

The Haitian cholera epidemic: is searching for its origin only a matter of scientific curiosity?

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In mid-October 2010, a cholera epidemic started in Haiti [1], for the first time for more than a century. Immediately, this cholera epidemic proved to be one of the most severe in recent history. Indeed, 2 months after its beginning, more than 150 000 cases and 3300 deaths have already been registered (http://www.mspp.gouv.ht/site/index.php?option=com_content&view=article&id=59&Itemid=1). In comparison, approximately 100 000 cases and 4000 deaths were reported during the Zimbabwean outbreak in 2008–2009, the most severe of the last decade [2].

Several hypotheses were ventured to explain the origin of the outbreak. An environmental hypothesis linked this emergence to climatic phenomenon in the context of internal displacements due to the earthquake. An increase in superficial water temperature due to the La Niña phenomenon would have promoted the growth of quiescent environmental *V. cholerae* bound to plankton of estuarine water in the Artibonite delta [3]. On the other hand, concerns about an importation from an endemic country were expressed from the first days, some suspecting United Nations (UN) Nepalese peacekeeping troops, recently settled in the centre of the country, and other non-governmental organizations (NGOs) [4]. This suspicion soon provoked distrust of humanitarian staff and social unrest, which peaked with Cap Haitian riots in mid-November. Whatever the origin of the cholera strain, earthquake-related damage to the deficient Haitian sanitary system worsened the situation [5]. Overall, various hypotheses could be ventured because epidemiological reports were vague and did not indicate precisely the starting point, the date and the initial method of transmission of the epidemic. Actually, there has been a marked reluctance among numerous field workers and scientists to implement field investigations able to determine the precise origin of the Haitian epidemics. Recently published editorials consider that this would even be detrimental as it could worsen social and political friction, divert workers from implementing an appropriate response, and so worsen the course of

the epidemic. Interest in how the outbreak originated was thereby considered as a 'scientific curiosity' for the future, unhelpful in combating the disease [6,7].

We disagree with this point of view, for at least four reasons. Firstly, the fight against cholera must be optimized by efficient epidemiological surveillance, reporting where and how many cases occur each day as precisely as possible since the first days of the outbreak. John Snow would never have demonstrated the role of the Broad Street water pump by using only raw cumulative numbers collected at a regional level [8]. Secondly, if an investigation demonstrates, or even suspects, that problems in detecting asymptomatic carriage, handling sewage or preserving water resources may have resulted in such an epidemic, referred institutions would be compelled to modify their procedures so that such a disaster could never happen again. Thirdly, knowing the origin of the Haitian epidemic is essential for the future. If cholera started from a quiescent reservoir, its elimination will not be achieved in Haiti for many years, if ever. Alternatively, if importation is confirmed, hope of elimination still remains. Fourthly, and most importantly, researching and telling the truth is essential to restore trust between populations and humanitarian staff. Currently, suspicions of deliberate introduction of the disease by NGOs or the UN are widespread in Haiti, as reported by the Red Cross [4]. Such rumours, associated with the frightening spreading of cholera, resulted in many acts of violence that actually worsened the situation, including assaults on aid actors and the lynching of people suspected of voluntarily spreading the disease. Overall, this suspicion makes it harder to achieve a good compliance with prevention campaigns and to make people get to health facilities earlier [4].

Lately, the importation hypothesis was reinforced by the results of strain sequencing, suggesting a South Asian origin in a single event [9], and by the notification of a cholera outbreak in late September in Kathmandu, Nepal [10]. Epidemiological investigations, including our own survey, which was leaked in early December, also sustain the imported hypoth-

esis, as they demonstrated that the first cases occurred in the Centre, next to a UN Nepalese camp and far from the Artibonite delta and camps of internally displaced persons. Interestingly, this scientific backing of the imported hypothesis did not provoke additional unrest, contrary to what some dreaded. Ongoing demonstrations are related to the current election process.

On 17 December the UN Secretary-General Ban-Ki-Moon finally called for an investigation, and a four-person scientific panel was announced on 6 January [11]. We support this being done. However, all experts who have worked on the subject should be included in the transparency, whatever the hypothesis they favour. Then, at last, everyone involved might be able to move on to other topics and ensure an accurate follow-up of the course of the outbreak to optimize the fight. It is not possible yet to assert whether cholera will become endemic in Haiti. However, if its exogenous origin is confirmed and if the current efforts toward improvement of water and sanitation are maintained, Haitians might not be doomed to live with cholera forever.

As a conclusion, we would like to point out that nobody would dare to claim the uselessness of the determination of the source of the outbreak if its location was Europe or the United States. Haitians deserve as well to know why, and how, thousands of them died.

Transparency Declaration

The authors have no conflicts of interest to declare.

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