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Zika virus epidemic in Puerto Rico: Health justice too long delayed

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Summary

In 16 months over 35,400 cases of Zika virus infection have been confirmed in Puerto Rico. This represents 85% of all cases reported on the United States of America and its territories. Zika epidemic is exposing the profound failure of socioeconomic policies, as well as of the protection of sexual and reproductive health rights in Puerto Rico. Considering high poverty rates, high levels of sexuality-related stigma, poor quality sex education, limited access to contraception, and limited participation in the allocation of resources for prevention; it is unreasonable to focus public health efforts to prevent Zika virus infection to vector control. The allocation and equitable management of resources for research and intervention are required in order to understand and address barriers and facilitators for prevention at the individual, social, and structural levels. Further, the impact of efforts to tackle the social determinants of Zika virus epidemic in the island should be assessed.

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On December 31, 2015, the first case of Zika infection was reported in Puerto Rico - an organized but unincorporated territory of the United States of America (US). Puerto Rico encompasses an archipelago in the Caribbean basin that became part of the US in 1898, following the Spanish-American War. Since at least 1917, Puerto Ricans are US citizens by birth. However, as an unincorporated territory of the US, Puerto Rico lacks self-

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determination, and Puerto Ricans on the islands do not have full representation in Congress and cannot vote for the president. Further, due to Puerto Rico's territorial status, US federal mandates take precedence over local legislation and policies in all areas of governance. As of April 19, 2017; 41,807 cases of Zika virus infection have been reported to the Centers for Disease Control and Prevention (CDC) in the US (including 50 states, DC, and the territories of American Samoa, Puerto Rico, and US Virgin Island). Of these, 5,238 occurred in United States (excluding US territories), and 35,418 (85% of all cases in the US and territories) in Puerto Rico alone. While most (94%) of the cases reported within the continental United States have been travel related, the majority (99%) of cases reported in Puerto Rico have been acquired through local transmission.¹

Zika virus, an arthropod-borne flavivirus, generally causes mild infection in humans, but is associated with severe neurologic complications and adverse fetal outcomes.² Sexual transmission of Zika from both male and female partners can occur.^{3,4,5} The virus can remain viable in semen for months⁶ and transmission via sweat or tears has been suggested.⁷ Puerto Rico has witnessed the most negative known outcomes of Zika virus infection with the first birth of a child with Zika-related microcephaly reported in the US, with 29 cases of birth defects, 71 cases of Guillain-Barré syndrome, and at least 5 deaths related to infection with Zika virus.⁸

Vector control has been a major area of attention for preventing Zika virus infections in Puerto Rico, as in most places affected by the epidemic. These measures center on mosquito reduction through source elimination (removal and modification of breeding sites) and avoiding contact with mosquitos. In order to control the vector and prevent mosquito bites, the CDC recommends installing or repairing window screens and using mosquito nets, air conditioning, outdoor flying insect spray, using specific insect repellents, and wearing particular kinds of clothing.^{9,10}

The World Health Organization's (WHO) recommendation to prevent sexual transmission of the virus establishes that "all patients (male and female) with Zika virus infection and their sexual partners (particularly pregnant women) should receive information about sexual transmission of the Zika virus, contraceptive measures and safer sexual practices, and should be provided with condoms when feasible".¹¹ Access to emergency contraceptive and safe abortion services should also be available to women who have had unprotected sex and do not wish to become pregnant because of concern over Zika virus infection. Similarly, free-of-charge or affordable care and support must be provided to pregnant women and their families who have or will experience Zika infection. As most Zika virus infections are asymptomatic, the WHO also recommends that men and women living in areas where local transmission of Zika virus is known to occur should consider adopting safer sexual practices or abstaining from sexual activity.¹¹

International, national, and local agencies have certainly been responsive in terms of issuing public recommendations for vector control, preventing the sexual transmission of the Zika virus, and postponing pregnancy. Notwithstanding, these recommendations should be considered in context. In Puerto Rico, high levels of sexuality-related stigma,^{12,13,14} poor quality sex education,¹⁵ limited access to contraception,^{16,17} and limited participation in the

allocation of resources for prevention¹⁸ make prevention of new Zika infections in accordance with these recommendations challenging, if not downright onerous. For example, researchers in Puerto Rico have evidenced that there is poor quality sex education available,^{15,19} limited access to contraception,^{16,17} low levels of reproductive planning,²⁰ high levels of gender-based violence,²¹ and low rates of condom use among women.¹⁷ Further, two thirds (65%) of pregnancies are unintended,²² sexual abstinence is rarely practiced among sexually active adults,¹⁷ and abstinence-based sexual education (on which public policies are mostly focused) has proven to be ineffective and morally problematic as it threatens fundamental human rights to health, information, life, and reproductive freedom.²³

Regarding access to contraceptives, recently reported data from the CDC acknowledge that in Puerto Rico, “access to contraception is constrained by limited availability, especially of highly effective long-acting reversible contraceptive, high-cost, incomplete insurance coverage, and lack of trained providers”.²² This is worsened by the large number of health professionals that have recently emigrated from the island.²⁴ Lastly, abortion, as a constitutionally protected right, needs to be considered within the highly patriarchal social norms in Puerto Rico, wherein religious institutions have historically stigmatized sexuality and condemned it.²⁵ Such norms are imbricated transversally, from the individual decision-making level, to the health services delivery arena, and all the way to the design and enforcement of state policies. For instance, the local Catholic Church through their current Archbishop has condemned the use of condoms, encouraging followers to ignore the CDC’s recommendation to use protection during sexual intercourse. All these factors are disproportionately affecting young adults (21–25 yr) who are the most sexually active group,¹⁷ among whom most of the unintended pregnancies are reported,^{20,26} are known to have exacerbated economic constraints,²⁷ and are more socially vulnerable in general.²⁸

The political context in Puerto Rico is probably the main constraint for local authorities and communities who seek to identify resources for comprehensive and culturally appropriate prevention programs. Puerto Rico is already in a state of political-economic emergency, while also burdened with a preexisting Chikungunya epidemic, as well as endemic Dengue virus.^{29,30,31} The implications of a Zika virus epidemic are potentially severe for public health, considering that Puerto Rico is structurally under-resourced due to the existing cap on congressional spending for health services on the island.^{18,32} This issue has been part of public discussions and congressional hearings on the fiscal crisis on the island and the establishment of the Puerto Rico Oversight, Management, and Economic Stability Act or PROMESA,³³ but no action has been taken to ameliorate the negative consequences of the situation with regards to public health care, which has rightfully been called a humanitarian crisis.²⁵ Implementation of austerity measures on Puerto Rico’s government budget, particularly related to funds allocated for public services already proposed by PROMESA’s board members, raises more concerns about the prospective availability of local resources to address the health care challenges posed by the Zika epidemic.

Increasing rates of inequality and poverty are having a major impact on the island’s population. Data evince that the poverty level in Puerto Rico is 46.2% - nearly double the poverty rate in Mississippi, the most impoverished of the 50 states in the US (In Puerto Rico

the median salary is approximately \$19,500 compared to \$51,400 in the US).³⁴ Similarly, the unemployment rate is over 12%, and high levels of bankruptcy and population loss have been reported.³⁵ Under these circumstances, it is unreasonable to focus public health efforts to prevent Zika virus infection at the individual level to control the vector (e.g., purchasing screens, air conditioners, clothes, or repellents). The existence of structural barriers, as previously discussed, highlights the urgent need to conduct further research on local conditions and develop autonomous responses that help communities in Puerto Rico mitigate the impact of Zika. Accounting for the structural inequalities in health care that exist on the island requires that we move confidently towards remediating not only the viral exposure, but crucially, that we address the extensive health vulnerabilities now present, for Zika is neither the first, nor the last epidemic Puerto Ricans will experience.²⁵

Thus, it is not surprising that Dr. Tom Frieden, former director of the Director of the CDC, stated, “there is the potential for hundreds of thousands of Zika cases in Puerto Rico”.³⁶ Moreover, he recently acknowledged that “effective action in Puerto Rico has been complicated by lingering suspicions related to historical activities, competing priorities, and the speed needed to bring integrated vector management to scale. Misinformation has clouded understanding of the best ways to protect individuals and communities”.⁹ The opposition to the CDC’s response addressing the Zika outbreak by local environmental activists and some segments of the general public; including on the use of organophosphate insecticides, particularly Naled (dimethyl 1,2-dibromo-2,2-dichloroethylphosphate), should be understood within a historical context, under which multiple health-related experiments have been conducted on local populations without informed consent, and many public health actions have been imposed with very limited community participation, questionable cultural adaptation, and in notable cases, with detrimental outcomes.^{37,38,39,40} Further, public resistance has also been based on legitimate environmental concerns sustained by scientific data related to aerial spraying with Naled. The main arguments are focused on its potential toxicity for humans, lethal effects for endemic species of insects such as bees and others that are important for the pollination of flora, and scarce scientific evidence of Naled spraying efficacy for vector control.^{41,42} Moreover, excessive reliance on spraying insecticides as a mosquito control measure may do more harm than good by fostering viral resistance. The CDC’s own field tests show that most mosquitos in Puerto Rico are already either resistant or partially resistant to insecticides.⁴³ It is also important to mention that scientific claims made by the CDC officials supporting Naled spraying efficacy have been widely questioned by experts beyond the Puerto Rico jurisdiction.⁴⁴

There is no doubt that the Zika epidemic is exposing the tragic failure of socioeconomic and health policies in Puerto Rico, as well as of the protection of sexual and reproductive health rights. The Zika epidemic offers a belated opportunity for health scientists and professionals to address and reduce health inequities on the island. The current circumstances require immediate attention to the social determinants of Zika infection in Puerto Rico. From this perspective, it is imperative to frame the response to the epidemic within the context of health inequalities in Puerto Rico and its political-economic relationship to the US. Given the complexity of this panorama, the response should be equally comprehensive.

We encourage public health leadership in Puerto Rico, in the US, and globally to address structural barriers that produce and reproduce health inequalities in Puerto Rico, rather than remain focused on individual prevention efforts. To do so, we recommend establishing open channels of communication between governmental agencies and the public sector commensurate to the urgent character of a public health emergency. Furthermore, it is necessary to ensure transparency of information and active collaboration between sectors in efforts to prevent and manage the infection; avoiding replicating the same top-down styles fostered by the island's colonial status.

The allocation of resources for research is required to understand barriers and facilitators at the individual, social, and structural levels, and how these impact health promotion efforts to reduce health inequities and health disparities in the island. This is vital to developing evidence-based, culturally appropriate responses to ensure effective prevention and mitigation practices. Similarly, we recommend the strengthening of local initiatives and existing good practices already in place at the community level.

Considering the current investments in vector control, more resources should be allocated especially for the prevention of Zika virus transmission through sexual intercourse. Accessible and affordable reproductive health services offering multiple forms of contraception (i.e., including, but not limited to condoms and other birth control technology), prenatal diagnostics, prenatal reproductive health care, pediatric care, and abortion services are mandatory and a basic human right. Establishment of health policies and implementation of best practices should be based on respect for reproductive rights, whilst coercive public policy, as well as stigmatizing and shaming discourses should be avoided. Finally, long-term sustainability of these measures should be prioritized.

The question of how and when to declare the epidemic over looms large and uncertain. Recently, the Puerto Rico Department of Health declared the end of the Zika epidemic in Puerto Rico.⁴⁵ Yet, the CDC maintains that the epidemic is not over, but is in fact ongoing⁴⁶. Adding to the uncertainty is lack of scientific consensus on the disparity between the expected and actual number of cases of Zika syndrome among infected infants and the services provided to them.⁴⁷

After more than a year since the start of the Zika epidemic later and decades too late, the situation points to colonial status and poverty as the largest barriers to health on the islands, as well as highlighting the need to understand and comprehensively address the social determinants of health that produce and reproduce health inequities in Puerto Rico.

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Highlights

- Puerto Rico bears adverse health effects of existing cap on congressional spending.
- ZIKV management is impeded by inequality between local and federal authorities.
- Suspicion towards health authorities is based in historical evidence of wrongdoing.
- Policies that overlook structural barriers to prevention omit scientific consensus.
- Effective viral management requires local autonomy and self-determination.