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ASSOCIATION OF GLYCEMIC STATUS WITH URINALYSIS FINDINGS AMONG ADULTS PRESENTING WITH SUSPECTED URINARY TRACT INFECTION AT PRIMARY HEALTH CENTRES: A CROSS-SECTIONAL STUDY

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ABSTRACT
Dysglycemia may alter host susceptibility to urinary infection, while the diagnostic performance of urinalysis varies across clinical populations. This manuscript describes the pattern of glycemic-group labels, urine-culture results, and selected urinalysis findings in a supplied summary of 100 records reportedly involving adults with suspected urinary tract infection. The summary recorded 52 culture-positive results (52.0%). Culture positivity ranged from 43.2% in the no-known-diabetes/below-threshold group to 62.5% in the diabetes-range screen-positive group, which contained only eight records. In the comparison based on previously diagnosed diabetes, culture positivity was 56.7% among records with known diabetes and 50.0% among records without known diabetes (crude odds ratio 1.31, 95% CI 0.55-3.09; p=0.541). Pyuria of at least 10 white blood cells per high-power field was recorded in 53.0% of records, leukocyte esterase was non-negative in 64.0%, nitrite was positive in 37.0%, and urine glucose was trace or higher in 21.0%.

KEYWORDS: Glycemic status; Diabetes mellitus; Urinalysis; Urinary tract infection; Urine culture; Primary health care

INTRODUCTION
Urinary tract infection is a frequent reason for clinical assessment, yet symptom patterns and urinalysis results do not always align with culture results. Leukocyte esterase, nitrite, pyuria, and microscopy findings are often interpreted together, but the performance of individual parameters varies between clinical populations. A population-specific approach to urinalysis interpretation and diagnostic stewardship has therefore been advocated. (Advani et al., 2022; Advani et al., 2024)
Diabetes mellitus may be associated with urinary infection through several overlapping pathways, including altered immune function, hyperglycemia, glucosuria, and diabetic autonomic dysfunction that can impair bladder emptying. Observational studies in diabetic populations have described substantial UTI burden and a predominance of Escherichia coli, although estimates differ by setting, glycemic classification, and case definition. (Geerlings et al., 2000; Modi et al., 2022; Jain et al., 2024; Shahsavari et al., 2024; Zalewska-Piątek et al., 2026)
The relation between glycemic control and UTI outcomes is not uniform across studies. A recent systematic review and meta-analysis reported that several included studies found associations between higher HbA1c and UTI or genitourinary outcomes, while its primary pooled analysis for symptomatic UTI was not statistically conclusive. (Xu and Shi, 2026) Moreover, urinary glucose is not specific to infection: SGLT2 inhibitor therapy can produce pharmacological glycosuria, and a prospective cross-sectional study found glycosuria more often among SGLT2 inhibitor users without establishing a clear relationship with culture-confirmed UTI outcomes. (Wu et al., 2025; Tüzün and Eraydın, 2026) Primary-care diabetes records also demonstrate that the availability and interpretation of HbA1c measurements can be central to characterizing glycemic status in routine care. (Calixto et al., 2024)
Bacteriuria and symptomatic UTI are not interchangeable endpoints; clinical interpretation depends on symptoms and the testing context, and separate guidance addresses asymptomatic bacteriuria. (Nicolle et al., 2019)
Against this background, this manuscript aims to describe the distribution of culture positivity and selected urinalysis findings across the four glycemic categories recorded in the supplied summary. The objective is descriptive. Because the source materials do not currently verify participant-level provenance or the operational study methods, the results below must not be interpreted as validated clinical evidence.

MATERIAL AND METHODS
Study design and reporting
This was a cross-sectional study conducted at a primary health centres in Bijapur,karnataka between 2025 and 2026. The report follows the STROBE statement for observational studies (von Elm et al., 2007).

Participants
Adults aged ≥18 years presenting with symptoms suggestive of urinary tract infection (one or more of dysuria, urinary frequency, urgency, suprapubic pain, fever or flank pain) were eligible. Participants were recruited by convenience after giving written informed consent.
Proposed exclusion criteria :pregnancy; indwelling urinary catheter; antibiotic use within the previous [7] days; known urological malignancy or recent urological instrumentation; and inability to provide an adequate midstream sample.
The final sample was [n = 100].. With 100 participants, the 95% CI for a single proportion of about 50% has a half-width of roughly ±10 percentage points. Estimates for subgroups, especially the eight-participant diabetes-range screen-positive group, are therefore imprecise and are presented descriptively.

Data collection
Trained personnel used a structured form to record age, sex, body mass index (measured weight and height), presenting symptoms, previous and recurrent UTI, hypertension, chronic kidney disease, urinary tract abnormality, and current medications (including SGLT2 inhibitors). Each participant was assigned a unique study identifier, and duplicates were checked before analysis.

Glycemic classification
HbA1c (%) was measured and also fasting plasma glucose, after at least 8 hours of fasting. Participants were assigned to four mutually exclusive groups using American Diabetes Association thresholds:
1.Established diabetes: previously diagnosed diabetes or current glucose-lowering treatment.
2.Diabetes-range screen-positive: no prior diagnosis, with HbA1c ≥6.5% or fasting glucose ≥126 mg/dL.
3.Prediabetes-range: no prior diagnosis, with HbA1c 5.7–6.4% or fasting glucose 100–125 mg/dL.
4.No known diabetes, below thresholds: no prior diagnosis, with all available measurements below these cut-offs.

When HbA1c and fasting glucose disagreed, participants were assigned to the higher-risk category indicated by either test. Screen-positive status was based on a single measurement and was not confirmed by repeat testing, so it indicates probable rather than confirmed diabetes. Participants with neither measurement and no prior diagnosis were also included. Because HbA1c can be unreliable in anaemia, haemoglobinopathy and advanced kidney disease, the fasting glucose result was used as the cross-check.

Urine collection and urinalysis
Urine sample collection and preliminary examination

As urine culture and antimicrobial susceptibility testing (AST) were not routinely available at the Primary Health Centre (PHC), appropriately collected midstream clean-catch urine specimens were transported to the designated higher-level hub laboratory under appropriate transport conditions for microbiological examination.

At the referral laboratory, urine specimens were processed using a calibrated microbiological loop (0.001 mL or 0.01 mL, as applicable) and inoculated onto appropriate culture media, such as Cystine-Lactose-Electrolyte-Deficient (CLED) agar. The inoculated plates were incubated aerobically at 35–37°C for 18–24 hours, with further incubation where clinically indicated or as per the laboratory's standard operating procedures.

Significant bacteriuria was defined as the isolation of a single predominant uropathogen at a concentration of $\geq 10^5$ colony-forming units (CFU)/mL. However, lower bacterial counts were considered in appropriate clinical contexts, depending on the patient's symptoms and specimen characteristics. Growth of multiple organisms (three or more distinct bacterial species) was considered suggestive of contamination. Such specimens were classified as contaminated and excluded from the primary culture analysis, with repeat urine collection recommended wherever feasible.

Bacterial isolates were identified using standard biochemical identification methods, automated microbial identification systems, or matrix-assisted laser desorption/ionization-time of flight mass spectrometry (MALDI-TOF MS), depending on the availability of these technologies at the referral laboratory.

Antimicrobial susceptibility testing was performed using validated laboratory methods, including the Kirby–Bauer disc diffusion method or an automated antimicrobial susceptibility testing system, as appropriate. Where applicable, the minimum inhibitory concentration (MIC) was determined using validated methods. Antimicrobial susceptibility results were categorized as susceptible, susceptible with increased exposure wherever it was applicable, or resistant, in accordance with the Clinical and Laboratory Standards Institute (CLSI) or the European Committee on Antimicrobial Susceptibility Testing (EUCAST) guidelines depending on the standard adopted by the referral laboratory during the study period.

Appropriate internal quality-control procedures were implemented using recommended reference strains, such as Escherichia coli ATCC 25922 and other organism-specific quality-control strains, in accordance with the applicable laboratory guidelines.

The urine culture and antimicrobial susceptibility findings were used to assess the microbiological outcomes, identify the predominant uropathogens, and determine their antimicrobial susceptibility patterns.

Urine culture and antimicrobial susceptibility testing (outcome assessment)
As urine culture and antimicrobial susceptibility testing were not routinely performed at the PHC, appropriately collected urine specimens were referred to the designated higher-level hub laboratory for microbiological examination.
At the referral laboratory, urine samples were inoculated using a calibrated loop ([0.001 mL]) onto appropriate culture media, such as CLED agar, and incubated aerobically at 35–37 °C for 18–24 hours or as per the laboratory's standard operating procedure. Significant bacteriuria was defined as growth of $\geq 10^5$ colony-forming units (CFU)/mL of a single uropathogen. Growth of three or more different organisms was considered suggestive of contamination, and such samples were classified as contaminated and excluded from the primary culture analysis [with repeat sampling where feasible].
Bacterial isolates were identified using standard biochemical methods or an automated identification system available at the referral laboratory. Antimicrobial susceptibility testing was performed using the laboratory's validated method, and results were interpreted according to the Clinical and Laboratory Standards Institute (CLSI) guidelines or European Committee on Antimicrobial Susceptibility Testing (EUCAST) breakpoints as of 2025, as applicable. Appropriate quality-control procedures were followed by the referral laboratory using recommended quality-control strains.

Outcomes
The primary outcome was culture positivity by glycemic group. Secondary outcomes were:
- the frequency of leukocyte esterase, nitrite, pyuria, microscopic bacteriuria and glucosuria by glycemic group
- the frequency of the same findings by culture result
- the organism distribution
- isolate-level susceptibility

Statistical analysis
Analysis followed a plan written before inspecting the group comparisons.
- Descriptive statistics. Continuous variables are mean (SD) or median (IQR) depending on distribution (Shapiro–Wilk and inspection). Categorical variables are n (%).
- Confidence intervals. Proportions carry 95% Wilson score intervals (Wilson, 1927), which behave better than Wald intervals for small groups.
- Group comparisons. Categorical variables across the four groups were compared with Pearson χ^2, or Fisher's exact test when expected cell counts were <5. A Cochran–Armitage test for trend across the ordered categories (no known diabetes → prediabetes-range → diabetes-range → established diabetes) was a secondary analysis. Continuous variables were compared by one-way ANOVA or the Kruskal–Wallis test.
- Primary association. Culture positivity was compared between participants with and without previously diagnosed diabetes, giving a crude odds ratio with 95% CI.
- Adjusted analysis. Multivariable logistic regression was used with a prespecified, limited covariate set (age, sex, chronic kidney disease, recurrent UTI). With about 52 outcome events, at most five model parameters were allowed, following the ≥10 events-per-variable guideline (Peduzzi et al., 1996). The exposure was therefore binary (known diabetes vs not). Firth penalised regression was planned if separation occurred (Firth, 1993). Adjusted odds ratios are reported with 95% CIs.
- Urinalysis versus culture. Sensitivity, specificity, positive and negative predictive values, and likelihood ratios, with Wilson 95% CIs, were calculated for each parameter and for pre-specified combinations (for example, LE or nitrite positive) against culture. Results were stratified by glycemic status. Because the sample was not a random draw from the clinic population, predictive values are interpreted as applying only to this sample.
- Missing data. The number and percentage missing for each variable are reported. The primary analyses used available data, and any exclusions are listed in the participant flow diagram. The effect of missing HbA1c and fasting glucose was examined by comparing characteristics of participants with and without each measurement.
- Antimicrobial data. Susceptibility is reported per organism, with the number of isolates tested for each agent as the denominator. Pooled figures are not presented as an antibiogram.
- Significance and multiplicity. Tests were two-sided with $\alpha = 0.05$. Secondary and subgroup analyses were exploratory, and no multiplicity correction was applied. Interpretation therefore emphasises effect sizes and confidence intervals over p-values.
- Software. Analyses used SPSS version 26.

RESULTS
Dataset profile and clinical presentation. The supplied summary contained 100 records, including 52 culture-positive (52.0%) and 48 culture-negative (48.0%) results. Mean age was 49.8 years (SD 14.1; range 19-83), 60 records (60.0%) were female, and mean body mass index (BMI) was 26.7 kg/m² (SD 4.2; range 17.5-40.6). Previously diagnosed diabetes was recorded in 30 records (30.0%). Based on the workbook labels, 30 records were assigned to established diabetes, 8 to diabetes-range screen-positive, 18 to prediabetes-range, and 44 to no known diabetes with measurements below the workbook thresholds. HbA1c was available for 68 records (mean 6.60%, SD 1.43), and fasting glucose was available for 87 records.

Table 1. Profile of the supplied 100-record summary

Characteristic	Value
Number of records	100

Culture-positive	52 (52.0%)
Age, years	49.8 ± 14.1; range 19-83
Female sex	60 (60.0%)
BMI, kg/m²	26.7 ± 4.2; range 17.5-40.6
Previously diagnosed diabetes	30 (30.0%)
Established diabetes group	30 (30.0%)
Diabetes-range screen-positive group	8 (8.0%)
Prediabetes-range group	18 (18.0%)
No known diabetes; measured below thresholds	44 (44.0%)
HbA1c, % (available n=68)	6.60 ± 1.43
Fasting blood glucose available	87 (87.0%)
Dysuria	84 (84.0%)
Urinary frequency	78 (78.0%)
Urgency	69 (69.0%)
Suprapubic pain	57 (57.0%)
Fever	24 (24.0%)
Flank pain	11 (11.0%)
Previous UTI	42 (42.0%)
Recurrent UTI	17 (17.0%)
Hypertension	27 (27.0%)
Chronic kidney disease	15 (15.0%)
Urinary tract abnormality	6 (6.0%)
Leukocyte esterase non-negative	64 (64.0%)
Nitrite positive	37 (37.0%)
Pyuria ≥10 WBC/HPF	53 (53.0%)
Bacteria seen on microscopy	61 (61.0%)
Urine glucose trace or higher	21 (21.0%)

Values are n (%) unless otherwise specified. Continuous values are mean ± SD. BMI, body mass index; HbA1c, glycated hemoglobin; UTI, urinary tract infection.

Dysuria was the most frequently recorded symptom (84/100, 84.0%), followed by urinary frequency (78.0%), urgency (69.0%), and suprapubic pain (57.0%). Fever was reported in 24 records (24.0%) and flank pain in 11 (11.0%). A previous UTI was recorded in 42 (42.0%), recurrent UTI in 17 (17.0%), hypertension in 27 (27.0%), chronic kidney disease in 15 (15.0%), and urinary tract abnormality in 6 (6.0%). Across all records, leukocyte esterase was non-negative in 64 (64.0%), nitrite was positive in 37 (37.0%), pyuria ≥10 WBC/HPF was present in 53 (53.0%), bacteria were seen on microscopy in 61 (61.0%), and urine glucose was trace or higher in 21 (21.0%).

Culture positivity across observed glycemic groups. Culture positivity was 17/30 (56.7%; 95% CI 39.2-72.6) in established diabetes, 5/8 (62.5%; 30.6-86.3) in the diabetes-range screen-positive group, 11/18 (61.1%; 38.6-79.7) in the prediabetes-range group, and 19/44 (43.2%; 29.7-57.8) in the no-known-diabetes/below-threshold group (Table 2 and Figure 1). The screen-positive category was the smallest group and had the widest confidence interval. The stated overall culture-positive proportion was 52.0% (95% CI 42.3-61.5).

Table 2. Culture positivity and selected urinalysis findings by observed glycemic group

Observed glycemic group	n	Culture positive n (%; 95% CI)	LE non-negative n (%)	Nitrite positive n (%)	Pyuria ≥10 WBC/HPF n (%)
Established diabetes	30	17 (56.7; 39.2-72.6)	23 (76.7)	12 (40.0)	17 (56.7)
Diabetes-range screen positive	8	5 (62.5; 30.6-86.3)	4 (50.0)	4 (50.0)	5 (62.5)
Prediabetes-range	18	11 (61.1; 38.6-79.7)	10 (55.6)	7 (38.9)	10 (55.6)
No known DM; below thresholds	44	19 (43.2; 29.7-57.8)	27 (61.4)	14 (31.8)	21 (47.7)
All records	100	52 (52.0; 42.3-61.5)	64 (64.0)	37 (37.0)	53 (53.0)

Percentages are within each glycemic group; denominators are the group n. Culture-positive 95% CIs are Wilson intervals. LE, leukocyte esterase; WBC/HPF, white blood cells per high-power field. “LE non-negative” counts any result other than negative.

When records were grouped by previously diagnosed diabetes history, culture positivity was 17/30 (56.7%) among records with known diabetes and 35/70 (50.0%) among records without known diabetes. The supplied crude odds ratio was 1.31

(95% CI 0.55-3.09), with Pearson $\chi^2(1)=0.37$ and p=0.541. This estimate is imprecise; the result does not demonstrate equivalence or exclude a potentially meaningful association.

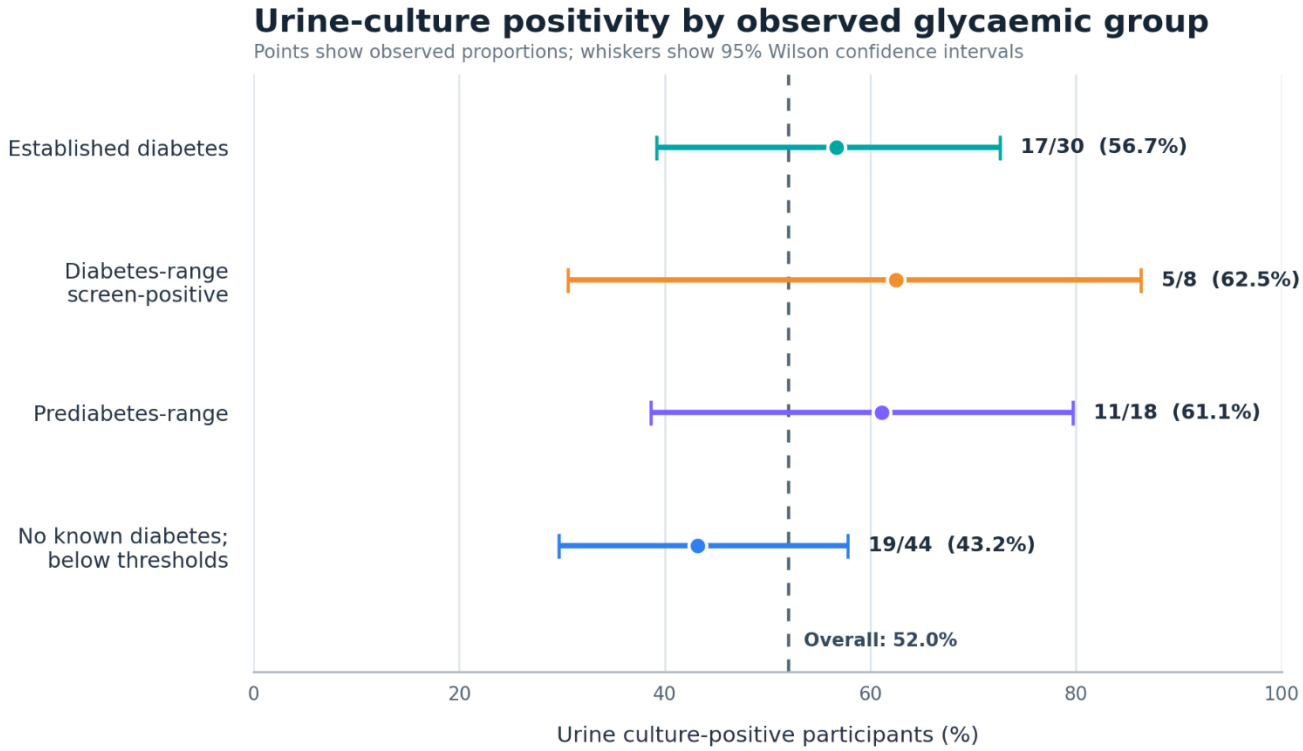


Figure 1. Urine-culture positivity by observed glycemic group. Points show proportions and horizontal bars show the supplied 95% Wilson confidence intervals. The dashed line marks the overall culture-positive proportion (52.0%). These are descriptive estimates from unverified summary data.

Urinalysis findings by glycemic group. The number and percentage with non-negative leukocyte esterase were 23/30 (76.7%) in established diabetes, 4/8 (50.0%) in the screen-positive group, 10/18 (55.6%) in prediabetes-range, and 27/44 (61.4%) in the no-known-diabetes/below-threshold group. Nitrite positivity was 40.0%, 50.0%, 38.9%, and 31.8%, respectively; pyuria ≥10 WBC/HPF was 56.7%, 62.5%, 55.6%, and 47.7%. Bacteria were recorded on microscopy in 23/30 (76.7%), 3/8 (37.5%), 12/18 (66.7%), and 23/44 (52.3%), respectively. Urine glucose trace or higher was recorded in 17/30 (56.7%), 2/8 (25.0%), 1/18 (5.6%), and 1/44 (2.3%) (Figure 2). These are descriptive comparisons; inferential testing of each urinalysis variable across glycemic groups was not available in the supplied summary.

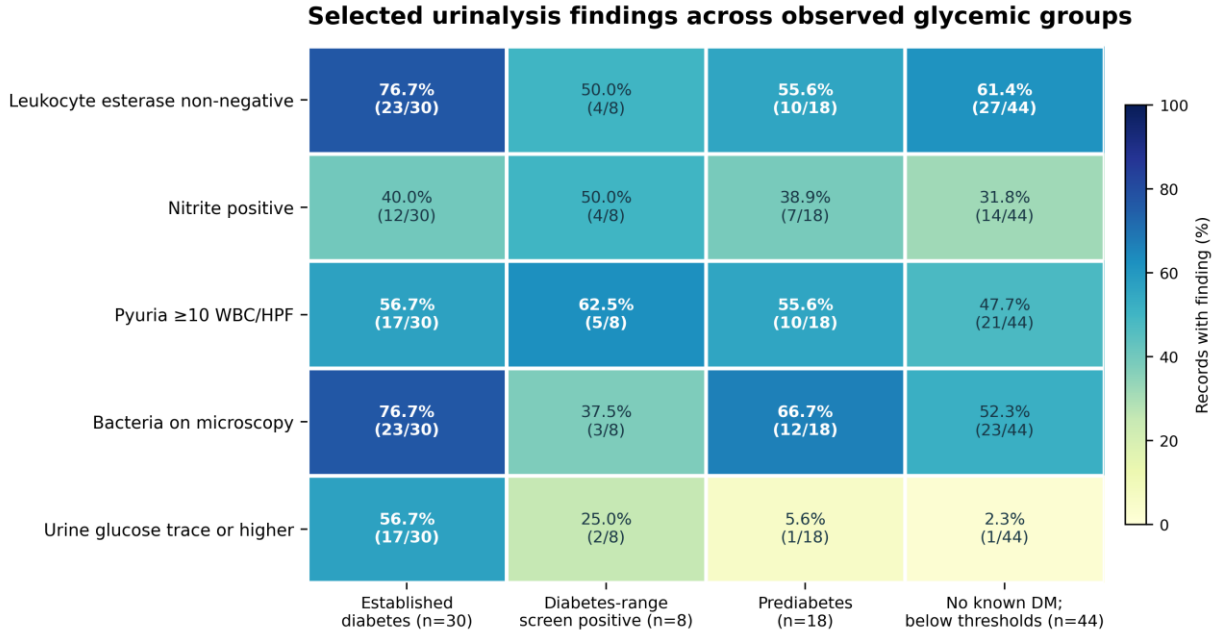


Figure 2. Selected urinalysis findings across observed glycemic groups. Each cell displays the percentage and numerator/denominator. Urine glucose includes trace or higher; bacteria on microscopy includes any category other than "none". Group labels are copied from the supplied workbook.

Urinalysis findings by culture result. Pyuria ≥10 WBC/HPF was recorded in 48/52 culture-positive records (92.3%) compared with 5/48 culture-negative records (10.4%). Bacteria were seen on microscopy in 48/52 (92.3%) culture-positive and 13/48 (27.1%) culture-negative records. Leukocyte esterase was non-negative in 42/52 (80.8%) culture-positive and 22/48 (45.8%) culture-negative records; nitrite was positive in 28/52 (53.8%) and 9/48 (18.8%), respectively. The supplied summary did not include enough information on sampling or culture thresholds to interpret these frequencies as diagnostic sensitivity, specificity, or predictive values.

Organism distribution and workbook-coded antimicrobial findings. Among 52 culture-positive records, Escherichia coli was listed in 37 (71.2%), Enterococcus faecalis in 7 (13.5%), Klebsiella pneumoniae in 5 (9.6%), Proteus mirabilis in 2 (3.8%), and Pseudomonas aeruginosa in 1 (1.9%) (Figure 3; Table 3A). In the workbook-coded summary, resistance was recorded most frequently for ampicillin (35/52, 67.3%), followed by trimethoprim-sulfamethoxazole (21/52, 40.4%), ciprofloxacin (19/52, 36.5%), amoxicillin-clavulanate (18/52, 34.6%), and ceftriaxone (18/52, 34.6%). Resistance-coded proportions were 23.1% for amikacin, 21.2% for fosfomycin, and 13.5% for nitrofurantoin (Figure 4; Table 3B). These values are pooled workbook classifications; tested denominators, organism-level linkage, susceptibility-testing methods, and breakpoint version were not supplied. They must not be used as a clinical antibiogram or to guide treatment.

Table 3A. Organisms listed among culture-positive records

Organism listed	n	% of 52 culture-positive records
Escherichia coli	37	71.2
Enterococcus faecalis	7	13.5
Klebsiella pneumoniae	5	9.6
Proteus mirabilis	2	3.8
Pseudomonas aeruginosa	1	1.9

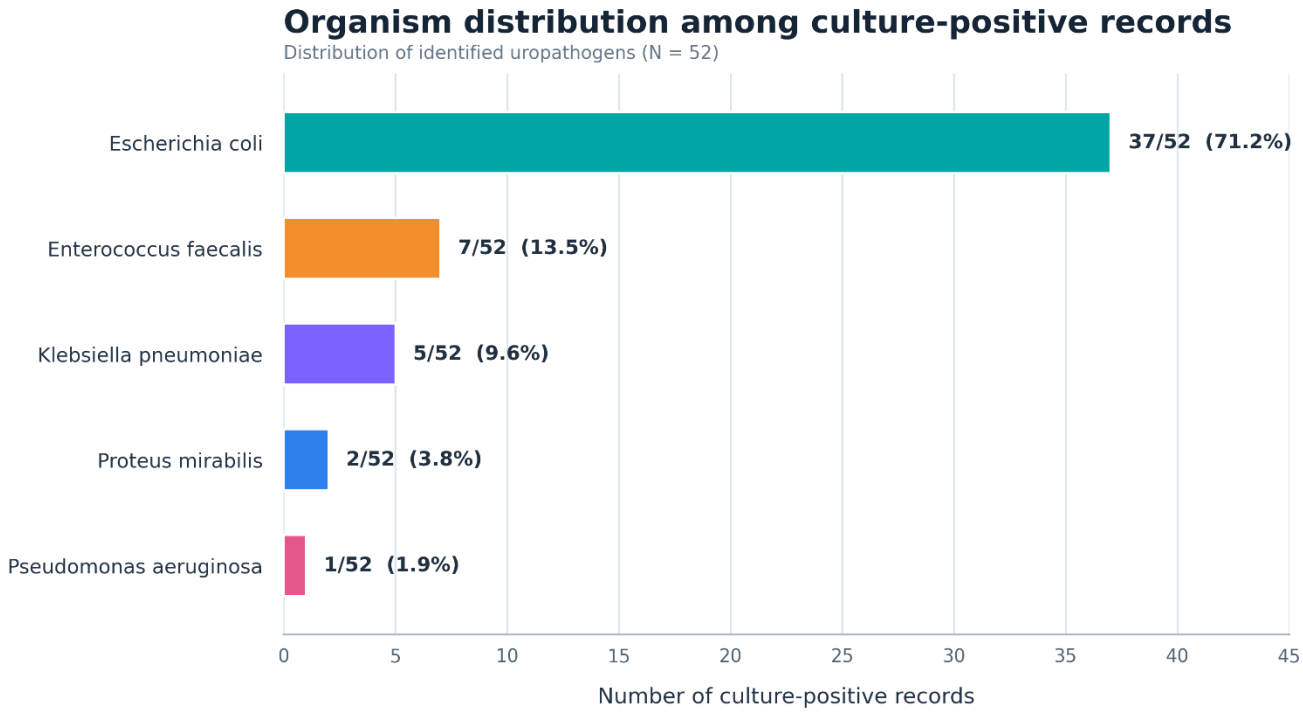


Figure 3. Organism distribution in the supplied culture-positive records. Bars show the number of records assigned to each organism; percentages use all 52 culture-positive records as the denominator.

Table 3B. Workbook-coded antimicrobial susceptibility classifications

Antimicrobial agent	Susceptible n (%)	Intermediate n (%)	Resistant n (%)
Ampicillin	17 (32.7%)	0 (0.0%)	35 (67.3%)
Trimethoprim-sulfamethoxazole	29 (55.8%)	2 (3.8%)	21 (40.4%)
Ciprofloxacin	32 (61.5%)	1 (1.9%)	19 (36.5%)
Amoxicillin-clavulanate	33 (63.5%)	1 (1.9%)	18 (34.6%)
Ceftriaxone	34 (65.4%)	0 (0.0%)	18 (34.6%)
Amikacin	40 (76.9%)	0 (0.0%)	12 (23.1%)
Fosfomycin	41 (78.8%)	0 (0.0%)	11 (21.2%)
Nitrofurantoin	45 (86.5%)	0 (0.0%)	7 (13.5%)

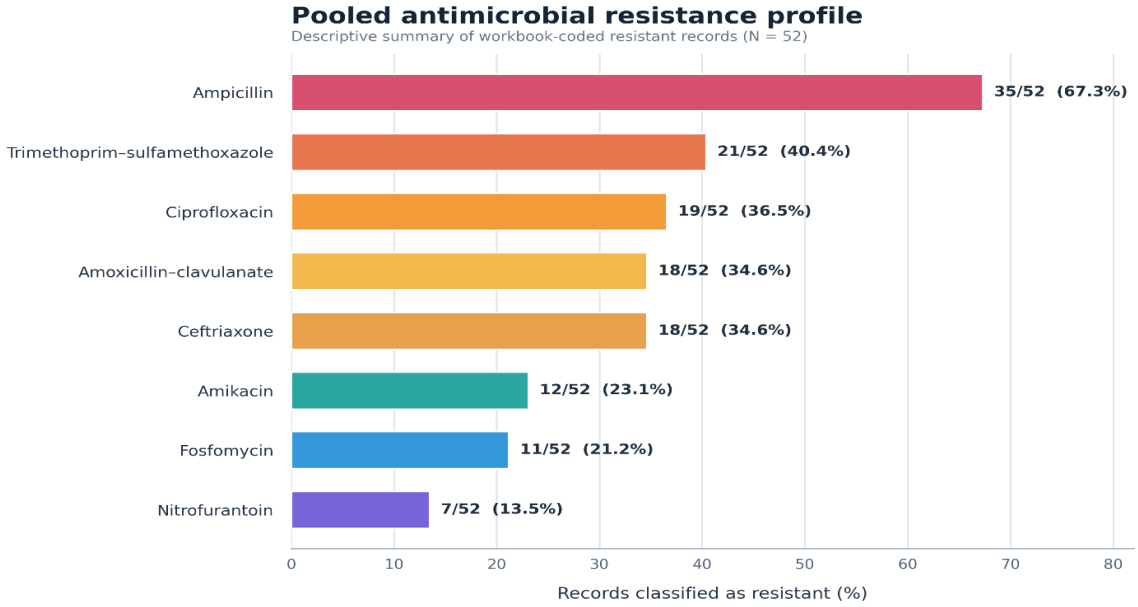


Figure 4. Pooled antimicrobial resistance profile from workbook-coded R classifications. Percentages use the stated denominator of 52 per antimicrobial. This figure is retained only to present the supplied summary and is not suitable for clinical treatment decisions.

DISCUSSION

This descriptive summary places urinary symptoms, glycemic grouping, urinalysis findings, culture positivity, and organism distribution in a single framework. The most frequent symptoms were dysuria and urinary frequency, while approximately half of the records were culture-positive. Within the four workbook-defined glycemic categories, culture positivity ranged from 43.2% to 62.5%. The known-diabetes comparison did not show a statistically significant association in the supplied crude analysis, and its confidence interval was broad. Because provenance and study procedures remain unverified, these observations are hypothesis-generating rather than clinical estimates.

The biological rationale for studying glycemic status alongside urinary findings is credible: diabetes may affect host defense and bladder function, and published studies in diabetic cohorts have reported a substantial burden of UTI. (Geerlings et al., 2000; Modi et al., 2022; Shahsavari et al., 2024; Zalewska-Piątek et al., 2026) However, the strength and definition of the association vary. A case-control study abstract from India reported a higher prevalence of diabetes among women with UTI than controls, whereas the 2026 systematic review by Xu and Shi reported a nonsignificant primary pooled estimate for symptomatic UTI (OR 1.42, 95% CI 0.89-2.26). (Jain et al., 2024; Xu and Shi, 2026) These studies differ in population, design, clinical definitions, and outcome measurement; no direct quantitative comparison with the present summary is justified.

The urinalysis patterns should also be interpreted in context. The supplied summary recorded pyuria and microscopic bacteria more frequently among culture-positive than culture-negative records. This is directionally consistent with the use of urine microscopy and dipstick results as components of UTI assessment, but individual parameters do not perform uniformly across populations. Advani and colleagues have emphasized that urinalysis criteria need to be interpreted in the context of the population and diagnostic objective. (Advani et al., 2022; Advani et al., 2024) A recently reported multi-parameter scorecard likewise reflects ongoing efforts to combine several urinalysis features rather than rely on one marker alone, although that conference abstract is not directly comparable to these summary data. (Vasconcellos et al., 2026) In the absence of documented culture thresholds, specimen handling, and sampling criteria, the observed differences cannot be converted into validated diagnostic performance estimates.

Urine glucose deserves particular caution. In this summary, urine glucose was trace or higher in 21% of records overall, and the supplied group-specific counts varied across the glycemic labels. Yet urinary glucose can reflect circulating glucose, renal physiology, and medication exposure. In a prospective cross-sectional study of adults with type 2 diabetes, Tüzün and Eraydın found glycosuria to be associated with SGLT2 inhibitor use and higher HbA1c, while culture-positive outcomes were uncommon and imprecisely estimated. (Tüzün and Eraydın, 2026) A large observational study of patients prescribed SGLT2 inhibitors also examined the clinical implications of incident UTI and drug discontinuation, but its treatment-exposure question differs from the glycemic-group question here. (Wu et al., 2025) Medication use was not reported in the supplied summary; thus urine glucose cannot be attributed to glycemic status alone.

E. coli accounted for 71.2% of the culture-positive records, which is in line with reports identifying it as a common uropathogen among people with diabetes. Studies from Iran and Bangladesh have also described E. coli predominance and raised concerns about antimicrobial resistance in diabetic populations. (Biswas, 2024; Shahsavari et al., 2024) Nevertheless, the pooled susceptibility figures in the supplied file should not be interpreted as local resistance estimates. Without the denominator of isolates actually tested for each agent, organism-specific susceptibility results, testing methodology, and the applicable CLSI or EUCAST breakpoints, the distribution could be misleading. The susceptibility table is retained only to document what was in the supplied summary; it should be removed from a clinical interpretation unless the underlying microbiology records are verified.

Several reporting and analysis issues need resolution before a publishable clinical paper can be prepared. The dataset source must be clarified because a previous version of the file marked the records as simulated. Unique participant

identifiers, data-collection dates, recruitment flow, centre locations, eligibility criteria, the prespecified definitions of glycemic groups, and laboratory methods are absent. The subgroup with diabetes-range screen-positive results includes only eight records, leading to substantial uncertainty. HbA1c and fasting-glucose availability differ; missingness may be related to clinical status and cannot be assumed to be random. The current summaries also do not support adjustment for age, sex, BMI, kidney disease, prior UTI, medication use, or other possible confounders. Finally, the cross-sectional design, if verified, would limit causal interpretation even with a complete dataset.

The practical contribution of the eventual study could be to clarify whether glycemic strata add useful information when urinalysis findings are interpreted in primary care. To address that question credibly, the authors should verify the provenance of each record; rerun the planned analysis on de-identified participant-level data; define exposure thresholds before testing associations; account for missing glycemic measurements; and report effect estimates with confidence intervals.

CONCLUSION

The supplied summary describes variation in urine-culture positivity and selected urinalysis findings across four workbook-defined glycemic groups, but the known-diabetes comparison was imprecise and not statistically significant. The information provided cannot establish a clinical association or diagnostic utility. The source file's prior simulation label, absent participant-level records, unverified glycemic thresholds, incomplete laboratory methods, and undocumented ethics details must be resolved before any of these findings are presented as results from adults attending primary health centres. If authentic clinical data cannot be independently documented, the analysis should remain identified as simulated and should not be submitted as an empirical clinical study.

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