

would best fit the rapid propagation encountered in small insular populations, as observed in school-age children in French Polynesia.^{2,3}

Nevertheless, we agree with the authors that congenital brain abnormalities might be found in infants with normal sized heads, as previously reported.^{4,5}

We declare no competing interests.

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- 1 França GV, Schuler-Faccini L, Oliveira WK, et al. Congenital Zika virus syndrome in Brazil: a case series of the first 1501 livebirths with complete investigation. *Lancet* 2016; **388**: 891–97.
- 2 Cao-Lormeau VM, Blake A, Mons S, et al. Guillain-Barré syndrome outbreak associated with Zika virus infection in French Polynesia: a case-control study. *Lancet* 2016; **387**: 1531–39.
- 3 Cauchemez S, Besnard M, Bompard P, et al. Association between Zika virus and microcephaly in French Polynesia, 2013–2015: a retrospective study. *Lancet* 2016; **387**: 2125–32.
- 4 Brasil P, Pereira JP Jr, Gabaglia R, et al. Zika virus infection in pregnant women in Rio de Janeiro. *N Engl J Med* 2016; **375**: 2321–34.
- 5 Besnard M, Lastère S, Tessier A, Cao-Lormeau VM, Musso D. Evidence of perinatal transmission of Zika virus, French Polynesia, December 2013, and February 2014. *Euro Surveill* 2014; **19**: 20751.

Authors' reply

Patrick Gérardin and colleagues state that “the data linking third-trimester rashes to neuroimaging findings are not shown”. In the Results section¹ we mention that for nine cases, the mothers reported a rash in the third trimester. We have reviewed the records for these newborn babies: five presented with typical Zika virus brain malformations (eg, calcifications, ventriculomegaly), and physicians for the remaining four reported malformations without specifying

their precise nature. Three other Brazilian studies suggest that late pregnancy infections can lead to brain lesions: in a prospective cohort,² five of the 12 affected fetuses were born to mothers with a rash on gestational week 25 or later; a case report³ shows that a child infected at 26 weeks' gestation was still shredding the virus at 2 months of age; and a case-control study⁴ reports that three of 32 confirmed cases had a history of rash in the third trimester. To support their argument, Gérardin and colleagues cite a case series⁵ of 19 fetuses or newborn babies in Réunion, of whom five mothers reported a rash in the first trimester but none in the second or third trimesters. This small study does not exclude the possibility that neuroimaging findings might be found in the offspring of women with third-trimester rashes. In our view, the four Brazilian studies strongly suggest that Zika virus infections in late pregnancy can lead to brain abnormalities.

Gérardin and colleagues' calculation of positive predictive value contains an error. Our receiver operating characteristic curve refers to definite and probable cases (including some that did not present rash), whereas the average head circumference they refer to is for third trimester rashes. They then state that a 67% infection rate is unlikely in Brazil, but 97% of our cases are from a smaller region—the northeast. A case-control study⁴ has shown 64% antibody prevalence among controls in Pernambuco state, where the epidemic was most intense. In addition, this state saw relatively few cases of infection in the summer of 2016 compared with the large number reported in 2015, suggesting that herd immunity might have been achieved—which is compatible with an incidence of around 60–70% in the first epidemic wave. In addition, note that our data show a marked regional distribution of the epidemic when it started, and therefore our results need to be interpreted considering

this spatial distribution rather than extrapolated to the whole of Brazil.

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- 1 França GVA, Schuler-Faccini L, Oliveira WK, et al. Congenital Zika virus syndrome in Brazil: a case series of the first 1501 livebirths with complete investigation. *Lancet* 2016; **388**: 891–97.
- 2 Brasil P, Pereira JP Jr, Raja Gabaglia C, et al. Zika virus infection in pregnant women in Rio de Janeiro. *N Engl J Med* 2016; **375**: 2321–34.
- 3 Oliveira DBL, Almeida FJ, Durigon EL, et al. Prolonged shedding of Zika virus associated with congenital infection. *N Engl J Med* 2016; **375**: 1202–04.
- 4 de Araujo TV, Rodrigues LC, de Alencar Ximenes RA, et al. Association between Zika virus infection and microcephaly in Brazil, January to May, 2016: preliminary report of a case-control study. *Lancet Infect Dis* 2016; **16**: 1356–63.
- 5 Besnard M, Eyrolle-Guignot D, Guillemette-Artur P, et al. Congenital cerebral malformations and dysfunction in fetuses and newborns following the 2013 to 2014 Zika virus epidemic in French Polynesia. *Euro Surveill* 2016; **21**: 30181.

The possibility of vascular care for prevention of dementia

The study by Eric P Moll van Charante and colleagues (Aug 20, p 797)¹ showed that vascular care intervention offered no apparent advantages on the prevention of dementia, although it has some useful implications for future studies.

First, the blood pressure reduction achieved in the intervention group indicates that nurse-led vascular care might be effective in a large population that is not sufficiently covered by primary care. In addition, a previous study² showed cost effectiveness of