reacted to reports of cases of health problems with immediate interventions and did not identify specific causes, regional differences, and other factors that would help focus responses and allow more efficient use of resources. Important outcomes of the training program were greatly improved skills in the analysis of data. Also improved were the ability to critique the analytic methods used by others and to determine the reliability of data.

Participants reported applying epidemiologic concepts, analyzing data, and creating much more effective written reports and oral presentations (using tables and graphs more effectively) than they had been able to prepare before the training program. Participants said that they have improved their skills for managing, planning, and setting priorities. They also learned how to prepare budgets, evaluation plans, and instruments for personnel supervision and evaluation. The work of several participants has resulted in official policies and norms, and improved field implementation strategies. (See Appendix A: Bolivia).

Relative Importance of Various Factors in Making Decisions

Each of the nine participants interviewed in depth was asked to rate the relative importance of a series of factors that could potentially influence the management decisions they made, currently and before taking the DDM course. (See Figure 1 in Appendix A: Bolivia). The factors that most influenced decision making of the participants at the time of the assessment were epidemiologic data, policies of the MOH, community health needs, operating budget, computer availability, and staff they supervise. The importance of MOH policies was the only factor consistently high before the DDM/CDC Bolivia course and at the time of the assessment. The three factors that gained the most influence in decision making were epidemiologic data, computers, and staff supervised.

Decisions To Allocate Resources To Implement Plans Presented at the National Conference

Since the First National Conference on Data for Decision Making, PAHO and UNICEF have indicated interest in funding selected plans of action that were presented by the participants.

Future Assessments

A second assessment of the use of data in decision making by the Bolivian participants is planned for March 1995, a year after the First National Conference.

Lessons Learned

- Key factors in the success of the DDM/CDC Bolivia project include
  - Support and endorsement of this training program at the highest level of the Secretariat of Health
  - Highly motivated project participants
  - A highly competent, conscientious, self-initiating, and motivated Bolivian DDM coordinator
- Also key to success of the project has been the application of skills to actual in-service problems being faced by participants, which provided opportunities for participants to analyze and report data from programs for which they are responsible.
- A program of periodic follow-up supervision after workshops is critical for maintaining motivation and enthusiasm of the participants and for assisting them in applying newly learned skills to work-related problems.
  - Supervision is an essential tool for generating behavior change in data use.
- Trained mid-level decision makers often remain in public-health-sector positions after changes occur in government. (See bibliography of project products and materials in Appendix A: Bolivia).

Future Steps

- USAID/La Paz has decided to expand the DDM Project in Bolivia to include technical assistance from the Harvard Consortium (HC). This will be the first opportunity for the Project to try to increase the use of data for decision making at all levels of the health sector, from the highest policy-making levels of the Ministry of Human Development to programmatic decision making and policy implementation at regional, district, and area levels in the Secretariat of Health.
- In response to a request for technical assistance by the Secretariat of Health,* CDC proposed that the technical capacity to plan, implement, and evaluate the DDM/CDC Bolivia program of in-service training,

*On March 23, 1994, the Secretariat of health requested technical assistance from international partner agencies in 11 areas, including developing, strengthening, and supporting a) mechanisms to implement policies in the context of decentralization ; b)a program in management in health and training for groups who will implement health reform; and c) information systems for monitoring, evaluation, and management.

which was piloted successfully in 1992-1994, be transferred to Bolivia. DDM/CDC proposes to provide support and assistance to accomplish the following:

- identify and hire a Bolivian DDM/CDC Project Director and a core staff of Bolivian national trainers (based in CCH) in applied epidemiology, biostatistics, computer use, and communications as well as to hire essential support staff, including a training specialist;
- provide the core staff of trainers opportunities to maximize their expertise as trainers in the areas of applied epidemiology; basic biostatistics; use of computers for data management, analysis, and presentation; applied management; and communications;
- under the direction of the DDM/Bolivia Director, and with support from CDC, the core staff of trainers will
  - — conduct an assessment of training needs for area medical doctors and nurses in rural and suburban areas and develop a curriculum for training this target audience in the topic areas identified during the assessment;
  - — review materials developed during the project to revise and adapt them as needed for use in training the target audience identified above;
  - — teach the curriculum to selected area physicians and nurses, and then hold a second national DDM conference.
  - — evaluate the program's ability to increase the effective use of data at local levels for improved program performance and impact.
- provide technical assistance to the DDM/CDC Bolivia staff in creating and publishing a public health bulletin to increase the dissemination and use of public health information at area, district, regional, and central levels;
- provide technical support and funding for the implementation of a selected subset of DDM/CDC Bolivia proposals prepared by participants in 1992-1994.
- explore mechanisms and sources of funding, and plan for full institutionalization of training and technical assistance.

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Otto B. Trip report, DDM Project Bolivia. January 23 - February 13, 1993.

Otto B. Trip report, DDM Project Bolivia. March 6-31, 1993.

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MEXICO

Background

The Secretariat of Health, Republic of Mexico, with concurrence by USAID/Mexico, requested a DDM country assessment late in 1992. DDM/CDC staff made an assessment visit on December 7-18, 1992 (See *Reference Documents*), and the Harvard Consortium conducted its assessment in February 1993.

The DDM/CDC assessment team explored the use of data for decision making in the design, implementation, and evaluation of disease prevention and control programs at selected state and jurisdictional levels in Mexico. Because of the decentralization, which has been occurring within the health system in Mexico, the team was asked to identify strategies to improve the use of data for decision making in public health at state and jurisdictional levels. Special attention was given to building the capacity of central-level staff to assist state and jurisdictional health departments in achieving this goal.

After the DDM/CDC assessment visit, the Mexican Secretariat of Health identified two additional areas of interest to be included in a DDM/CDC Project work plan. First is the identification of the health effects and economic consequences of smoking and tobacco use as a priority for study and intervention in Mexico, beginning at the national level, through the use of the Smoking Attributable Mortality, Morbidity and Economic Costs *(SAMMEC*) computer software. *SAMMEC* was developed for use in the United States with U.S. data and will be modified to use Mexican data. The second area is to develop, implement, and test the impact of a public health leadership program in Mexico on use of data in decision making in the health sector.

A work plan was developed and agreed upon by the General Directorate of Epidemiology (DGE) in collaboration with DDM/CDC. After USAID approved the plan, project activities began in June 1993.

DDM/CDC Mexico Project Goals

The DDM/CDC Mexico Project seeks to increase data-based public health decision making at national and selected state and jurisdictional levels of the health system.

- At national, state, and jurisdictional levels, to
  - increase the availability of and access to surveillance and other public health data through a) refinement of Mexico's public health surveillance system and b) dissemination of information to the public health community (including through a public health bulletin);

- increase the capacity of a core group of DGE staff to advocate for anti-smoking legislation and health policy (by adapting and using a computer tool for analysis and presentation of data on smoking-attributable mortality, morbidity, and economic cost);
- increase the capacity of a core group of DGE staff to provide assistance to state health departments to use data more effectively in formulating health policies, and allocating resources and in planning, implementing, and evaluating public health programs;
- test the appropriateness and effectiveness of the Public Health Leadership Institute as an approach to improving the use of data for decision making by a senior public health officials as a result of improved leadership and communications skills.

■ At the state level, to build the capacity of state health departments to

- collect, analyze, and use data more effectively to determine priorities for local public health programs;
- identify public health problems that can be prevented with resources and technology currently available in Mexico;
- design, implement, and evaluate prevention or control programs that will decrease morbidity or mortality and that are feasible with available resources;
- effectively use data to advocate for public health programs and for additional resources needed to address locally identified health priorities.

Accomplishments

1. Increased the capacity of decision makers to identify information needs, to understand how data can be applied more effectively in decision making, and to advocate effectively for public health.

■ A core group of national-level professional staff (who will train and provide other technical assistance to decision makers and staff at state and jurisdictional health departments) has been trained in advanced applied epidemiology; applied management; and calculation of smoking-attributable mortality, morbidity, and economic cost.

Applied Management

- The Director of Chronic Disease and Accident Surveillance participated in the Emory University/CDC Management for International Public Health Course in Atlanta, October 12 - November 13, 1993.
- The Assistant to the Director General of Epidemiology and a DGE staff member who is responsible for human resource development

in applied management participated in the Emory University/CDC Management for International Public Health Course in Atlanta, August 30-October 8, 1993.

- The Director of Social and Administrative Sciences of the National Institute of Public Health (INSP) and the Director of Chronic Disease and Accident Surveillance attended a Total Quality Management Team Leader Training Course at the CDC, October 1993.

Advanced Applied Epidemiology

- The Director of Applied Epidemiology attended the New England Epidemiology Institute at Tufts University in June 1993. After the course, he incorporated his new knowledge and skills into the training materials being developed by DGE for several courses in applied epidemiology.

■ The Director of the DGE is participating in the year-long Public Health Leadership Institute (PHLI) Scholars Program.

- The Director of the DGE attended a PHLI meeting at the American Public Health Association's annual meeting in San Francisco, October 1993.
- The Director of the DGE has participated in computer conferencing with faculty and scholars as part of the PHLI program through a Compu-Serve account.

2. Built capacity of national-level health officials.

■ The DDM/CDC Mexico core staff have developed and taught courses in applied epidemiology and management to selected DGE staff.

3. Built capacity of state and jurisdictional health officials.

■ The DDM/CDC Mexico core staff have developed and taught "data-use workshops" to health officials at state and jurisdictional levels. (See box on page 25).

- The curriculum encourages the use by state health officers and area program chiefs of different types of information for planning, monitoring, evaluation, allocation of resources, and advocating for resources for public health. (See Appendix A: Mexico).
- DDM/CDC Mexico core staff have conducted an assessment of training needs for state and jurisdictional health officials. This information will be used to refine the data for decision making curriculum being taught at those levels.

Topics of Training Modules for Data-Use Workshops

Total Quality Management Team Building, Personnel Management Leadership, Motivation, Conflict Resolution, Interpersonal Skills, Advocacy, Training Skils, Decision Analysis, Problem Analysis, Setting Priorities, Supervision, Monitoring, Evaluation, Basic Epidemiology (time, person, place), Descriptive Epidemiology, Analytic Epidemiology, Pubic Health Surveillance, Epidemiologic Studies, and Outbreak Investigations.

- The DDM/CDC Mexico core staff are participating in the development and teaching of applied epidemiology and management in several short courses sponsored by the DGE. The purpose of the courses is to improve the overall epidemiologic and management capacity of the Mexican public health community. Enrollment of public health officials from other Spanish speaking countries is being solicited actively.*

4. Increased the capacity of technical advisors to perform appropriate analyses and to communicate effectively with upper-level decision makers about technical information.

- The *SAMMEC* 2.1 software package developed by CDC for use in the United States is being modified for use in Mexico as a tool to enhance skills in data analysis, interpretation, and advocacy. (See Appendix A: Mexico).
  - The DGE's Director of Chronic Diseases and Accident Surveillance met with the CDC Office on Smoking and Health in October 1993 to identify Mexican data needed for input into *SAMMEC.*
  - The DGE has run *SAMMEC* 2.1 with local mortality and morbidity data to estimate smoking-attributable mortality fractions and years of potential life lost.
  - The *SAMMEC* 2.1 manual has been translated into Spanish.
  - The Director of Chronic Disease and Accident Surveillance and the Director of Epidemiologic Surveys, which are responsible for providing the Director of the DGE with data on smoking-attributable mortality and morbidity and economic costs in Mexico and for coordinating the development of a plan for public health actions based on the data, participated in the International Smoking-Attributable Mortality, Morbidity, and Economic Costs *(SAMMEC*) Expert Planning Meeting in Atlanta, June 21-22, 1994.
    - — An algorithm has been developed to guide countries in performing appropriate analyses with locally available mortality, prevalence, and relative risk information.

*Two DDM/CDC Bolivia participants will attend in 1994.

— After the meeting, the Mexican DGE staff estimated smoking-attributable mortality, morbidity, and economic costs for Mexico. (See Appendix A: Mexico, case study)

5. Strengthened health-information systems to improve access to data.

- The national public health surveillance system is being simplified to make the data readily accessible at state and jurisdictional levels of the health system.
  - A process has been developed and implemented to evaluate the national surveillance system.
  - Using the "CDC Guidelines for Evaluating Surveillance Systems" and incorporating total quality management concepts (applying skills learned in the Management for International Public Health CDC/Emory course), decision makers at each level of the health system have been interviewed by DDM/CDC Mexico core staff. The purpose of this series of interviews was to ascertain their information needs, the usefulness of data currently being collected, the timeliness at which that information is provided, and the perceived completeness of reporting.
- The already-existing Mexico weekly epidemiologic bulletin has been reformatted and renamed the *Boletin de Morbilidad y Mortalidad.* The new version presents data in a more user-friendly format (graphs and charts, as well as articles versus the previous format of tables of numbers). The articles facilitate the interpretation and provide a context for use of the information.

6. Built sustained capacity in applied epidemiology, applied management, and expertise in smoking-attributable mortality, morbidity, and economic costs.

- A cadre of DDM/CDC Mexico core staff have been trained in applied epidemiology and management and in smoking-attributable mortality, morbidity, and economic costs. These people have the sustainable capacity to train other officials at national, state, and jurisdictional levels.
- A public health leadership program for public health officials in Mexico is being planned by the Directorate of General Epidemiology in the Secretariat of Health.
- The World Bank has agreed to fund DDM/CDC Mexico activities in the amount of $300,000. This money is planned to support activities in the states of Chiapas, Hidalgo, Oaxaca, and Guerrero.

DDM/CDC Mexico Project Evaluation

DDM/CDC has contracted with the Director of Social and Administrative Sciences, INSP, to design and implement an evaluation plan. The purpose of the evaluation is to

- evaluate progress in achieving stated goals and objectives
- give feedback to the different sections of the project throughout implementation phases
- assess the feasibility of meeting the project goals and objectives as presented in the time line

The evaluation is being carried out in three phases.

- In Phase 1, the baseline status of the decision-making behavior of Secretariat of Health officials at state, jurisdictional, and national levels has been determined.
- Phase 2 involves the tracking of process indicators.
- Phase 3 is the evaluation of final impact and outcome.

Baseline studies have been conducted (results will be available in July 1994), and process indicators are now being tracked. Indicators for process, outcome, and impact indicators are being developed in collaboration with the coordinator of each of the major DDM program areas:

- Human-resource development in applied epidemiology and management at the national level
- Human resource development through short courses in applied epidemiology, prevention effectiveness, and management at state and jurisdictional levels
- Modification of *SAMMEC* 2.2 for use in Mexico
- Review and revision of the national surveillance system
- Evaluation and revision of the Mexico epidemiologic bulletin
- The PHLI as a model for improving skills in leadership, communications, and strategic planning of senior public health officials to improve use of data in formulating public health policy.

Lessons Learned

- The DDM/CDC/Mexico Project has rapidly and successfully achieved many of its objectives because of several factors, including the following:

- Support and endorsement of the project's goals, objectives, and activities at the highest levels in the Secretariat of Health
- A highly skilled and motivated Director of the General Directorate of Epidemiology (seat of the Project), who demonstrates excellent leadership skills and has a clear vision for the DGE's contributions to public health in Mexico
- Highly skilled, motivated, and productive DGE staff (See bibliography of project products and materials in Appendix A: Mexico).

■ Because of the participation of highly skilled and motivated national counterparts, minimal technical assistance from CDC has resulted in a large number of accomplishments in a short time.

Future Steps

■ The DDM/CDC Mexico core staff will provide training in applied epidemiology and management for state and jurisdictional health officers and area program chiefs in the states of Campeche and Guanajuato.

■ After training has been provided at state and jurisdictional levels, DDM/CDC Mexico core staff will oversee the use of newly learned skills by state and jurisdictional staff in conducting a priority-setting exercise and in planning and implementing a public health program to address a serious public health problem in their local areas.

■ CDC will provide continuing consultation and technical assistance to:

- identify Mexican economic data needed for use with *SAMMEC* 2.1
- make software and manuals more user-friendly for Spanish-speakers
- develop and validate data on relative risks of smoking attributable deaths in Mexico
- develop and implement plans for using data on smoking-attributable mortality and morbidity and economic costs to advocate for public health policy and resources.

■ On the basis of the results of the evaluation of the National Surveillance System, the DGE and representatives from state and jurisdictional levels will set priorities for the diseases and other health conditions to be included in the National Surveillance System and will determine the data and frequency with which these data will be collected.

- The DDM/CDC Mexico manager of the surveillance component will participate in a conference on public health surveillance being

planned by the Council of State and Territorial Epidemiologists and CDC in the United States (November 1994).

- Data from the Mexican surveillance system will be made more readily available to decision makers in the two pilot state and jurisdictional areas.
- Computer tools and technical assistance will be provided to officials at state and jurisdictional levels so that they can obtain, analyze, report, and present data from surveillance and health-services information systems.

■ Project staff will develop and implement a plan for a program in a public health leadership in Mexico.

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PERU

Background

The Ministry of Health of Peru and USAID/Peru invited DDM/CDC to conduct an assessment visit to

- evaluate the use of information by senior and mid-level public health professionals in the decision-making process
- identify ways that data collected in the Health and Management Information System (HIS/MIS) can be cocompiled, analyzed, and used in the decision-making process
- identify one or more major public health problems currently facing the MOH that could serve as a focus for technical assistance aimed at increasing data-based decision making in public health

A DDM/CDC assessment was conducted October 3-15, 1993. The team identified important barriers to the use of data, including lack of confidence in the quality, completeness, and timeliness of HIS/MIS data, delays in reporting, and reliance on unofficial vertical information systems. Decision makers expressed a need for data that would allow them to estimate the demand for health services and the burden of illness, particularly among the underserved segment of the Peruvian population. The team identified maternal mortality as an issue and proposed that DDM participate in the development of a new maternal mortality surveillance system and program. This system would explore how results of case investigations could be used to plan for interventions that would prevent maternal deaths.

DDM/CDC Peru Goals

The major goals of the DDM/CDC Peru Project are to

- increase the knowledge of national, regional, and local officials about cost-effective interventions that can potentially decrease maternal and perinatal mortality
- increase the ability of national, regional, and local officials to apply different types of public health information in decisions that affect setting priorities and identifying and implementing interventions that prevent maternal mortality
- increase the ability of national, regional, and local officials to disseminate public health information related to the promotion of maternal health and the prevention of maternal mortality at the community level, particularly among underserved populations

Accomplishments

1. A work plan and budget, which describe the activities that will be undertaken to accomplish DDM/CDC Peru goals and objectives, have been developed and approved.

Future Steps

- Make administrative arrangements so that project activities can begin in July 1994.
- Develop an evaluation plan and make arrangements for its implementation.
- Design, develop and teach training-of-trainers courses on preventing maternal mortality and on implementing and managing maternal mortality prevention programs. Use concepts and materials from the Management for International Public Health course and the risk approach to the prevention of maternal mortality (PAHO, 1992) in the development of the materials. The target audience will include maternal health specialists at the national and sub-regional levels.
- Develop and implement a computer work station that will facilitate accessing data from multiple sources (including the Demographic Health Survey and Surveillance Systems) for analysis and use.
- Teach health officials at the subregional level how to use the knowledge and skills taught in the course and how to use the computer work station to develop, implement, and evaluate the effectiveness of an intervention strategy to reduce maternal mortality in their area.
- Develop and disseminate promotional material about maternal mortality to convey relevant and timely information at national, subregional, or district levels.

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HONDURAS

Background

In February 1993, the Honduras Ministry of Public Health (MOPH) and USAID/Honduras requested that a DDM assessment be carried out to evaluate the health-information and epidemiologic surveillance systems. The MOPH asked for specific recommendations for simplifying and consolidating data-collection formats, identifying efficient reporting channels, and for identifying needs for human- resource development in epidemiology, and for using data for decision making.

The Honduran Minister of Public Health and the USAID Technical Advisor on AIDS and Child Survival (TAACS) visited CDC in May 1993. During discussions with the DDM/CDC Project Director and the Chief of the Management Development Activity, International Health Program Office (IHPO), the Minister expanded the scope of the assessment to include identifying ways in which the DDM Project could assist the MOPH in attaining several goals of the Honduras 1993 Modernization of the Health Sector Plan. These goals include the following:

- Improving the efficacy of program services (improving their impact on health)
- Improving the efficiency with which services are delivered
- Improving equity in the delivery of health services by expanding access to services
- Increasing community participation in planning and priority setting

The principal strategy for achieving these goals is the decentralization of political, administrative, and financial decision making. The success or failure of this strategy hinges on the capacity of regional and local staff to plan, implement, monitor, and evaluate programs that provide public services.

The expanded DDM/CDC assessment is being carried out in two phases. In the first phase (November 1993), health-program practices and management were reviewed. In the second phase (June 1994), an analysis was made of the collection, flow of, and access to data from public health-information systems. Recommendations were made for simplifying and consolidating health-system components, (e.g., data on outpatient visits, public health surveillance, and special disease programs such as those for immunopreventable diseases, cholera, AIDS, dengue, and malaria.) In the second phase, the channels of communication for information flow will be analyzed.

Accomplishments

1. The evaluation of health-program practices and management has been completed. Results show a number of barriers that impede the use of data in decision making.

- Assessment
  - — Current capacity to assess community health needs based on existing information systems appeared inadequate in terms of the routine analysis of surveillance data.
  - — Surveillance for health problems in areas related to chronic disease and injuries is weak. This represents an important barrier to decision making as Honduras proceeds through the epidemiologic transition.*
  - — The capacity to investigate the occurrence of adverse health effects such as outbreaks of illness and disasters is quite limited. Control measures are often implemented without adequately analyzing the determinants of the problems identified, which results in wasted resources and ineffective solutions.
- Policy development
  - — Intersectoral collaboration needs strengthening.
  - — Priority-setting decisions tend to be based on a one-dimensional view of health problems such as morbidity and mortality. Data such as years of potential life lost (YPLL) and prevention effectiveness are generally not considered.
  - — Decision making related to the development of new plans and policies to address priority health needs at devolved levels continues to follow that of centralized and vertical program planning and relies on external advisors for problem solving.
- Assurance
  - — It is not clear how budgetary oversight will be provided to the regions after decentralization or what systems will be used to monitor expenditures.
  - — A number of systems enable regional and area staff to organize routine tasks such as supervision and the collection and analysis of health-service delivery data. Monitoring process and outcome indicators has been emphasized, but evaluation of program impact needs increased attention.

    Specific impact objectives to reduce the incidence of priority diseases and risk factors are needed. Discussions need to be

*With an increasing proportion of a country's population falling into the adult and elderly age groups, the epidemiologic profiles of developing countries increasingly reflect the diseases and heatlh problems of adults (e.g., chronic and degenerative diseases) rather than of children.

made on how progress towards these objectives will be measured.

— The MOPH needs to develop capacity to keep the public and medical community informed on public health priorities and practices through effective communications strategies.

Four support strategies have been recommended to improve the use of data for decision making in the public health sector in Honduras:

- Establish an epidemiologic investigation unit within the MOPH and strengthen the linkage between the MOPH and local teaching and research institutions.
- Revise the health-information system.
- Establish a management development unit within the MOPH.
- Create a national epidemiology bulletin, and hold periodic national epidemiology conferences.

2. The second part of the assessment, evaluating the health information systems, was conducted June 17-30, 1994.

Future Directions

- Develop a DDM/CDC Honduras work plan and budget
- Initiate DDM/CDC Honduras project activities

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AFRICA

CAMEROON

Background

Since December 1990, the Far North Province has experienced epidemics of meningitis, cholera and yellow fever. In the absence of a response plan, it has been difficult for the Cameroon Ministry of Public Health (MOPH) to respond to these epidemics with control measures in a timely manner and without disrupting the normal delivery of health services. In a 1992 epidemic of meningitis, it took 6 weeks to initiate a vaccination program after the epidemic had been detected and confirmed.

In 1992, the MOPH, with support from USAID/Yaounde, invited DDM/CDC to assist the MOPH to design, develop, and implement epidemic preparedness plans for meningitis, cholera, and yellow fever for use in Cameroon's Far North Province. A work plan and budget for a DDM/CDC Project that would provide the desired technical assistance to the MOPH in the period 1992-1995 were developed. Project activities began in October 1992 but ended in April 1994 with the closing of the USAID Mission.

DDM/CDC Cameroon Goals

The goals of DDM/CDC Cameroon are to increase the capacity of the Cameroon MOPH and collaborating non-governmental organizations (NGOs) in effectively

- detecting and investigating epidemics of meningitis, cholera, and yellow fever in the Far North and North provinces
- confirming suspected epidemics
- determining when the level of disease requires action
- initiating treatment, control, and prevention measures
- financing the epidemic-preparedness strategy

Accomplishments

1. Increased the capacity of decision makers to identify information needs, understand better how data can be used in decision making, use data as a basis upon which decisions are made, advocate effectively for public health. (See Appendix A: Cameroon).

2. Increased the capacity of technical advisors to perform the appropriate analyses and to convey technical information effectively to decision makers. (See Appendix A: Cameroon).

- The materials listed below were prepared and translated into French as guidelines for the Ministry of Public Health in preparing for and responding to epidemics of meningitis, cholera, and yellow-fever:

- Technical guidelines on detection and control that include recommendations for
  - — case management
  - — surveillance
  - — epidemiologic investigation
  - — laboratory confirmation
  - — methods for prevention and control
- Case studies that simulate real world situations
- Definitions of roles and responsibilities of health personnel at each level of the health-care and public health system in Cameroon
- Lists of stocks of emergency supplies with associated costs and methods for monitoring and replenishing these supplies

■ Approximately 40 provincial and divisional health officers in the Far North and North provinces and staff in NGOs have been trained in how to implement epidemic preparedness plans using the technical guidelines.

- Training-of-trainers workshop on meningitis was conducted in Maroua, January 7-8, 1993
- Training-of-trainers workshop on cholera was conducted in Maroua, July 5-8, 1993
- Training-of-trainers seminar on epidemic preparedness for meningitis, cholera, and yellow fever was conducted in Far North Province, January 24-28, 1994

■ Additional training materials have been provided to divisional health officers to facilitate their conduct of training seminars for sub-divisional health officers and other personnel in the divisions in which they work.

- Health staff in the Far North Province prepared training guides in meningitis detection and control, and divisional health officers trained approximately 100 program managers and health facility personnel in the Province in May 1994.

■ Project staff identified and recommended a sustainable process for financing the monitoring and replenishment of supplies (vaccines, drugs) needed for preparing for and responding to epidemics of meningitis, yellow-fever, and cholera, as a component of the Provincial Health Fund (CAPME; Le Centre d'Approvisionnement des Medicaments Essentials).

■ Recommendations were made to the MOPH and USAID/Yaounde for a system for laboratory confirmation of suspected epidemics.

- Needs for transport media and laboratory tests were assessed.
- A budget for transport media, transport of specimens, and laboratory testing was planned.
- Resources and sources of kits for collection of appropriate clinical samples and laboratory support were identified.

■ CDC staff supervised use of the measures during the meningitis season in January and February 1993; vaccination programs were initiated in a timely fashion (within 2 weeks).

■ At the request of the MOPH, the final seminar (January 1994) on epidemic- preparedness was expanded to include staff from Adamoua Province.

Building Sustained Capacity To Detect and Respond to Epidemics of Meningitis, Cholera, and Yellow Fever

■ The technical guidelines, case studies, and definitions of roles and responsibilities in epidemic preparedness and response have been translated into French and are being distributed broadly within Cameroon and to other countries in the African meningitis belt. (See Appendix A: Cameroon).

■ Cameroonian MOPH trainers at central, provincial, and divisional health office levels have been trained. Central-level trainers have served as instructors in the three seminars and workshops. DDM/CDC staff have served as facilitators.

■ Provincial and divisional health officers who participated in the seminars and workshops were provided with all materials (in French) to train their staffs in how to apply the epidemic preparedness and response measures.

- Training of additional personnel within divisions is already occurring.

■ As the epidemic-preparedness strategy is being developed and implemented, financing of vaccines, drugs, and supplies is being incorporated into the province's Provincial Health Fund and not set apart from it.

DDM/CDC Cameroon Project Evaluation

Preliminary Evaluation of the Data for Decision Making Epidemic Preparedness and Response Project in the Far North Province, Cameroon: The Case of Bacterial Meningitis (See *Reference Documents*)

Objective

In February 1994 (at the time of the third workshop on epidemic preparedness and response for meningitis, cholera, and yellow fever), an

assessment was conducted of the Data for Decision Making Epidemic-Preparedness and Response Project for meningitis in the Far North Province. The assessment focused on the meningitis component of the project, because meningitis was the condition for which the program provided the earliest interventions, and thus allowed an assessment of the early stages of a DDM intervention.

- The purpose of the assessment was to
  - assess effects of early stages of the program of epidemic preparedness for outbreaks of meningococcal disease in the Far North Province,
  - analyze obstacles to implementing the Program, and
  - recommend further steps for successful implementation.
- The focus of the assessment was to ascertain
  - the awareness and application of newly introduced methods for the use of data in decision making about epidemics among public health personnel in the Far North Province,
  - whether case definitions were recognized, and
  - whether threshold weekly attack rates were being used to initiate an investigation and response.

Methods

The evaluation was designed to obtain information on how decision making about epidemics was carried out by responsible individuals in the health system who both had and had not participated in DDM seminars and workshops up to the time of the assessment, so that the broadest picture possible could be obtained on the state of preparation for and response to epidemics of meningitis in the early phases of the DDM Project interventions.

Data were obtained through a combination of structured interviews in approximately 20 health-care settings and administrative facilities (including six public health centers, six mission settings, three subdivisional hospitals, five divisional headquarters, and the provincial headquarters) in the period January 25 - February 4, 1994. Overall, 31 individuals were interviewed. Many had not attended or participated in the DDM seminars in January and July 1993 (and could therefore serve as a possible “comparison” group).

The evaluators also observed participants in three of four work groups in the third DDM seminar on the preparation and response to epidemics of meningitis, cholera, and yellow fever held in January 1994. Since several

participants in one of the three work groups had not attended previous seminars on meningitis, they, too, could serve as a comparison group.

Results

Traditional, designated lines of authority in decision making during epidemics of meningitis

Primary authority for preparing for and responding to epidemics of meningitis is shared by divisional and provincial delegations (Figure 1, page 41). The Divisional Delegation is responsible for monitoring case reports and calling for the investigation of possible epidemics, for collecting appropriate specimens for laboratory confirmation, for formally declaring the presence of an epidemic, and for undertaking and carrying out a vaccination program.

The Divisional Health Office is responsible for notifying the Provincial Delegation and for requesting needed medical and vaccination supplies. However, authority for supplying vaccines, medications, drugs, and medical supplies rests with the Provincial Delegation. Thus, effective planning, action, and response require the coordination and collaboration of the divisional health offices and the provincial delegations.

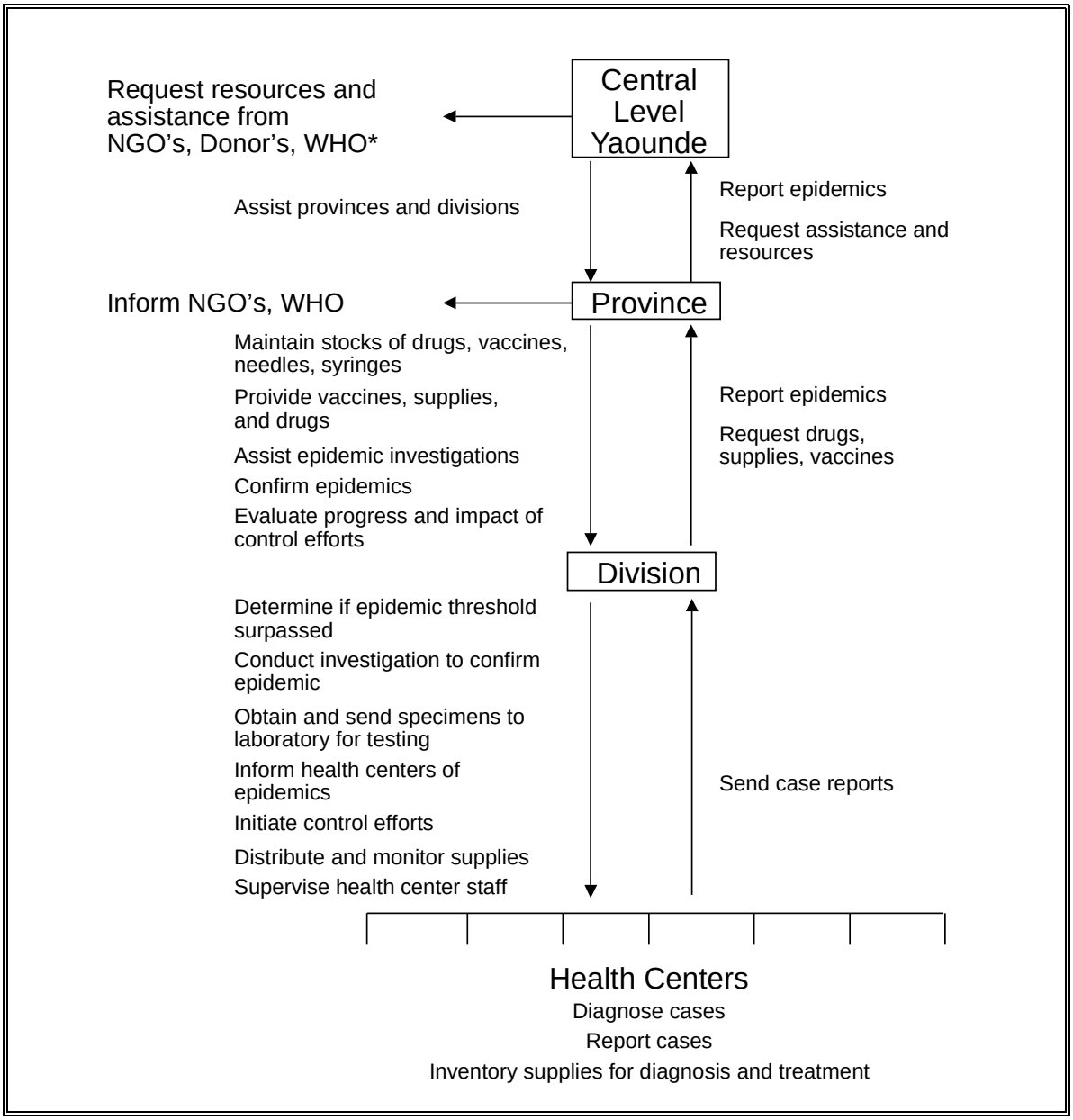
In many instances during the epidemic of 1992 (the year before the DDM Project began), designated lines of authority were not routinely followed in requesting or furnishing supplies. When designated authorities did not respond or were unable to supply vaccines, health-center personnel often went to higher levels in the health system with their requests. There were problems of insufficient supplies of vaccine and drug supplies at the provincial level, and there were delays in the distribution of these items. There was a lack of standard procedures for epidemics, including standard lines of communication. As a result, supplies arrived late in the epidemic.

Several persons interviewed noted that until recent years, periodic vaccination for meningitis was routine—either upon request of individual patients or on a mass population basis, regardless of whether there was an epidemic.

Data used in decision making (pre-DDM project)

Case reports from health centers are to be sent to subdivisional and divisional health offices, where they are to be aggregated and analyzed. In the years before the DDM Project was begun, the rule of thumb used by divisional health officers for declaring an outbreak of meningitis was “substantial increase” in the number of cases.

FIGURE 1. Data-based Decisions and Actions in Epidemic Peparedness and Response, Ministry of Public Health, Cameroon



Attitudes regarding the use of weekly threshold attack rates among divisional and provincial-level personnel attending the January 1994 seminar

The individuals in the one work group who had not attended the earlier DDM seminars on preparation for and response to epidemics questioned the threshold principle itself as an alternative to mass vaccination. They asked about philosophic issues related to the value of human life. Questions arose too, about the purpose of and audience for the technical

guidelines being prepared. They discussed whether the technical guidelines were to be used for training health-care personnel at health centers (and, therefore, the appropriate level of detail and the capacity of personnel to be trained) or to be used as reference manuals.

In contrast, personnel in the other two work groups who had attended earlier seminars more systematically reviewed the concepts, case definition, and wording of the technical guidelines.

Effects of early stages of the DDM Project for use by public health personnel in the Far North Province of data in epidemic preparedness and decision making for outbreaks of meningococcal disease

Awareness and application of newly introduced methods in four divisions from which authorities had attended the January 1993 Seminar.

- The concept of using a standard case definition was widespread.
- Basic principles of epidemic preparedness to public health personnel had been taught in three divisions, whereas there was no awareness of the threshold principle in the fourth.
- In one division, the nurse in charge of health statistics calculated primary and secondary thresholds for one subdivision and used the results to inform the Provincial Delegate in Maroua about the onset of an epidemic.
    - The divisional health officer, however, did not use population statistics to determine the amount of vaccine needed; vaccines that were made available by the Provincial Delegate were accepted.
    - In a second subdivision, where reporting of information appeared to be problematic, personnel used informal thresholds.
        - official information on meningitis thresholds had not been received
        - notifications were not forwarded from the subdivision to the divisional health officer

Conclusions

- Awareness that there is a case definition for meningococcal disease is widespread in the Far North Province.
- After the first DDM seminar, divisional health officers, for the first time, began working with population-based surveillance data in the detection of epidemics.

- Training of health-center workers by divisional personnel who had attended DDM/CDC Cameroon seminars and work shops on epidemic preparedness and response for meningitis varied greatly among divisions. Some divisions have had no training, whereas in others training has led to the use of case definitions and thresholds to initiate a data-based response.
- Awareness of the epidemic threshold for meningococcal disease is highly varied in the Far North Province and has been applied in only one setting.
    - Non-standardized, or informal thresholds are used to determine the presence of an epidemic and initiate a response in most settings.
- Supervision of staff in health centers by divisional personnel is highly variable, ranging from no supervision at all to frequent visits and guidance.
- Most facility personnel reported asking for vaccines and medications without calculating the quantities needed.

Recommendations for Further Steps for Successful Implementation

- Distill guidelines for epidemics to succinct, schematic instructions with a logical sequence of steps, and appropriate graphics, for use at the health-facility level.
- Provide periodic refresher work shops to divisional health officers and to health-care workers within divisions as a part of established primary health-care training to update epidemic preparedness and response and to reinforce the importance of these strategies.
- Develop a protocol for supervision from the provincial delegation to the health center.
- Prepare and distribute a public health bulletin (one page, mimeographed) to all health facilities with notices of upcoming epidemic seasons. Issues should be timed to prepare for meningitis, cholera, and yellow fever seasons and should include summaries and guidelines on case definitions, threshold calculation and use, and dose requirements for vaccines, drugs, and medications. The bulletin might include brief sketches of the nurses or others who have established exemplary programs.
- Prepare annual provincial reports on epidemic conditions during the previous year for circulation to private voluntary organizations (PVOs), Provincial Delegates, and the MOPH.
- Assure vaccine and drug distribution to private as well as governmental facilities.

- Evaluate the effectiveness of the threshold attack rate being recommended for use in Cameroon.
    - — Evaluate the cost-effectiveness of alternative vaccination strategies (e.g., routine mass vaccination vs vaccination in the face of an epidemic).
- Study community patterns of health and health-care utilization.

Recommendations for further evaluation

- Develop appropriate indicators for evaluating the effectiveness of DDM interventions being applied in Cameroon to improve data-based decision making in preparing for and responding to epidemics.
- Carry out further evaluations and calculate indicators in February 1995.

Lessons Learned

- The provision of clear and understandable technical guidelines, interactive training of decision makers that emphasizes the use of case studies and definitions of roles and responsibilities at each level of the health-care and public health system, and supervised application of skills during epidemics is an effective approach to increasing the use of data in the detection and control of epidemic meningitis, cholera, and yellow fever.
    - The principal barrier to the use of data in decision making was the lack of knowledge on the part of district and provincial health officials of how to collate, analyze, interpret, and then use the information available.
    - Before the project, the perceived problem was that health-center personnel did not understand case definitions, were not recognizing cases of disease, and were not reporting them. This turned out not to be the case.
- The development and combination of a coherent financing strategy, along with the effective program of training and written manuals and protocols, will ensure the implementation of measures to prepare for and respond to epidemics effectively. (See bibliography of project products and materials in Appendix A: Cameroon).
    - Without a financing base, epidemic preparedness could become another set of services structured vertically and financed haphazardly, if at all.
- The priority of developing the capacity at provincial and district levels to prepare for and respond to epidemics of meningitis, yellow fever, and cholera will vary by geographic area and changes in the epidemiology of these diseases.

Future Directions

- Share drafts of the technical guidelines and case studies with the Office on Foreign Disaster Assistance and the World Health Organization to solicit their comments and suggestions. The materials will be finalized and translated into French.
- Print and distribute French and English copies of the materials.
- Assist Cameroonian experts in conducting actul investigations of outbreaks of meningitis, cholera, and yellow fever.
- Evaluate
    - — Implementation and maintenance of system at provincial level for monitoring and replenishing supplies (stocks of vaccines, syringes, needles, rehydration materials, antibiotics, and other emergency epidemic-response supplies)
    - — The flow and uses of relevant surveillance data from health centers sponsored by Save the Children, CARE, and the Belgian Center for Medical Instruction Project (Project CIM) to the MOPH for detection and response to epidemics
    - — The capacity of MOPH personnel and NGOs to detect, confirm and respond to meningitis, cholera, and yellow fever epidemics according to the guidelines and manual
- Conduct an audit of the laboratory-confirmation system.
- Develop a system to distribute laboratory kits to health centers for use in confirming suspected epidemics.

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BURUNDI

Background

In May 1992 and 1993, DDM/CDC staff visited Burundi to carry out a country assessment and develop a DDM work plan.

During interviews with decision makers and technical staff in the Ministry of Public Health, Plan, and Finance, a consensus was reached that the DDM Project in Burundi would address the use of data for the articulation and implementation of national family planning policies and the use of data for allocation of scarce human and financial resources.

The Burundi MOPH requested that DDM provide technical assistance to

- Build the capacity of decision makers and managers of the Family Planning Program to plan, monitor, and evaluate program activities.
- Reinforce the process of decentralization by building the capacity of provincial-level decision makers and technical staff to use data more effectively in program management.
- Assist Burundi in developing a draft family planning policy.
- Provide training in writing articles and editing and production of an epidemiologic bulletin.
- Assess the health-information system for collection and transmittal of data needed by public health program managers

DDM/Burundi Project Goals

- To increase the capacity of MOPH policy makers and program managers to use valid data for setting policies and program objectives, evaluating program performance, and taking appropriate action.
- To increase the use of data by policy makers and program managers in Burundi in efforts to increase the contraception prevalence rate.
- To increase the use of valid data for
  - formulation of and plan for implementation of a family planning policy.
  - development of strategies for the most efficient use of scarce human and financial resources, thereby allowing implementation of the policies.
  - improvement of family planning program performance at intermediate and peripheral levels in an integrated primary health-care-service-delivery environment.

Future Directions

Elections, changes in government, and subsequent political unrest, have led to a suspension of DDM Project-related activities until word is received from USAID/Burundi that it is desirable to proceed with the project.

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NIGERIA

Background

In August 1992, the DDM/CDC Project Director served on a team to assess the health and management information systems in Nigeria. The results of the assessment were to be used by USAID/Lagos in writing the health-information system (HIS) component of a project paper for the Combatting Childhood Communicable Diseases (CCCD) follow-on project. At the invitation of USAID/Lagos, the DDM/CDC Project Director identified areas in which the DDM Project (CDC and Harvard Consortium) could complement or strengthen current or future activities relating to the use of data. These data would be obtained from the HISs by decision makers at different levels of the health system in Nigeria in making decisions relating to public health.

Opportunities for Data for Decision Making in Nigeria

Possible Policy Issues

- Resource allocation at federal and subnational levels for health
  - Increasing the allocation of resources from the federal and possibly some subnational budgets for health programs
  - Issues related to allocation of resources among emphasis programs (i.e. EPI diseases, malaria control, HIV/AIDS/other sexually transmitted diseases, STDs)
  - Setting priorities for allocation of scarce resources supporting public health initiatives and health programs
- Private- and public-sector linkages in preventive and curative care and their relative roles

Possible Programmatic Issues/Areas

- For priority program areas (EPI, diarrheal disease control, malaria control, HIV/AIDS/STDs),
  - Program monitoring and evaluation of program effectiveness
  - Problem identification
  - Strategic planning and budget
- Response to epidemics (including yellow fever and meningitis)
  - Use of surveillance data to identify and plan a response to epidemics of disease
  - Identification of and establishment of protocols for timely allocation of resources in association with epidemics

Possibilities for Technical Assistance

Activities involving the local government areas and states would seem the primary focus; however, coordination with federal efforts would be essential. Some activities might involve CCCD and focus on LGAs or states, whereas others might focus at the federal level.

- Improving quality of and access to data from health-information systems.
- Providing short-course/in-service training of decision makers at local and state levels in applied epidemiology and management. PHC coordinators, state epidemiologists, EPI program managers, HIV/AIDS coordinators, and selected LGA Commissioners would be trained in the use of data to identify problems and information needs, plan program activities, monitor and evaluate program effectiveness, develop rational budgets for carrying out planned activities, address health-care financing issues, and answer questions related to cost-effectiveness.
- Institutionalizing the feedback of public health information to the public health community (i.e., the *Nigeria Bulletin of Epidemiology*).
- Building capacity to set priorities in the health sector—integration of epidemiologic information on death and disability, resources, and feasibility to develop consensus in identifying priority health issues.
- Strengthening the ability of LGA, state, and federal health officers to communicate with senior decision makers, peers, the community, and the media about program successes, needs, recommendations for future activities and policy choices. This communications strategy should increase the visibility of health issues and promote the allocation of resources for public health.
- Developing sustainable expert advisory groups that build consensus for resource allocation.
- Developing capacity to carry out rapid assessment techniques (such as focused interviews and focus groups) to define community concerns and priorities.
- At the federal level, assisting the current certificate training program for state and LGA health planners currently organized through the Planning, Research, and Statistics Department at the Federal MOH by the Universities of Benein, Ilorin, and Maiduguri.
- Strengthening the national health data bank in correlating epidemiologic, economic, and political data; in communicating with decision makers about technical information appropriately; and in

building consensus so that resources can be allocated most appropriately.

- Mapping the decision-making process to identify the groups involved in reaching decisions, and identifying areas in which data can be given more consideration in the decision-making process.

Future Directions

- USAID/Lagos included DDM in the CCCD follow-on project paper, and indicated that they would contact CDC in late 1993 or early 1994 to develop a work plan.
- Implementing activities in Nigeria will be contingent on a) the development of a work plan and budget, b) adequate DDM/CDC core staffing, and c) the level of buy-in funding contributed by USAID/Lagos.
- DDM/CDC Project staff are awaiting word from USAID/Lagos as to when a work plan can be developed.

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ZAMBIA

Background

In 1993, the Tropical Diseases Research Centre (TDRC), a research arm of the Zambian MOH, requested support and assistance in conducting an applied "Epi in Action" workshop in Zambia, with an emphasis on the conduct of public health surveillance and use of surveillance data in decision making. DDM/CDC proposed a 2-week assessment visit in late 1994 to explore the context and environment in which the course can be carried out and to identify concrete goals and objectives that the TDRC and the MOH wish to achieve. USAID/Zambia has indicated that they cannot provide funding currently for a buy-in or to cover local costs, so TDRC is exploring the availability of other sources of funding to cover local costs of DDM activities.

Future Directions

- Stay in contact with the TDRC and USAID/Zambia to:
  - Ascertain whether the TDRC and MOH are committed to carrying out activities beyond the conduct of a short course in applied epidemiology and public health surveillance.
  - Determine where the skills that participants would acquire could be applied to actual problem solving under supervision.
- Explore avenues of funding to support activities.

AFRICA REGIONAL OFFICE OF WHO (AFRO)

Background

DDM/CDC discussed collaborating with IHPO (HHRAA Project) and WHO/AFRO to strengthen African information systems through supporting the Africa Bureau/USAID and WHO/AFRO in their efforts to assure the continued availability of epidemiologic, behavioral, and programmatic data on child survival. These activities would be carried out in a subset of selected countries in sub-Saharan Africa. DDM/CDC and IHPO proposed collaboration in selected countries in the region.

The concept of the proposed activity

- Developing a data base derived from a sufficient number of countries to permit the meaningful analysis of trends in disease and in public health programs.
- Defining a practical and meaningful set of health program or population health indicators that would be used in monitoring and evaluating progress in child survival in Africa.
- Activities would reinforce and extend HIS development activities by specific WHO/AFRO programs, in collaboration with national and international organizations, institutions, and donors.

Future Directions

- Explore the possibility for funding the DDM/CDC Project in WHO, AFRO through the HHRAA Project.

CENTRAL AFRICAN REPUBLIC (CAR)

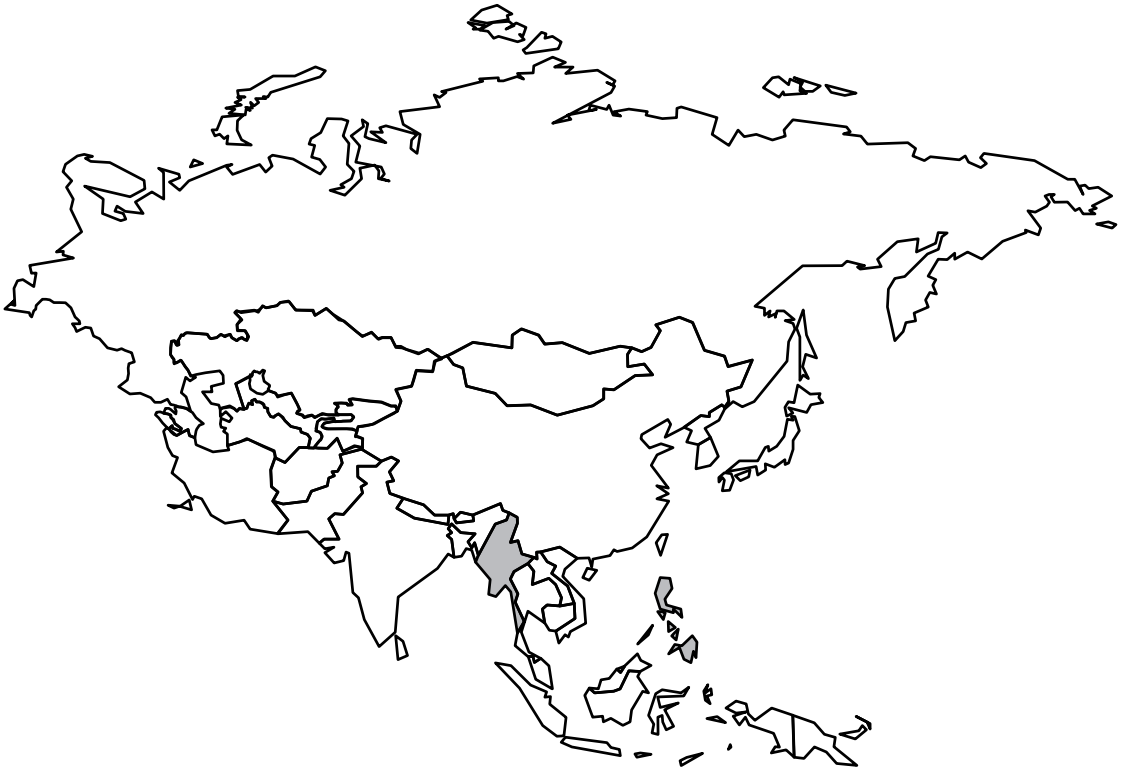
Background

The USAID mission in Bangui requested technical assistance from DDM/CDC in developing the capacity to use the data generated by a Demographic Health Survey (DHS) for formulating national health policies. A DHS is planned for CAR in early 1994.

Future Directions

- Follow up with USAID/CAR and the Ministry of Health to determine the current level of interest in having a DDM Project.

ASIA



PHILIPPINES

Background

An assessment for the DDM Project was carried out in the Republic of the Philippines June 8 - 27, 1992, by staff from the Centers for Disease Control and Prevention (CDC) and from the Harvard Consortium (HC)*. The Philippines DOH and USAID/Manila asked the assessment team to explore ways that the DDM Project might assist the DOH in strengthening capacity to collect, process, analyze, and use data/information more effectively to set health policies and manage public health programs, particularly in the environment of decentralization.

The Local Government Code of 1991 transferred the responsibilities for planning, organizing, delivering, and financing public health services from the Department of Health to local government units (LGUs). This devolution, and its potential impact on the operation of existing health-information systems (e.g., Field Health Services Information System, FHSIS) has created the need to develop different, sustainable strategies for collecting, analyzing, interpreting, and disseminating accurate and timely health information to target audiences. It is also accompanied by a need to build capacity of LGU officials to use this information in setting public health policies and managing and supporting public health programs.

The 15-month DDM/CDC Philippines Project, developed collaboratively by the Department of Health (DOH), USAID/Manila and CDC, was initiated in January 1994.

DDM/CDC Philippines Goals and Objectives

The goal of the project is to provide technical assistance to the Philippines DOH to

- provide timely and useful information to decision makers at the central, regional, provincial, and municipal levels of the public health system, as well as to other key non-governmental agencies and institutions that have relationships with the DOH
- build applied epidemiologic and management capacity of regional epidemiology unit staff to provide improved program-management support and technical assistance to key LGU health officials, mayors, and governors
- demonstrate the use of information at different levels of the health system for
    - setting health-program priorities

*Reference: Data for Decision Making, Philippines. Asessment report. Mimeographed.

- planning and budgeting for public health programs
- measuring progress toward achieving health sector goals
- evaluating program effectiveness and impact
- allocating current and available resources efficiently
- advocating for public health resources

Project Objectives

1. Increasing Access to and Communications Involving Information at Different Levels of the Health System by a System of Rapid Appraisal for Priority Setting and Informed Decision Making (RAPID)

Demonstrating the usefulness of data to devolved agencies for formulating public health budgets and improving program performance encourages active participation by LGUs in a voluntary data management, feedback, and reporting system.

By April 1995

- Consensus will have been reached on a core set of health indicators that can be used at the municipal, provincial, regional, and central levels to satisfy highest priority information needs.

  The consensus process began at a national workshop to identify health indicators (April 1994). Participants at the workshop included representatives from central, regional, provincial, and municipal levels of the public health system; representatives from international partner agencies; and other key colleagues. Issues discussed included the frequency with which data should be collected to measure each health indicator.

  Eventually, the core set of health indicators will be endorsed by the highest levels of the DOH. Programs and LGUs that identify other health indicators, will have the option, as resoures allow, to add them to the core list of indicators for use at their level.

- Sources of data and data gaps will be identified

  For all levels of the health system, data sources will be identified to be used in calculating the consensus indicators at the required time intervals. Such sources include the National Epidemiologic Surveillance System, existing cluster surveys, FHSIS data, national health survey data, and Health and Management Information System (HAMIS) data.

Data gaps, by type or frequency, will be identified, and methods to collect the needed data will be developed and piloted. Such methods might include provincial and municipal cluster surveys, strengthened sentinel hospital and practitioner surveillance systems, and more frequent national surveys.

- Capacity of two regional epidemiology units will be strengthened

  The project will focus project efforts in two government regions and their provinces/municipalities. CDC will provide technical assistance to the DOH in building the capacity of two Regional Epidemiology Units (REUs). Conceptually, the REUs represent a critical link between the central office and more peripheral, devolved health units.

  Such linkage can serve as a platform for training, building capacity, and meeting information needs. These REUs will serve as "information service nodes." They will develop and pilot active methods for collecting, feeding back, and reporting data on selected health indicators to public health decision makers within the region and to the central office in a timely fashion.

- A computer work station will be developed and tested

  A computer work station has been developed for the two REUs, with links between at least two sites below the regional level (province or chartered city) and the central office. The function of this work station is to serve as the focal point for analyzing, interpreting, and disseminating data on the health indicators. The work station accommodates data from multiple data sources (e.g., DOH, National Statistics Office (NSO), Food and Nutrition Research Institute FNRI). There are mechanisms for routine and timely feedback of information to distal sites (provinces and municipalities). In turn, data will be provided in electronic form (on computer diskette) to the staff at work station at the central office and will be disseminated as information to senior managers and non-government agencies.

- Formats for communications involving information for targeted decision makers and other data users will be developed and tested

  An applied communications/data-packaging module has been developed and is being tested in concert with the development and testing of the computer work station and management components of the project. (See Appendix A: Philippines). Targeted audiences for structured health messages have been identified and characterized. Resource materials have been developed to be used for

- orienting persons at all levels of participation in the RAPID reporting system to the general principles of communications science
- instructing health officers within the reporting system on how to craft information for effective presentation to targeted audiences
- showing targeted audiences (e.g., local government decision makers) how decision-oriented health messages can be used in allocating resources related to health.

In addition to the development and use of these training-resource materials for use at local, provincial, regional, and central levels, the following informational products will be crafted, tested, and provided as components of the work station:

- a periodic report (frequency and format to be determined through testing) summarizing information on the indicators and providing some analysis of their meaning
- various standardized message "templates" such as executive summaries and press releases.

Such products will include both text and graphics components and will be pilot tested by first-stage users (local health officers) and end-stage users (local government decision makers).

■ Use of indicators will be demonstrated in a public health decision-making process in the participating LGUs

Central and REU staff will have collaborated with provincial and municipal staff and decision makers in using the indicators to solve a local health problem or in improving a local health-program activity. Guidelines on use of the indicators and other relevant information for program monitoring and evaluation and assessment of improved performance will be developed and disseminated. The guidelines will include case studies on how this information can be used at LGU levels.

2. Influencing Attitudes and Behavior Involved in Use of Data in Decision Making at Different Levels of the Health System

By April 1996

Provincial, municipal, and city health officers participating in the DDM Project will have

■ used data to identify problems of public health importance

- analyzed the problems to identify their specific determinants
- analyzed data to identify effective interventions
- developed an intervention strategy, with objectives, work plan, and budget
- identified resource needs to resolve problems
- conveyed the information to their local health boards and governors or mayors
- advocated with governors, mayors, and local health boards for implementation of their recommendations
- designed a system for monitoring program performance and evaluating program effectiveness
- assessed training needs of their staff (e.g., public health nurses and midwives)
- developed and implemented training and supervision programs for their staff
- developed and applied the strategic and diplomatic skills necessary to operate in a politically based decision-making environment.

Central-level decision makers including the Office of the Secretary, Offices of the Undersecretaries, and Offices of Directors of Services will have

- used appropriate information to identify the support needed from the central level by the DDM LGUs to achieve local and national health priorities
  - Information/Communications
  - Training
  - Resources
  - Technical Assistance
- used appropriate information in creating a budget that will support the provision of the needed assistance

Governors and mayors in provinces, municipalities and cities that participated in the DDM Project will

- be able to articulate a clear vision for health priorities and goals in their areas and describe how their vision relates to national priorities and goals

- show appropriate data that support their priorities
- be able to identify the resources needed to address the health priorities in their areas and will have
  - developed a budget for health programs and interventions in their areas that reflect local and national priorities
  - allocated resources according to that budget
  - identified the additional financial and human resources and trained and skilled staff needed to achieve their health-related goals

Accomplishments

1. Set up pilots for the project.

- Two regions, the Cordillera Autonomous Region (CAR) and Region V have been selected as pilot areas for the project.

2. Increased the capacity of decision makers to identify information needs, understand better how data can be applied for decision making, and advocate effectively for public health.

- Twenty health indicators were identified at a national workshop (April 1994) attended by central, regional, provincial, and municipal representatives, international partner agency representatives, and other key individuals.

  In selecting the indicators, participants agreed that indicators should be readily and uniformly understandable and acceptable and that they should be measurable using available or obtainable data and imply specific interventions compelling action. The workshop addressed the frequency with which indicators should be monitored and how they should be used at the different levels of the health-reporting system.

- The 20 health indicators are currently being reviewed and are being circulated at national, regional, provincial, and municipal levels in a consensus-building process.

3. Increased the capacity of technical advisors to perform the appropriate analyses and to communicate effectively with others about technical information.

- Brought the Philippines DOH counterpart responsible for the implementation of the work station to Atlanta to attend the "Epi in Action" Course, May 16-29, 1994, and to work with the CDC systems analyst on developing the work station
- Installed the work station in the two pilot areas.

4. Strengthened health-information and communications systems to increase access to and effective use of data.

- For the indicators selected at the national workshop, current and relevant data collected through existing systems are being reviewed and data gaps identified.
- A menu-driven computer work station, that integrates data from various sources, has been developed and is being tested in two pilot areas. The work station is designed to produce and disseminate timely routine reports to those who supply the data, to provincial and municipal health officers, mayors and governors, to central and regional DOH offices, as well as to other important end-users such as international donors.
    - Four pre-test indicators, selected from the 20 identified at the health- indicator workshop (April 1994), are being used in the pilot testing of the work station at the same time the final list of health indicators is being selected. These four indicators are a) the proportion of fully immunized children, b) cases of measles listed as admissions to sentinel hospitals, c) proportion of pregnant women who have at least three prenatal visits to a health-care provider, and d) proportion of rural health units whose stock of cotrimoxazole was depleted in the past month.
    - Availability, collection, and flow of data needed to calculate the four pre-test indicators are being studied and tested in the two pilot areas.
- Computer equipment needed for the work stations has been installed in two REUs, two chartered cities, and three provinces within the pilot test areas.
- A communications module, *MOD-COMM* (See Page 80), has been distributed, with a request for review and feedback, to staff in 72 offices.

These offices represent health staff at the national and local levels; elected officials at the regional, provincial, and municipal levels; and media representatives in the two pilot areas. During the same set of meetings in which copies of *MOD-COMM* were distributed (June-July 1994), all officials were invited to participate in a set of workshops in the two pilot areas in September 1994.

Future Directions

- Summarize and disseminate results from the workshop held in April 1994 to select health indicators.

- Obtain consensus from all levels of the DOH for a core set of indicators. Programs and LGUs may have the option of choosing additional indicators as their needs and resources indicate.
- Select a final set of health indicators and determine the frequency at which they will be measured.
- Achieve consensus on the health indicators and update the work-station system to provide analysis for and reports on the full complement of indicators.
- Enhance the national epidemiologic surveillance system to provide timely data that fill in identified gaps.
- Train municipal, provincial, regional, and central staff to use the work station during the pilot phase and during workshops in September 1994:
    - Train work-station operators (staff in regional, provincial, municipal offices) in data entry and the generation of standardized reports.
    - Train central, regional, provincial, and municipal epidemiologists (health officers) to use the work station for ad hoc analyses.
- Identify information needs and develop tools for conveying public health information persuasively to targeted audiences, including decision makers.
    - train central and regional project staff in developing methods and templates for providing feedback to those who supply data and in communicating about health information with a) regional, provincial, and municipal end users of data such as health officers, mayors, and governors; b) central- office health officials; and c) non-government organizations, including the mass media.
    - develop and pilot standardized message “templates,” including a communications training manual with textual and graphic components, to be incorporated into the computer-based component of the work station.
- Create and test guidelines and case studies for use of consensus indicators by provincial, municipal, city, and central-level health officials and other decision makers.
- Train personnel in applied epidemiology and public health management for using data on health indicators in setting priorities and in developing, implementing, and evaluating public health programs.
- Collaborate with and provide technical assistance to health officials and decision makers in participating regions and selected provinces

and municipalities to ensure use of indicators and other important data in solving public-health-resource and program issues.

  - Participants in applied management training programs, in collaboration with key LGU decision makers, will identify a public health problem of concern. REU staff will collaborate with LGU staff to use applied management skills and the needed information to develop an action plan and solve that public health management problem (e.g., using the indicators in creating a budget in the LGU, holding an advocacy meeting with the mayor or governor, gauging progress in a successful devolution process, and identifying the determinants of why program performance is suboptimal).

- Evaluate the effectiveness of project interventions (increasing timely access to essential data and increasing capacity to use the information) in increasing data-based decision making.

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THAILAND

Background

The Thailand Ministry of Public Health requested a DDM assessment visit in February 1992. Concurrence for an assessment visit was given by the USAID/Bangkok, although the Mission indicated that funds were not available at that time for a buy-in to support DDM activities. The Project Director of DDM/CDC made a brief visit to the Thailand Ministry of Public Health and USAID/Bangkok following the 1994 International Clinical Epidemiology Network (INCLEN) meeting in Chiang Mai, Thailand, to determine whether there was a continued interest and potential funding source for a DDM Project. Great interest was expressed by the Ministry of Public Health for a DDM Project. USAID/Thailand had recently been designated as a Regional Support Mission for Southeast Asia, and the Mission indicated that if a DDM project plan included a regional component, it might be possible for them to identify funding for local costs.

Future Directions

- Follow up with the Ministry of Public Health and the Regional USAID office to assess continuing interest in a DDM Project.

  The Ministry of Public Health has indicated that it is developing a concept paper for a country work plan and will send the report to CDC when it is complete.

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IV. DEVELOPMENT OF APPROACHES AND TOOLS

DDM/CDC's Approach To Increasing Data Use

DDM/CDC uses a problem-based, in-service training approach to motivate more effective use of data by decision makers in participating countries. Applications for the data include setting priorities among health programs, identifying and implementing cost-effective interventions, planning, monitoring, and evaluating public health programs as indicated below.

- Goals and objectives are problem-driven, with use of data as the outcome.
- Integration of training from multiple areas is emphasized:
  - applied epidemiology
  - applied management
  - communications
  - political skills
- Training-of-trainers approach is used to achieve sustainability.
- Supervised in-service training is used to reinforce application of skills.
- Training is coupled with improved access to data.

DDM/CDC's Training-of-Trainers (TOT) Strategy

DDM/CDC is committed to creating sustainable capacity of participating countries to develop the human resources needed for more effective data-based decision making beyond the DDM/CDC Project. National counterparts from participating DDM/CDC countries are trained as trainers in the courses and modules provided in the project. They are provided with the lectures, overheads, exercises, work groups, and other teaching tools needed to teach the courses and modules in their countries. The newly certified trainers then train other decision makers and technical staff in their countries in the same subject-matter and technical areas (see Bolivia, Mexico, and Cameroon country reports). Although DDM/CDC provides most training in-country, some training activities take place in the United States to allow participants to have access to a broad range of expertise and resources.

In-Service Supervised Follow-Up on Application of Skills

All training in DDM/CDC projects is followed by supervised application of the newly learned skills (coincident with increased access to essential data) in solving actual public health problems encountered by participants in their jobs. A field- oriented, practical problem-solving approach, followed by in-service training and supervised application of skills to real public health problems, is key to achieving DDM Project goals and objectives.

Translation of training materials

DDM/CDC translates all training materials developed, as appropriate, for participating countries.

Development of training modules and courses

DDM/CDC is supporting the development of training modules and courses in applied program management, communications, economic evaluation and decision making in public health, public health surveillance, and epidemic preparedness and response for meningitis, cholera, and yellow fever. In addition, DDM/CDC is building upon training modules and courses already being developed and used by CDC to teach applied field epidemiology. The full complement of modules is used to orient and train national program managers and other decision makers in the effective use of data in identifying and setting priorities for public health problems, in making data-based recommendations and plans for solving those problems, and in implementing and evaluating the plans. Interactive problem-solving exercises are used in each of the modules to reinforce the learning process.

Course on management for international public health

In 1992, the Management Development Activity, IHPO, CDC, in collaboration with Emory University School of Public Health, developed a 6-week intensive course in applied management for public health professionals from developing countries. The course is presented once a year and draws upon the combined international experience of faculty from CDC, Emory University, and Meharry Medical College (Nashville, Tennessee).

The purpose of the course is to provide participants with practical management skills that motivate use of data in addressing a broad array of programmatic issues in settings with limited resources. The course also provides training for management trainers, so that participants will be provided with the skills and materials to teach the course to others after they return to their own countries.

Course on Management for International Public Health

Emory University School of Public Health in Collaboration with the Sustainable Management Development Activity, IHPO, CDC, and Meharry Medical College

Course Description

Type of Course:	Training of trainers
Target Audience:	Program managers and other decision makers from developing countries who have responsibility for planning, implementing, and overseeing public health programs
Course Length:	6 weeks
Course Format:	Lectures, inter-active case studies, and computer laboratories
Topic Areas:	Priority setting, strategic planning, health-problem analysis, decision analysis, public health-program monitoring and evaluation, commodity logistics, budgeting and financial management, total quality management, leadership, team building and motivation, working with the legislature, community participation, advocacy, other communications skills, training- needs assessments, and teaching skills
Application:	As part of the course, participants develop a plan as to how they will train colleagues and other decision makers in their countries on these topic areas once they return home. They also take a full set of training materials, lectures, and data-for-decision-making software (e.g., DECAID) with them to use in implementing their plans
Conducted:	Annually, September-October, Since 1992
Countries Participating to Date	Bolivia, Colombia, Honduras, Mexico, Trinidad and Tobagao, China, Bangladesh, India, Malaysia, Pakistan, Thailand, Malawi, South Africa,Swaziland, Zimbabwe

Course on Management for International Public Health

Emory University School of Public Health in Collaboration with the Sustainable Management Development Activity, IHPO, CDC and Meharry Medical College

Learning Objectives

By the end of the course, participants will have developed

- skills that can be used in addressing a broad array of programmatic issues in settings with limited resources
  - Health-problem analysis
  - Strategic planning
  - Leadership, team building, and motivation
  - Using data for decision making
  - Advocacy
  - Budgeting and financial management
  - Program monitoring and evaluation
- skills and acquired the necessary materials to develop self-sustaining applied management-training programs in their home countries in collaboration with CDC

Training Program in Communications

Communications Module

MOD-COMM: A Communications Module has been developed and is currently being reviewed by participants in the DDM/CDC Philippines Project (See *Page 80 and Philippines Country Report*). Its orientation and scope allow for its eventual use in other countries as well. The course consists of a paper training manual and computer-based units, with hypertext capability, that include glossaries, case studies, and other training exercises in various aspects of communications.

Primary target users and audiences for the communications module include

- Public health professionals including ministers of health; national, regional, provincial, and municipal health officers; and program managers.
- Public officials responsible for making decisions and setting policies that have an impact on public health concerns.

- Officials of donor agencies (e.g., UNICEF, USAID) that might wish to invest resources in programs that have a positive impact on public health.
- Representatives of the mass media who need to understand public health issues and concerns in order to practice responsible journalism for their reading or viewing audiences.

Bulletins

DDM/CDC staff are prepared to provide technical assistance in support of the creation, production, and management of public health bulletins. These publications provide a means of sharing essential health information from national to local levels of the pubic health system of a country, as well as from the public health system to the public at large. The Project draws on the expertise of communications specialists in CDC's Epidemiology Program Office, where the *Morbidity and Mortality Weekly Report* series (approximate audience of 450,000 readers worldwide) and other monographs, scientific reports, training manuals, position papers, newsletters, and bulletins on public health topics are produced.

MOD-COMM: *Communications Module*

Table of Contents

Economic Evaluation and Decision Making

One of the principal goals of the Data for Decision Making Project is to strengthen the ability of decision makers at national, provincial, and district levels to define data needs and to use information appropriately in the decision- making process. The goal of this course is to instruct decision makers and their technical advisors in the practical application of economic evaluation concepts and tools for identifying cost-effective solutions to public health problems. At the end of this course, the participant will be able to present information to decision makers on the costs, benefits, and impacts on health of proposed public health programs. (See boxes.)

This course focuses on the use of economic data in decision making by:

- Defining a package of economic evaluation skills that are essential for
  - identifying cost-effective solutions to public health problems,
  - persuasively conveying information to decision makers on the health impacts of public health programs in economic terms.
- Collating economic evaluation training materials (from, e.g., CDC, multilateral donor agencies, and universities) that are most appropriate for an international audience and that demonstrate the essential skills identified above.
- Creating a bibliography on international economic evaluations and making it available to decision makers and their technical consultants.
- Creating a series of training modules (e.g., didactic material, problem-solving exercises, and computer software). Each module will have distinct goals in terms of the technical economic-evaluation skills taught and the decisions to which these technical skills will be applied.
- Providing learning aids to assist participants in retrieving, collating, and analyzing the economic information needed to express impacts of health programs in economic terms.
- Providing economic presentation aids to assist technical advisors in presenting epidemiologic and economic data to decision makers in a format that is understandable and compelling.
- Evaluating these modules and materials in a variety of international settings and revising them as appropriate.
- Providing follow-on supervision to target users in the application of their newly acquired skills solving an identified programmatic need.
- Using a train-the-trainers approach, all teaching materials and instructor's manuals will be provided to course participants. These trainers in turn will teach the course in other settings.

Training Module on Economic Evaluation and Decision Making for International Public Health

Epidemiology Program Office, CDC and
Emory University School of Public Health

Course Description

Type of Course:	Training of trainers
Target Audience:	Program managers, national, regional, district health officials, decision makers having budgetary authority and their technical advisors who plan, implement, and oversee public health programs
Course Length:	Not yet determined
Course Format:	Lectures, interactive case studies, and computer laboratories
Topic Areas:	Relationships among development, health, and economic analysis (what is health and why it matters, investing in health, benefits and impacts of health and non-health interventions on health); decision making in health and the role of economic analyses; cost analysis; cost-benefit analysis (measuring effectiveness and the burden of illness, cost-effectiveness analysis, cost-utility analysis); reviewing the literature for data on the effectiveness and cost of disease and injury prevention programs; communicating with decision makers about cost-analysis data; using epidemiologic and economic data to set priorities
Application:	As part of the course, each participant will calculate and present cost-analysis data. Each will be given a full set of training materials, lectures, and appropriate software to keep.
Countries Participating:	Module under development

Training Module on Economic Evaluation and Decision Making in International Public Health

Epidemiology Program Office, CDC

Learning Objectives

By the end of the course, participants will be able to

- Be conversant in the terminology used for economic analysis
- Explain ways that factors and programs outside the health sector can have an impact on health status
- Discuss why the outcomes (in terms of health status) may or may not relate to health expenditures
- Cite examples from their own experience on how investments in health may have an impact on the health of the population
- Understand how economic analyses of public health problems fit into the larger picture of decision making
- Understand how epidemiologic and economic data can be used to set priorities
- List the key steps in evaluating the effectiveness of a disease- or injury-prevention program
- Understand the limitations, appropriate application to problem solving, and the proper interpretation of the results of cost effectiveness, cost utility and cost benefit analyses
- List the types and sources of data involved in determining program costs and disease costs and understand ways to access those data
- Integrate data from economic analyses with data on other factors involved in the decision process and effectively communicate with policy makers at higher levels about the results

Introduction to Public Health Surveillance

The purpose of the training module on public health surveillance (See Page 86 for a description of the module) is to provide public health professionals with the theoretical and practical tools necessary to design, implement, evaluate, and use effective surveillance programs for improving public health practice (see box, page 78). By the end of the course, a participant should;

- understand the basic principles of public health surveillance,
- be able to develop and conduct an evaluation of a public health surveillance program,
- describe how public health surveillance programs are applied to public health problems in developed and developing countries,
- describe other types of health information needed to complement surveillance information for decision-making purposes, and
- understand how to enhance the usefulness of surveillance data in public health decision making.

Training Program on Epidemic Preparedness and Response in Africa for Meningitis, Cholera, and Yellow Fever (See Cameroon Country Report).

Training Module on Public Health Surveillance

Emory University School of Public Health

Type of Module:	Individual study course for trainers; contains lectures, overheads, and case-study examples pertaining to public health surveillance
Target Audience:	Public health professionals who train technical staff in ministries of health on how to set up public health surveillance and use surveillance data for monitoring public health programs and for evaluation, management, and policy making
Course Length:	Under development; variable depending on learning objectives set forth by individuals. The module will be in a format that can be easily adapted and modified to meet specific educational needs as determined by a) the diseases or other health conditions of importance in the specific geographic area of interest and b) by the specific needs of the participants (e.g., planners, administrators, supervisors, decision makers, or program staff who actually collect, analyze, and interpret the data, and then present information on which appropriate public health action is based).
Course Format:	Narrative material, illustrative examples, and exercises developed from real experiences that the students will solve
Topic Areas:	Overview, development of, and considerations in planning public health surveillance; collection and sources of data; analysis and interpretation; communication and dissemination; technology; evaluation; ethical and legal issues; state and local issues; issues in developing countries; setting surveillance priorities; use of surveillance data in concert with other types of health and management information; future issues in public health surveillance
Application:	Public health professionals will be provided with the theoretical and practical tools necessary to design,mplement, evaluate, and use effective surveillance programs. Each participant (future instructor) will receive the following teaching tools: instructor guides; prompting text with overheads; case studies; checklists (guides) for conducting assessments of specific surveillance needs; guides for evaluating surveillance systems; templates for the production of slides and overhead visual aids; *Epi Info* video tape; examples of surveillance reports from CDC, states, other countries, and WHO.
Countries Participating:	Module being developed

Development of Public Health Leadership

DDM/CDC is exploring the effectiveness of training senior public health policy makers in leadership to improve data-based decision making, through a program entitled The Public Health Leadership Institute (PHLI). The PHLI is a U.S.-based 12-month program that aims to strengthen the U.S. public health system by enhancing the leadership capacities of senior public health officials. Launched in 1991, the Institute is funded by CDC and is being conducted by the Public Health Practice Program Office (PHPPO) and the Western Consortium for Public Health under a 3-year cooperative agreement.

Each year, PHLI selects 50 executive-level, senior public health officials to be scholars in the program, as well as five participants selected from senior staff of CDC. The PHLI develops the scholars' abilities to create and implement a shared vision for public health, and provides them with the skills needed to mobilize resources necessary to achieve national health objectives. The institute also creates a network among the participants to foster career-long learning that will help shape the future of public health.

The curriculum focuses on four major areas: CHALLENGES—current and future issues confronting public health; LEADERSHIP—creativity, vision, and practice; POLITICAL AND SOCIAL CHANGE; and COMMUNICATIONS AND INFORMATION. The scholars engage in interactive seminars that make use of computer-conferencing technology to allow scholars and faculty to be in touch without requiring that they travel from their duty sites. Before the conferences, PHLI sends a study packet to each scholar, which contains readings that serve as the basis for discussion. In late winter or early spring of each session, the scholars attend an intensive week-long retreat that features key speakers in the fields of public health and leadership. This session gives scholars the opportunity for face-to-face discussions with now-familiar colleagues and faculty, for meeting in subgroups to plan future seminars, and for challenging and expanding the way they think about public health.

DDM/CDC is exploring the potential usefulness of adapting and modifying this program for use in international settings. This is being explored through the participation of a senior policy maker from the Secretariat of Health in Mexico as a scholar in the 1993 PHLI class. On the basis on his experiences in this program, this policy maker will design a plan for developing and implementing a leadership institute in Mexico in 1994-1995.

Development of data for decision making computer tools

Epi Info*

Epi Info is a public-domain complete microcomputer system for word processing, database management, and epidemiologic statistics. A questionnaire can be set up and processed in a few minutes for an investigation, or a powerful disease-surveillance system database with many files and record types can be created. *Epi Info* includes features used by epidemiologists in statistical programs such as *SAS* or *SPSS* and database programs like *dBASE*. There are several levels of facilities in *Epi Info* for processing questionnaire or other structured data. Using *Epi Info* on the simplest level, one can compose a questionnaire and begin entering data in a few minutes. Simple commands produce line lists, frequencies, and cross tabulations with epidemiologic statistics and graphs. At the intermediate level, additional commands allow the data entry process to be customized with range checks, legal codes, and skip patterns. Data can be further "cleaned" through selection of records, IF statements, and recoding. Advanced users can program both data entry and analysis and create complete systems for public health surveillance or other purposes, linking programs from many sources into a unified whole using the configurable menu system. Analytic results can be sent to other systems for editing, or accessed as hypertext or menu items. Version 6 if *Epi Info* contains many new features such as configurable pull-down menu and hypertext system, new commands for programming data entry and analysis, capacity to sort and relate very large files, a program to analyze data from complex sample surveys, a new epidemiologic calculator, and a batch processing program for nutritional anthropometry.

Working through several applications of *Epi Info*, users can learn the command language necessary to create questionnaires, enter and analyze data, create graphs and reports in a 16 hour training course.

Epi Info is under continual development at CDC, independent of USAID funding. It continues to be requested, distributed, and used around the world for data collection, analysis, and for graphical presentation and report writing. Forty-thousand copies of *Epi Info*, Version 5 have been distributed through official channels to 117 countries. Version 5 of *Epi Info* is available in Spanish, French, and Arabic.

Epi Info, Version 6, requires an IBM-compatible microcomputer running the PC-DOS or MS-DOS operating system (Version 2.0 or higher, 640 K of random-access memory (RAM), and at least one floppy disk drive. A graphics adapter (board) is necessary to produce graphs. Adapters using

*For further information, contact USD, Incorporated, 207-A West Park Place, Stone Mountain, GA 30087

the Hercules or IBM monochrome, EGA, VGA, IBM3270, IBM8514, and AT&T standards are supported. Files are provided to produce graphic output for 30 different printers and file formats. For most effective use of *Epi Info* with large data sets, a hard disk drive, 640 K of RAM, and a color graphics board and monitor are recommended.

Epi Map*

Epi Map is a public-domain program for IBM compatible microcomputers that produces maps from geographic boundary files and data values entered from the keyboard or supplied in *Epi Info* or dBASE files. The data may be counts, rates, or other numeric values. In color-pattern maps, the values are represented as shading or color patterns for each geographic entity. *Epi Map* also produces cartograms, in which the value for each geographic entity is allowed to control the size of the entity.

Outline maps (boundary files) are supplied with *Epi Map*. They consist of a series of numbers representing the coordinates of the regions in the map. *Epi Map* is designed to work independently or as a companion to *Epi Info*. Numerical data can be entered in *Epi Info*, manipulated and analyzed, and then sent to *Epi Map* for display and printing in map form if desired. It is not necessary to use or understand *Epi Info* to make maps in *Epi Map*, since data can be entered from the keyboard and saved directly in *Epi Map*. *Epi Map* offers a number of tools for enhancing a completed map. The user can select the type of map, patterns of shading or color, number of health events per dot, and the color and thickness of boundaries, and also a three-dimensional shading, titles legends, text, boxes, symbols, or lines. Both data and boundary files can be edited within *Epi Map*. Maps can be changed in size and several different maps can be displayed on the same screen.

Epi Info and *Epi Map* software and training in their use are provided to each participating DDM country. They serve as integral components of the public health work station described below.

Epi Map supports dot-matrix, laser, inkjet, and postscript printers as well as Hewlett-Packard compatible plotters.

Public Health Work Station

DDM/CDC is supporting the development of a public health work station to increase the use of data in decision making. The work station is intended to stimulate health workers, policy setters and other decision-makers to be involved actively and creatively in the business of public health.

*For further information, contact USD, Incorporated, 207-A West Park Place, Stone Mountain, GA 30087

The work station is designed to assist public health professionals who are at different levels of the health system perform a variety of functions. These include:

- monitoring, interpreting, and using health indicators
  - to set priorities among different health problems
  - to plan, manage, and evaluate public health programs
- mapping and interpreting health events and rates
- creating and printing reports or public health bulletins
- presenting technical information in formats and forums that will persuade decision makers to support public health programs
- investigating disease outbreaks
- entering, monitoring, analyzing, and interpreting public health surveillance data
- conducting and analyzing data from surveys
- searching data bases and bibliographies

A person sitting at a computer terminal can use the menu functions of the work station to access the different application modules described above and for accessing and using

- multisource data
- other available software packages for different types of analyses or word processing (e.g. *Wordstar, dBASE, SPSS, PCSAS*)

The work station uses a combination of *Epi Info, Epi Map, Harvard Graphics, and Wordperfect* software. Hardware requirements include those specified for *Epi Info* and *Epi Map* described above. Data-use and -application modules (described above) are developed using these software components and are accessed through menu functions. Different application modules can be developed and added to the menu functions of the work station (See *Philippines and Peru Country Reports*).

Smoking Attributable Mortality and Morbidity and Economic Costs software (SAMMEC 2.1: Developed by the Office on Smoking and Health, CDC), Modified for Use in Latin American Countries

SAMMEC 2.1* is a spreadsheet computer package that operates within Lotus 123 to estimate the disease impact of smoking on a population. *SAMMEC* was created for making calculations appropriate to U.S. populations on the basis of U.S mortality, economic costs, and smoking prevalence data. SAMMEC has been used in the U.S. to promote tobacco-use health policies. States, large municipalities, and most developed nations may be able to use the software to estimate the impact of smoking-attributable risk in their populations. Because several participating DDM countries are currently undergoing an epidemic transition, DDM is supporting the development of a version of *SAMMEC* that will allow input of country-specific data for use in the *SAMMEC* disease-impact calculations. Currently, the software is being modified to allow use of several methods of adjustment that will assist in providing estimates on smoking-attributable mortality and morbidity in Mexico—and potentially in other countries. DDM/Mexico is planning to use SAMMEC to obtain data for promoting an anti-smoking policy. (See *Mexico Country Report*).

CDC's Office on Smoking and Health, with support from DDM/CDC, convened an International Smoking-Attributable Mortality, Morbidity, and Economic Costs Expert Planning Meeting in Atlanta, Georgia, June 21 and 22, 1994. The purpose of the meeting was to develop a methodology that could be used by other countries to calculate smoking-attributable mortality, morbidity, and economic costs, and to discuss how *SAMMEC* software can be modified in future versions to assist international users in using the software appropriately. In addition to CDC staff, invited participants at the meeting included experts from WHO, National Center for Health Statistics (NCHS), American Cancer Society (ACS), and the Harvard University School of Public Health. Proceedings from the meeting are to be prepared and distributed by the Office on Smoking and Health.

Software for Economic Evaluation

Epi Info-compatible software that will provide users access to the world's literature on health economics is being developed. The target audience includes epidemiologists, other technical advisors, and decision makers. The software is intended to be generic enough to allow for greatest application of the methodology to solving a broad variety of problems.

Multi-Attribute Utility/Decision Making (DECAID)†

DDM/CDC has supported the translation of this pre-existing user-friendly software into Spanish to assist participating DDM program managers and other decision makers in articulating what factors they would like to consider in problem-solving situations and exploring how decision outcomes might change when assigning different weights to each of the

*Currently being rewritten in FoxPro.
† For further information on DECAID, contact Dr. Gordon F. Pitz, Southern Illinois University, Carbondale, Illinois 62901

factors. The English version of this software has been introduced and used by participants enrolled in the Management for International Public Health Course (see pages 76-78).

V. COLLABORATION WITH DDM IMPLEMENTING PARTNERS

Collaboration with DDM Implementing Partners

In order for the DDM Project to reach its full potential, the implementing partners must collaborate closely in the development and testing of DDM approaches and tools and in- country activities. CDC has enjoyed a fruitful collaboration with the Harvard Consortium and with DDM's other implementing partners. DDM/CDC participated in a Data for Decision Making Project Coordination Meeting, on December 8, 1993. At this meeting, DDM partners gave an overview of their activities. Ideas were proposed and discussed as to how the DDM partners could work more effectively together.

Harvard Consortium (HC)

- DDM/CDC collaborated with the HC in conducting Project assessments in Bolivia, Philippines, and Burundi.
- DDM/CDC participated in a "Joint DDM Tools Workshop" held at the Harvard School of Public Health, March 4-6, 1992.
- DDM/CDC collaborated with the HC in developing a project-evaluation plan.
- DDM/CDC presented DDM/CDC Project activities as part of the DDM Seminar Series, Harvard School of Public Health, December 16, 1992.
- DDM/CDC attended the "Health Sector Reform in Developing Countries, Issues for the 1990's" Conference, on September 10-13, 1993, at the New England Center, Durham, New Hampshire.
- Dr. Oleh Olowyna, of the Harvard Consortium, presented DDM/HC activities at the First National Conference on Data for Decision Making, on March 21-23, 1994, in La Paz.
- DDM/Bolivia

DDM/CDC is collaborating with the HC in carrying out DDM/Bolivia activities. Several of the activities included in Phase II of the DDM/CDC work plan complement activities being implemented by the HC. They are listed below:

- The primary target audiences of the HC are higher level policy makers and technical advisors in the Ministry of Human Development and the Secretariat of Health. Those of the CDC are mid- to lower-level health officials in the Secretariat of Health. Technical assistance by DDM/HC will help in developing, monitoring, and evaluating of health reform and policies, and that

of CDC will help in implementing, monitoring, and evaluating policies at subnational levels.

- One of the gaps in the training program piloted in Phase I was training in cost effectiveness. DDM/CDC anticipates that selected health officials trained in Phase I will be given the opportunity to participate in the cost-effectiveness workshop being planned by DDM/HC.

International Clinical Epidemiology Network (INCLEN)

- In the past 3 years, DDM/CDC has collaborated with INCLEN and the HC in presenting DDM Project activities at INCLEN's annual meetings.
- DDM/CDC has contracted with INCLEN/Philippines to conduct the DDM/CDC Project evaluation in that country.

Macro-International, Inc.

- DDM/CDC has acquired two DHS data sets from Macro-International and explored the capacity of *Epi Info* to read the data and to be used for data analysis. From this early work, DDM/CDC concluded that it is technically possible to use *Epi Info* to read and import demographic and health survey (DHS) data and to perform different analyses.
- To become familiar with the methods used to design DHS questionnaires, DDM/CDC accepted an invitation from Macro-International to observe the "Demographic and Health Surveys Scientific Advisory Committee" meeting on December 6-7, 1993, in Columbia, Maryland.
- CDC has proposed that Macro-International collaborate with DDM/CDC and USAID/R&D/H/AR to assess the possible use of *Epi Info* for increasing access to and analysis of DHS data at the country level.

National Academy of Sciences

- DDM/CDC participated in the planning meeting for a workshop on the planning and policy implications of the epidemiologic transition, Princeton, New Jersey, September 1990.
- DDM/CDC participated in the "Expert Meeting on New Findings and Developments in the Measurement of Mortality Levels, Patterns, and Trends in Less Developed Countries," Committee on Population, Washington D.C., February 14-15, 1991.
- DDM/CDC attended the "Expert Meeting on Planning and Policy Implications of the Epidemiologic Transition," Washington D.C., November 20-22, 1991.

DDM/CDC participated in the “Expert Meeting on Behavioral and Social Factors in Disease Prevention,” Washington D.C., June 14-15, 1993.

VI. LESSONS LEARNED

An excellent global market exists for DDM Project services.

- The package of:
  - integrated training in applied epidemiology, management, economic evaluation, and communications,
  - follow-up consultation to ensure use of skills to actual problem solving,
  - increased access to data through improved information systems,

  successfully overcomes common barriers to data-based decision making. Although singly, applied epidemiology, management, economic evaluation, and communications facilitate the use of data in decision making, the combination of all these elements is most effective.

- Training, followed by supervised application of skills to problem solving will increase the use of data in decision making at different levels of the health system. Providing mid-level decision makers in ministries of health with tools that assist in a) planning and evaluating health programs, and b) collecting, analyzing, interpreting, and presenting data, facilitates the application of skills.

- Self-sustaining training programs are vital to ensuring a country's capacity to use data for decision making. Plans for the development of self-sustaining programs must be laid early in the Project Period.

- DDM/CDC will make available the approaches and tools that have been successful in improving the effective use of data in decision making in participating DDM countries to other countries.

Workshops without follow-up consulation in applying the skills to actual problem solving do little to change the "data-analysis and use" behavior of mid-level decision makers.

VII. FUTURE DIRECTIONS

CDC looks forward to completing the DDM Project and to learning how DDM/CDC interventions will have affected data-based decision making in public health. Funding for DDM/CDC continues through September 30, 1996. In the remaining 26 months of the Project, DDM/CDC will

- Continue Development of Approaches and Tools
  - Complete the training module and materials for economic evaluation and decision making in international public health
  - Complete the training module for an introduction to public health surveillance
  - Complete *MOD-COMM: A Communications Module* and other curriculum material for use in communications training
  - Collaborate with the Secretariat of Health in Mexico to complete plans for and implement the public health-leadership program in Mexico; explore the possibility of enrolling a public health leader from a second DDM country in the Public Health Leadership Institute (Class of 1994)
  - Complete adaptation of *SAMMEC* software for use with Mexican data
  - Complete development of public health computer work stations in Philippines and Peru
- Complete Testing of DDM Approaches and Tools in Participating Countries
  - Finalize the products and materials developed in DDM/CDC Cameroon
  - Complete DDM/CDC work plans in Mexico and the Philippines
  - Implement Phase II of the DDM/CDC work plan in Bolivia

- Implement the DDM/CDC work plan in Peru
- Complete the DDM/CDC assessment and develop and implement a work plan in Honduras
- Conduct a DDM/CDC assessment in Zambia and develop and implement a work plan

■ Evaluate Project Effectiveness in Increasing the Effective Use of Data in Decision Making

- Complete country-specific DDM/CDC Project evaluations

■ Publish Results of the DDM/CDC Project

- Write results of all project activities as administrative reports to USAID and as reports in the peer-reviewed literature

■ Assess the feasibility of undertaking activities in additional countries.

APPENDICES

Appendix A: Country-Specific Appendices

Bolivia

Learning Objectives for the DDM/CDC Bolivia Project

By the end of the workshop listed, participants were expected to know how to do the following:

Workshop 1: Applied Epidemiology

- Use descriptive epidemiology and descriptive statistics to analyze a data set
- Conduct a field investigation of an acute health problem
- Describe the key concepts of public health surveillance and evaluate a surveillance system
- Use *Epi Info* to enter and process questionnaire data; to import data; and to produce lists, frequencies, tables, and graphs

Workshop 2: Applied Management

- Use data to identify problems of public health importance
- Analyze problems to identify their specific determinants
- Analyze data to identify effective interventions
- Develop an intervention strategy, with objectives, work plan, and budget
- Identify resources needed to resolve problems
- Design a system for monitoring program implementation and evaluating program effectiveness

Workshop 3: Communications and review of topics

- Prepare an oral presentation (including effective visual aids) to be made to higher-level decision makers on data-based plans of action
- Write a 250-word structured abstract
- Manage a data set
- Analyze and interpret data from surveys and epidemiologic studies
- Understand the key concepts for priority setting

Topics Taught in DDM/CDC Bolivia 2-week Workshops

Workshop 1 Applied Epidemiology

- Descriptive epidemiology
- Epidemic investigation science
- Questionnaire design
- Public health surveillance
- Epidemiologic study design
- Measures of association
- Bias, causation
- Case-control studies
- Stratified analysis
- Use of *Epi Info*
- Rates and ratios
- Tables, graphs, charts
- Measures of central tendency and dispersion
- Surveys and sampling
- Oral and Written Communications

Workshop 2 Applied Management

- Introduction to management science
- Health-problem analysis
- Priority setting
- Decision analysis
- Strategic planning
- Operational planning
- Logistics
- Finance and Budget
- Supervision
- Program evaluation
- In-service project preparation

Workshop 3 Communications

- Prepration of oral presentations and briefings to supervisors, the media, and scientific peers
- Review of data analysis
- Review of scientific writing
- Writing 250-word structured abstracts

Presentations at First National Data for Decision Making Conference La Paz, Bolivia, March 21-23, 1994

National-Level Health Officers, Epidemiologists, and Program Managers

National Blood Plan to Control the Transmission of Bloodborne Diseases. Dr. Maria Luisa Melgar. National STD/AIDS Program Director (See Case Study, pages 100, 101).

National Subsystem of Supply for the Expanded Programme on Immunization. Dr. Rosario Quiroga Morales. National Chief of the Expanded Programme on Immunization.

Plan for Strengthening Oral Rehydration Centers in Bolivia. Dr. Jackeline Reyes de Lanza. National Chief of Diarrheal Diseases.

National Program of Surveillance and Control of Cysticercosis/Taeniasis. Dr. Zulema Bautista Perez, National Chief of Zoonoses.

Structuring a National System of Epidemiologic Surveillance at the Regional Level: A Proposed Model. Dr. Gilma Lourdes Pereira Guillen. National Chief of Epidemiologic Surveillance for Cholera.

Plan for Supervision of the Cold Chain. Dr. Alejandro Sanchez Bustamante Rojas. National Cold Chain Director.

Integration of Programs in a Global System of Epidemiologic Surveillance. Dr. Virgilio Prieto Barron. (Formerly National Director of Epidemiology).

Creation of Clinical Training Centers for Acute Diarrheal Illness. Dr. Oscar Gonzales Yucra. Diarrhea/Cholera Coordinator, CCH Project, La Paz.

Improving Vaccine Coverage in Selected Districts. Dr. Percy Halkyer B. National EPI Consultant, PAHO.

Regional-Level Health Officers, Epidemiologists, and Program Managers

Tuberculosis in Riberalta, 1990-1993. Dr. Maria Leda Azad Bucett, Regional Epidemiologist, Riberalta.

Strengthening the Epidemiologic Surveillance System, Colquechaca, Potosi. Dr. David Choqueticlla Rodriguez, Regional Epidemiologist, Potosi.

Complementing the National Health Information System with Timely, Integrated Epidemiologic Surveillance. Dr. Jorge Flares R. Regional Epidemiologist, Cochabamba.

Study of Vaccination Coverage and Efficiency, El Alto, 1992. Dr. Hector Perez Vargas. Regional Epidemiologist, El Alto.

Epidemiologic Surveillance for Vaccine-Preventable Diseases, Oruro. Dr. Israel Ramirez Araoz. Regional Epidemiologist, Oruro.

Reinforcement of the Program for Surveillance and Control of Tuberculosis in Tupiza. Dr. Felipe Martinez Romero. Regional Secretary of Health, Tupiza.

Implementation of Community Oral Rehydration Centers, Vocalia District, Potosi. Dr. Antonio Gumiel Mendoza, Acting Regional Director of Health, Potosi.

Reinforcing Institutional and Community Oral Rehydration Centers in the Regional Health Secretariat of Tupiza. Dr. Oscar Javier Soruco Quiroga. Regional Chief of Health Services and Programs, Tupiza.

Evaluation of Epidemiologic Surveillance for Acute Flaccid Paralysis, 1990-1993, Trinidad. Dr. Luis Suarez Pova. Regional Director of Health, Beni.

Reorganization of the Regional System of Epidemiologic Surveillance in Santa Cruz, Bolivia. Dr. German A. Villarroel Rojas. Coordinator of Postgraduate Training in Management and Epidemiology, Universidad Autonoma Gabriel Rene Moreno (Formerly National EPI-Polio Consultant, PAHO)

Child Mortality in the Regional Health Secretariat, La Paz. Dr. Yuko Hiramatsu de Ode. Coordinator for Child and Adolescent Health, Regional Health Secretariat, La Paz.

Analysis of Indicators of Vaccination Coverage and Efficiency. Dr. Rene Lennis Porcell. Regional EPI Director, La Paz.

Certification of Poliomyelitis Eradication, La Paz and El Alto. Dr. Erick Machicao Ballivian. Regional EPI and Polio Surveillance Coordinator, La Paz.

Improving the Indicators in the Epidemiologic Surveillance System for the Certification of Poliomyelitis Eradication, Cochabamba. Dr. Henry Rojas Chirveches. Regional EPI Coordinator, Cochabamba.

Improving Health Education and Information for AIDS in Sucre. Dr. Mario Lopez Gonzales. Regional AIDS Program Director, Chuquisaca.

Epidemiologic Situation and Inefficiency of the Tuberculosis Control Program, Cochabamba. Dr. Silvia Zapata Salinas. Regional CCH Coordinator, Cochabamba.

Community Participation in the Control of Health Services. Dr. Heber Vargas Montero. Regional CCH Coordinator, Santa Cruz.

Monitoring Activities in Health Districts in Rural Areas, Bolivia, 1993. Dr. Jose Luis Baixeras, Regional CCH Coordinator, La Paz.

Strengthening Epidemiologic Surveillance and Control of Cholera, 1994-1996. Dr. Alfredo Magne A. Epidemiologic Control of Cholera, La Paz.

Improving Immunization Coverage in Rural Areas. Dr. Fernando Gil Mendia. (Formerly Regional EPI Chief, Santa Cruz).

District-Level Health Officers, Epidemiologists, and Program Managers

Development of a Control Mechanism in the Carrasco Valle Health District. Dr. Oscar Sivila Laredo. Director, Carrasco Valle Health District, Cochabamba.

Implementation of a System for Supervision and Monitoring in the Altiplano Valle Sud District. Dr. Alberto Tenorio Carvajal. District Director, Altiplano Valle Sur, La Paz.

Development of a Subsystem of Control in the Health Districts of Sacaca, Potosi. Dr. Jose A. Hinojosa L. Director, District 8, Sacaca.

Cultural Factors that Influence Low Demand for Prenatal Services, Huanuni. Dr. Luz Mila Martinez Nava. District Director, Eucaliptus, Oruro.

Improving the Supervision and Monitoring System in South Chiquitania Health District. Dr. Margarita Patton de Gil. (Formerly Director, Chiquitania Sud District).

Study of the Control and Epidemiologic Surveillance of Pulmonary Tuberculosis in the Cardenal Maurer Project District. Dr. Daniel Rivas Pari. District Director, Cardenal Maurer Projects, Sucre.

Developing an Integrated Plan for Supervision in District VI, Cochabamba. Dr. Antonio V. Quiroga. District Director, Chapare Valle Puna, Cochabamba.

Epidemiologic Surveillance of New and Reactivated Oral Rehydration Centers in Toledo. Dr. Tito Villarroel Roman, Physican for Mining Areas (Formerly Regional Chief of Health Services, Oruro).

Case Study
Development and Implementation of a National Blood Plan To Control the Transmission of Blood-Borne Diseases

Dr. Maria Luisa Melgar
National STD/AIDS Program Manager

I. Development of a Data-Based Plan

As her DDM/CDC in-service project, the National AIDS Program Manager developed a plan for regional blood banks for preventing and controlling transmission of human immunodeficiency virus (HIV) and other blood-borne pathogens. The objective of the plan is to prevent and control blood-borne transmission of malaria, Chagas disease, hepatitis B, syphilis, and HIV throughout Bolivia within 3 years of initiation.

The plan addresses eight action areas:

- providing interagency coordination and establishing standards
- developing regional reference laboratories
- providing resources for testing blood for transfusion
- training health workers about the blood-banking system
- training workers in the use of human blood in accordance with established guidelines
- promoting voluntary (unpaid) donations of blood and promoting the donation of blood by the person who will receive the blood
- providing community education
- implementing a quality-control program

The plan includes the following sections:

- A detailed statement and description of each problem and its determinants and of contributing factors.
- Identification of the most effective strategies to be used, based on the use of force-field analysis.
- Clearly stated objectives, each which relates to the problem, determinants, and contributing factors.
- An extremely detailed budget and implementation chronogram.
- A complete evaluation plan.

Case Study, Continued
Development and Implementation of a National Blood Plan To Control the Transmission of Blood-Borne Diseases

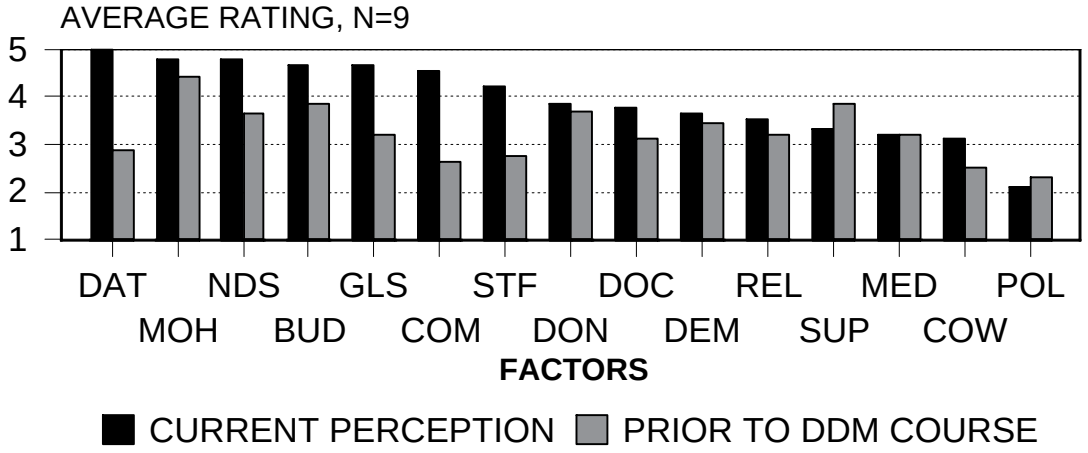
Dr. Maria Luisa Melgar
National STD/AIDS Program Manager

II. Implementing the Plan

- Proposed legislation has been drafted for submission to the national legislature with approvals obtained from top-level administrators and policy makers in the Ministry of Health, Secretariat of Human Resources.
- Funding is being secured from the national budget and from international agencies. The portion of the overall national budget needed for full implementation of the plan (i.e., $372,000) has been approved.
- An implementation plan for the country, by region, has been developed
- Regional policy and overview committees have been developed.
  - — The plan for La Paz, which represents the first stage in the national program, has been implemented.
  - — Plans are being developed with the health departments of the private sector for Sucre and Santa Cruz. Funding is being sought from France for Sucre and possibly from Belgium or Japan for Santa Cruz.
- An advocacy plan has been developed and implemented.
  - — A press conference was held in November 1993 by the National Secretary for Health to announce this new health program.
  - — Dr. Melgar has developed and has been using effective visual aids to explain the program to many audiences.

FIGURE 1

RELATIVE IMPORTANCE OF FACTORS WHICH INFLUENCE PUBLIC HEALTH PROGRAM DECISIONS IN BOLIVIA



Assessment of Decision Making Behavior
Bolivia DDM Project, August 1993

DAT Epidemiologic data
MOH Official Ministry of Health policies
NDS Community health needs
BUD Operating budget
GLS Professional goals
COM Availability of computer
SFT Staff directly supervised
DON Interests of donor agencies
DOC Public health reports and documents
DEM Demands of community groups
REL Personal relations with co-workers
SUP Immediate supervisor
MED Mass media
COW Professional co-workers
POL Political parties

Bibliography of Project Products and Dissemination of Training Materials

Training materials

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Mexico

Case Study
Estimating Smoking-Attributable Mortality, Morbidity, and Economic Costs in Mexico

Background

An international meeting on smoking-attributable mortality, morbidity, and economic costs was held in Atlanta, June 21-22, 1994. The purpose of the meeting was to reach consensus on a method for calculating smoking-attributable mortality, morbidity, and economic costs for international use. Participants also explored the usefulness of the *SAMMEC* 2.1 software (developed by CDC for use with United States-based mortality and relative risk data) for international use. Two methods for calculating smoking-attributable mortality (methods of Stanley and Peto/Lopez), were discussed. Data requirements for making these calculations were also discussed, as were data requirements for calculating smoking-attributable economic costs.

Data Requirements and Sources in Mexico

Smoking-Attributable Mortality	Source
Rates of mortality for lung cancer and other diseases, by sex for persons who have never smoked	Instituto Nacional de Estadistica Geografica Informatica (INEGI), 1922 Secretaria de Salud (SSA), 1992
Prevalence of smoking by age group and sex	Encuesta Nacional de Addiciones 1988, 1993 Direccion General de Epidemiologia (DGE), SSA
Relative risk for death attributed to smoking for current and former smokers, by disease category and sex	Case-control studies, DGE, SSA†
Smoking-Attributable Economic Costs	
Mean annual income by age group and sex	INEGI, 1992 Banco de Mexico 1994, Others to be identified
Present value of future earnings by age group and sex	Method of Dorothy Rice
Relative rate of health-care-system use and disability days by smoking status, age group, and sex	Encuesta Nacional de Salud II† Encuesta de Ingreso-gasto, 1993, INEGI

*Stanley and Peto/Lopez. These methods are used when country-specific relative risks of smoking attributed deaths for current and former smokers, by disease category7 and sex, are not known. Proceedings of the International Smoking-Attributable Mortality, Morbidity, and Economic costs Expert Planning Meeting, June 21–22, 1994.
†To be conducted in 1994.
§Follow-up studies, to be completed.

Case Study
Estimating Smoking-Attributable Mortality in Mexico

Methods

Method of Peto and Lopez: This is a multi-step process, the first of which is the calculation of the Smoking Impact Ratio (SIR). It is based on the target country's lung cancer mortality rate relative to U.S. rates. Once calculated, the SIR is applied to U.S. condition-specific excess risk values, thereby adjusting the values for excess risk to levels appropriate for the target country. These adjusted excess risks are then halved, entered into *SAMMEC*, and used to compute attributable risk. The attributable-risk values are then applied to the country's own mortality data to produce smoking-attributable mortality. This method has many assumptions, the most important among them being that death rates from lung cancer for persons who have never smoked in the target country approximate those in the United States. During the International *SAMMEC* Expert Planning Meeting, there was consensus among those present to use lung cancer rates for Mexican women as an estimate of the rates for Mexicans who have never smoked.

Method of Stanley: This method uses a "smoking maturity in a population" index, calculated by taking the square root of the ratio of lung cancer mortality rate for a country in the Americas minus the lung cancer rate for person in the United States who have never smoked to the lung cancer mortality rate in the United States minus the lung cancer rate for persons in the United States who have never smoked. For a given country, this index is used to adjust disease-specific smoking-attributable fractions (SAF) in the United States to provide adjusted disease-specific SAFs for the given country. The number of deaths from a specific cause in the country is then multiplied by the adjusted SAF to provide the SAM (smoking-attributable mortality).

Preliminary SAM Results

Numbers of Deaths by Sex and Method of Calculation

	Peto/Lopez	Stanley
Male	4,282	9,873
Female	284	1,796
Total	**4,566**	**11,670**

Future Steps: These results are preliminary and will be further reviewed and refined by the Secretariat of Health in Mexico. Eventually the results will be part of a data base that supports anti-tobacco-use health policies in Mexico.

*Reference: Smoking and health in the Americas: a 1992 report of the Surgeon General. Chapter 3. "Prevalence and mortality."Pages 81–100

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Report on Evaluation of National Surveillance System, December 1993.

SAMMEC 2.1 Manual in Spanish

Direccion General de Epidemiologia, DDM-Mexico. Boletin de Morbilidad y Mortalidad, Mayo de 1994.

Office on Smoking and Health, CDC. Report on International Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) Expert Planning Meeting, Atlanta, June 21-22, 1994.

Cameroon

Contents

Learning Objectives for Seminars and Workshops on Epidemic Preparedness and Response for Meningitis, Yellow Fever, and Cholera

Far North and North Provinces, Cameroon, 1993–1994

Seminar on Meningitis, January 7–8, 1993

By the end of the seminar, the participants will be able to

- Describe how to manage patients who have developed meningitis
- State the case definitions for meningitis
- Describe how to detect an outbreak of meningitis
- Calculate attack rates
- Apply the threshold attack rate for vaccinating
- Outline the means of controlling an outbreak
- List the steps for reporting a potential or real epidemic
- Describe preparedness measures
- Use reference documents to calculate treatment regimens and supply needs

Workshop on Cholera, July 5–8, 1993

By the end of the workshop, the participants will be able to

- Describe how to assess patients for signs of some or severe dehydration
- Describe how to manage patients who have no, some, or severe dehydration
- State the surveillance case definition for cholera
- List the steps for reporting a suspected or a confirmed epidemic
- Know how to evaluate whether a community is prepared for an epidemic
- Use reference documents to calculate treatment regimens, supply needs, and emergency stocks

Seminar on Meningitis, Yellow Fever, and Cholera, January 24–28, 1994

By the end of the seminar, the participant will be able to

- Agree on surveillance case definitions for meningitis, yellow fever, and cholera
- Develop consensus on the system for reporting of cases meeting the surveillance case definitions
- Plan a strategy for epidemiologic investigations of suspected meningitis, cholera and yellow fever epidemics
- Agree on a standard approach for control of meningitis, cholera, and yellow fever epidemics
- Develop a plan for training of additional MOPH personnel in epidemic preparedness

Agenda
Seminar on Meningitis
Maroua, Cameroon
January 7-8, 1993

- Clinical Aspects
- General Epidemiology of Meningitis
  - What an epidemic is
  - Epidemiology of meningitis in Africa
    - The meningitis belt
    - The Far North Province, Cameroon in 1992
- Epidemiologic Surveillance and Prevention
  - Review and critique of response to the 1992 meningitis epidemic
  - Improving preparation for, detection and response to meningitis epidemics
    - Positioning vaccine buffer stocks
    - Improving meningitis surveillance
    - Improving communications with health officials on surveillance information
    - Determining weekly threshold attack rates for use in deciding when to vaccinate
  - Presentation and discussion of technical guidelines and a worksheet to calculate weekly threshold attack rates
    - Work in groups to practice calculating weekly threshold attack rates
    - Implementing guidelines
- Discussion on use of data for taking decisions on the detection of and response to epidemics of meningitis

Agenda
Workshop on Cholera
Maroua, Cameroon
July 5–8, 1993

Day 1 – July 5th

Pre-test
Historical aspects of cholera
Appreciation of diarrhea and diagnosis of cholera
Physiopathology of cholera
Treatment of cholera
Organization of cholera control
Proposal of plans of action for cholera control at district and provincial levels

Day 2 – July 6th

Responsibilities in responding to an epidemic of cholera
Rehydrating patients with cholera
Surveillance of cholera; collection, compilation, analysis, and dissemination of data
Information, education, and communication relating to cholera at the district and provincial levels
Place and use of drugs in treatment for cholera
Plan of action at the district and provincial levels

Day 3 – July 7th

Provision of clean and potable water
Epidemiologic aspects of cholera in Cameroon
The objective of a survey of an epidemic of cholera
Case definition of a case of cholera
Confirmation and diagnosis of cholera
Community survey of a probable outbreak of cholera
Epidemiologic studies

Day 4 – July 8th

Declaring a cholera epidemic
Introduction to working groups
Workgroups
Presentation and discussions of workgroups
Discussion and evaluation of workshop
Post-test

Agenda

Seminar on Epidemic Preparedness for Meningitis, Cholera, and Yellow Fever
Far North Province, Cameroon
January 24-28, 1994

January 24: Meningitis—Morning and Afternoon

Review module on meningitis technical guidelines in work groups
Discuss findings of work groups (meningitis) in plenary session

January 25

Morning (Meningitis)
Review meningitis component of training module in work groups
Review meningitis case study and exercise in work groups
Afternoon (Yellow Fever)
Review module on yellow fever technical guidelines in work groups

January 26: Yellow Fever—Morning and Afternoon

Discuss findings of work groups (yellow fever) in plenary session
Review yellow fever component of training module in work groups

January 27: Cholera—Morning and Afternoon

Review module on cholera technical guidelines in work groups
Discuss findings of work groups (cholera) in plenary session
Review cholera component of training module in work groups
Review cholera case-study and exercise in work groups
Review role of health education: sanitary measures (cholera)
Review roles and responsibilities at the district level (cholera) Review roles and responsibilities at the provincial level (cholera)

January 28

Plenary Session, Work Group Reports
Develop plans of action at the level

Technical Guidelines on Epidemic Preparedness and Response
Table of Contents—Meningitis

Technical Guidelines on Epidemic Preparedness and Response
Table of Contents—Yellow Fever

Technical Guidelines on
Epidemic Prepredness and Response
Table of Contents — Cholera

Case Study
Use of a Weekly Threshold Rate To Detect Epidemics of Meningitis in the Far North Province, Cameroon

Previous Detection and Response

Since 1988 there have been over 110,000 cases of meningitis in Africa and at least 11,000 deaths.

From December 1991 through May 1992, there was a large epidemic of meningitis in Cameroon's Far North Province.

- 7,673 cases and 731 deaths were reported
- Overall attack rate of 432 cases per 100,000 population was reported
- Age-specific attack rates were highest among children < 4 years of age
  - Cause of the epidemic was confirmed in January to be serogroup A *Neisseria meningitis*
  - A mass vaccination was initiated in late February (6-week delay)
    - Children targeted for vaccination
    - Over 800,000 doses of vaccine distributed by April

DDM Intervention

Guidelines for epidemic preparedness with an emphasis on use of weekly threshold rates for detection of the an epidemic and immediate initiation of vaccination, were developed in October and November 1992.

A training seminar for divisional health officers (first line decision makers in epidemic response) in the Far North and North Provinces was conducted by MOPH, USAID, and Save the Children January 7-8, 1993.

Case Study
Use of a Weekly Threshold Rate To Detect Epidemics of Meningitis in the Far North Province, Cameroon

Post-DDM Interventions, 1993

Meningitis was detected in Moulvoudaye (68,700 population) and Guere (66,700 population) subdivisions in the Far North Province in early January 1993.

Weekly attack rates were calculated and used by division directors according to the technical guidelines.

Weekly attack rates exceeded the 15 per 100,000 threshold in both Moulvoudaye and Guere subdivisions the week of February 1, 1993.

Vaccination programs were initiated 2 weeks later (February 15th and 16th) in Moulvoudaye and Guere subdivisions, respectively.

Conclusions

As a result of the activities which were developed during DDM/CDC meningitis technical assistance, the MOPH displayed a significantly improved performance in detecting and effectively responding to epidemic meningitis during a series of outbreaks which occurred in early 1993.

USAID/Cameroon and the MOPH concluded that a large scale epidemic was probably avoided by implementing the meningitis epidemic preparedness measures that had been developed and taught to divisional directors. Measures included:

- Positioning vaccine buffer stocks
- Improved meningitis surveillance
- Calculation of weekly attack rates
- Use of the threshold weekly attack rate to decide when to vaccinate

Case Study
Sustainable Financing of Vaccines, Drugs, and Supplies for Meningitis, Yellow Fever, and Cholera
Far North Province, Cameroon, 1994

Background

- Relationship between financing and use of data for decision making
  - Lack of resources was the most common reason given by decision makers at all levels in the provincial health-care system for delayed response to recent epidemics in the Far North
- For sustainable financing of drugs and supplies, use existing mechanisms if at all possible
  - The Provisional Health Fund for Essential Drugs and Supplies (CAPME) will be implemented in June 1994
- CAPME consolidates efforts of Save the Children, CARE, the Belgian Center for Medical Instruction (CIM), and Provincial Ministry of Health to ensure that essential drugs and supplies are available in public health services in the Far North Province, and raises revenues for health service operating costs.
  - Drug stocks from each of the projects will become part of initial capital stock
  - Chief pharmacist at CIM will transfer to Provincial Public Health Delegation and oversee CAPME
  - Drugs can be sold to nonprofit private sector providers as well, including NGOs and mission groups.
  - 62 community cofinanced health centers

Case Study
Sustainable Financing of Vaccines, Drugs, and Supplies for Meningitis, Yellow-Fever, and Cholera
Far North Province, Cameroon, 1994

Recommendations

- Incorporate financing of epidemic preparedness and response into existing mechanism—CAPME
  - Establish line item fund of 1,500,000 CFA Francs ($2,586) in annual CAPME budget reserved for immediate use at the discretion of the Provincial Public Health Delegate during epidemics of meningitis, yellow fever, and cholera for
    - — initial and immediate epidemic investigations by the provincial and/or divisional level
    - — laboratory confirmation of pathogen at Centre Pasteur in Yaounde
    - — logistic costs of mass vaccination and health education campaigns during declared epidemics
  - Maintain buffer stocks of
    - — 100,000 doses of meningococcal vaccine and diluent with an equal number of 1 ml syringes and needles
    - — 20,000 doses of yellow fever vaccine and an equal number of syringes and needles
  - to be used during an epidemic declared by the Provincial Public Health Delegate based upon epidemic guidelines. They are to be provided free of charge to the affected areas.
  - Six months prior to expiration of meningococcal buffer stock of vaccine, stock will be sold (at a concession price) to health facilities for their immediate use. Remaining vaccine stock will be used to immunize targeted areas under a plan approved by the delegate, and financed by the standard provisional financing system (not the earmarked fund in CAPME).

Case Study
Sustainable Financing of Vaccines, Drugs, and Supplies for Meningitis, Yellow-Fever, and Cholera
Far North Province, Cameroon, 1994

Recommendations Continued

- Establish and maintain stock quota minimums of drugs used in treatment for meningitis and cholera, at levels sufficient to treat 500 patients with meningitis and 500 patients with cholera, in addition to the minimums necessary for routine use of these drugs.
- Maintain existing buffer stock of transport media for specimens, to be provided free of charge.
- Use donated drugs and supplies first in an epidemic in areas of greatest need. Donated drugs should be provided free of charge. If donated drugs are insufficient to meet demands, the CAPME should sell meningitis and cholera drugs according to the following pricing schedule:
  - Existing buffer stocks of drugs will be valued at CAPME's normal price
  - Donated drugs will be valued at 0
  - The price of drugs to the health center will be the weighted average of the two sources of supply.
  - The markup for drugs at the health center will be the usual margin
  - If donated drugs remain at the end of an epidemic, the drugs should become part of the CAPME stock and should be valued at the normal price.

Bibliography of Project Products, Training Materials, and Tools

Technical guidelines on the detection and control of epidemics of meningitis, cholera, and yellow fever

Definitions of roles and responsibilities in epidemic preparedness and response in Cameroon

Case study and exercise: An outbreak of diarrheal disease in Northern Cameroon

Case study and exercise: An outbreak of meningitis

Case study and exercise: An outbreak of yellow fever

Emergency supply projections and lists

Recommendations for cost recovery

APPENDIX B: DDM/CDC Leadership in Participating Countries

DDM/CDC Leadership in Participating Countries

	National	AID Mission	CDC
BOLIVIA	Dr. Carlos Dabdoub, MOH Dr. Joaquin Monasterio, MOH Dr. Alvaro Munoz Reyes, CCH Lic. Antonio Gomez, CCH Dr. Roberto Baker, NUR University Dr. Soheil Dooki, NUR University	Mr. Paul Hartenberger Ms. Sigrid Anderson Mr. Paul Ehmer Mr. Charles Llewellyn	Dr. Joel Kuritsky
MEXICO	Dr. Roberto Tapia Conyer, MOH Dr. Miguel Lombera, MOH Dr. Fernando Meneses, MOH Dr. Cuauhtemoc Ruiz, MOH Lic. Silvia Artasanchez, MOH Dra. Elsa Sarti, MOH Dr. Pablo Kuri, MOH Dr. Luis Duran, INSP Lic. Rosa Maria Gutierrez, MOH Dr. Oscar Velasquez Monroy, MOH	Ms. Nancy Sweeney	
PERU	Dr. Alfonso Villacorta Bazon, MOH Dr. Miguel Espinoza Barco, MOH Dr. Victor Huapaya, PAHO	Dr. Susan Brems Dr. Jose Luis Seminario	Dr. David Sniadak
HONDURAS	Minister of Health	Mr. David Losk	Dr. Stan Terrell
CAMEROON	Dr. Rene Owona, MOPH Dr. Amos Sam-Abbenyi, MOPH Dr. Ncharre, MOPH Dr. Nkodo Nkodo, MOPH Dr. Ngwa, MOPH Dr. Nkwate, MOPH Mr. Tina, MOPH Mr. Che Mbaniko, MOPH Mr. Aboubacar Ouattara, SCF	Mr. Richard Greene	Dr. James Zingeser
PHILIPPINES	Dr. Manuel Dayrit, MOH Dr. Nemia Lapastora, MOH Ms. Felilia White, MOH Dr. Enrique Tayag, MOH Dr. Tessa Tan Torres, INCLEN Dr. Mary Ann Lansang, INCLEN Mr. Herdie Hizon, MOH	Dr. Emmanuel Voulgarapoulos Ms. Patricia Moser Dr. Rosendo Capul	Dr. Mark White

National Country Staff Participating or Trained in DDM Activities

Bolivia

Dr. Maria Luisa Melgar. National STD/AIDS Program Director.
Dr. Rosario Quiroga Morales. National Chief of the Expanded Programme on Immunization.
Dr. Jackeline Reyes de Lanza. National Chief of Diarrheal Diseases.
Dr. Zulema Bautista Perez, National Chief of Zoonoses.
Dr. Gilma Lourdes Pereira Guillen. National Chief of Epidemiologic Surveillance for Cholera.
Dr. Alejandro Sanchez Bustamante Rojas. National Cold Chain Director.
Dr. Virgilio Prieto Barron. (Formerly National Director of Epidemiology)
Dr. Oscar Gonzales Yucra. Diarrhea/Cholera Coordinator, CCH Project, La Paz.
Dr. Percy Halkyer B. National EPI Consultant, PAHO.
Dr. Maria Leda Azad Bucett, Regional Epidemiologist, Riberalta.
Dr. David Choqueticlla Rodriguez, Regional Epidemiologist, Potosi.
Dr. Jorge Flores R. Regional Epidemiologist, Cochabamba.
Dr. Hector Perez Vargas. Regional Epidemiologist, El Alto.
Dr. Israel Ramirez Araoz. Regional Epidemiologist, Oruro.
Dr. Felipe Martinez Romero. Regional Secretary of Health, Tupiza.
Dr. Antonio Gumiel Mendoza, Acting Regional Director of Health, Potosi.
Dr. Oscar Javier Soruco Quiroga. Regional Chief of Health Services and Programs, Tupiza.
Dr. Luis Suarez Pova. Regional Director of Health, Beni.
Dr. German A. Villarroel Rojas. Coordinator of Postgraduate Training in Management and Epidemiology, Universidad Autonoma Gabriel Rene Moreno (Formerly National EPI-Polio Consultant, PAHO)
Dr. Yuko Hiramatsu de Ode. Coordinator for Child and Adolescent Health, Regional Health Secretariat, La Paz.
Dr. Rene Lennis Porcell. Regional EPI Director, La Paz.
Dr. Erick Machicao Ballivian. Regional EPI and Polio Surveillance Coordinator, La Paz.
Dr. Henry Rojas Chirveches. Regional EPI Coordinator, Cochabamba.
Dr. Mario Lopez Gonzales. Regional AIDS Program Director, Chuquisaca.
Dr. Silvia Zapata Salinas. Regional CCH Coordinator, Cochabamba.
Dr. Heber Vargas Montero. Regional CCH Coordinator, Santa Cruz.
Dr. Jose Luis Baixeras, Regional CCH Coordinator, La Paz.
Dr. Alfredo Magne A. Epidemiologic Control of Cholera, La Paz.
Dr. Fernando Gil Mendia. (Formerly Regional EPI Chief, Santa Cruz)
Dr. Oscar Sivila Laredo. Director, Carrasco Valle Health District, Cochabamba.
Dr. Alberto Tenorio Carvajal. District Director, Altiplano Valle Sur, La Paz.
Dr. Jose A. Hinojosa L. Director, District 8, Sacaca.
Dr. Luz Mila Martinez Nava. District Director, Eucaliptus, Oruro.
Dr. Margarita Patton de Gil. (Formerly Director, Chiquitania Sud District)
Dr. Daniel Rivas Pari. District Director, Cardenal Maurer Projects, Sucre.
Dr. Antonio V. Quiroga. District Director, Chapare Valle Puna, Cochabamba.
Dr. Tito Villarroel Roman, Physican Mining Areas (Formerly Regional Chief of Health Services, Oruro)

Cameroon

Far North Province

Dr. Moussa Djidda, Provincial Delegate
Dr. Aly Toupouri, Chief, Provincial Service of Preventive Medicine
Mr. Aminou Moussa, Chief, Provincial Service of Statistics and Planning
Mr. Abdou Salam Ibrahim, Deputy Chief of Preventive Medicine
Mr. Konji Kondji Dominique, Chief, Provincial Bureau of Training
Mme. Belinga Fridoline, Chief, Provincial Bureau of Hygiene
Chief, Departmental Service of Mayo-Kani
Dr. Bray Zoua, Chief, Departmental Service of Logone and Chari
Dr. Dama Mana, Chief, Departmental Service of Mayo-Sava

Dr. Baigora Matios, Chief, Departmental Service of Mayo-Danay
Dr. Fopa Amadou, Chief, Departmental Service of Mayo-Tsanaga
Dr. Mahonde Dadal, Medical Advisor Provincial Hospital
Dr. Mouyebe Kera, Chief Medical Officer, Department of Mayo-Kani
Dr. Alcaly, Chief Medical Officer, Department of Logone & Chari
Dr. Ananfah, Chief Medical Officer, Department of Mayo-Sava
Dr. Tougordi, Chief Medical Officer, Department of Mayo-Danay
Dr. Yimagou, Chief Medical Officer, Department of Mayo-Tsanaga

North Province

Dr. Djbrilla Kaou, Provincial Delegate
Dr. Abdoulaye Yougoua, Chief, Provincial Service of Preventive Medicine
Mr. Sylvester Ndeso Atanga, Chief, Provincial Service of Statistics and Planning
Chief, Bureau of Hygiene
Dr. Donfack Joseph, Chief of the Departmental Service of Faro
Dr. Tchambe Tiako, Chief of the Departmental Service of Mayo-Rey
Chief of the Departmental Service of Mayo-Louti
Director of the Provincial Hospital of Garoua
Chief Medical Officer, Department of Faro
Chief Medical Officer, Department of Mayo-Rey
Chief Medical Officer, Department of Mayo-Louti

Representatives of Nongovernmental Organizations

Belgian Center for Medical Education
Save the Children
Tokombere Hospital
Diocese of Mokolo-Maroua
CARE
French Assistance Corporation
Pasteur Institute Annex, Garoua
Diocese of Yagoua-Kaele

Philippines

Central Department of Health

Dr. Jaime Galvez Tan
Dr. Teresita dela Cruz
Dr. Linda Milan
Dr. Susan Pineda
Dr. Cecilia Paulino
Dr. Asuncion Anden
Dr. Mariquita Mantala
Dr. Divia Hey Gonzales
Dr. Elvira Sto. Nino Dayrit
Dr. Maritel Contales
Dr. Gerardo Bayugo
Dr. Zenaida Ludovice
Dr. Crispinita Valdez
Dr. Detlef Schwefel
Dr. Rebecca Infantado
Dr. Juan Perez III
Dr. Virginia Orais
Dr. Agnette Peralta
Dr. Teresita Bonoan
Dr. Benjamin Marte
Dr. Ma. Corazon Teoxon
Dr. Dennis Maducdoc
Dr. Quintin Kintanar
Dr. Ofelia Alcantara
Dr. Jose Miguel Vergara
Dr. Mario Villaverde
Dr. Desiree Narvaez
Dr. Ma. Ruth Surmieda
Dr. Enrique Tayag
Ms. Lourdes Alegre
Ms. Felilia White
Dr. Ma. Nemia Lapastora
Mr. Enrique Pangindian
Ms. Edna Lopez
Ms. Florante Magboo
Mr. Herdie Hizon
Ms. Laurita Mendoza
Dr. Manuel Dayrit
Dr. Grace Viola

Dr. Jovita Quilala
Dr. Mary Ann Lansang
Dr. Bayani Blas
Dr. Edelmira Go

Regional Directors

Dr. Conrado Galsim
Dr. Chris Guzman
Dr. Ricardo Trinidad
Dr. Ethelyn Nieto
Dr. Antonio Lopez
Dr. Merceditas Cavaneyro
Dr. Consuelo Aranas
Dr. Alfredo Perez
Dr. Milagros Fernandez
Dr. Nemesio Gaco
Dr. Charito Awiten
Dr. Avelino Grospe
Dr. Rosalinda Majarais

Regional Epidemiologists

Dr. Revelyn Rayray
Dr. Rio Magpantay
Dr. Grace A. Viola
Dr. Nicolas Bautista
Dr. Marlow Ninal
Dr. Consorcia Quizon
Dr. Nancy Zacarias
Dr. Roy Gavino
Dr. David Mendoza
Dr. Ivy Gopez

Cordillera Autonomous Region

Dr. Janice Z. Bugtong
Dr. Florence Reyes
Dr. Jeffrey Buquiren
Dr. Jesus del Prado

Region V

Dr. Mario Brizuela
Dr. Audwin Azada
Dr. Leny Diaz-Reyes
Dr. Arnulfo Reyes

UNICEF

Dr. Wilfredo Nuqui
Dr. Wilfredo Varona
Dr. Rose Sales
Dr. Bituin Gonzales

International Clinical Epidemiology Network

Dr. Tessa Tan-Torres
Dr. Lourdes Rebullida
Dr. Laurie Ramiro
Dr. Joselito Gapas
Dr. Mario Festin

Development Academy of the Philippines

Dr. Carmencita Abella

Mexico

In Campeche and Guanajuato States

State Level

Director of Health Services
Director of Sanitary Regulations
Chief of the Department of Planning and Development
Chief of the Department of Epidemiology
Chief of the Department of Information and Evaluation
Chief of the Department of Preventive Medicine
Chief of the Department of Family Planning and Maternal and Infant Health
Chief of the Department of Health Promotion
Chief of the Department of Health Services Regulation
Chief of the Department of Vector-Borne Infectious Disease Control
Chief of the Department of Health Training
Officers in Charge for Priority Health Programs

Jurisdictional Level

Chief
Epidemiologist
Zonal team for supervision
Coordinator of Social Participation

Municipal Level

Directors of Health Centers
Persons in Charge for Epidemiology in Health Centers

Participants in the Management for International Public Health Course 1993

Name	Country	Affiliation	Sponsor
Dr. He Xiong	China	Beijing Antiepidemic Sta.	Unicef
Dr. Wang Ruitao	China	Chinese Academy of Prev Med	Unicef
Dr. Miguel Lombera	Mexico	Gen Directorate of Epidemiol	USAID (DDM)
Ms. Silvia Artasanchez	Mexico	Gen Directorate of Epidemiol	USAID (DDM)
Dr. Fernando de la Hoz	Colombia	Nat'l Institute of Health	PAHO
Ms. Valerie Wilson	Trinidad	Caribbean Epidemiol Res Ctr	CAREC
Dr. Cesar Nuñez	Honduras	Ministry of Health	USAID (DDM)
Dr. Leda Bolaños	Honduras	Ministry of Health	USAID (DDM)
Dr. Narumol Silarug	Thailand	Field Epidemiol Training Pgm	waiver
Dr. Davis Dhlakama	Zimbabwe	Ministry of Health	Rockefeller
Dr. Raja Ram Bharti	India	Ministry of Health	PAMM
Mr. Kazi Zahid Hossain	Bangladesh	Ministry of Public Health	PAMM
Mr. Ramachandran Prakash	India	Salt Commission	PAMM
Ms. Zainab Bt Tambi	Malaysia	Ministry of Health	PAMM
Ms. Theresa Banda	Malawi	Ministry of Health	PAMM
Ms. Juliet Aphane	Swaziland	Ministry of Agriculture	PAMM

APPENDIX C: United States Staff Participating in DDM

United States Staff participating in DDM

Agency / Center / Institute / Office	Name
Agency for International Development, Washington	
Acting Chief, Office of Health	Dr. Robert Wrin
Acting Chief, Applied Research Division, Office of Health	Ms. Celeste Carr
DDM Project Officer	Dr. James Shepperd
Assistant DDM Project Officer	Dr. Melinda Moree
Assistant DDM Project Officer	Ms. Subhi Mehdi
Centers for Disease Control and Prevention, Atlanta	
Office of the Director	
Associate Director for International Health	Dr. Joe Davis
Office of Program Support	
TQM Coordinator	Mr. Thomas Shamblee
Epidemiology Program Office	
Office of the Director	
Director	Dr. Stephen B. Thacker
Deputy Director	Ms. Barbara Holloway
Assistant Director	Dr. Richard Goodman
Assistant Director for Management	Ms. Janice Videtto
Administrative Officer	Ms. Roberta Pegueros
Assistant Administrative Officer	Ms. Cynthia Whitehead
Communications Special Projects Coordinator	Ms. Elliott Churchill
Division of Field Epidemiology	
Assistant Director for Program Operations	Mr. Mel Ralston
International Branch	
Chief	Dr. Douglas Klaucke
Deputy Director	Mr. John Drescher
DDM	
DDM Project Directo	Dr. Marguerite Pappaioanou
DDM Deputy Project Director	Mr. Bradley Otto
Travel Clerk, Secretary	Ms. Carol Irvin
FETP	
FETP Coordinator for Scientific Studies	Dr. Daniel Fishbein
Preventive Medicine Resident	Dr. Douglas Hamilton
Public Health Advisor	Mr. Carlos Alonzo
Public Health Advisor	Mr. Bruce Maclachlan
Prresidential Management Intern	Ms. Heidi Holt
Program Assistant	Ms. Pamela K. Eberhardt
Secretary	Ms. Tammie Boddie
Division of Surveillance and Epidemiology	
Director	Dr. Donna Stroup
Assistant Director for Science	Dr. Scott Wetterhall
Systems Development and Support Branch	
Chief	Dr. Andy Dean
Chief, Systems Support Activity	Mr. Robert Fagan
Systems Analyst	Mr. Gerald Jones
Applications Branch	
Epidemiologist	Dr. Robert Hahn
Statistics Branch	
Statistician	Ms. Nancy Barker
Division of Training	
Chief, Training Activity	Dr. Richard Dicker
Presidential Management Intern	Ms. Elaine Sapiro

Scientific Information and Communications Program

MMWR Branch

Chief	Ms. Karen Foster

Public Health Publications Branch

Chief	Ms. Suzanne Hewitt
Editor	Ms. Ava Navin

Information Resources Management Branch

Graphics Specialist	Ms. Sandy Ford
Graphics Specialist	Mr. Philip Bourque
Visual Information Specialist	Mr. Peter Jenkins

International Health Program Office

Technical Support Division

Director	Dr. Andrew Vernon
Deputy Director	Mr. David Bassett

Sustainable Management Development Activity

Chief	Dr. Michael Malison
Deputy Chief	Mr. Jerry Brimberry
Presidential Management Intern	Ms. Maureen Blyler
Secretary	Ms. Jackie Jones

Social Sciences and Behavioral Branch

Chief	Ms. Kathy Parker
Deputy Branch Chief	Dr. Jennifer Bryce
Health Education Specialist	Mr. Joe Naimoli
Public Health Intern	Dr. James Carey

Field Services Division

Supervisory Public Health Advisor	Mr. Kevin Murphy
Supervisory Public Health Advisor	Mr. Michael Qualls

National Center for Infectious Diseases

Division of Bacterial Diseases

Childhood and Respiratory Diseases Branch

Medical Epidemiologist	Dr. Bradley Perkins
Medical Epidemiologist	Dr. Anne Schuchat

Foodborne Pathogens Branch

EIS Officer	Dr. Cynthia Whitman
Preventive Medicine Resident	Dr. Robert Quick

Division of Vector-Borne Infectious Diseases

Arbovirus Diseases Branch

Chief	Dr. Duane Gubler
Chief, Epidemiology Section	Dr. Robert Craven

Division of HIV/AIDS

Seroepidemiolgy Branch

Epidemiologist	Dr. Rebecca Prevots

National Center for Chronic Disease Prevention & Health Promotion

Office on Smoking and Health

Director	Dr. Michael Eriksen
Chief, Epidemiology Branch	Dr. Gary Giovino
Behavioral Scientist	Mr. Robert K. Merritt
Consultant	Dr. Richard Lawton

Division of Reproductive Health

Behavioral Epidemiology and Demographics Research Branch

EIS Officer	Dr. Isabella Danel

WHO Collaborating Center in Perinatal Care and Health Services Research in Maternal and Child Health	
Chief	Dr. Brian McCarthy
Epidemiologist	Dr. Cynthia Berg
Public Health Practice Program Office	
Deputy Director	Ms. Kathy Cahill
Epidemiologist	Dr. Mark Oberle
Division of Public Health Systems	
Program Manager	Mr. Thomas Balderson
Training Specialist	Ms. Carol Robinson
Division of Media and Training Services	
Senior Instructional Systems Specialist	Ms. Nancy C. Gathany
Senior Instructional Editor	Ms. Betty J. Segal
Emory University School of Public Health	Dr. Philip Brachman Dr. Deborah McFarland Dr. Kathleen R. Miner Ms. Martha E. Alexander
Western Consortium for Public Health	
Public Health Leadership Institute	
Director	Ms. Carol Spain