



**HAL**  
open science

## Three New Cases of Melioidosis, Guadeloupe, French West Indies

Bénédicte Melot, Sylvaine Bastian, Eric Valade, Nathalie Dournon, Olivier Gorgé, Anne Le Fleche-Mateos, Charlotte Idier, Mireille Vernier, Elisabeth Fernandes, Bruno Hoen, et al.

► **To cite this version:**

Bénédicte Melot, Sylvaine Bastian, Eric Valade, Nathalie Dournon, Olivier Gorgé, et al.. Three New Cases of Melioidosis, Guadeloupe, French West Indies. *Emerging Infectious Diseases*, 2020, 26 (3), pp.617-619. 10.3201/eid2603.190718 . pasteur-02795082

**HAL Id: pasteur-02795082**

**<https://pasteur.hal.science/pasteur-02795082v1>**

Submitted on 5 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

- Mycobacterium tuberculosis* by identifying mutations in the 16S rRNA gene. *J Clin Microbiol*. 1998;36:1220–5.
7. Monot M, Honoré N, Garnier T, Zidane N, Sherafi D, Paniz-Mondolfi A, et al. Comparative genomic and phylogeographic analysis of *Mycobacterium leprae*. *Nat Genet*. 2009;41:1282–9. <https://doi.org/10.1038/ng.477>
  8. Weng X, Xing Y, Liu J, Wang Y, Ning Y, Li M, et al. Molecular, ethno-spatial epidemiology of leprosy in China: novel insights for tracing leprosy in endemic and non endemic provinces. *Infect Genet Evol*. 2013;14:361–8. <https://doi.org/10.1016/j.meegid.2012.12.009>
  9. Benjak A, Avanzi C, Singh P, Loiseau C, Girma S, Busso P, et al. Phylogenomics and antimicrobial resistance of the leprosy bacillus *Mycobacterium leprae*. *Nat Commun*. 2018; 9:352. <https://doi.org/10.1038/s41467-017-02576-z>

---

Address for correspondence: Arnab Pain, King Abdullah University of Science and Technology, BESE Division, Thuwal-Jeddah, 239556900, Saudi Arabia; email: [arnab.pain@kaust.edu.sa](mailto:arnab.pain@kaust.edu.sa)

---

## Three New Cases of Melioidosis, Guadeloupe, French West Indies

Bénédicte Melot, Sylvaine Bastian, Nathalie Dournon, Eric Valade, Olivier Gorgé, Anne Le Fleche, Charlotte Idier, Mireille Vernier, Elisabeth Fernandes, Bruno Hoen, Sébastien Breurec, Michel Carles

Author affiliations: University Hospital of Guadeloupe, Pointe-à-Pitre, France (B. Melot, S. Bastian, N. Dournon, C. Idier, B. Hoen, S. Breurec, M. Carles); Ecole du Val-de-Grâce, Paris, France (E. Valade); Aix Marseille University, Marseille, France (E. Valade, O. Gorgé); Institut Pasteur, Paris (A. Le Fleche); Hospital of Basse-Terre, Basse-Terre, France (M. Vernier, E. Fernandes); Pasteur Institute of Guadeloupe, Pointe-à-Pitre (S. Breurec); University of the French West Indies and French Guiana, Pointe-à-Pitre (B. Hoen, S. Breurec, M. Carles)

DOI: <https://doi.org/10.3201/eid2603.190718>

Melioidosis has been detected in the Caribbean, and an increasing number of cases has been reported in the past few decades, but only 2 cases were reported in Guadeloupe during the past 20 years. We describe 3 more cases that occurred during 2016–2017 and examine arguments for increasing endemicity.

Melioidosis, caused by the telluric gram-negative *Burkholderia pseudomallei*, is endemic in Southeast Asia and northern Australia (1) but may be underdiagnosed in other tropical regions (2). Increasing occurrences have been reported in the Caribbean during the past few decades among persons with no exposure to known endemic areas (3–5). Tropical environmental conditions and the presence of this bacterium in soil samples in the Caribbean support the plausibility of endemicity (3). We describe 3 new cases detected in Guadeloupe during 2016–2017.

Patient 1 was a 54-year-old man, receiving renal replacement therapy, with a history of hypertensive vascular nephropathy. He developed a pulmonary form of melioidosis in November 2016. Thoracoabdominal computed tomography (CT) scan showed bilateral nodular lesions. *B. pseudomallei* grew from bronchoalveolar lavage fluid obtained by fiberoptic bronchoscopy. Treatment with ceftazidime (6 g/d intravenously) was given for 2 weeks and switched to trimethoprim/sulfamethoxazole (TMP/SMX) (320/1,600 mg 2×/d orally) for 1 month, then changed to doxycycline because rash developed. The patient complied poorly with treatment; he died in March 2017 under unknown circumstances.

Patient 2 was a 66-year-old woman with a history of arterial hypertension and diabetes mellitus, a subcutaneous abscess in the prepubic area surgically treated without microbiological identification (June 2016), a lumbar hematoma (March 2017), and bacteremic obstructive pyelonephritis caused by *Escherichia coli* (April 2017). In April 2017, she developed a severe and disseminated form of melioidosis with pneumonia, bacteremia, and deep abscess. CT scan showed multiple pulmonary nodes consistent with hematogenous pneumonia, a deep abscess between kidney and psoas, and splenic emboli. *B. pseudomallei* was isolated from blood cultures performed at admission and from the abscess. The patient developed multiple complications: acute respiratory distress syndrome, systemic candidiasis, renal failure, hemodynamic failure, nonspecific encephalopathy, refractory septic shock related to catheter infection, and bacteremia caused by extended spectrum β-lactamase *Klebsiella pneumoniae*. In the intensive care unit, she was treated with ceftazidime (6 g/d for 24 d), then with meropenem (1 g 3×/d) plus TMP/SMX (320/1,600 mg 2×/d). Blood cultures grew *B. pseudomallei* until day 40. The patient died on day 60 from multiple organ failure.

Patient 3 was a 52-year-old man with a history of chronic alcoholism. He developed pneumonia in April 2017. Thoracic tomography showed an excavated condensation of the right middle lobe, right

lower infiltrates, and multiple right hilar nodes. Bronchoalveolar lavage fluid contained *B. pseudomallei*. Intravenous ceftazidime (2 g 3×/d) for 40 days followed by oral TMP/SMX (320/1,600 mg 2×/d) slowly improved the clinical status, but 1 month after starting oral antimicrobial drug therapy, he had a drug reaction that caused eosinophilia and systematic symptoms. He died a year later despite appropriate treatment.

All patients were born and had always lived in the western part of Guadeloupe and Les Saintes islands, the rainiest places in Guadeloupe (1,500–5,500 mm of rainfall per year in 2017 [Météo France, [http://www.meteofrance.gp/climat/pluies-annuelles/rr\\_an\\_guadeloupe](http://www.meteofrance.gp/climat/pluies-annuelles/rr_an_guadeloupe)]). The patients reported no travel history to endemic countries. All had a history of potential occupational or recreational exposure to *B. pseudomallei* (as farmers, gardeners) and predisposing risk factors, such as diabetes mellitus, chronic renal diseases, and alcoholism (1). The clinical manifestations of disease were classical, but all patients experienced severe side effects during their treatments, and the mortality rate was 100% (Table), which is much higher than in most series of reported cases, underlining the severity of this disease.

These 3 cases of melioidosis were identified over a 6-month period, in contrast with only 2 cases diagnosed and reported during the previous 20 years in Guadeloupe. The identification of the isolate from the first case was performed locally by the API-20NE system (bioMérieux, <https://www.biomerieux.com>)

and confirmed by matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry and by real-time PCR (6) at a reference laboratory in France. The isolates from the other cases were not identified correctly by the API-20NE system, as often described (7). However, after the first case, we were aware that a wrinkled colony-forming, oxidase-positive, gram-negative bacillus resistant to colistin and aminoglycosides could be *B. pseudomallei*. Thus, the strains were sent to the reference laboratory for confirmation. All the isolates were genotyped by multilocus sequence typing (8). They belonged to sequence type (ST) 92 (n = 2) and 95 (n = 1), 2 clones previously described in Central and South America and Caribbean islands: Brazil (ST92), Puerto Rico (ST95), Martinique, and Mexico (ST92 and ST95 in both areas) (9). This finding highlights the potential role of this region as a reservoir for these clones.

Our experience suggests that the incidence of *B. pseudomallei* infection is probably underestimated in the Caribbean because of inadequate diagnostic laboratory facilities and the lack of knowledge about melioidosis among physicians and microbiologists. The tropical climate in this region provides suitable conditions for bacterial survival, and elevated alcoholism and diabetes rates among Caribbean populations cause weakened immunity that could lead to increased infection risk (10). Therefore, investigation of soil samples should be undertaken to identify the most likely sources of human infection in this area.

**Table.** Main comparative data for 3 cases of melioidosis in Guadeloupe, French West Indies\*

Characteristic	Patient 1	Patient 2	Patient 3
Age, y	54	66	52
Sex	M	F	M
Place of birth	Guadeloupe	Guadeloupe	Guadeloupe
Place of residence	Bouillante	Deshales	Les Saintes
Rainfall, mm/y	2,500–3,000	1,500–2,000	1,500–2,000
Concurrent conditions	Chronic renal failure (vascular nephropathy)	Diabetes	Chronic alcohol intake
Possible means of inoculation	Gardening without gloves	Animals breeding, gardening without gloves	Animals breeding, gardening without shoes
Clinical presentation according to the Infectious Disease Association of Thailand†	1: Multifocal infection with bacteremia (45% of cases, 87% mortality)	3: Localized infection (42% of cases, 9% mortality)	3: Localized infection (42% of cases, 9% mortality)
Time from first clinical signs to death	11 mo	2 mo	16 mo
Organ involvement	Pneumonia	Disseminated (psoas abscess, lung abscesses, bacteremia)	Pneumonia
MLST	ST92	ST95	ST92
Treatment	Ceftazidime + TMP/SMX, then doxycycline; TMP/SMX discontinued due to rash	Ceftazidime, meropenem, TMP/SMX	Ceftazidime + TMP/SMX; TMP/SMX discontinued due to DRESS syndrome
Outcome	Death	Death	Death

\*DRESS, drug reaction with eosinophilia and systematic symptoms; MLST, multilocus sequence typing; ST, sequence type; TMP/SMX, trimethoprim/sulfamethoxazole.

†Punyagupta S. Melioidosis: review of 686 cases and presentation of a new clinical classification. In: Punyagupta S, Sirisanthana T, Stapatayavong B, eds. Melioidosis. Bangkok: Bangkok Medical; 1989:217–29; Leelarasamee A, Bovornkitti S. Melioidosis: review and update. Rev Infect Dis. 1989; 11:413–25.

## Acknowledgments

We acknowledge the Departments of Infectious Diseases and Tropical Medicine, Intensive Care Medicine, and Microbiology of Pointe-à-Pitre University Hospital; L'Institut de Recherche Biomédicale des Armées, Brétigny-sur-Orge, France; and Cellule d'Intervention Biologique d'Urgence, Paris, France, for their valuable collaboration in the medical care, investigation, and participation for each case report.

## About the Author

Dr. Melot is a medical doctor in infectious and tropical diseases at University Hospital of Guadeloupe, Pointe-à-Pitre, France, and holds a master's degree in public health and epidemiology. Her primary research interests include the study of tropical endemic infections.

## References

- Currie BJ, Ward L, Cheng AC. The epidemiology and clinical spectrum of melioidosis: 540 cases from the 20 year Darwin prospective study. *PLoS Negl Trop Dis*. 2010;4:e900. <https://doi.org/10.1371/journal.pntd.0000900>
- Limmathurotsakul D, Golding N, Dance DAB, Messina JP, Pigott DM, Moyes CL, et al. Predicted global distribution of *Burkholderia pseudomallei* and burden of melioidosis. *Nat Microbiol*. 2016;1:15008. <https://doi.org/10.1038/nmicrobiol.2015.8>
- Torres AG, Montufar FE, Gee JE, Hoffmaster AR, Elrod MG, Duarte-Valderrama C, et al. Melioidosis is in the Americas: a call to action for diagnosing and treating the disease. *Am J Trop Med Hyg*. 2018;99:563–4. <https://doi.org/10.4269/ajtmh.18-0418>
- Sanchez-Villamil JI, Torres AG. Melioidosis in Mexico, Central America, and the Caribbean. *Trop Med Infect Dis*. 2018;3:24. <https://doi.org/10.3390/tropicalmed3010024>
- Benoit TJ, Blaney DD, Doker TJ, Gee JE, Elrod MG, Rolim DB, et al. A review of melioidosis cases in the Americas. *Am J Trop Med Hyg*. 2015;93:1134–9. <https://doi.org/10.4269/ajtmh.15-0405>
- Thibault FM, Valade E, Vidal DR. Identification and discrimination of *Burkholderia pseudomallei*, *B. mallei*, and *B. thailandensis* by real-time PCR targeting type III secretion system genes. *J Clin Microbiol*. 2004;42:5871–4. <https://doi.org/10.1128/JCM.42.12.5871-5874.2004>
- Glass MB, Popovic T. Preliminary evaluation of the API 20NE and Rapid NF plus systems for rapid identification of *Burkholderia pseudomallei* and *B. mallei*. *J Clin Microbiol*. 2005;43:479–83. <https://doi.org/10.1128/JCM.43.1.479-483.2005>
- Godoy D, Randle G, Simpson AJ, Aanensen DM, Pitt TL, Kinoshita R, et al. Multilocus sequence typing and evolutionary relationships among the causative agents of melioidosis and glanders, *Burkholderia pseudomallei* and *Burkholderia mallei*. *J Clin Microbiol*. 2003;41:2068–79. <https://doi.org/10.1128/JCM.41.5.2068-2079.2003>
- Hall CM, Jaramillo S, Jimenez R, Stone NE, Centner H, Busch JD, et al. *Burkholderia pseudomallei*, the causative agent of melioidosis, is rare but ecologically established and widely dispersed in the environment in Puerto Rico. *PLoS Negl Trop Dis*. 2019;13:e0007727. <https://doi.org/10.1371/journal.pntd.0007727>
- Carrère P, Fagour C, Sportouch D, Gane-Troplent F, Hélène-Pelage J, Lang T, et al. Diabetes mellitus and obesity in the French Caribbean: a special vulnerability for women? *Women Health*. 2018;58:145–59. <https://doi.org/10.1080/03630242.2017.1282396>

Address for correspondence: Bénédicte Melot, Delocalized Centers for Prevention and Care, Hospital of Cayenne, Av des Flamboyants, Cayenne 97306, French Guiana; email: melotb@gmail.com

## Coccidioidomycosis Skin Testing in a Commercially Insured Population, United States, 2014–2017<sup>1</sup>

Kaitlin Benedict, Orion Z. McCotter, Brendan R. Jackson

Author affiliation: Centers for Disease Control and Prevention, Atlanta, Georgia, USA

DOI: <https://doi.org/10.3201/eid2603.190798>

Coccidioidomycosis skin testing appears to be uncommon, based on US health insurance claims data. Patient demographic features were consistent with the approval of the test for adults, but few patients had previous coccidioidomycosis diagnosis codes supporting its use for detecting delayed-type hypersensitivity in those with a history of pulmonary coccidioidomycosis.

Coccidioidal skin testing has been a valuable epidemiologic and clinical tool for estimating the prevalence of previous *Coccidioides* spp. exposure and monitoring treatment response (1–3). Such testing could also be useful for evaluating healthy persons' risk of developing coccidioidomycosis (3). The skin test became commercially available again in 2014 after more than a decade; it is approved for adults 18–64 of age who have a history of pulmonary coccidioidomycosis (3,4). However, little is known about its use

<sup>1</sup>This work was presented in part at the 63rd Annual Coccidioidomycosis Study Group Conference, Sacramento, California, USA, April 5–6, 2019.