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The challenges of controlling visceral leishmaniasis

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The zoonotic visceral leishmaniasis (ZVL) is the most severe clinical form of leishmaniasis and is considered an emerging disease by the World Health Organization. The disease is present in the Americas, the Middle East, Central Asia, China and the Mediterranean. Historically it was an essentially rural disease, but in Brazil since the 1980s has expanded to urban areas and have been linked the human's disease with occurrence of canine's disease. One of the main strategies to control the disease is culling infected dogs. However, this strategy has been questioned in the literature, given the complexity involved in the transmission process, and for the operationalization of the control measure. Heretofore, despite efforts to control, the disease's incidence remains high in Brazil. Mathematical modeling suggests also that vector control and vaccination of dogs would be more efficacious than dog culling. However, vaccination as well as the treatment of dogs do not prevent them participate in the transmission dynamics of the disease, making these strategies ineffective in controlling the disease. Examples such as China, India and Brazil, show that only with continued massive spraying of chemical control and the vector concentration have been nearly eradicated, this strategy would be effective in reducing the incidence of human disease. Another dynamic model showed it would be possible to reduce the canine infection to levels of low endemic if control actions involved in culling dogs were held continuously. Considering the uncertainty about the effectiveness of control the guidelines of the ZVL control program should be revised.

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