Absence of *Burkholderia cepacia* from the Respiratory Tract of Non-Cystic Fibrosis Patients

Burkholderia cepacia is a recognized opportunistic pathogen in patients with cystic fibrosis (CF). Colonization is associated with underlying pulmonary disease, a sibling positive for *Burkholderia cepacia*, and recent hospitalization (1, 2). Occasionally, *Burkholderia cepacia* may be isolated from non-CF patients; during epidemics, a point source such as a medical device or contaminated disinfectants may be identified. It is unclear how prevalent *Burkholderia cepacia* is, however, in patients with underlying lung disease other than CF. *Burkholderia cepacia* was first isolated from Nottingham (UK) CF patients in 1991, and local isolates appear to be asaccharolytic variants (3). We studied the viability of *Burkholderia cepacia* in stored respiratory specimens and then screened selected non-CF patients to determine whether this bacterium was present locally.

Semi-quantitation of *Burkholderia cepacia* in sputum specimens from three CF patients known to be colonized was performed before and after 72 h of storage at 4°C using the surface count method. A further 17 specimens were assessed visually for growth before and after storage. The homogenized sputa were inoculated by streaking half of a selective agar plate containing ticarcillin 100 mg/l and polymyxin B 300,000 U/l (Mast Laboratories, UK). Consecutive sputum specimens from adult patients in Nottingham with chronic obstructive pulmonary disease (COPD) or bronchiectasis as well as sputa or tracheal aspirates from adult patients in two general ICUs were screened for *Burkholderia cepacia*. Prior to screening, all specimens had been processed according to routine methods to isolate respiratory pathogens. Specimens, which were classified by visual inspection, were screened for *Burkholderia cepacia* the day after receipt or after the weekend (approximately 72 h) and were stored at 4°C during the intervening period. Using a sterile swab, each undiluted sputum specimen was inoculated onto half of a selective agar plate, which was then incubated at 30°C for up to seven days and inspected daily. *Burkholderia cepacia* was identified by colonial morphology, oxidase reaction, and tests for the oxidation of glucose, lactose, maltose, mannitol, fructose, and rhamnose using an in-house rapid carbohydrate utilization test.

The counts of *Burkholderia cepacia* before and after cold storage were similar for the three specimens, i.e., 10^{4-5} cfu/ml. Visual comparison of growth from the remaining 17 specimens gave similar results. i.e. *Burkholderia cepacia* was present throughout the inoculum before and after storage. *Burkholderia cepacia* is usually isolated locally using standard methods (4), and storage at 4°C did not adversely affect isolation during this study. A total of 258 sputa from 188 patients were screened for *Burkholderia cepacia*. The mean age of the patients was 63.4 years (age range, 33–88 years). The majority of specimens were from hospitalized patients (88% COPD, 53% bronchiectasis, and 100% ICU patients). *Haemophilus influenzae* was the most common pathogen isolated from non-ICU patients, whereas *Pseudomonas aeruginosa* was the most frequently isolated

Table 1: Details of 258 sputum specimens screened for *Burkholderia cepacia*.

	No. (%)		
	COPD patients (n = 82)	Bronchiectasis patients (n = 80)	ICU patients (n = 96)
Quality of specimen			
Mucoid	23 (28)	9 (11)	17 (18)
Mucopurulent	53 (65)	63 (79)	73 (76)
Purulent	6 (7)	8 (10)	6 (6)
Culture results			
Positive	27 (33)	28 (35)	37 (39)
Negative	55 (67)	52 (65)	59 (61)
Bacteria isolated			
Haemophilus influenzae	7 (9)	10 (12)	1 (1)
Streptococcus pneumoniae	6 (7)	3 (4)	3 (3)
Pseudomonas aeruginosa	3 (4)	9 (11)	17 (18)
Other gram -negative bacilli	5 (6)	6 (8)	12 (13)
Other organisms	6 (7)	0	4 (4)
Burkholderia cepacia	0	0	0

COPD, chronic obstructive pulmonary disease; ICU, intensive care unit.

pathogen in ICU patients (Table 1). *Burkholderia cepacia* was not recovered from any of the screened sputa.

The absence of *Burkholderia cepacia* may be due to the absence of this organism, an insufficient number of patients studied, or a lack of sensitivity in the technique used to recover this organism. Repeat specimens taken from our group of patients over a prolonged period of time might have detected this bacterium. Cimolai et al. (5) isolated *Burkholderia cepacia* from ten of 106 (9%) specimens from CF patients using an enrichment broth that they advocate to improve recovery. Differences in the underlying lung pathology between CF and non-CF patients or the absence of a contaminating source may explain the failure to detect *Burkholderia cepacia* in our patients. *Burkholderia cepacia* was isolated from the tracheal aspirates of 38 ICU patients in France over a period of six weeks; most patients appeared to be colonized asymptomatically, the source eventually being confirmed as a ventilator temperature sensor (6). No such episodes have, however, occurred in Nottingham ICUs in recent years.

Patients with bronchiectasis most closely resemble those with cystic fibrosis, but other pathology may be important in the acquisition of *Burkholderia cepacia* by non-CF patients. *Burkholderia cepacia* was isolated with *Pseudomonas aeruginosa* in one of ten human immunodeficiency virus-positive patients with bronchiectasis (7). *Burkholderia cepacia* may be a pathogen in patients with chronic granulomatous disease, as this bacterium resists neutrophil-mediated nonoxidative bactericidal effects (8). Local immune defects such as impaired opsonization and defective neutrophil function (9), dissemination of *Burkholderia cepacia* by air to a limited extent, especially during regular physiotherapy (10), and close social contact may be important factors in CF patients. In conclusion, we have failed to isolate *Burkholderia cepacia* from Nottingham ICU patients or patients with chronic lung disease, nor have we detected possible secondary spread to other patients. Our results further emphasize the intriguing susceptibility of CF patients to this challenging opportunistic pathogen.

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Five Cases of Extraoral Infection Associated with *Eikenella corrodens*

Eikenella corrodens has generally been associated with infections of human bite wounds and infections of the head and neck (1, 2). Although the organism is present in the normal flora of the gastrointestinal tract, the genitourinary tract, and the oropharynx, only a few cases of extraoral infection have been described. These cases involved brain abscesses and blood, pulmonary, gynecological, and intra-abdominal infections (1–10). Some of the patients were immunocompromised (4) or had an underlying illness (1, 5), but, in most cases, oral manipulation or other mucosal damage had occurred (1, 3, 5). We report five