

Commentary on Zika: An Ongoing Threat to Women and Infants

Comentário sobre o artigo *Zika: An Ongoing Threat to Women and Infants*

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The article *Zika: An Ongoing Threat to Women and Infants* ¹ discusses the number of Zika cases in the population of Rio de Janeiro, Brazil, after the epidemic period of 2015/2016. After a Zika outbreak occurred in 2015/2016, the article shows that the total number of Zika cases by the end of 2016 and early 2017 was much lower compared to the total from the previous year. By contrast, the article also shows an investigation of the number of cases in women and infants and reveals an incidence in these groups higher than those for men, even if not sufficient to start another outbreak. Since Zika infection in mothers during pregnancy is linked to Zika congenital syndrome in newborns, even a small number of cases with potentially long-term consequences are still alarming. Hence, disparity about the infection in separate groups of the population should signal that attention is deserved to infants and women. The analytical approach of the article is definitely interesting to enforce this argument, but results also carry some degree of uncertainty.

The result regarding disproportionate number of cases is shown very well in the article by means of a comparison between number of cases presented in Figures 1 (period 2015/2016) and 3 (2016/2017). For the period of time between 2016 and 2017 (Figure 3), the number of cases is a small fraction of the number observed in the previous year, shown in Figure 1. The difference is quite striking for infants in the post-epidemic period compared to others, and for women at reproductive age compared to men, which is also indirectly expected to increase the risk for consequences among infants due to pregnancy complications.

The analysis in the article considers that both symptomatic and asymptomatic infectious individuals impose equal transmission rates to susceptible individuals. More research is certainly required to consider transmission probability under low viral loads or in individuals with varying degrees of susceptibility. The evidence provided by Fréour et al. ², indicates the real possibility of sexual transmission by an asymptomatic case according to the reported evidence of an infected couple.

The estimate for probability of acquiring Zika virus via mosquito bites depends on reporting rate, which is assumed equal among adults and children and also assumed not to vary from year 1 to year 2. For instance, if the reporting rate for children were three times as great as the reporting rate for adults, the actual proportion of children who got Zika virus would decrease by a third. In this case,

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the actual proportions of infected adult men and infected children would be similar. Several reasons might lead to a higher reporting rate for children. For instance, we would expect more children to be symptomatic due to developing immune system conditions and greater awareness among mothers in general. Still, such reporting rate might be high even for children, and the risk of infants getting Zika virus might be quite possibly higher although at an intermediate value.

The proportions of infected male adults and infected children were used to find the number of susceptible adults and children in year 2. The number of susceptible infants, however, will also include infants with ages less than one year old, who were probably not exposed to the virus. In other words, demography shows an entirely susceptible group of people, infants, entering the population. This statement is clearly in accordance with observations in Figure 4, in which we see most of cases in ages below 12 months old.

The situation about Zika congenital syndrome might also affect the reporting rate in adult women. Furthermore, there is evidence of a sex bias regarding higher incidence of dengue in women³. A similar pattern for Zika seems reasonable and results in the article point in this direction. The analysis in the article considers a reporting rate for women 20% higher than for men, but such estimations are hard to obtain. A reporting rate even higher in year 1 is not far fetched.

These limitations in the knowledge of some parameters reinforce the need for some uncertainty treatment, which could not only generate a risk assessment but also confidence intervals of proportional and absolute numbers. Such treatment would allow to evaluate the risk of infection as being higher for children and women than for men with lower and upper bounds, not only stating higher risks by multiplicative factors (threefold/fourfold). Intervals could also be very informative for absolute numbers of actual number of cases.

Finally, the reported numbers in Figures 1 to 4 give “photographs” of the Zika epidemic in the 2015/2016 epidemic period and the number of cases in the post-epidemic period, showing a risk of Zika infection among women at reproductive age and infants. Given the consequences about Zika congenital syndrome, this article clearly shows that risk still remains with potentially serious consequences for infants.

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