

	Gestational age at maternal viral infection (weeks)	Gestational age at first ultrasonography anomalies (weeks)	Gestational age at diagnosis of fetal microcephaly (weeks)	Neuroimagery findings		
				Gestational age (weeks)	MRI	Anomalies
Case 1	9 <sup>3</sup>	25 <sup>6</sup>	30 <sup>1</sup>	28 <sup>4</sup>	Yes	Ventricular dilatation Thin corpus callosum
Case 2	8	22	22	25	Yes	Microcephaly Absent corpus callosum Abnormal gyration Cerebral calcifications
Case 3	Unknown	29 <sup>2</sup>	29 <sup>2</sup>	30 <sup>1</sup>	Yes	Microcephaly Absent corpus callosum Ventricular dilatation Abnormal gyration Vermian hypoplasia
Case 4	12	21	21	Unknown	No	Microcephaly Absent corpus callosum Ventricular dilatation Vermian agenesis Abnormal gyration Intrauterine growth restriction

Table: Fetal imagery findings in cases of proven congenital Zika infection



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are presented in the table. Microcephaly (head circumference less than the third centile) was constant, but was observed after 28 weeks of gestation in two cases. In case 1, ventriculomegaly was present at the second trimester routine scan. In case 3, the first scan was done at 29<sup>2</sup> weeks of gestation. Severe abnormalities of midline structures and the cerebellum as well as abnormal gyration were observed, which could reflect an early embryologic hit of the developing brain. A common maternal viral history during the first trimester of pregnancy was reported in three of four cases.

Only two observations of severe fetal brain damage were reported in the Brazilian population in January, 2016.<sup>5</sup> Our population-based experience should raise awareness regarding the fetal risks of Zika maternofetal infection. It is likely that the true incidence of severe forms of fetal infection has been underestimated in our Polynesian population as we were unable to test all cases retrospectively.

Because of the potential severity of fetal lesions, fetal neurosonography should be considered from the second trimester in cases of maternal proven

Zika virus infection, to detect subtle cerebral anomalies that might precede the onset of microcephaly. As we do not know the natural history of Zika virus fetal congenital infection, repeated ultrasonography should be considered.

We declare no competing interests.

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## Aedes aegypti control in Brazil

On Nov 12, 2015, faced with the increased incidence of cases of microcephaly and the possible association with Zika virus, the Ministry of Health in Brazil declared a public health emergency. On Dec 5, the Brazilian Government decided that measures should be aggressively implemented to reduce the risk of exposure to Zika virus by eliminating the vector mosquito *Aedes aegypti*.

The strategy to eliminate the mosquito is based on pesticides (insecticides and larvicides) that have been applied since the dengue outbreak in 1986.<sup>1</sup> Nevertheless, the results have been very disappointing. The incidence of registered dengue cases has increased, and in 2015 there were 1.6 million cases with 863 deaths (figure).<sup>1</sup> Different insecticides (organophosphates and pyrethroids) and larvicides (organophosphates and growth regulators) have been successively used as a result of growing vector resistance.<sup>2</sup> Insecticide resistance is an example of evolutionary change, where the insecticide acts as a powerful selection factor that concentrates resistant mutants that were present in low frequencies in the original population.<sup>3</sup>

Despite these negative results, the Ministry of Health in Brazil has intensified the same strategy to face the epidemics of Zika and chikungunya, by mobilisation of the armed forces to survey households, addition of larvicide to water supplies, and by the use of

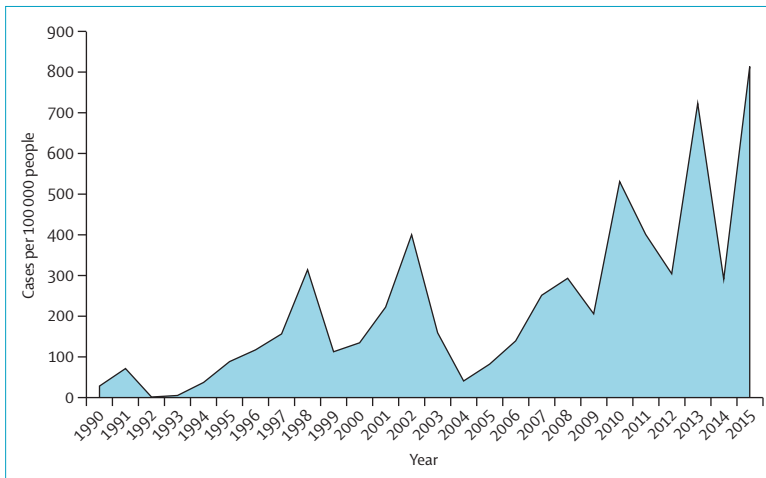


Figure: Incidence of dengue cases in Brazil from 1990 to 2015  
Data from Ministry of Health, Brazil.<sup>1</sup>

thermonebulisation as an attempt to control the adult vector; despite serious concerns regarding Malathion.<sup>4</sup>

The Revolving Fund for Strategic Public Health Supplies in the Pan American Health Organization has prioritised the purchase of pesticides. The prescribed model of implementation is centralised, vertical, and does not consider the steep social gradient where clusters of microcephaly areis found in poor outskirts of cities, where sanitary conditions are bad. Although official data point out that 92% of urban households in Brazil were connected to public water in 2010, there are 3 983 329 unserved households,<sup>5</sup> and intermittent water supply, forcing the population to store water for everyday consumption, and favouring mosquito breeding. And only 28% of rural households are connected to public water.<sup>5</sup>

The approach applied so far by the Government uses large resources on inefficient or unsafe vector control methods, instead of improving urban infrastructure and environmental sanitation, with a stable supply of potable water. Relying on a chemical war against the vector tends to pacify the population with false security, while a broad programme for better sanitary urban conditions could generate social mobilisation and

co-responsibility of the population. Improvement of sanitary conditions is a long-term investment in population health, while pesticide use will have to be repeated. The Brazilian Association of Collective Health calls to stop the use of chemical products against *A aegypti*, especially in household water reservoirs, and prioritise sanitary measures.

We declare no competing interests.

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## Time to recognise countries' preferences in HIV control

While *The Lancet* stated that the new WHO antiretroviral therapy (ART) guidelines are ambitious,<sup>1</sup> Granich and Williams (Jan 2, p 27) called for the implementation of a “test-and-treat strategy” to achieve the goals of the 90-90-90 target and epidemic control.<sup>2</sup> They stated that this strategy fits within the global budget and implied that countries' HIV budgets should be first and foremost spent on putting all individuals with HIV on ART. However, their suggestions overlooked HIV control preferences at the country level, where goals other than epidemic control might also be considered important.

In 2013–14, we supported a provincial AIDS commission—consisting of a wide range of funding agencies and stakeholders—in Indonesia to define their 5 year HIV control strategy. Through an intensive deliberative process, the commission concluded that besides epidemic control, interventions for stigma reduction and mitigation were also important and should be implemented.<sup>3</sup>

We argue that the international debate on guidelines for HIV control should better reflect the context at the country level. The debate should acknowledge that countries may deviate from spending budgets on the test-and-treat approach for their