



## Effect of well drilling on Buruli ulcer incidence in Benin: a case-control, quantitative survey

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## Background

Buruli ulcer is the third most common mycobacterial disease worldwide. The public health burden of this neglected tropical disease is large, particularly in poor areas of west and central Africa. The development of appropriate preventive strategies is hampered by an incomplete understanding of the epidemiology and transmission of the disease. We investigated the effect of the drilling of wells on Buruli ulcer incidence.

## Methods

In this case-control, quantitative survey, we obtained field data for Buruli ulcer incidence over a 10-year period from a specialised centre that collected data for the Ouémé and Plateau departments in Benin, and data for well drilling from the Ministry of Energy, Water and Mines in Benin. The coordinates of the wells drilled were obtained during site visits. A case-control study was then done to investigate the role of well water use in protecting against Buruli ulcer.

## Findings

We found a strong inverse correlation between the incidence of Buruli ulcer and the number of new wells drilled in the Bonou municipality ( $r^2=0.8818$ ). A case-control study (106 cases and 212 controls) showed that regular use of the water from the wells for washing, bathing, drinking, or cooking was protective against Buruli ulcer (adjusted odds ratio 0.1, 95% CI 0.04–0.44;  $p=0.0012$ ).

## Interpretation

This study opens up new possibilities for developing an effective yet affordable policy to fight the disease on a substantial geographical scale. Our study shows that providing access to protected water is an efficient and feasible way to reduce the incidence of Buruli ulcer.

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Résumé en anglais

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