



# MIT Open Access Articles

## *Wind: a neglected factor in the spread of infectious diseases – Authors' reply*

The MIT Faculty has made this article openly available. **Please share** how this access benefits you. Your story matters.

<b>Citation</b>	Endo, Noriko, and Elfatih A B Eltahir. "Wind: a Neglected Factor in the Spread of Infectious Diseases – Authors' Reply." The Lancet Planetary Health 2, no. 11 (November 2018): e476.
<b>As Published</b>	<a href="http://dx.doi.org/10.1016/S2542-5196(18)30229-8">http://dx.doi.org/10.1016/S2542-5196(18)30229-8</a>
<b>Publisher</b>	Elsevier
<b>Version</b>	Final published version
<b>Citable link</b>	<a href="http://hdl.handle.net/1721.1/120535">http://hdl.handle.net/1721.1/120535</a>
<b>Terms of Use</b>	Creative Commons Attribution-NonCommercial-NoDerivs License
<b>Detailed Terms</b>	<a href="http://creativecommons.org/licenses/by-nc-nd/4.0/">http://creativecommons.org/licenses/by-nc-nd/4.0/</a>



## Wind: a neglected factor in the spread of infectious diseases

### Authors' reply

We thank Joel Ellwanger and José Chies for their Correspondence regarding our Article.<sup>3</sup> This Correspondence resonates with theirs and highlights a neglected approach in One Health from a larger perspective.

After unprecedented momentum and success in global malaria control in the first decade of 21st century, progress appears to have stalled.<sup>1</sup> The easier goals have been achieved, but the remaining challenges require more sustainable and substantial investment in health-related infrastructure in resource-limited countries.

Global malaria control has focused too much on management and not enough on prevention. This disparity has existed partly because the effort and the effectiveness of management are easier to quantify (eg, how much money was spent, how many bed nets were distributed, how many cases were reduced) than those of prevention. For example, if malaria prevalence remained low for 5 years under a malaria prevention programme, one might say that malaria had been successfully prevented owing to the prevention programme, but others might argue that the programme was useless and that the prevalence would have been low without it. One of the problems of the management approach is the necessity of a continuous, sustained program; once the program weakens, malaria resurges.<sup>2</sup> However, the prevention approach emphasises the improvement of the environment or health infrastructure so that the environmental transmission potential is reduced or the health-care system is improved in a long-lasting manner.

Our study<sup>3</sup> published in *The Lancet Planetary Health* (Sept 1, p e406–13) brings the importance of the prevention approach into light in the international arena of malaria control. Many dams are

being constructed in Africa, elevating the risk of malaria in the surrounding areas.<sup>4</sup> We argued that malaria can be prevented effectively around reservoirs if the locations of resettlement villages are selected carefully by considering local wind direction.<sup>3</sup> This malaria prevention approach through environmental control has been implemented successfully around the world,<sup>5</sup> but it has fallen out of favour after the advent chloroquine and DDT, shifting international attention to the management approach. The next step in moving forward with this proposed idea of locating resettlement villages on the basis of malaria prevention, and inform policy, would be to obtain more supporting evidence from the field. A coordinated research effort across fields and continents is encouraged to bring global malaria control into the next era of a sustainable malaria prevention approach.

We declare no competing interests.

\**Noriko Endo, Elfatih A B Eltahir*  
enori@mit.edu

Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA

Copyright 2018 © The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY-NC-ND 4.0 license.

- 1 WHO. World Malaria Report 2017. Geneva: World Health Organization, 2017.
- 2 Cohen JM, Smith DL, Cotter C, et al. Malaria resurgence: a systematic review and assessment of its causes. *Malar J* 2012; **11**: 122.
- 3 Endo N, Eltahir EAB. Prevention of malaria transmission around reservoirs: an observational and modelling study on the effect of wind direction and village location. *Lancet Planet Health* 2018; **2**: e406–13.
- 4 Kibret S, Lautze J, McCartney M, Wilson GG, Nhamo L. Malaria impact of large dams in sub-Saharan Africa: maps, estimates and predictions. *Malar J* 2015; **14**: 339.
- 5 Jobin W. Dams and diseases: ecological design and health impacts of large dams, canals and irrigation system. London: E & FN Spon Press, 1999.