

ulation in Asia and Africa will contribute to a better understanding of the epidemiology of HEV, and developing of effective preventive measures.

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Prevalence of Carbapenem-resistant and Carbapenemase-Producing Enterobacterales in Healthcare and Community Settings in the United Kingdom: A Systematic Review and Meta-Analysis

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Introduction: Carbapenem-resistant Enterobacterales (CRE) and Carbapenemase-producing Enterobacterales (CPE) pose a growing threat in the UK, with increasing prevalence in recent years. CPE and CRE are associated with higher morbidity, mortality, and healthcare costs. This study aims to summarise the existing evidence on the prevalence of CRE/CPE across healthcare and community settings in the UK.

Methods: A systematic review was conducted across five major databases and two preprint websites up to February 14th, 2024. Records underwent assessment in Covidence for eligibility and relevant articles were identified, screened, and included. Metadata from selected studies were extracted and methodological quality was evaluated using an adapted Newcastle-Ottawa Scale. Pooled CRE/CPE prevalence rates with 95% confidence intervals were estimated using Der-Simonian-Laird's random-effects model ($p < 0.05$). Heterogeneity was assessed using χ^2 and I^2 , publication bias was evaluated using Egger's test and funnel plot, and sensitivity analyses were performed.

Results: Following the screening of 1,344 records, 32 studies were included, providing data on CRE/CPE prevalence, either in carriage or infection. In healthcare settings, the overall pooled prevalence of CRE and CPE was at 1.17% (95%CI 0.29%–2.51%; $I^2 = 99.70\%$; $n = 171,107$) and 1.06% (95%CI 0.59%–1.64%; $I^2 = 97.60\%$; $n = 263,833$), respectively. For CPE, a high pooled proportion was observed in healthcare carriage samples at 1.23% (95%CI: 0.68%–1.91%; $I^2 = 98.10\%$; $n = 262,524$) compared to infection samples at 0.03% (95%CI: 0.00%–0.37%; $I^2 = 0.00\%$; $n = 888$). Surveillance of CPE in healthcare facilities varied, with risk-based admission screening identifying a slightly higher CPE proportion of 1.27% (95%CI: 0.97%–1.60%; $I^2 = 67.30\%$; $n = 24,763$) compared to universal hospital screening at 0.82% (95%CI: 0.28%–1.65%; $I^2 = 97.90\%$; $n = 232,033$). In the community, only two studies reported CPE prevalence (0.11%; 95%CI: 0.00%–0.79%; $I^2 = 52.60\%$; $n = 2,630$) from carriage samples using point prevalence surveys, showing a relatively low prevalence. Most of the studies on CRE/CPE were England-specific ($n = 27/32$), including 10 in London.

Discussion: Despite high heterogeneity in the reported outcomes, the results showed consistency in the sensitivity analysis for the prevalence of both CRE and CPE. In healthcare settings, CPE was more prevalent in carriage samples, often for high-risk patients, while CRE/CPE prevalence in infection samples mirrored EuSCAPE-UK and UKHSA surveillance data. Limited community and species-level data for CPE available within the literature highlight significant gaps, particularly in the post-COVID-19 period. To mitigate the increasing prevalence of CRE/CPE, further research must be prioritised on standardized diagnostic and screening methods, exploring associated risk factors, and implement effective infection prevention and control measures.

Conclusion: This review provided an overview of the expected prevalence rates of CRE and CPE in different contexts, which can further support the national surveillance of CPE/CRE in the UK, enabling more targeted screening efforts for CRE/CPE detection.

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Prevalence of Latent Tuberculosis Infection among Children and Adolescents in St. Petersburg, Russia

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Introduction: In recent years, St. Petersburg has experienced a sustained decrease in tuberculosis morbidity. Considering this trend, the attention of the city's phthisiopulmonology service is increasingly focused on preventive measures. One such measure is the identification of individuals with latent tuberculosis infection (LTBI). The aim of this study was to assess the prevalence of LTBI among children and adolescents in St. Petersburg, Russia.

Methods: The study was conducted at the St. Petersburg City Tuberculosis Dispensary based on the annual reports of polyclinics on preventive examinations of children and adolescents.

Results: In 2023, 503,928 immunological tests with a recombinant tuberculosis allergen (RTA) were conducted in St. Petersburg. Positive tests were obtained in 1794 cases, with the proportion of individuals with LTBI accounting for 0.31% of the total number screened (192.0 per 100,000 population). Among the age of 8–14 years, the LTBI prevalence was 397.5 per 100,000 population, and among adolescents aged 15–17 years – 220.3 per 100,000 population.

In two administrative districts of St. Petersburg, the prevalence of LTBI was higher than the city average: in the first district it was 408.5 per 100,000 population (0.67% positive RTA tests), and in another district – 661.9 per 100,000 population (1.63% positive RTA tests). It is worth noting that the epidemiological situation regarding active tuberculosis disease (TB) in both districts is unfavorable: the TB incidence rate in the first district in 2023 was 19.3 per 100,000 population, in the second district, it was 18.4 per 100,000 population, while the city-wide TB incidence rate was 17.9 per 100,000 population.

At the same time, in districts of the city with low TB incidence rates, there is a low prevalence of LTBI among children and adolescents. For example, in one district with a low TB incidence (4.8 per 100,000 population), the LTBI prevalence among children and adolescents was 6.8 per 100,000 population, in another district, where TB incidence was 10.4 per 100,000 population, the LTBI prevalence was also lower at 55.8 per 100,000 population.