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Visual Risk Stratification of Antibiotic Efficacy as a Predictor of Amputation Risk in Diabetic Foot Infection Management

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Abstract: Diabetic foot infections (DFIs) are a major cause of morbidity and lower-limb amputations among individuals with diabetes mellitus. Inappropriate empirical antibiotic use contributes to treatment failure and elevated amputation risk. This observational study, conducted across six hospitals in Khyber Pakhtunkhwa (KP), Pakistan, involved 341 patients with clinically diagnosed DFIs. The objectives were to evaluate antibiotic efficacy, treatment outcomes, and risk factors for amputation, and to develop a visual risk stratification model correlating antibiotic response with amputation risk. The cohort exhibited a significant male predominance (64.5%, $p = 0.003$), with the highest prevalence among patients aged 41–50 years (36.7%). Most participants were insulin-independent (92.7%, $p < 0.0001$). Infection severity was mild in 28.7%, moderate in 47.8%, and severe in 23.5% of cases. Clinical outcomes included complete recovery (39.3%), improvement (31.7%), progression (19.9%), and amputation (9.1%). High-efficacy antibiotics included Levofloxacin (Levaquin, 100%), Colistin (100%), and Linezolid (Zyvox, 86.6%), whereas Ceftriaxone (Cefzone, 33.3%), Ampicillin/Sulbactam (Penro, 38.3%), and Clindamycin (Cleocin HCl, 26.6%) demonstrated limited therapeutic benefit. The visual stratification model showed that exposure to low-efficacy antibiotics significantly increased amputation risk. Logistic regression identified severe baseline infection (odds ratio (OR) ≈ 3.2), poor glycemic control (OR ≈ 1.9), and treatment with low-efficacy antibiotics (OR ≈ 2.8) as independent predictors of unfavorable outcomes. This study highlights the need for region-specific antibiotic stewardship, continuous resistance surveillance, and evidence-based treatment protocols. The proposed visual model offers a practical framework for guiding empirical therapy and reducing amputation rates in DFI management.

Keywords: Diabetic foot infection; Antibiotic efficacy; Antimicrobial resistance; Risk stratification; Amputation; Khyber Pakhtunkhwa

1. Introduction

Diabetes mellitus is a major health problem and clinical syndrome characterized by dysfunction of insulin action or secretion (Cousin et al., 2022). It affects approximately 220 million people globally, and the number of diabetic patients in Pakistan is projected to increase from 4.3 million in 1995 to 14.5 million by 2025 (Centers for Disease Control & Prevention, 2020). Being immunocompromised, diabetic patients are more susceptible to bacterial infections, particularly foot infections, which are among the most common complications. These infections often involve bacteria that exhibit antibiotic resistance. Among them, very few show resistance to most of the antibiotics like *Pseudomonas* and *Acinetobacter* species. *Staphylococcus aureus*, a resistant strain, accounts for 10–15% of wound flora (Ajigbewu et al., 2025; Kyriakidis et al., 2021; Tong et al., 2015). These multi-drug resistant strain infections often lead to prolonged hospitalization (Gadepalli et al., 2006).

Diabetic patients' experiences reduce phagocytic activities by polymorphonuclear leukocytes due to compromised immunity, increasing their risk of infections. These infections include urinary tract infections (UTIs), respiratory tract infections (RTIs), surgical site infections (SSIs) and the more prevalent DFIs (Lipsky et al., 2006). DFIs can result from skin abrasion, allowing microbes to grow in deeper tissue and spread infections (Singh et al., 2023).

The associated risk factors for DFIs include Charcot foot deformity, ischemia, vasculopathy, neuropathy and necrosis (Lavery et al., 2006). The pattern of treatment and prescription of anti-microbial drugs depends on the type and severity of infections. Diabetic patients with mild infections are treated with narrow-spectrum oral antibiotics for 1–2 weeks. Anti-microbial drugs commonly used for mild infections include cephalexin, levofloxacin, and amoxicillin/clavulanic acid. Patients with severe infections are treated with broad-spectrum antibiotics, either orally or parenterally (Lipsky et al., 2006; Moya-Salazar et al., 2023). Broad-spectrum anti-microbial drugs include meropenem, piperacillin/tazobactam and doripenem. Trimethoprim/sulfamethoxazole, clindamycin, and doxycycline are recommended for methicillin-resistant *Staphylococcus aureus* (MRSA). Broad-spectrum antibiotics have shown effectiveness against *Pseudomonas aeruginosa* and other bacterial isolates associated with DFIs (Lipsky et al., 2006; Kwon & Armstrong, 2018).

2. Methodology

2.1 Study Design and Ethical Approval

This prospective observational study was conducted to evaluate the efficacy of empiric antibiotic therapies in DFIs and to develop a visual risk stratification model correlating antibiotic response with potential amputation risk. Ethical approval was obtained from the Postgraduate Medical Institute (PGMI), Hayatabad Peshawar. Additional institutional permissions were granted by the medical directors, deputy medical superintendents (DMS), heads of endocrinology wards, and heads of microbiology sections across participating hospitals. Written informed consent was obtained from all patients in accordance with ethical standards for research involving human participants.

2.2 Study Population and Sampling

The study was carried out over a three-month period across six major tertiary care and district hospitals in KP, Pakistan:

- Hayatabad Medical Complex (HMC) / Medical Teaching Institute
- Lady Reading Hospital / Medical Teaching Institute
- Khyber Teaching Hospital
- Saidu Group of Teaching Hospital (SGTH) / Medical Teaching Institute
- Ayub Teaching Hospital / Medical Teaching Institute
- District Headquarter Hospital (DHQ), Timergara (Dir Lower)

Eligible participants were adult diabetic patients (aged ≥ 18 years) presenting with clinically diagnosed foot infections. Patients with infections at anatomical sites other than the foot were excluded. Sample size was calculated using Cochran's formula for estimating proportions in large populations. Assuming a DFI prevalence of 30%, a 95% confidence level ($Z = 1.96$), and a 5% margin of error, the minimum required sample size was 323. A total of 341 patients were enrolled, exceeding the minimum requirement to ensure adequate statistical power.

2.3 Data Collection, Clinical Follow-Up, and Baseline Variables

Each patient underwent three to four clinical assessments during the study period to monitor infection progression and treatment response. Data were collected using a structured case history form and included:

- Demographic characteristics (age, gender, and region)
- Severity of infection (classified as mild, moderate, or severe)
- Empiric antibiotics prescribed and route of administration (oral or intravenous)
- Clinical outcomes categorized as:
  - Cured: complete resolution of infection
  - Improved: partial resolution without deterioration
  - Progressed: worsening of infection or need for surgical intervention
  - Amputated: minor or major limb amputation

To account for potential confounding factors, baseline clinical and biochemical parameters were recorded for all participants. These included duration of diabetes, glycated hemoglobin (HbA1c) levels, comorbidities (hypertension, ischemic heart disease, and chronic kidney disease), smoking status, peripheral vascular status (ankle-brachial index), and history of prior ulcers or amputations. These variables were incorporated into multivariate logistic regression models alongside antibiotic exposure and infection severity to identify independent predictors of poor outcomes. Adjustment for these covariates ensured that the visual risk stratification model reflected antibiotic-associated outcomes rather than patient heterogeneity.

2.4 Development of the Visual Risk Stratification Model

Antibiotic therapies were categorized based on aggregated efficacy (cured + improved) and non-efficacy (progressed + amputated) rates. A visual stratification model was constructed by plotting antibiotics on a two-dimensional efficacy versus non-efficacy axis. Antibiotics positioned in quadrants with high non-efficacy and amputation rates were designated as high-risk, while those with consistently favorable outcomes were classified as low-risk. This model served as a clinical proxy for identifying empiric therapies associated with limb preservation versus higher amputation risk. A two-dimensional visual risk stratification model was developed to compare the clinical efficacy of antibiotics used in DFIs. For each antibiotic, the *x*-axis represented the mean efficacy rate (%), while the *y*-axis represented the non-efficacy rate (%), both derived from patient response data.

Each antibiotic was plotted as a single point based on these two parameters. Quadrant boundaries were determined by the median values of efficacy and non-efficacy across all antibiotics tested, dividing the scatter plot into four distinct risk zones:

- **High-risk quadrant (upper left):** Low efficacy and high non-efficacy, indicating a greater likelihood of treatment failure.
- **Low-risk quadrant (lower right):** High efficacy and low non-efficacy, representing higher clinical reliability.
- **Moderate-risk quadrants (upper right and lower left):** Intermediate patterns reflecting variable or partial responses.

This model provides a clear visual framework for assessing and comparing antibiotics based on observed clinical performance, facilitating the identification of agents associated with higher or lower treatment risk.

Data were entered and analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were computed for all study variables. Categorical variables were expressed as frequencies and percentages, while continuous variables were summarized as means ± standard deviation (SD). The Chi-square test (x^2) or Fisher's exact test (where applicable) was used to assess associations between categorical variables such as sex, age group, diabetes type, and clinical outcomes. To identify independent predictors of poor outcomes (infection progression or amputation), binary logistic regression analysis was performed. Variables with $p < 0.10$ in univariate analysis were entered into the multivariate model to adjust for potential confounding effects. Results are reported as adjusted odds ratios (aOR) with corresponding 95% confidence intervals (CI). $p < 0.05$ was considered statistically significant.

3. Results

3.1 Study Population

A total of 341 patients with DFIs were enrolled, predominantly male (64.5%) compared to females (35.5%), a statistically significant difference ($p = 0.003$). The highest proportion of cases occurred in the 41–50 years age group (36.7%), followed by 51–60 years (27.3%), with age distribution showing strong significance ($p < 0.0001$). Most patients were insulin-independent (92.7%), while only 7.3% were insulin-dependent ($p < 0.0001$). The majority of cases were reported from HMC (59.5%). These findings indicate that DFIs are more prevalent among middle-aged, insulin-independent males, with a significant burden concentrated in major tertiary care centers (Table 1, Figure 1 and Figure 2).

Table 1. Demographic characteristics of patients with DFIs

Sex			***p* value**
Male	220	55.13%	≈ 0.003
Female	153	44.86%	
Age			***p* value**
Less than 30	18	05.27%	
31–40	55	16.12%	
41–50	125	36.65%	< 0.00001
51–60	93	27.27%	
More than 60	50	14.66%	
Types of Diabetes Mellitus			***p* value**
Insulin-dependent	25	07.33%	< 0.00001
Insulin-independent	316	92.66%	

3.2 Severity of Infection and Clinical Outcomes

Among 341 patients with DFIs, 39.3% achieved complete resolution, 31.7% showed partial improvement, 19.9%

experienced progression, and 9.1% required amputation. These findings emphasize the high risk of poor outcomes in advanced infections (Table 2 and Figure 3).

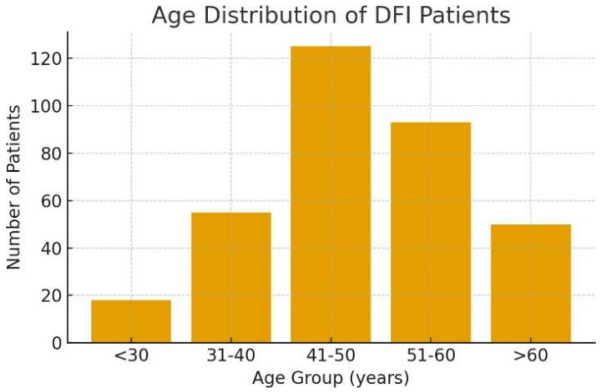

Figure 1. Age distribution

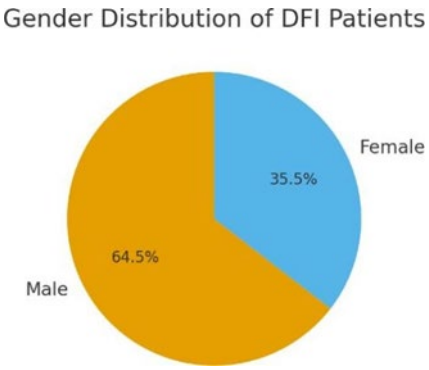

Figure 2. Gender distribution

Table 2. Clinical outcomes of patients with DFIs

Outcome	n (%)
Cured	134 (39.3)
Improved	108 (31.7)
Progressed	68 (19.9)
Amputation	31 (9.1)

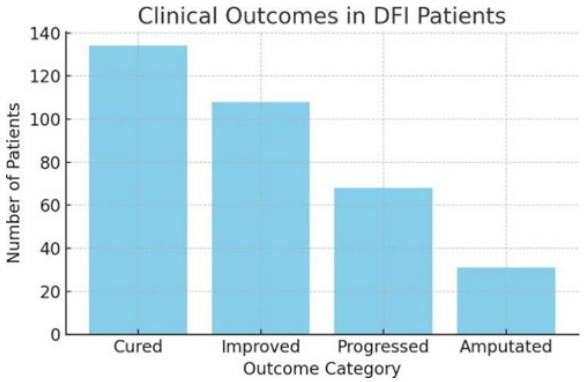

Figure 3. Clinical outcomes

3.3 Empiric Antibiotic Utilization

Table 3 outlines the empiric antibiotic utilization by route of administration in DFI patients. Most agents were given intravenously, consistent with moderate-to-severe infections. Penro was the only drug used intramuscularly,

while Moxiget and Avelox were exclusively oral. Calamox, Levaquin, and Cleocin HCl were prescribed in both oral and IV forms, and Fuzidin was the sole topical agent.

Table 3. Routes of antibiotic administration

No.	Trade Name	Route of Administration				No.	Trade Name	Route of Administration			
		IV	IM	Oral	Topical			IV	IM	Oral	Topical
1	Flagyl	*	-	*	-	12	Cefzone	*	-	-	-
2	Penro	*	*	-	-	13	Calamox	*	-	*	-
3	Grasil	*	-	-	-	14	Zyvox	*	-	-	-
4	Tanzo	*	-	-	-	15	Cleocin HCl	*	-	*	-
5	Augmentin	*	-	-	-	16	Colistin	*	-	-	-
6	Moxiget	-	-	*	-	17	Cipro	*	-	-	-
7	Cebac	*	-	-	-	18	Avelox	-	-	*	-
8	Meronem	*	-	-	-	19	Garamycin	*	-	-	-
9	Rocephin	*	-	-	-	20	Levaquin	*	-	*	-
10	Merocan	*	-	-	-	21	Cefsol	*	-	-	-
11	Fuzidin	-	-	-	*						

3.4 Bacterial Isolates and Antibiotic Susceptibility Patterns

Bacterial culture and antimicrobial susceptibility testing were performed on samples collected from DFI patients. The predominant isolates included *Enterobacter spp.*, *Proteus mirabilis*, *Pseudomonas aeruginosa*, *E. coli*, *Acinetobacter spp.*, *Klebsiella spp.*, *Streptococcus pyogenes*, and *Coliform spp.*

Antibiotic susceptibility results revealed variable resistance profiles among these isolates (Figure 4). Carbapenems (Meropenem and Imipenem) and aminoglycosides (Gentamicin and Amikacin) demonstrated the highest sensitivity across most Gram-negative isolates, while β-lactams (Co-Amoxiclav, Cefotaxime, and Cefazidime) exhibited extensive resistance, particularly among *Klebsiella* and *Acinetobacter* species. *Streptococcus pyogenes* showed high sensitivity to Linezolid and Vancomycin but resistance to macrolides and penicillin. These findings confirm the presence of multidrug-resistant (MDR) strains, underscoring the importance of culture-guided antibiotic selection in DFI management.

Antibiotic	Enterobacter spp.	Proteus mirabilis	P. aeruginosa	E. coli	Acinetobacter	Klebsiella	Strep. pyogenes	Coliform spp.
Gentamicin	S	I	S	S	R	S	R	R
Meropenem	S	S	S	S	R	S	-	S
Imipenem	S	S	S	S	R	S	-	S
Co-Amoxiclav	R	R	R	R	R	R	S	R
Ceftazidime	R	R	S	R	R	R	-	R
Cefalexin	R	R	R	-	R	R	-	R
Cefotaxime	R	R	R	R	R	R	-	R
Colistin	I	R	I	I	I	I	-	R
Ciprofloxacin	S	S	R	R	R	S	R	S
Tigecycline	I	S	R	S	R	I	-	S
Polymyxin-B	I	R	I	I	R	R	R	R
Amikacin	S	S	S	S	S	S	-	S
Minocycline	I	R	R	S	-	R	-	R
Fosfomycin	-	-	-	-	S	-	-	-
Linezolid	-	-	-	-	-	-	S	-
Teicoplanin	-	-	-	-	-	-	S	-
Fusidic acid	-	-	-	-	-	-	S	-
Vancomycin	-	-	-	-	-	-	S	-
Rifampicin	-	-	-	-	-	-	S	-
Penicillin	-	-	-	-	-	-	S	-
Doxycycline	-	-	-	-	-	-	S	-
Clindamycin	-	-	-	-	-	-	R	-
Erythromycin	-	-	-	-	-	-	R	-
Chloramphenicol	-	-	-	-	-	-	R	-
Nitrofurantoin	-	-	-	-	S	-	-	-
Cefoperazone/Sulbactam	S	S	S	S	R	S	-	R
Piperacillin + Tazobactam	S	S	S	S	R	S	-	S
Co-Trimoxazole	R	R	R	-	R	S	S	R

Figure 4. Antibiotic susceptibility patterns of bacterial isolates from DFI patients

3.5 Antibiotic Efficacy and Non-Efficacy Patterns

Table 4 and Figure 5 together demonstrate the variability in antibiotic efficacy among DFI patients. Augmentin was the most prescribed (72 cases) with 70.8% efficacy, while Levaquin and Zyvox achieved 100% efficacy. In contrast, Cefzone (33.3%), Penro (38.3%), and Grasil (48.5%) showed notably lower response rates. These patterns underscore the need for antibiotic selection guided by resistance data to improve treatment outcomes.

Table 4. Routes of antibiotic administration

Antibiotic	Prescriptions (n)	Efficacy (%)	Non-efficacy (%)
Augmentin	72	70.83	29.17
Penro	41	38.29	61.71
Grasil	33	48.48	51.52
Moxiget	28	64.29	35.71
Meropenem	21	57.14	42.86
Cefzone	18	33.33	66.67
Zyvox	12	100.00	0.00
Levaquin	9	100.00	0.00
Avelox	7	71.43	28.57
Fusidin	5	60.00	40.00

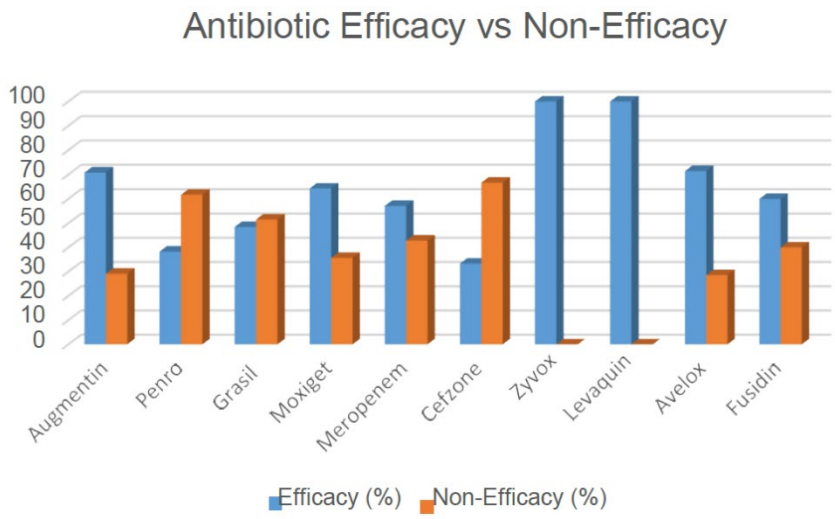

Figure 5. Antibiotic efficacy comparison

3.6 Visual Risk Stratification of Antibiotics

Figure 6 presents the visual risk stratification of antibiotics using a two-dimensional efficacy vs. non-efficacy model. Each point represents an antibiotic positioned according to its mean efficacy (*x*-axis) and non-efficacy (*y*-axis). Quadrant boundaries were defined using median values of both parameters, enabling the visualization of antibiotics with higher versus lower clinical reliability. Cleocin HCl, Abomox, and Rocephin clustered in the high-risk quadrant, indicating a greater likelihood of treatment failure, while Levaquin, Colistin, and Zyvox occupied the low-risk quadrant, reflecting favorable outcomes.

- **High-risk quadrant:** Cleocin HCl, Abomox, and Rocephin.
- **Low-risk quadrant:** Levaquin, Colistin, and Zyvox.

3.7 Predictors of Poor Outcomes (Progression or Amputation)

Table 5 shows that severe infection at baseline was the strongest predictor of poor outcomes in DFIs (aOR 3.2, 95% CI: 1.8–5.6, and $p < 0.01$). Use of low-efficacy antibiotics (aOR 2.8 and 95% CI: 1.4–4.9), poor glycemic control (HbA1c > 8.5%, aOR 1.9, and 95% CI: 1.1–3.2), and prior history of ulcer or amputation (aOR 2.3 and 95% CI: 1.2–4.1) were also significantly associated with unfavorable clinical outcomes.

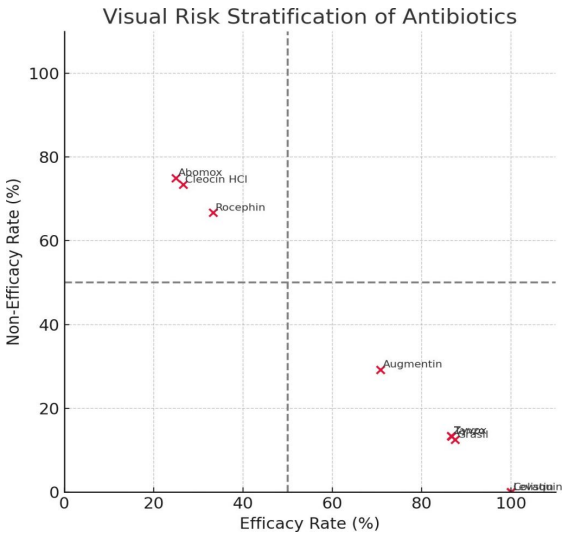

Figure 6. Antibiotic efficacy comparison

Table 5. Logistic regression predictors of poor outcomes in DFIs

Predictor	aOR	95% CI	*p* value
Severe infection at baseline	3.2	1.8–5.6	<0.01
Low-efficacy antibiotics	2.8	1.4–4.9	<0.05
HbA1c > 8.5%	1.9	1.1–3.2	<0.05
Prior ulcer/amputation	2.3	1.2–4.1	<0.05

4. Discussion

This study investigated the prevalence, treatment patterns, and antibiotic efficacy in patients with DFIs across hospitals in KP, with the largest cohort reported from HMC, Peshawar. The analysis focused on gender-based distribution, regional variation, and the therapeutic response to prescribed antibiotics.

4.1 Prevalence and Gender Distribution

The findings indicate that DFIs were more prevalent in males (58.5%) than females, consistent with earlier studies that have reported a male predominance in DFI cases (Abdissa et al., 2020). This disparity may be attributed to lifestyle-related risk factors, including higher rates of smoking, alcohol consumption, and increased physical exertion among males, which predispose them to foot trauma and subsequent infection (Senneville et al., 2023). Poor glycemic control, more commonly observed in men, may also increase susceptibility to infections and complications.

4.2 Regional and Hospital-Based Variations

A significant variation was observed across different districts of KP, with Peshawar reporting the highest prevalence of DFIs. This aligns with the city's high population density and greater concentration of healthcare facilities, which often result in more cases being diagnosed and managed (Mayfield et al., 1998). Socioeconomic disparities, healthcare accessibility, and awareness about diabetes management likely contribute to these regional variations (Hobizal & Wukich, 2012). The highest number of patients was treated at HMC, Peshawar, followed by SGTH and DHQ. In contrast, rural districts reported comparatively fewer cases, possibly reflecting limited diagnostic and treatment capacities in peripheral regions (Silva et al., 2018). Interestingly, certain districts, such as Charsadda and Mansehra, demonstrated a higher female-to-male ratio of cases, which may correspond to localized demographic or cultural patterns of diabetes prevalence, in line with observations from Sundarakumar et al. (2022).

4.3 Antibiotic Prescription and Efficacy

Augmentin was the most commonly prescribed antimicrobial agent, showing an efficacy of 70.8%, reinforcing its role as a first-line option in mild to moderate DFIs (Gariani et al., 2019). However, a notable proportion of

treatment failures highlights emerging resistance, a well-documented challenge in DFI management (Peter-Riesch, 2016). Other antibiotics prescribed included Penro, Grasil, Moxiget, and Meropenem, reflecting the polymicrobial nature of DFIs that often necessitate broad-spectrum coverage. Marked differences in antibiotic effectiveness were observed. Penro (38.3%) and Cefzone (33.3%) demonstrated low efficacy, underscoring the growing concern of resistance to widely used agents (Peter-Riesch, 2016). Conversely, Zyvox and Levaquin exhibited 100% efficacy, suggesting that these agents may serve as effective options in MDR and polymicrobial infections (Bouza, 2009). This finding emphasizes the critical importance of local resistance surveillance to guide empirical therapy.

4.4 Route of Antibiotic Administration

The preferred routes of administration were intravenous and intramuscular, particularly for severe infections requiring intensive management. This is consistent with earlier reports that antibiotics such as Penro, Grasil, and Meropenem are frequently administered intravenously in complicated DFI cases (Mougakou et al., 2023). In contrast, oral agents such as Moxiget and Avelox were prescribed for moderate infections, while topical agents like Fusidin were employed for localized wound management (Olid et al., 2015).

4.5 Antibiotic Stewardship and Clinical Implications

The high variability in antibiotic response highlights the urgent need for antibiotic stewardship programs to optimize prescription practices and prevent resistance development (MacDougall & Polk, 2005). The inefficacy of Cefzone and Penro further reinforces the necessity for continuous monitoring of local resistance trends. Moreover, the reliance on intravenous administration underscores the importance of hospital-based infection control practices to mitigate the risk of nosocomial infections and MDR spread.

Taken together, these findings emphasize the importance of developing **region-specific treatment guidelines** tailored to the resistance landscape of KP. Such protocols could ensure the rational use of antibiotics, minimize therapeutic failures, and ultimately improve patient outcomes in DFIs.

5. Conclusions

This study provides a comprehensive overview of DFIs in KP, revealing important epidemiological patterns, treatment practices, and antibiotic efficacy profiles. The findings demonstrate a clear male predominance in DFI cases, with regional variation reflecting differences in population density, healthcare access, and socioeconomic conditions. The heterogeneity in antibiotic response—ranging from 100% efficacy with Zyvox and Levaquin to poor outcomes with Penro and Cefzone—underscores the urgent challenge of antimicrobial resistance and the limitations of empiric prescribing practices. Despite these insights, several research gaps remain. First, the absence of microbiological confirmation and resistance profiling restricts the ability to directly link clinical outcomes to specific pathogens and resistance mechanisms. Second, the study's observational design captures short-term treatment outcomes but does not evaluate long-term recurrence, healing trajectories, or quality of life. Third, socioeconomic and behavioral determinants such as health-seeking behaviors, self-care practices, and glycemic control were not systematically assessed, though they likely influence infection severity and treatment outcomes.

From a public health perspective, these findings emphasize the critical need for region-specific antibiotic stewardship programs, continuous resistance surveillance, and standardized treatment guidelines tailored to local contexts. Furthermore, preventive strategies—including patient education, early screening, and community-level interventions for glycemic control—are essential to reduce the burden of DFIs and prevent progression to amputation. Looking forward, future research should:

- Conduct large-scale, multicenter studies integrating microbiological, molecular, and clinical data to better define pathogen-specific resistance patterns.
- Explore longitudinal outcomes to identify predictors of recurrence, chronicity, and amputation risk.
- Assess the role of novel therapies, including combination regimens, green-synthesized antimicrobials, and nanotechnology-based solutions, in managing MDR infections.
- Investigate socioeconomic and behavioral determinants to design context-appropriate interventions targeting high-risk populations.
- Collaborate with policymakers to establish evidence-based regional guidelines and strengthen healthcare infrastructure for diabetic care.

In conclusion, this study not only highlights current challenges in DFI management but also provides a roadmap for future research and public health action. Bridging these gaps through multidisciplinary efforts will be essential for reducing the risk of amputation, improving patient outcomes, and combating antimicrobial resistance in the region.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Appendix

Questionnaire for Visual Risk Stratification of Antibiotics in DFIs

Section A: Patient Demographics

1. Patient ID: _____
2. Age (years): _____
3. Gender: ☐ Male ☐ Female
4. Residence: ☐ Urban ☐ Rural
5. Hospital: ☐ HMC ☐ LRH ☐ KTH ☐ SGTH ☐ ATH ☐ DHQ Timergara

Section B: Diabetes & Clinical Background

6. Type of Diabetes: ☐ Insulin-dependent ☐ Insulin-independent
7. Duration of Diabetes (years): _____
8. History of Previous Foot Ulcer: ☐ Yes ☐ No
9. History of Amputation: ☐ Yes ☐ No

Section C: Infection Details

10. Severity of Infection: ☐ Mild ☐ Moderate ☐ Severe
11. Site of Infection: ☐ Forefoot ☐ Midfoot ☐ Hindfoot ☐ Multiple sites

Section D: Treatment Details

12. Empiric Antibiotic Prescribed: _____
13. Antibiotic Route: ☐ Oral ☐ Intravenous ☐ Intramuscular ☐ Topical
14. Was antibiotic changed during follow-up? ☐ Yes ☐ No

Section E: Clinical Outcomes (at follow-ups)

15. First Follow-up Outcome: ☐ Cured ☐ Improved ☐ Progressed ☐ Amputated
16. Second Follow-up Outcome: ☐ Cured ☐ Improved ☐ Progressed ☐ Amputated
17. Third Follow-up Outcome: ☐ Cured ☐ Improved ☐ Progressed ☐ Amputated
18. Final Outcome: ☐ Cured ☐ Improved ☐ Progressed ☐ Minor Amputation ☐ Major Amputation