

Epidemiological, clinical and laboratory features of *Haemophilus parainfluenzae* and *Haemophilus influenzae* isolates from urogenital sites: a retrospective case series from 2019-2025

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Background:

Haemophilus influenzae and *Haemophilus parainfluenzae* are hypothesised urogenital pathogens, though high-quality evidence remains limited. We characterised the epidemiological, clinical, and laboratory features of urogenital *Haemophilus* species (*non-ducreyi*) isolates to determine their contribution to clinical presentations.

Methods:

We conducted a retrospective analysis of urogenital *Haemophilus* spp. isolates from patients at Melbourne Sexual Health Centre between 2019 and 2025. Descriptive statistics summarised key features and clinical outcomes. Differences in clinical and laboratory features between *H. influenzae* and *H. parainfluenzae* isolates were compared using the two-sided Fisher's exact tests.

Results:

Sixty-seven *Haemophilus* spp. isolates from 65 patients were included. Patients had a median age of 32 years (IQR 27-38), were predominantly male identifying (n=64, 95.5%), men who have sex with men (n=47, 70%), Australian born (n=37, 57.8%) and HIV negative (n=60, 90%). *H. parainfluenzae* was the predominant isolate (n=44, 66%) compared to *H. influenzae* (n=23, 34%). Excluding cases with urethral STI co-infection (n=12), the most common clinical presentations were urethritis (n=32, 63%) and epididymo-orchitis (n=7, 14%). There were 5 urine isolates, all *H. influenzae*, from men with suspected urinary tract infection (UTI). *H. parainfluenzae* was more commonly isolated in urethritis than *H. influenzae* (76% vs. 39%), while *H. influenzae* was more commonly isolated in epididymo-orchitis (28% vs. 6%). *H. parainfluenzae* exhibited significantly higher resistance (p-values <0.05) than *H. influenzae* against ciprofloxacin (n=33; 75% vs. n=2; 9%), ceftriaxone (n=16; 40% vs. n=0; 0%), and amoxicillin-clavulanate (n=19; 59% vs. n=3; 18%). Symptom improvement (88%) and resolution (69%) were high following initial doxycycline therapy for both isolates.

Conclusion:

Haemophilus spp. may uncommonly be associated with urogenital disease, however, causality requires further investigation. *H. parainfluenzae* demonstrated high levels of resistance to multiple antibiotics. Future case-control studies with bacterial load

quantification and test-of-cure following treatment are essential to define the significance of urogenital *Haemophilus* spp.

Disclosure of Interest Statement:

The authors declare no conflict of interest.