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### ANTIMICROBIAL RESISTANCE AND EMERGING AND REEMERGING DISEASES

Despite significant progress, infectious diseases still pose a major threat to the peoples of the Americas. The appearance of several new pathogens which cause severe disease, such as the human immunodeficiency virus (HIV), Lyme disease, hantavirus and others, and the resurgence of old pathogens, including those which cause cholera, plague, dengue hemorrhagic fever, and yellow fever, are having a considerable impact in the Region. Microorganism mutation is leading to drug and multi-drug resistance among strains of *Mycobacterium tuberculosis*, staphylococci, pneumococci, gonococci, malaria parasites and other agents, which in turn are becoming major obstacles to the control of these infections.

A Regional Plan of Action was prepared in 1995 to provide guidance to Member States in addressing specific problems, and in implementing regional and subregional measures for prevention and control of emerging and reemerging diseases. A Task Force on Surveillance of Emerging and Reemerging diseases was convened to assess the capacity to carry out surveillance of infectious diseases at the country level, and to define priorities for regional surveillance.

The Pan American Health Organization is promoting a three-pronged strategy to deal with the health threats described above: emerging disease/syndrome surveillance; outbreak detection and response; and antimicrobial resistance surveillance and prevention. Strengthening of public health laboratory networks will provide support to the three preceding approaches.

The capacity of all Member States to recognize, prevent, and respond to the threat of emerging infectious diseases will provide the foundation for an effective national and regional response. PAHO will continue to address the threat of infectious diseases in a cost-effective and sustainable manner.

The Subcommittee on Planning and Programming of the Executive Committee is requested to make observations and issue recommendations on the progress of surveillance, detection and control programs at the country and regional level, and on the development and implementation of regional guidelines for surveillance, prevention and control of emerging diseases and antimicrobial resistance.

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## EXECUTIVE SUMMARY

Over the last two decades we have been forcefully reminded of the threat posed by infectious diseases to the well being of the global community, developing and developed nations alike. The magnitude of the problem is illustrated by the appearance of several new pathogens causing diseases of marked severity, such as the human immunodeficiency virus (HIV) and other retroviruses, Lyme disease, hantavirus pulmonary syndrome, foodborne illness caused by *Escherichia coli* O157:H7 and *Cyclospora*, and waterborne disease such as *cryptosporidiosis*. Simultaneously, old pathogens, including those that cause cholera, plague, dengue hemorrhagic fever and yellow fever, have reemerged in the Americas. Microorganism mutation leading to drug resistant strains of *Mycobacterium tuberculosis*, *staphylococci*, *pneumococci*, *gonococci*, malaria parasites, and other agents is also becoming a major obstacle to the control of these infections.

A Regional Plan of Action was prepared to provide guidance to Member States in addressing specific problems, and in implementing regional and subregional measures for prevention and control of emerging and reemerging diseases.

In 1996, 1997, and 1998 a Task Force on Surveillance of Emerging and Reemerging diseases was convened to assess the Region's current capacity for surveillance of infectious diseases at the country level, and to define priorities for regional surveillance. The Task Force includes experts from several countries of the Region and from WHO. Guidelines for the implementation of a PAHO Regional Plan of Action for Emerging and Reemerging Infectious Diseases were developed.

Over the past three years, PAHO has invested \$505,000 to provide technical cooperation for surveillance of emerging infectious diseases and antimicrobial resistance.

The Organization is promoting a three-pronged approach to deal with the health threats described above:

*Emerging disease/syndrome surveillance.* This includes the development and implementation of an electronic platform for instant communication of disease occurrence. In order to strengthen the regional capability for emerging and reemerging diseases surveillance in the public health sector, effective plans for data collection, analysis, investigation and prompt intervention are being prepared with the following objectives: (a) strengthening regional infectious disease surveillance networks as well as the capacity to implement effective prevention and control strategies; and (b) developing

the national and regional infrastructure for early warning of and rapid response to the threat of diseases. Once in place, the new surveillance system will make use of available Internet technology.

*Outbreak detection and response.* To complement the surveillance system, and in order for countries to be prepared to respond efficiently and effectively to the threat of infectious disease outbreaks, especially in post-disaster situations, the Organization is working with countries, initially in Central America, toward strengthening the subregional and national reaction capacity by means of multidisciplinary outbreak response teams.

*Antimicrobial resistance surveillance and prevention.* In order to address the lack of reliable data to determine the real magnitude of resistance to antibiotics in the Region, and the misuse of antibiotics, PAHO feels that it is necessary to collaborate with the best and most influential individuals working in the countries on the issue, especially if changes in policy and health care practices are to be promoted in the near future. Some work is already in progress with organizations in several countries of the Region, in Canada, the Laboratory Centers for Disease Control (LCDC), and in the United States of America the Centers for Disease Control and Prevention (CDC) and the Agency for International Development (AID). Collaboration with Regional professional associations, such as the Pan American Society of Infectology, and with research institutes, national professional associations, pharmaceutical companies and others is being promoted.

The Organization's technical cooperation activities have followed the recommendations of Directing Council Resolution CD38.R12 (September 1995). They have been aimed at achieving the goals of the Regional Plan of Action for Combating New, Emerging and Re-emerging Infectious Diseases in the Americas. Activities have also been guided by recommendations of the Task Force on Surveillance of Emerging Infectious Diseases, which meets yearly to analyze progress and make suggestions for future technical cooperation.

Technical cooperation activities have been programmed in each of three approaches. In emerging disease/syndrome surveillance, ongoing publication of technical reports and the electronic platform for reporting will be operational. The Amazon and Southern Cone subregional networks of laboratories will be consolidated. Countries will identify priorities, laboratory needs and funding alternatives. Surveillance of bloodborne infections will continue with laboratory quality control and data dissemination.

The early warning system among countries to share information on emerging and reemerging diseases, including outbreak reports, will be operational. Assistance to countries in obtaining diagnostic reagents for rapid diagnosis and strengthen laboratories will be a priority. In outbreak detection and response, training activities, including in-

service, and strengthening of laboratories for emerging disease agent identification is envisioned. Rapid assessment of the national capacity of surveillance systems will be carried out in selected countries.

In antimicrobial resistance, collaboration with Canada's LCDC will continue to support the ongoing surveillance; in addition, implementation of the Regional Plan of Action for the Control and Prevention of Antimicrobial Resistance will begin. As stated in other sections of the document, public health laboratory strengthening is a major component of the three other strategies (emerging disease surveillance, outbreak control and response, and antimicrobial resistance). The Subcommittee on Planning and Programming is requested to make observations and issue recommendations on the progress of surveillance, detection and control programs at the country and regional level, and on the development and implementation of regional guidelines for surveillance, prevention and control of emerging diseases and antimicrobial resistance.

## 1. Introduction

According to the Institute of Medicine of the United States of America (1992), emerging diseases are those whose incidence in humans increased in the last 20 years. Reemerging diseases are those conditions that reappeared after a significant decrease in incidence.

Two viral diseases, AIDS and dengue, are excellent examples of emerging and reemerging diseases in this Region. AIDS was unknown until early in the decade of 1980. Since then, knowledge about the status of the disease has been widely disseminated by the press.

Dengue incidence, on the other hand, was greatly reduced during the 1960s and 1970s. The decline was due to interventions that almost wiped out the dengue vector, *Aedes aegypti*, from continental Central and South America. In the 1980s, the mosquito returned with a vengeance and was responsible for an epidemic in Cuba that gave rise to thousands of cases of dengue and hundreds of deaths. Since then, over 2 million cases have been reported worldwide.

Some of these epidemics are widely known to the public, while others remain ignored. Since 1993, mass media channels have provided the public all over the world with information on new and old threats of disease: Ebola in Africa and plague in India dominated the news. In the Americas, pulmonary distress syndrome and its etiological agent, the *Sin nombre* virus, later recognized as a hantavirus, were found in the State of New Mexico, USA, and attracted great media attention. However, a cholera epidemic that hit the Region at the beginning of 1991, after 80 years or more free of the disease, was not as media worthy as it had been three years earlier, and the press reported little on an epidemic of bubonic plague that has affected Peru since 1992. In fact, the latter epidemic remained unrecognized by the media as late as 1995, by which time it had already caused 2,000 cases and 90 deaths.

Other significant emerging and reemerging conditions include Lyme disease, *cryptosporidiosis*, or *Escherichia coli* O157:H7, in the United States; dengue and yellow fever in Brazil; drug resistant *Plasmodium falciparum* malaria in Amazonian countries, hantavirus in the Southern Cone of South America, *Vibrio cholera* in most of Central and South America, and widely spread antibiotic resistance to several species of bacteria.

This challenge was responded to with the support of remarkably fast and accurate methods of laboratory identification of disease-causing microbes. The diagnostics infrastructure, particularly in developing countries, must be expanded with a long-term commitment to capacity building.

The Organization has prepared a Regional Plan of Action to provide guidance to Member States in addressing specific problems, and in implementing regional and subregional measures for prevention and control of emerging and reemerging diseases. The goals of the Plan are:

- (a) to strengthen regional surveillance networks for infectious diseases in the Americas;
- (b) to establish national and regional infrastructures for early warning of and rapid response to infectious disease threats through laboratory enhancement and multidisciplinary training programs;
- (c) to promote further development of applied research in the areas of rapid diagnosis, epidemiology, and prevention;
- (d) to strengthen the regional capacity for effective implementation of prevention and control strategies.

In 1996, 1997, and 1998 a Task Force on Surveillance of Emerging and Reemerging diseases was convened to assess the Region's current capacity to carry out surveillance of infectious diseases at the country level, and to define priorities for regional surveillance. The Task Force includes experts from several countries of the Region and from WHO. Guidelines for the implementation of a PAHO Regional Plan of Action for Emerging and Reemerging Infectious Diseases were developed.

In response to recommendations of the Task Force, PAHO organized meetings at the subregional level to develop and promote a surveillance system for emerging diseases, including antimicrobial resistance, which can report the occurrence of epidemiological events in real time, as well as provide rapid feedback and support, as required. An electronic platform for the system is in development. This system has a syndrome-based approach with laboratory confirmation of cases. Each country defines the syndromes of national interest, and includes in its reporting system those of regional and international interest. Further details regarding fulfillment of the Task Force's recommendations are provided in the section on "Previous Technical Cooperation."

The strategies adopted foster the horizontal cooperation especially among countries in the same subregion.

During the past three years, the Organization has invested \$505,000 to provide technical cooperation for surveillance of emerging infectious diseases and antimicrobial resistance.

## **2. PAHO's Strategy**

The Organization is promoting a three-pronged approach to deal with the health threats described above:

- Emerging disease/syndrome surveillance, including the development and implementation of an electronic platform for instant communication of disease occurrence;
- Outbreak detection and response;
- Antimicrobial resistance surveillance and prevention.

PAHO activities for strengthening public health laboratories will provide crucial support to the three preceding approaches. These areas of technical cooperation are carried out jointly by the HCP/HCT and HSP/HSE programs.

### **2.1 *Emerging Infectious Diseases/Syndrome Surveillance***

Communicable diseases continue to be the major source of illness and death in developing countries, but industrialized countries are becoming increasingly aware that they too are at risk from many new and reemerging diseases. Infectious diseases today affect many spheres of life. The socioeconomic development of many nations is being crippled by the burden of these diseases, which cause huge losses in foreign currency and income from food trade and tourism as a result of epidemics of diseases such as cholera, plague, and dengue. Dengue has reemerged with dramatic force and is now endemic in most of the Americas. During 1997 alone, 387,000 cases were reported, with consequent losses in productivity and impact on health services.

The problem of emerging and reemerging diseases must be approached from a regional perspective since these conditions no longer affect countries in isolation. For example, with the enormous increase in the frequency and speed of international travel, individuals infected during travel abroad may introduce a disease into a previously unaffected area in a matter of hours.

Because of the above, with very few exceptions, all of the Organization's activities have a subregional focus and rely on intercountry technical cooperation. An example of this approach is the establishment of two subregional networks of laboratories for surveillance of emerging infectious diseases, one in the Amazon Region, and another in the Southern Cone. These are subregional initiatives which have been sponsored by the Organization in collaboration with the CDC. A proposal for developing a Central American network is under consideration.



During 1998, PAHO also sponsored a technical cooperation project on hantavirus between Argentina and Chile in which the two nations collaborated in the areas of diagnosis, surveillance, the study of rodents, and specific research. In this context, support was also provided to cooperation activities between countries. For example, Argentina provided reagents for the diagnosis of hantavirus on a regular basis to other countries in Latin America. PAHO is also working very closely with several partners (national research institutes, ministries of health, national reference laboratories and others) to develop a regional surveillance system for infectious diseases, as well as to strengthen existing antimicrobial surveillance programs for selected pathogens.

In order to strengthen the regional capability for emerging and reemerging diseases surveillance in the public health sector, effective plans for data collection, analysis, investigation, and prompt intervention are being prepared with the following objectives: (a) strengthening regional infectious disease surveillance networks as well as the capacity to implement effective prevention and control strategies; and (b) developing the national and regional infrastructure for early warning of and rapid response to the threat of diseases.

Once in place, the new surveillance system will make use of available Internet technology to build e-mail and Intranet systems (closed access) for communications. Access to the system will be granted to ministries of health, all PAHO/WHO Country Representatives' Offices, selected national research institutions, and other partners. All participants will have equal access to the common database for analysis. Once the project is finalized, surveillance systems and corresponding infrastructures will be in place which are capable of monitoring emerging pathogens and diseases for the confirmation of current epidemics; assessment of health and socioeconomic impact and likely evolution of the problem; and determination of local response capacity, identification of most effective control measures, and assessment of additional immediate needs. This area of technical cooperation is coherent with WHO's program, and is coordinated with WHO/EMC in the framework of the Task Force on Surveillance of Emerging Infectious Diseases.

## **2.2 *Outbreak Detection and Response***

To complement the surveillance system, and in order for countries to be prepared to respond efficiently and effectively to the threat of infectious disease outbreaks, especially in post-disaster situations, the Organization is working with countries, initially in Central America, toward strengthening the subregional and national reaction capacity by means of multidisciplinary outbreak response teams. Active surveillance will also be strengthened to allow for the future identification of and response to infectious disease clusters.

The Communicable Diseases Program of PAHO has been preparing training materials, including some for social communicators. The latter professionals are a crucial component of this approach, given that the oral and written press play a fundamental role in keeping the public informed in epidemic and outbreak situations.

Once this strategy is operational, it is expected that countries will have improved their preparedness to respond efficiently and effectively to infectious disease outbreaks, and each country will have prepared a plan of action to deal with infectious disease outbreaks following disaster situations. National teams will have replicated outbreak response training in their own countries and there will be as many outbreak response teams as deemed necessary in each country. It is expected that a decrease in mortality and morbidity from infectious diseases outbreaks will result in faster implementation of control measures and other interventions. In addition, the general public will be better informed of outbreak situations through improved and more accurate press reports.

### **2.3 *Antimicrobial Resistance***

In the Region of the Americas, as in the rest of the world, microbial resistance poses a major and growing threat to public health. Drug-resistant strains of microbes are having a deadly impact on the fight against tuberculosis, malaria, cholera, diarrhea and pneumonia, major diseases that together kill more than 10 million people worldwide each year. This is happening at a time when too few new drugs are being developed to replace those that have lost their effectiveness.

Many of our most powerful antibiotics have been rendered impotent. Some of the most common bacteria that are the major causes of death in children through acute respiratory infections, particularly *Streptococcus pneumoniae*, are becoming more and more resistant to antibiotics to which they were previously susceptible. Antibiotic resistance in hospitals throughout the Region threatens to leave medical and public health workers virtually helpless in the prevention or treatment of many infections. As an example, antibiotic resistant bacteria are responsible for up to 60% of hospital-acquired infections in the United States. Resistance means that people with infections are ill for longer periods, and are at greater risk of dying. Disease epidemics are prolonged, as well. Moreover, with the enormous increase in the frequency and speed of international travel, individuals infected by resistant pathogens during travel abroad may introduce those pathogens into other countries where resistance can spread. In 1997 it was estimated that there were over 110 million tourists alone per year in the Region of the Americas.

Major factors that contribute to antibiotic resistance are the uncontrolled and inappropriate use of antibiotics. There is a need to prevent the improper prescription of these drugs by the medical community and the non-prescription use by the population at

large, as well as to monitor the use of antibiotics in animal husbandry. In addition, implementation of legal and policy guidelines that mandate the rational use of antibiotics must be promoted.

An additional constraint in this area is the lack of reliable data to determine the real magnitude of antibiotic resistance in the Region, and to provide baseline information for planning interventions. In order to address this situation and the misuse of antibiotics, PAHO feels that it is necessary to collaborate with the best and most influential individuals working in the countries on the issue, especially if changes in policy and health care practices are to be promoted in the near future. Some work is already in progress with organizations in several countries of the Region, among others, LCDC in Canada, and CDC and AID in the United States. Collaboration with Regional professional associations, such as the Pan American Society of Infectology, and with research institutes, national professional associations, pharmaceutical companies and others is being promoted.

### **3. Previous Technical Cooperation**

#### **3.1 *Emerging Disease/Syndrome Surveillance***

PAHO's technical cooperation activities have followed the recommendations of Directing Council Resolution CD38.R12 (1995). They have been aimed at achieving the goals of the Regional Plan of Action for Combating New, Emerging and Reemerging Infectious Diseases in the Americas.<sup>1</sup> Activities have also been guided by recommendations of the Task Force on Surveillance of Emerging Infectious Diseases,<sup>2,3</sup> which meets yearly to analyze progress and make suggestions for future technical cooperation.

Table 1 provides a summary of PAHO's recent technical cooperation activities in the area of emerging and reemerging diseases, following recommendations of the aforementioned bodies.

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<sup>1</sup> Regional Plan of Action for Combating New, Emerging and Reemerging Infectious Diseases in the Americas. Doc. PAHO/HCP/HCT/95.060.

<sup>2</sup> Meeting of the Task Force on Surveillance for Emerging and Reemerging Infectious Diseases (PAHO/HCP/HCT/97.01).

<sup>3</sup> II Meeting of the Task Force on Surveillance for Emerging and Reemerging Infectious Diseases (PAHO/HCP/HCT/110/98).

**Table 1: Technical Cooperation Activities in Response to Recommendations Under the Strategy: Emerging Infectious Diseases/Syndrome Surveillance**

Recommendation	Technical Cooperation Activity
<p>Maintain and reinforce regional surveillance of malaria, dengue, tuberculosis, and antimicrobial resistance.</p>	<p>In addition to annual case reporting of malaria by all countries, eight countries implemented a protocol for the evaluation of antimalarial drug susceptibility, of which Brazil, Colombia, Guyana, Peru and Suriname have already reported data.</p> <p>Six malaria outbreaks were reported during 1998 (Colombia, Ecuador, Guatemala, Honduras, Nicaragua, and Peru).</p> <p>Ten countries are currently reporting data on antimicrobial resistance.</p> <p>Nine countries monitor tuberculosis drug resistance; five more countries are starting the process.</p>
<p>Promote a surveillance system with clearly defined objectives, reporting pathways, outputs and feedback mechanisms.</p>	<p>Five subregional meetings were held to discuss a proposal for a surveillance system based on a combined approach of syndrome notification and specific disease reporting. As a result of each meeting, subregional groups of countries defined the syndrome/disease combination to be reported; the need to strengthen the link between the laboratory and epidemiological work was underlined; participants emphasized the need to maintain current disease-specific based surveillance systems, complemented by a syndrome approach. A set of criteria* was established to make reporting urgent: number of cases surpass the expected number for given space/time; disease may spread outside the community; high mortality rate/case fatality rate; and unknown or unexpected condition.</p>
<p>Establish or strengthen sentinel surveillance programs for Plasmodium falciparum (with emphasis on drug resistance monitoring), dengue hemorrhagic fever, blood borne pathogens in blood banks, and antimicrobial resistance.</p>	<p>Of eight countries of the Amazon region, six participate in a system for monitoring anti-malarial drug resistance which is in its initial stages, and 13 countries currently participate in an external quality control program for blood banks.</p>

\* It was agreed that definitions for above criteria would be further refined on a subregional basis.

Recommendation	Technical Cooperation Activity
Identify critical shortfalls in availability of diagnostic reagents and promote a regional production.	Institute Anlis/Malbrán, Argentina, has provided reagents for hantavirus, and the Centro de Higiene, Venezuela, has produced reagents for the identification of various leptospira serovars, which are being tested.
Organize a regional data base for collecting reports of notifiable diseases from all countries on a periodic basis.	A regional data base was designed for this purpose and an electronic platform for data reporting and feedback is in development.
Encourage common case definitions and standards for reporting and provide consolidated information on selected diseases to participating countries.	The WHO/EMC Communicable Diseases Surveillance Kit was translated into Spanish and distributed to all Member States, and its use promoted at subregional surveillance meetings.
Explore the development of pilot surveillance initiatives in Member States, that take advantage of communication advances.	A project to identify national web sites which report epidemiological data and to explore their validity and timeliness, in order to incorporate these data into a regional surveillance system, is being set in motion.

Several technical documents and publications were published during 1998 to disseminate information in the area of emerging diseases:

- Métodos para trampeo y muestreo de pequeños mamíferos para estudios virológicos (PAHO/HCP/HCT/104/98);
- Meeting to Establish a Network of Laboratories for the Surveillance of Emerging Infectious Diseases in the Amazon Region (PAHO/HCP/HCT/106/98) and (PAHO/HCP/HCT/122/98);
- II Meeting of the Task Force on Surveillance for Emerging and Reemerging Infectious Diseases (PAHO/HCP/HCT/110/98);
- *Hantavirus in the Americas: Guidelines for Diagnosis, Treatment, Prevention and Control* (Scientific Publication No. 571, in print).

### **3.2 *Outbreak Detection and Response***

Because of the need to expand the concept of surveillance to include action, and to try to integrate all the actors from the public and private sectors into an ongoing reporting and response system, PAHO has proposed a team approach to confront infectious diseases outbreaks.

In formal terms, this is the newest strategy being implemented. The Organization has always provided technical support in response to infectious diseases outbreaks. However, the current approach proposes a long-term and sustainable strategy with the aim of having, in each country of the Region, a cadre of professionals trained and provided with the necessary tools (equipment) to lead the national response to outbreaks or health threatening situations.

The initial task confronted by the Regional Program was to gather, adapt and translate course materials (Outbreak Response Manual), which were tested by the first group of participants attending a course held in San Salvador, El Salvador, in January 1999. These trainees pilot-tested the format and materials of the course and were provided with the skills to become facilitators for future courses to replicate the training.

### **3.3 *Antimicrobial Resistance***

In view of the great threat to public health posed by antimicrobial resistance, PAHO has already invested over \$415,000 to assist countries in strengthening their laboratory and epidemiological infrastructure and expertise for the surveillance of targeted enteric pathogens. Thus, in conjunction with the Canadian LCDC, participating countries have been supported to acquire enhanced laboratory capabilities for surveillance of *Salmonellae*, *Shigella*, and *Vibrio cholerae*, common pathogens which cause diarrheal disease. Countries participating in these efforts were Argentina, Brazil, Chile, Costa Rica, Mexico, Peru, and Venezuela. Subregional workshops were held for the standardization of techniques for antibiotic sensitivity evaluations and protocols for quality assurance, proficiency testing and epidemiological surveillance. Canada's LCDC and the United States CDC provided training in laboratory techniques and the use of the Public Health Laboratory Information System (PHLIS), respectively. Training was also provided to professionals from Bahamas, Barbados, Jamaica, Saint Lucia, Suriname, and Trinidad and Tobago. All activities in this area were coordinated and implemented jointly by the HPC/HCT and HSP/HSE programs.

PAHO, together with WHO, the Ministry of Health of Venezuela, and the Pan American Society of Infectology, cosponsored the Pan American Conference on Antibiotic Resistance, held in Venezuela in November 1998. The event, attended by over

100 professionals, was used to gather information on the current situation of antibiotic use and resistance in the Region, especially in regard to public policy, health care practices, economics, quality control, surveillance and training. Because of a series of group discussions, several recommendations were issued aimed at strengthening surveillance and promoting policy formulation, which will be incorporated in a three-year plan for the prevention and control of antimicrobial resistance. Specific recommendations dealt with issues relating to the added cost of health care due to antimicrobial resistance; participation of the pharmaceutical industry in the study and solution of the problem; and the use of antibiotics in animal husbandry, and proper prescription and use of these drugs.

In January 1999, an expert committee met in Asunción, Paraguay, to develop a strategic plan for surveillance and prevention of antimicrobial resistance. The draft of this plan will be finalized during the first quarter of 1999. The strategic approach relies heavily on technical cooperation among countries, especially in the areas of quality assurance and external quality control of laboratories in bacteria identification and antimicrobial susceptibility.

At the suggestion of the Task Force on Surveillance of EID, which recommended that data provided by countries on antibiotic resistance be made it available through the PAHO Web site, such a page has been included in the system.

Another recommendation of the Task Force in this area was to develop feasibility studies for the establishment of sentinel surveillance demonstration projects for other infectious diseases when knowledge of circulating strains is relevant to public health actions. In response, hospital data on vancomycin-resistant enterococci are being collected.

#### **4. Programmed Activities**

##### **4.1 *Emerging Disease/Syndrome Surveillance***

Ongoing information dissemination activities will continue with the publication of hard copy and electronic versions of technical reports. Once the electronic platform for the emerging disease reporting systems is fully operational, reported data will be posted for all partners to review.

The successful establishment of the Amazon and Southern Cone subregional networks of laboratories for surveillance of infectious diseases<sup>4</sup> has provided the motivation to explore the feasibility of initiating a similar intercountry cooperation

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<sup>4</sup> Meeting to Establish a Network of Laboratories for the Surveillance of Emerging Infectious Diseases in the Amazon Region (PAHO/HCP/HCT/106/98 and PAHO/HCP/HCT/122/98).

approach in Central America. This task will involve working with the countries to identify priorities, laboratory needs, and funding alternatives. Surveillance of blood-borne infections will continue with laboratory quality control and data dissemination.

The Communicable Diseases Program will continue to maintain an early epidemiological warning system among countries and to share information on emerging and reemerging diseases, including outbreak reports. It will also continue to work with WHO in pilot, testing the International Health Regulations, and in providing assistance to countries to obtain diagnostic reagents for rapid diagnosis and to strengthen laboratories.

#### **4.2 *Outbreak Detection and Response***

Other activities in progress include the adaptation of outbreak investigations and response training materials and related training activities, and strengthening of laboratories for emerging disease agent identification. A rapid assessment of the national capacity of surveillance systems will be carried out in selected countries, especially in regard to their ability to detect and respond timely to outbreaks.

As mentioned above, training activities have been planned for six person multidisciplinary teams from each selected country. These teams will include an epidemiologist, laboratory scientist, nurse, disaster/emergency specialist, armed forces health representative, and social communicator. Each national team will be trained in a subregional course. Equipment consisting of a field laboratory, reagents and other supplies will be distributed at the end of the course so that team members are fully prepared for the next outbreak situation.

A cascade approach will be promoted within each country to give the project sustainability. Thus support will be provided for national teams to replicate the training at the state, provincial, and local levels.

#### **4.3 *Antimicrobial Resistance***

Collaboration with Canada's LCDC will continue to support the ongoing surveillance of antimicrobial resistance of enteropathogens (*Shigella*, *Salmonella* and *V. cholerae*). These surveillance activities will supplement WHO's, which are directed to a broader number of pathogens and are mainly hospital-based.

In addition, implementation of the Regional Plan of Action for the Control and Prevention of Antimicrobial Resistance will begin. The Plan has two major components: (a) capacity building (laboratory strengthening) for surveillance to determine the magnitude and impact of antimicrobial resistance; and (b) capacity building to implement



approaches to address the problem. The latter component includes gathering of information on current national policies, regulations and guidelines; development of approaches to promote rational use of antimicrobial drugs, and creation of awareness among health professionals, policy makers and the general public of the risk of antimicrobial resistance and the need to implement preventive practices.

Implementation of this program of activities will bring together HSP/HSE's expertise in laboratory strengthening and drug management and HPC/HCT's experience in disease surveillance and control. Many activities, especially in regard to laboratory strengthening, will rely on technical cooperation among countries.

As stated in other sections of the document, public health laboratory strengthening is a major component of the three other strategies (emerging diseases surveillance, outbreak detection and response, and antimicrobial resistance). The emphasis of technical cooperation activities in this area includes training for infectious disease agent identification; antibiotic susceptibility testing; reporting mechanisms and data management, analysis and interpretation; quality control and quality assurance; and provision of logistic and laboratory inputs, when necessary and feasible.

## **5. Issues for the Consideration of the Subcommittee on Planning and Programming**

The Subcommittee on Planning and Programming is requested to make observations and issue recommendations on the progress of surveillance, detection and control programs at the country and regional level, and on the development and implementation of regional guidelines for surveillance, prevention and control of emerging diseases and antimicrobial resistance.