The Italian Multi-Disciplinary Approach to the Management of a Complex Emergency in Cuba: A Case Study of Dengue and Leptospirosis Control

P. Guglielmetti;[1] A. Aleotti;[1,2] J.L.S. Martin Martinez;[3] J.R. Vasquez Canga;[3], A. Miozzo[1]
1) Ministry of Foreign Affairs, General Directorate for Development Co-Operation, Emergency Office, Rome, ITALy; 2) Italian Co-operation Office, CUBA; 3) Ministry of Public Health, CUBA

During the last three years, major epidemics as well as a cluster of cases of dengue virus infections and leptospirosis have been recorded by the Cuban Ministry of Public Health. The most serious episode was the 1997 epidemic of dengue in Santiago de Cuba, where there were over 3,000 clinical cases in addition to 205 cases of haemorrhagic diseases (5.6% mortality rate). Leptospirosis also has been identified as having an increasing incidence during the last four years (25.6 cases per 100,000 inhabitants in 1994) throughout the island.

The Italian Co-operation (IC) has been present in Cuba since 1998. One of the first initiatives was focused on supporting the Cuban Ministry of Health in its attempts to control the spread of dengue and leptospirosis. The approach of the IC was based on a multi-disciplinary approach that focused on the following key points:

1) Education and training of populations at greater risk of exposure to the principal domestic vector, *Aedes aegypti*, as well as to rodents;
2) Support to the surveillance system for dengue and leptospirosis;
3) Strengthen the capacity of early clinical recognition (suspected cases) and laboratory confirmation of new cases of leptospirosis;
4) Support to the Aedes aegypti and rodent control programmes;
5) Structural/infrastructural interventions with impact on urban and rural environments, in order to limit the risk of an increase in vectors and the rodent population; and
6) Select a strict system of evaluation indicators to monitor the efficacy of the intervention.

One year following the implementation of the programme in selected areas of the island (Pinar del Rio, Ciudad Habana, Cienfuegos, and Granma), the main results are:

1) Decrease in the larval breeding index of Aedes aegypti (p <0.01, 1999 vs. 1998);
2) Decrease in the incidence of dengue cases, with no recordings of epidemics or clusters of cases;
3) Decrease in the incidence of leptospirosis (p <0.0l, 1999 vs. 1998);
4) Reduction in rodent population, with a special impact on the urban area; and
5) Increase in chemoprophylaxis and early treatment of new cases of leptospirosis.

Conclusions: The results obtained highlight the short-term efficacy of the IC approach in controlling the spread of dengue and leptospirosis in this setting. The discussion will focus on the advantages and drawbacks of this integrated strategy in order to control two diseases that traditionally have been controlled by vertical programmes. The impact of the support to the entomological, epidemiological, clinical, environmental, and educational sectors will be compared to each other and then discussed. This should allow the strong points of each component to be identified, considering that such an approach is not only a method for preventing and treating infectious diseases, but also is a path towards the creation of healthy communities.

Keywords: complex emergency; cooperation; Cuba; dengue; education; epidemics; leptospirosis; rodents; training; vectors