

## Research priorities in epidemiology in the Brazilian Pantanal

The Brazilian Pantanal (or “Wetland” in Portuguese) is located in the center of South America, in the Upper Paraguay River Basin. The area measures a total of 150,355 square kilometers, making it the world’s largest wetland. The Pantanal is located in southern Mato Grosso and northwestern Mato Grosso do Sul State. According to the 2010 Census, the population was 400 thousand, having grown 9.3% in the previous decade.

The Pantanal biome displays wide biological diversity resulting from its multiple and complex interdependent interactions. Together with physical biodiversity, the Pantanal is demographically unique, as home to the *pantaneiros*, indigenous peoples, communities along the border with Bolivia and Paraguay, and people from other Latin American countries that have come in search of opportunities, besides tourists from all over the world.

Interpersonal and intercultural interactions, mediated by the region’s hydrological and economic cycle, shape specific ways of life and health conditions, thereby creating research opportunities and demands in epidemiology.

Within this scenario there is a striking lack of research on health conditions, especially the dynamics in the maintenance and potential occurrence of diseases arising from contact with environments that can present vulnerabilities and harbor reservoirs for diseases (particularly vector-borne). Research is needed on the local receptiveness and impact of migratory birds from other regions of the world, potential carriers of new infectious agents such as the West Nile virus.

The region’s low altitude (an average of 100 meters above sea level) and the surrounding higher lands, with altitudes of 600 to 700 meters, expose the Pantanal population to environmental contaminants such as crop pesticides used extensively by agribusiness, the magnitude and impact of which need to be studied. Equally important is the evaluation of the environmental impact and harmful potential for human health resulting from large-scale sugar cane plantations. Even while pesticides have emerged as a problem in recent decades, there is a persistent risk of waterborne diseases due to the water consumed by the Pantanal’s rural populations, exposed to periodic floods, unlike other rural populations.

The long international border area and the ease in acquiring legal and illegal drugs pose new and growing health threats, especially among Pantanal youth, thus requiring studies to better characterize these drug users.

The Brazilian Pantanal, a UNESCO World Heritage Site, suffers from anthropogenic effects such as changes in the production process, land occupation, and intensification in the flow of people, potentiated by precarious living conditions, sanitation, and health services. This situation demands epidemiological research that takes the local biome’s specificities into account. Issues like emerging and reemerging diseases, environmental pollution, external causes, ways of life, and health conditions among the Pantanal people will need to be closely interwoven with climate change and global contact.

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