

Challenges in the Last Mile of the Global Guinea Worm Eradication Program: A Systematic Review

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Abstract : Introduction Guinea Worm Disease (GWD), also known as dracunculiasis, is one of the oldest diseases in the history of mankind. Dracunculiasis is caused by a parasitic nematode, *Dracunculus medinensis*. Infection is acquired by drinking contaminated water with copepods containing infective Guinea Worm (GW) larvae. Almost one year after the infection, the worm usually emerges out through the skin on a lower, causing severe pain and disabilities. Although there is no effective drug or vaccine against the disease, the chain of transmission can be effectively prevented with simple and cost effective public health measures. Death due to dracunculiasis is very rare. However, it results in a wide range of physical, social and economic sequels. The disease is usually common in the rural, remote places of Sub-Saharan African countries among the marginalized societies. Currently, GWD is one of the neglected tropical diseases, which is on the verge of eradication. The global Guinea Worm Eradication Program (GWEP) was started in 1980. Since then, the program has achieved a tremendous success in reducing the global burden and number of GW case from 3.5 million to only 28 human cases at the end of 2018. However, it has recently been shown that not only humans can become infected, with a total of 1,105 animal infections have been reported at the end of 2018. Therefore, the objective of this study was to identify the existing challenges in the last mile of the GWEP in order To inform Policy makers and stakeholders on potential measures to finally achieve eradication. Method Systematic literature review on articles published from January 1, 2000 until May 30, 2019. Papers listed in Cochrane Library, Google Scholar, ProQuest PubMed and Web of Science databases were searched and reviewed. Results Twenty-five articles met inclusion criteria of the study and were selected for analysis. Hence, relevant data were extracted, grouped and descriptively analyzed. Results showed the main challenges complicating the last mile of global GWEP: 1. Unusual mode of transmission; 2. Rising animal Guinea Worm infection; 3. Suboptimal surveillance; 4. Insecurity; 5. Inaccessibility; 6. Inadequate safe water points; 7. Migration; 8. Poor case containment measures, 9. Ecological changes; and 10. New geographic foci of the disease. Conclusion This systematic review identified that most of the current challenges in the GWEP have been present since the start of the campaign. However, the recent change in epidemiological patterns and nature of GWD in the last remaining endemic countries illustrates a new twist in the global GWEP. Considering the complex nature of the current challenges, there seems to be a need for a more coordinated and multidisciplinary approach of GWD prevention and control measures in the last mile of the campaign. These new strategies would help to make history by eradicating dracunculiasis as the first ever parasitic disease.

Keywords : dracunculiasis, eradication program, guinea worm, last mile

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