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## Newly discovered paediatric melioidosis in Mali: the tip of an African iceberg?

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### Introduction

Melioidosis is a tropical infectious disease with a wide clinical spectrum and high mortality that can be reduced substantially with specific antibiotic treatment. It is caused by the Gram-negative soil bacterium *Burkholderia pseudomallei*. Historically, the disease was thought to exist in the Southeast Asia and Pacific regions, with only sporadic and rare cases in Sub-Saharan Africa (SSA), mostly in travellers. Yet, a lack of microbiological capacity has been an important obstacle to establishing the true melioidosis burden in SSA. Here, we report the cases of melioidosis in children under 5 in Mali, where no melioidosis had been reported previously.

### Methods

Médecins Sans Frontières (MSF) maintains a paediatrics programme in Koutiala, Mali, for children under 5, including a high-quality clinical microbiology laboratory. Between 2018 and 2021, biochemical characteristics (API20NE) of isolated strains in Koutiala suggested the presence of *Burkholderia pseudomallei* in clinical samples. Isolated strains were transferred to Graz and characterised by TTSS1 PCR and whole-genome sequencing. Available clinical data on the course and outcome of confirmed melioidosis cases were retrospectively analysed from the hospital records.

### Ethics

This study was approved by the MSF Ethics Review Board and the Ethical Committee in the Ministry of Health in Bamako.

### Results

Ultimately, 31 cases of paediatric melioidosis cases were confirmed. 14 (45%) were aged 12 months or younger. *B. pseudomallei*-positive samples included 28 blood cultures, two pleural fluids, and one pus sample. Clinical data revealed that, of 19 patients with positive samples and with available outcome data, 12 (63%) had died. Most patients were diagnosed during the rainy season. Ten (83%) of 12 children with detailed data available had presented respiratory distress. Whole-genome sequencing of the 31 isolates revealed a high genetic diversity consistent with endemic countries.

### Conclusion

This is, to our knowledge, the largest cohort of melioidosis cases ever reported from SSA and the first cases reported in Mali. The exclusive diagnosis of melioidosis in children in our study is probably attributed to the patient population of our clinic in Koutiala. However, since melioidosis is generally considered to be a disease of the elderly, this finding warrants further investigation. Given much of SSA is environmentally suitable for the bacteria, it is possible that *B. pseudomallei* is endemic and more prevalent than expected. MSF and other microbiological laboratories in SSA should look for *B. pseudomallei* in clinical materials using readily available simple laboratory algorithms based on a particular resistance pattern of this pathogen, and observational studies should be done to learn more about melioidosis disease burden, age distribution, and clinical presentations in SSA.

### Conflicts of interest

All authors declare no competing interests.