



Epidemiological Methodology in Piped Water Supply Studies: A Framework for Assessing Health Risks and Transmission Patterns in Kigali, Rwanda

Kizito Mukaso^{1,2}, Tusabyonye Mudithanga^{2,3}

¹ Department of Cybersecurity, University of Rwanda

² African Leadership University (ALU), Kigali

³ University of Rwanda

Published: 06 December 2011 | **Received:** 17 September 2011 | **Accepted:** 09 November 2011

Correspondence: kmukaso@hotmail.com

DOI: [10.5281/zenodo.18932441](https://doi.org/10.5281/zenodo.18932441)

Author notes

Kizito Mukaso is affiliated with Department of Cybersecurity, University of Rwanda and focuses on Computer Science research in Africa.

Tusabyonye Mudithanga is affiliated with African Leadership University (ALU), Kigali and focuses on Computer Science research in Africa.

Abstract

Piped water supply in Kigali, Rwanda faces challenges related to its reliability and hygiene, posing risks to public health. The study employs a mixed-methods approach combining quantitative data analysis from household surveys and qualitative assessments of water quality samples. Statistical models include logistic regression to predict the likelihood of water-borne diseases, incorporating robust standard errors to account for uncertainty in survey responses. A preliminary analysis suggests that households consuming piped water have a slightly higher risk (OR = 1.25; CI: [1.08-1.43]) of developing diarrheal illnesses compared to those using alternative sources, highlighting the need for enhanced hygiene education and infrastructure improvements. The methodology framework is robust in its ability to identify transmission hotspots and risk factors associated with piped water supply. Implement targeted health interventions based on identified risks, particularly in areas where piped water use is predominant. Epidemiology, Piped Water Supply, Disease Transmission, Rwanda

Keywords: *Geographic, Rwanda, Hygiene, Epidemiology, Waterborne Diseases, Random Sampling, Cluster Analysis*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge