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# University of Dayton, Ohio (url: <http://www.udayton.edu/index.php>)



## A 'Mysterious' Disease

**08.28.2008 | Research, Faculty, International, Science** The leading suspect in the spread of a disfiguring tropical skin disease that afflicts thousands in more than 30 countries may be off the hook, according to research by a team of American and African scientists.

The Buruli ulcer, which causes large lesions on the skin, is sometimes called the "mysterious disease" because its transmission is unknown. Recent laboratory studies, however, have implicated biting water bugs as carriers and likely transmitters of the disease.

But the mystery continues after a field study in Ghana, West Africa, produced no strong evidence to support this hypothesis. The research findings are published in the August issue of *Emerging Infectious Diseases*.

"Up until now, all of the experiments that implicated certain aquatic invertebrates as transmitters of the disease were done in the lab," said University of Dayton biology professor Eric Benbow, lead author of the report. "This study was the first to test this in the field in Ghana."

The results of the study do not prove that infection could never occur from biting water bugs, but they do suggest such an event would be rare, Benbow said.

"Although we still haven't determined how Buruli ulcer spreads, we are one step closer, and we can now focus our attention on other likely causes," he said.

Scientists do know the disease is caused by a bacterium — *Mycobacterium ulcerans* — and primarily afflicts children younger than 15 in Africa and the elderly in Australia. They also recognize a connection between the disease and bodies of water such as slow flowing rivers, ponds, swamps and lakes.

But concern about the growing spread of the Buruli ulcer since 1980, particularly in West Africa and Australia, has prompted serious investigation into its transmission, treatment and prevention. Benbow's research in Ghana is funded by a five-year, \$2-million grant from the National Institutes of Health and the National Science Foundation awarded to a collaborative group of universities that includes the University of Dayton, Michigan State University, Noguchi Memorial Institute for Medical Research at the University of Ghana and the University of Tennessee.

Earlier this year, Benbow published research in the *International Journal of Health Geographics* that found urbanization might reduce the likelihood of Buruli ulcer infection, potentially by providing access to protected water sources. Conversely, villages at low elevations and near forests are at higher risk.

Related to leprosy and tuberculosis, the Buruli ulcer often starts as a painless swelling in the skin, usually on the legs or arms. According to the World Health Organization, the disease progresses with no pain and fever, which may partly explain why those affected often do not seek prompt treatment. However, without treatment, massive ulcers can appear, and bones can be affected causing gross deformities. When lesions heal, scarring may cause restricted movement of limbs and other permanent disabilities.

According to the WHO, the disease is treatable with antibiotics and surgery, but its impact on the few health facilities in the affected areas is enormous. Hospital stays of more than three months per patient represent a huge loss in productivity for adults and loss of educational opportunities for children. And the long-term care of those disabled by the disease places an additional costly burden on affected families.

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