



PAN AMERICAN HEALTH ORGANIZATION
WORLD HEALTH ORGANIZATION



44th DIRECTING COUNCIL

55th SESSION OF THE REGIONAL COMMITTEE

Washington, D.C., USA, 22 to 26 September 2003

Provisional Agenda Item 4.11

CD44/14 (Eng.)
8 August 2003
ORIGINAL: SPANISH

DENGUE

Dengue, a serious illness with an epidemiological, social, and economic impact, is a growing public health problem worldwide and in the Americas in particular. At its 43rd Directing Council, the Pan American Health Organization adopted Resolution CD43.R4 to serve as the frame of reference for the new generation of prevention and control programs and a political response to this situation.

While all the countries are making efforts and taking action to put this resolution into practice, their interventions have not brought the disease under control. As yet, there is no single easy and inexpensive solution. The real challenge is to find a strategy to make the resolution operational.

As part of PAHO's efforts to meet this challenge, an integrated dengue prevention and control strategy is being developed, based on a new integrated model involving health promotion and the search for new partners. This introduces a new form of technical cooperation: the Dengue Task Force (known by its Spanish abbreviation "GT-Dengue"). The Task Force consists of a group of experts who starting with a regional analysis, work with the technical teams in the countries to develop a national strategy for integrated operations.

This strategy will facilitate the strengthening of current national programs and will aim to reduce transmission factors and establish an integrated surveillance system

The Directing Council is invited to study this document and consider special policy options in this area.

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Introduction

1. Dengue, a serious disease with a significant epidemiological impact, has become a growing public health problem. Today, it is the most important of the viral diseases transmitted by arthropods and one of the most important communicable diseases as well. More alarming than its spread is the fact that its most serious forms (dengue hemorrhagic fever and dengue shock syndrome) have been introduced into the Americas. The data below underscore the magnitude and severity of the problem:

(a) Worldwide:

- . Dengue is found in more than 100 countries and territories
- . It poses a threat to more than 2,500 million people in tropical and subtropical regions
- . Dengue has an annual incidence of 50 million cases
- . Each year, more than 500,000 patients are hospitalized with dengue hemorrhagic fever or dengue shock syndrome, 90% of them children
- . Some 20,000 deaths occur every year.

(b) In the Americas:

- . Dengue case numbers have risen from 393,260 in 1984 to the alarming figure of 1,019,196 in 2002.
- . The disease has been steadily on the rise for the past seven years, with case numbers increasing more than 3.5 times over, from 292,609 (1996) to 1,019,196 (2002).
- . The Andean countries (Bolivia, Colombia, Ecuador, Peru, and Venezuela) and Brazil contributed 78.5% of the dengue cases in the Region of the Americas in 1996. By the close of 2002, these numbers had increased by 10% to 88.5% of reported dengue cases in the Hemisphere.
- . In 2002, Brazil with 780,644 cases (an incidence of 452.39 per 100,000 inhabitants), Colombia with 76,996 cases (210.30 per 100,000 inhab.), and Venezuela with 37,676 cases (152.96 per 100,000 inhab.) were the three countries with the highest number of reported cases in the Hemisphere, accounting for 87.3% of all reports.
- . The Andean countries and Brazil contributed 32% of the reported mortality from dengue in 1996, a figure that in 2003 soared to 70% of all mortality from dengue in the Americas.

- . Dengue hemorrhagic fever cases, moreover, have increased 2.8 times in the past seven years, from 5,092 cases in 1996 to 14,272 in 2002.
- 2. To all this it should be added that the four serotypes of the dengue virus are circulating; the range of the vector has been expanding widely, with high indices of infestation; and there is no vaccine, no possibility of chemoprophylaxis, no specific treatment for the disease, and no effective vector control strategy.
- 3. In light of this situation, the Pan American Health Organization, during the meeting of its Directing Council in 2001, adopted Resolution CD43.R4, which is a political declaration about the alarming dengue situation. This is the frame of reference for the new generation of dengue prevention and control programs under the health promotion paradigm, with emphasis on coordinated action among the Government, the health sector, the economic and social sectors, nongovernmental organizations, and all new partners, traditional or not, with the capacity to help strengthen the national dengue prevention and control programs. The ultimate objective of the activities stemming from these programs should be to promote changes in behavior among individuals and society as a whole to clean up the environment to promote dengue prevention.

New Generation of Prevention and Control Programs

- 4. As dengue is a problem connected with sanitation in housing and the existence of breeding sites closely linked with human behavior (individual, community, and institutional), a new approach must be adopted for the integrated control programs, mass communication, databases, and health promotion strategies.
- 5. The new generation of programs falls under the aegis of health promotion and centers on the principle that health is fundamental to social, economic, and personal development and an important dimension of the quality of life. It also takes into account the fact that political, economic, social, cultural, environmental, behavioral, and biological factors can both benefit and harm human beings indiscriminately.
- 6. There is no single easy and inexpensive solution to the dengue problem. However the solution will involve this integrated and integrating vision of health promotion. How, then, can the contents of resolution CD43.R4 be operationalized? How can we bridge the gap between the current model of “putting out fires” and the new model based on health promotion and partnerships?
- 7. In order to meet this challenge, we must promote changes in behavior--not only in the community but in the way we operate the programs. Changes are needed in the current health activities of the programs, and these must take place prior to the behavioral changes that will be promoted in individuals, the family, and society as a whole. These

changes are also related to very activities of the current programs and to the profile of the manager that public health requires. Finally, changes are needed in interventions and instruments, in the successive gaps in evaluation, systematization, and documentation that currently exist.

Integrated Strategy for Dengue Prevention and Control

8. Responding to this situation within the current context of change and following the new orientations concerning the forms and methodologies that should be applied to the technical cooperation of the Organization, we are proposing the introduction of an action model for dengue prevention and control. This model involves a new form of technical cooperation: a Dengue Task Force (GT-Dengue). The GT-Dengue consists of a group of experts who start off with an integrated analysis of the current regional situation, and from there, begin to join efforts with the countries to change existing practices and implement the new integrated strategy for dengue prevention and control. The new strategy is horizontal, intersectoral, interprogrammatic, and seeks changes in behavior to reduce the risk factors for dengue.
9. The purpose of this strategy is to achieve a sustainable national strategy, designed by the country with technical cooperation from the GT-Dengue, using a multisectoral, intersectoral, and interdisciplinary (integrated) approach, based on new practices that permit the evaluation and continuity of the activities, with national resources.
10. This approach is expected to strengthen the national dengue prevention and control programs and thereby create stronger partnerships to reduce the risk factors for dengue transmission, set up a comprehensive surveillance system, and lower *Aedes aegypti* populations to control levels. It is also expected to increase the capacity of laboratories to detect and identify the virus, improve case management, and make the community a key participant in all dengue prevention and control activities. Consequently, these changes are expected to lower dengue incidence and case-fatality rates.
11. Since an integrated strategy is involved, it is important to point out its potential interest for other sectors, such as:
 - . The Municipal Sector, since the new paradigm promotes work within the context of a local development program, local empowerment grounded in sustainable participation, and above all, the capacity to target and prioritize activities in as detailed a manner as possible.

- . The Agriculture/Environmental Sector, since there are determinants in this sector that are generally underestimated, and it is important to strengthen intersectoral action and promote health, even when the work is technically not in the sector.
- . The Health Sector, which is the sector that currently assumes responsibility in this area. Nevertheless, it is important to further buttress its steering and service role (laboratories, surveillance, information, education, and communication), given the many other sectors involved, which can generally provide greater financial resources.

Strategic Intervention Areas

12. The GT-Dengue intervenes in five strategic areas: social communication/community participation; patient care; laboratory procedures; vector control; and epidemiological surveillance

13. These five areas summarize the contents of the 10 commandments for dengue prevention:

- (a) Integrated epidemiological and entomological surveillance.
- (b) Advocacy and intersectoral action among the health, environment, and education sectors, in addition to others such as industry and trade for new materials, tourism, legislation, and regulations.
- (c) Effective community participation.
- (d) Environmental management and attention to basic services such as water supply, wastewater disposal, solid waste management, and the disposal of used tires.
- (e) Patient care inside and outside the health system.
- (f) Case reporting (confirmed clinical cases, deaths from DHF, circulating serotypes).
- (g) Including dengue/health in the curriculum of the formal educational system.
- (h) Critical analysis of the function and use of insecticides.
- (i) Formal training for health professionals and health workers (from the medical or social sector).
- (j) Emergency preparedness, setting up mechanisms and making preparations to deal with outbreaks and epidemics.

Mission of the Dengue Task Force (GT-Dengue)

14. Introduce a new form of technical cooperation for dengue control, working with the countries to orient strategic efforts and promoting new national partnerships to

facilitate the implementation and development of the areas cited in Resolution CD43.R4, guided by the principles of solidarity, respect, equity, integrity, and technical excellence.

Framework for the Dengue Task Force (GT-Dengue) for Implementation of the Strategy

15. The objective of the current strategy is to contribute to a reduction in morbidity, mortality, and the social and economic burden produced by dengue outbreaks/epidemics in the countries targeted by the interventions. As mentioned earlier, in order to meet these objectives, dengue prevention and control programs must employ an integrated, intersectoral, and interdisciplinary approach to planning and implementation. The countries operationalize the strategy with the support of the Dengue Task Force (GT-Dengue), with the object of ensuring that the technical operational levels in the Ministry of Health improve cooperation and coordinated planning among themselves and with other sectors to strengthen the dengue strategy at the country level. The idea is to achieve a sustainable national strategy, based on new practices that permit evaluation and continuity with the specific national resources allocated.

16. This strategy will require the country to give political priority to the interventions, allocating resources and guaranteeing the implementation of the strategy.

Goals:

- . Reduce the number of outbreaks;
- . Decrease the magnitude and severity of the outbreaks;
- . Keep the number of cases low;
- . Reduce mortality from dengue.

17. At present, there is insufficient data and epidemiological information to establish a baseline for quantifying percentage reductions under these goals. The reductions can be measured quantitatively once the strategy has been implemented in the countries, and the figure may vary from country to country, depending on the characteristics of each space/population. We anticipate that, by the end the first year of intervention, we will be able estimate the specific indicators for each country.

18. With the implementation of the integrated strategy, the following process results will be obtained:

- (a) Since the dengue control strategies are considered a national priority, that priority should be reflected in both the creation of a national committee or group charged

with implementing the dengue prevention and control policies and guaranteed financial resources in the national budget.

- (b) A GT-Dengue task force will have been established, which, working with the national group, will design a multisectoral, intersectoral, and interdisciplinary intervention suitable for the new generation of dengue prevention and control programs.
- (c) The government executive group will have been formed (for the large extrasectoral component of the strategy) to plan, monitor, and evaluate the work deriving from the national strategy.
- (d) Knowledge about the national dengue situation will have been obtained through an integrated analysis to identify risky practices and opportunities for action. Use of the Strengths, Weaknesses, Opportunities, and Threats (SWOT) matrix is recommended; this matrix will be constructed by a multidisciplinary team.
- (e) An integrated national strategy will have been designed with the approval of the ministry of health and its counterparts in the other ministries and agencies involved. Based on new practices, the strategy will involve the optimization of national human and financial resources and the allocation of new resources when necessary.

19. National capacity will have been strengthened in the five areas that comprise the national dengue prevention and control strategy--incorporating, however, the 10 commandments for dengue prevention activities. The national strategy will be reviewed annually to make the necessary adjustments, and the continuity of the practices introduced will be maintained.

Blueprint for Action by the Dengue Task Force (GT-Dengue) for Implementation of the Strategy

20. Executing the current blueprint for action will make it possible to meet the objective of reducing morbidity and mortality from dengue and its social and economic burden. At the same time, it is aimed at achieving a more interdisciplinary intersectoral approach in public health policies for dengue prevention and control, which is essential for reducing the harm caused by the disease.

21. The following steps will be taken to implement the strategy:

- (a) Knowledge will be obtained about the national dengue situation through an integrated analysis to identify risks and opportunities for action.

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| > | Compile recent data on the dengue problem, its determinants, and the national prevention and control program. |
| > | Perform the SWOT analysis. |
- (b) A participatory national plan will have been drawn up with all the components necessary for reorienting and strengthening the dengue prevention and control strategy.
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| > | Design and carry out the integrated activities for executing the blueprint for action through national and regional commitments |
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- (c) The national plans for dengue control and prevention will have been drawn up and staff will have been trained not only in administration, but in the five intervention areas of the GT-Dengue (mass communication/community participation, patient care, epidemiological surveillance, laboratory procedures, and vector control).
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| > | Train human resources, both professional and technical, in the five components of the GT-Dengue, including administration and the management of financial resources. |
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- (d) An integrated surveillance system (covering clinical, epidemiological, virological, entomological, and environmental factors and risky practices) will be in place at the national level.
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| > | Review and update the national epidemiological surveillance system for dengue. |
| > | Promote systematic meetings for epidemiological analysis with the people responsible for the different surveillance components at the different levels. |
- (e) Prevention and control activities defined with an interdisciplinary approach will be carried out, based on the results of the integrated surveillance.
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| > | Implement prevention and control activities, based on integrated surveillance |
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- (f) Research on dengue and its control and prevention will be promoted and carried out.

- > Promote a meeting with the national council and other country institutions that support research to discuss and demonstrate the priority of the area and guarantee resources.
- > Promote the creation of a fund to grant resources for research, through a bidding process.
- > Promote a meeting with investigators and health administrators to disseminate results and identify research needs.
- > Support the preparation of manuscripts for publication of the research.

- (g) Practical guidelines for epidemiological surveillance, patient care, laboratory procedures, entomology, community participation, and mass communication will have been updated in a participatory manner for their subsequent dissemination and use.

- > Review the existing technical guidelines.
- > Hold a participatory workshop to review and update the national guidelines.
- > Train trainers and disseminate the technical guidelines.

- (h) Dengue patients will have been correctly diagnosed in a timely manner.

- > Define and agree on the components of the process for reorganizing health services for patients.

- (i) Mass communication activities will have been carried out to promote community participation and changes in risky practices.

- > Carry out and promote mass communication activities that foster community participation and the adoption of healthy practices.

- (j) Country participation in the international dengue surveillance network (Dengue-Net) will have been promoted.

- > Formalize the country's participation in Dengue-Net and periodically report to the system.

Operational Strategy for Implementing the New Model

Phase	Responsible Entity	Period I	Period II	Period III	Remarks
Advocacy	PAHO and GT-Dengue (general coordination)	Formal meetings with national counterparts at the political, financial, and technical level (from each of the five specific areas addressed by the GT-Dengue).	<p>Formalize the Agreement between PAHO and the country.</p> <p>a) The Agreement should be formalized as a commitment, in line with the particular features of the country, that guarantees the continuity and sustainability of GT-Dengue activities, regardless of whether the authorities and technical personnel are removed from their office or functions.</p> <p>b) The Agreement should include a country commitment to ensuring that the people involved in the implementation of the integrated national strategy and in training for its implementation remain for the period estimated for the execution of the strategy.</p>		
Articulation	PAHO/WHO Representative Office in the country and the GT-Dengue (general coordination and operations group)	Arrival of the GT-Dengue group (General Coordination and Operations group) in the country. Presentation of the GT-Dengue's Subregional Blueprint for Action to the national authorities and technical personnel: objectives, purposes, goals, expected results, indicators, sources of verification, assumptions, and timetable.	Presentation of the dengue country situation analysis, characterizing it at the national, regional, and local level. Description of the human, administrative, and financial resources that can be optimized in the entities involved in dengue control and prevention		The GT-Dengue is established as the operations group for the five specific areas.

Operational Strategy for Implementing the New Model (cont.)

Phase	Responsible Entity	Period I	Period II	Period III	Remarks
Preparation of the integrated national strategy	Country authorities, in collaboration with the PAHO/WHO Representative Office in the country and the GT-Dengue (operations group)	A participatory and multidisciplinary SWOT analysis (strengths, weaknesses, opportunities, and threats) will be conducted for the regions in the country at greatest risk for dengue; this exercise will include administrative and financial personnel.	A participatory integrated multidisciplinary national strategy will be established in the selected regions. This strategy will include an Integrated Work Plan (IWP) for the programmed activities, differentiating responsibilities at the national, regional, and local level and identifying the resources for the execution of the Plan.		The general guidelines are: a) Optimization of the human, material, and financial resources in the national, regional, and local health system. b) Training for human resources to support the work of the National Blueprint for Action and contribute to local capacity building.
Implementation of the National Blueprint for Action	Country authorities, with the collaboration of the PAHO/WHO Representative Office in the country and the GT-Dengue (operations group)	Implementation of the Integrated Work Plan (IWP), which includes the five specific areas of the GT-Dengue, with national, regional, and local counterparts.	Monitoring and evaluation of the IWP.		
Follow-up, monitoring, and evaluation of the National Blueprint for Action	Country authorities, PAHO/WHO Representative Office in the country, and the GT-Dengue (operations group)	Technical visits by the GT-Dengue operations group and its national counterparts to monitor the IWP.	Training workshop for the various disciplines in response to the evaluation of the national strategy's first year of operations.	a) Dissemination of IWP results to the sectors that participated in the implementation of the integrated national strategy. b) Publication of the IWP results	The monitoring will be performed with the GT-Dengue standard evaluation guide.

Operational Strategy for Implementing the New Model *(cont.)*

Phase	Responsible Entity	Period I	Period II	Period III	Remarks
Long-term coordination and consolidation	Country authorities, PAHO/WHO Representative Offices in the countries, and the GT-Dengue (General Coordination)				
<p>Based on the results of the IWP evaluation, the plan will be coordinated and consolidated in the country. PAHO will serve as a facilitator for the acquisition of resources and the extrapolation of these skills and activities to other problems and other regions of the particular country and other countries.</p>					

Action by the Directing Council

22. The Directing Council is invited to study this document and consider the importance of the Member States setting national priorities to strengthen implementation of the integrated dengue prevention and control strategy.

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