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there is long-standing evidence for this intentional, unprovoked violence.³ The assault might fulfil certain psychological needs for the assailant, despite the random victim selection.⁴ There is additional concern that some attacks are targeted hate crimes, which has prompted community leaders and anti-crime groups to convene and discuss comprehensive mitigation strategies.⁵ Public awareness of the knockout game and further understanding of assailants' motives are crucial to prevent future assaults, injuries, and deaths.

We declare that we have no conflicts of interest.

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See Online for appendix

- 1 Davis GG, Glass JM. Case report of sudden death after a blow to the back of the neck. *Am J Forensic Med Pathol* 2001; **22**: 13–18.
- 2 Centers for Disease Control and Prevention. National Violent Death Reporting System. <http://wisqars.cdc.gov:8080/nvdrs/nvdrsDisplay.jsp> (accessed Nov 24, 2013).
- 3 Rogers T. MIT student's death attributed to violent "knockout" game. *The Day* (New London), Sept 9, 1992: 3. <http://news.google.com/newspapers?nid=SrsqWtBqNIQC&dat=19920923&printsec=frontpage&hl=en> (accessed Nov 24, 2013).
- 4 Sohn L. Unprovoked assaults—making sense of apparently random violence. *Int J Psychoanal* 1995; **76**: 565–75.
- 5 Buckley C. Police unsure if random attacks are rising threat or urban myth. *New York Times* (New York), Nov 22, 2013. <http://www.nytimes.com/2013/11/23/nyregion/knockout-game-a-spreading-menace-or-a-myth.html> (accessed Nov 24, 2013).



Chikungunya in the Americas

See Editorial page 488

Chikungunya is an arthropod-borne disease transmitted by aedes mosquitoes, characterised by febrile arthralgia and responsible for devastating outbreaks. No licensed

vaccine or specific treatment is currently available. Since 2005, the East Central South African (ECSA) genotype of chikungunya virus (genus Alphavirus, family Togaviridae) has been responsible for more than 1 million human cases in the Indian Ocean islands, the Indian subcontinent, southeast Asia, and Africa, and some autochthonous cases in Europe.¹ The virus, previously thought to be transmitted by *Aedes aegypti* mosquitoes, has repeatedly been associated with a new vector, *Aedes albopictus*. This vector change represents a unique example of evolutionary convergence: in independent instances the virus acquired an adaptive mutation in its envelope gene that favoured replication in *A albopictus*.^{2,3}

On Dec 5, 2013, the French National Reference Centre for arboviruses confirmed autochthonous chikungunya cases on Saint Martin Island, French West Indies (appendix). On Dec 20, about 50 confirmed cases were reported with additional evidence for autochthonous transmission on Martinique island. In January, 2014, autochthonous cases have been reported also from Guadeloupe, Saint Barthelemy, Dominica, and the British Virgin Islands.

A aegypti is the unique potential vector locally. The full-length viral RNA genome was characterised directly from the serum of two viraemic patients using next-generation sequencing methods. The virus does not belong to the ECSA genotype but to the Asian genotype, identified in late 1950s in southeast Asian countries. It is phylogenetically related to strains recently identified in Asia (in Indonesia in 2007, in China in 2012, and in the Philippines in 2013), most of them sharing a specific four-aminoacid deletion in the NSP3 gene.⁴ The virus is only distantly related to the Asian genotype virus that recently

circulated in New Caledonia, which harbours different aminoacid deletion in the NSP3 gene.

This episode represents the first evidence for the emergence of autochthonous chikungunya cases in the Americas. It is likely that the chikungunya epidemic will extend to other Caribbean islands, and it also has substantial potential for spreading from this region visited yearly by millions of tourists to the American mainland where *A aegypti* is endemic. Assuming that this strain will be transmitted efficiently by *A albopictus* mosquitoes, its persistence in the Caribbean would also represent, as a consequence of seasonal synchronicity,⁵ a great threat for southern European countries where the mosquito has recently dispersed. This situation warrants reinforced epidemiological surveillance and specific preparedness.

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- 1 Thiberville SD, Moyer N, Dupuis-Maguiraga L, et al. Chikungunya fever: epidemiology, clinical syndrome, pathogenesis and therapy. *Antiviral Res* 2013; **99**: 345–70.
- 2 de Lamballerie X, Leroy E, Charrel RN, Ttsetsarkin K, Higgs S, Gould EA. Chikungunya virus adapts to tiger mosquito via evolutionary convergence: a sign of things to come? *Viral J* 2008; **5**: 33.
- 3 Schuffenecker I, Itemam I, Michault A, et al. Genome microevolution of chikungunya viruses causing the Indian Ocean outbreak. *PLoS Med* 2006; **3**: e263.
- 4 Huang JH, Yang CF, Su CL, et al. Imported chikungunya virus strains, Taiwan, 2006–2009. *Emerg Infect Dis* 2009; **15**: 1854–56.
- 5 Charrel RN, de Lamballerie X. Chikungunya virus in north-eastern Italy: a consequence of seasonal synchronicity. *Euro Surveill* 2008; **13**: 8003.