



# Urban Healthcare Antibiotic Resistance Evaluation Over Two Years in Johannesburg, South Africa: Patient Outcomes

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**Published:** 25 November 2011 | **Received:** 06 September 2011 | **Accepted:** 10 October 2011

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**DOI:** [10.5281/zenodo.18920327](https://doi.org/10.5281/zenodo.18920327)

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## Abstract

This study evaluates antibiotic resistance levels in urban healthcare facilities within Johannesburg, South Africa. A cross-sectional analysis was conducted using data from all patients treated at participating healthcare facilities. Antibiotic susceptibility testing followed the Kirby-Bauer method. Antibiotic resistance rates varied significantly, with a proportion exceeding 50% for certain bacterial strains in urban settings compared to rural areas. Urban healthcare environments contribute disproportionately to antibiotic-resistant bacteria, necessitating targeted interventions. Enhanced surveillance and infection control measures are recommended to mitigate the spread of antibiotic resistance. Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^{-1} p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** African urbanization, antibiotic resistance, cross-sectional study, healthcare access, Johannesburg, South Africa, public health intervention

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