

Supplement 2: Study characteristics by receipt of antibiotic prescription

| Characteristic (N = 770) | Antibiotic prescription, n (%) | | P value |
|---|--------------------------------|------------|---------|
| | No | Yes | |
| Age in years | | | |
| Children (< 18 years) | 73 (34.6) | 138 (65.4) | < 0.01 |
| Adults (18-59 years) | 223 (54.8) | 184 (45.2) | |
| Elderly (≥ 60 years) | 117 (77.0) | 35 (23.0) | |
| Sex | | | |
| Male | 165 (52.2) | 151 (47.8) | 0.51 |
| Female | 248 (54.6) | 206 (45.4) | |
| Level of health facility | | | |
| Dispensary | 23 (23.0) | 77 (77.0) | < 0.01 |
| Health Centre/Stand-alone clinic by ADO | 39 (36.4) | 68 (63.6) | |
| District Hospital/Clinic L1 by MO/DO | 26 (28.0) | 67 (72.0) | |
| Regional Hospital/Clinic L2 by specialist | 70 (68.0) | 33 (32.0) | |
| Referral/National/Zonal Hospital/Clinic L3 by SS | 255 (69.5) | 112 (30.5) | |
| Ownership of health facility | | | |
| Public | 195 (62.7) | 116 (37.3) | < 0.01 |
| Private/Non-governmental | 218 (47.5) | 241 (52.5) | |
| Department visited | | | |
| Outpatient | 408 (54.2) | 345 (45.8) | 0.04 |
| Inpatient | 5 (29.4) | 12 (70.6) | |
| Select Diagnosis | | | |
| Other disorders of urinary system | | | |
| No | 407 (60.3) | 268 (39.7) | < 0.01 |
| Yes | 6 (6.3) | 89 (93.7) | |
| Acute and URTI of multiple and unspecified sites | | | |
| No | 400 (56.7) | 306 (43.3) | < 0.01 |
| Yes | 13 (20.3) | 51 (79.7) | |
| Other sepsis | | | |
| No | 409 (54.8) | 338 (45.2) | < 0.01* |
| Yes | 4 (17.4) | 19 (82.6) | |
| Acute tonsillitis | | | |
| No | 412 (55.2) | 334 (44.8) | < 0.01* |
| Yes | 1 (4.2) | 23 (95.8) | |

p-values are from Pearson Chi-Square Test or Fisher's Exact Test (*); SS, Super Specialist

| Supplement 2: Study characteristics by receipt of antibiotic prescription (Continued) | | | |
|--|---------------------------------------|------------|----------------|
| Characteristic (N = 770) | Antibiotic prescription, n (%) | | P value |
| | No | Yes | |
| Diseases of pulp and periapical tissues | | | |
| No | 413 (54.3) | 347 (45.7) | < 0.01* |
| Yes | 0 (0.0) | 10 (100.0) | |
| Candidiasis | | | |
| No | 411 (54.4) | 345 (45.6) | 0.01 |
| Yes | 2 (14.3) | 12 (85.7) | |
| Bacterial infection of unspecified site | | | |
| No | 411 (54.2) | 348 (45.8) | 0.03* |
| Yes | 2 (18.2) | 9 (81.8) | |
| Pneumonia, unspecified organism | | | |
| No | 411 (54.1) | 349 (45.9) | 0.05* |
| Yes | 2 (20.0) | 8 (80.0) | |
| Cystitis | | | |
| No | 413 (54.3) | 348 (45.7) | < 0.01* |
| Yes | 0 (0.0) | 9 (100.0) | |
| Other female pelvic inflammatory diseases | | | |
| No | 412 (54.0) | 351 (46.0) | 0.05* |
| Yes | 1 (14.3) | 6 (85.7) | |
| Other disorders of bladder | | | |
| No | 413 (54.1) | 350 (45.9) | < 0.01* |
| Yes | 0 (0.0) | 7 (100.0) | |
| Amoebiasis | | | |
| No | 413 (54.1) | 350 (45.9) | < 0.01* |
| Yes | 0 (0.0) | 7 (100.0) | |
| Cellulitis | | | |
| No | 413 (53.9) | 353 (46.1) | 0.05* |
| Yes | 0 (0.0) | 4 (100.0) | |
| Infections of genitourinary tract in pregnancy | | | |
| No | 413 (53.9) | 353 (46.1) | 0.05* |
| Yes | 0 (0.0) | 4 (100.0) | |
| Chronic rhinitis, nasopharyngitis and pharyngitis | | | |
| No | 413 (53.9) | 353 (46.1) | 0.05* |
| Yes | 0 (0.0) | 4 (100.0) | |

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| Supplement 2: Study characteristics by receipt of antibiotic prescription (Continued) | | | |
|--|---------------------------------------|------------|----------------|
| Characteristic (N = 770) | Antibiotic prescription, n (%) | | P value |
| | No | Yes | |
| Cutaneous abscess, furuncle and carbuncle | | | |
| No | 413 (53.9) | 353 (46.1) | 0.05* |
| Yes | 0 (0.0) | 4 (100.0) | |
| Other gastroenteritis and colitis of infectious and unspecified origin | | | |
| No | 412 (54.0) | 351 (46.0) | 0.05* |
| Yes | 1 (14.3) | 6 (85.7) | |
| Acute nasopharyngitis (common cold) | | | |
| No | 404 (54.1) | 343 (45.9) | 0.16 |
| Yes | 9 (39.1) | 14 (60.9) | |
| Conjunctivitis | | | |
| No | 408 (54.0) | 347 (46.0) | 0.11 |
| Yes | 5 (33.3) | 10 (66.7) | |
| Cough | | | |
| No | 408 (54.1) | 346 (45.9) | 0.07 |
| Yes | 5 (31.3) | 11 (68.8) | |
| Gingivitis and periodontal diseases | | | |
| No | 412 (53.9) | 353 (46.1) | 0.19* |
| Yes | 1 (20.0) | 4 (80.0) | |
| Acute pharyngitis | | | |
| No | 412 (53.9) | 352 (46.1) | 0.10* |
| Yes | 1 (16.7) | 5 (83.3) | |
| Bacterial pneumonia, not elsewhere classified | | | |
| No | 412 (53.9) | 352 (46.1) | 0.10* |
| Yes | 1 (16.7) | 5 (83.3) | |
| Unspecified acute lower respiratory infection | | | |
| No | 412 (53.9) | 353 (46.1) | 0.19* |
| Yes | 1 (20.0) | 4 (80.0) | |
| Other diseases of upper respiratory tract | | | |
| No | 412 (53.9) | 352 (46.1) | 0.10* |
| Yes | 1 (16.7) | 5 (83.3) | |

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| Supplement 2: Study characteristics by receipt of antibiotic prescription (Continued) | | | |
|--|---------------------------------------|------------|----------------|
| Characteristic (N = 770) | Antibiotic prescription, n (%) | | P value |
| | No | Yes | |
| Otitis externa | | | |
| No | 413 (53.8) | 354 (46.2) | 0.10* |
| Yes | 0 (0.0) | 3 (100.0) | |
| Single delivery by caesarean section | | | |
| No | 413 (53.8) | 354 (46.2) | 0.10* |
| Yes | 0 (0.0) | 3 (100.0) | |
| Abdominal and pelvic pain | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Impetigo | | | |
| No | 413 (53.8) | 354 (46.2) | 0.10* |
| Yes | 0 (0.0) | 3 (100.0) | |
| Osteomyelitis | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Non-suppurative otitis media | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Suppurative and unspecified otitis media | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Acute sinusitis | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Respiratory disorders in diseases classified elsewhere | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Dislocation of wrist | | | |
| No | 413 (53.8) | 355 (46.2) | 0.22* |
| Yes | 0 (0.0) | 2 (100.0) | |
| Any Procedure/Surgery done | | | |
| No | 403 (54.4) | 338 (45.6) | 0.04 |
| Yes | 10 (34.5) | 19 (65.5) | |

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| Supplement 2: Study characteristics by receipt of antibiotic prescription (Continued) | | | |
|--|---------------------------------------|------------|----------------|
| Characteristic | Antibiotic prescription, n (%) | | P value |
| | No | Yes | |
| Type of Procedure/Surgery (N = 29) | | | |
| Minor | 4 (40.0) | 6 (60.0) | 0.71* |
| Major | 0 (0.0) | 7 (100.0) | |
| Specialized | 6 (50.0) | 6 (50.0) | |
| Prescriber Qualification (N = 770) | | | |
| Clinical Officer/ Dental Therapist | 27 (21.3) | 100 (78.7) | < 0.01* |
| Assistant Medical Officer/Assistant Dental Officer | 3 (20.0) | 12 (80.0) | |
| Medical Officer/Dental Officer | 136 (48.6) | 144 (51.4) | |
| Specialist | 200 (69.7) | 87 (30.3) | |
| Super-specialist/Consultant | 47 (77.0) | 14 (23.0) | |
| Prescriber Qualification Grouped (N = 770) | | | |
| Low level (Clinical Officer/DT/AMO/ADO) | 30 (21.1) | 112 (78.9) | < 0.01 |
| Mid-level (Medical/Dental Officer) | 136 (48.9) | 144 (51.4) | |
| High level (Specialists/Consultants) | 247 (71.0) | 101 (29.0) | |
| Polypharmacy of ≥ 5 Medications (N = 770) | | | |
| No | 346 (52.6) | 312 (47.4) | 0.16 |
| Yes | 67 (59.8) | 45 (40.2) | |
| Availability of all medications prescribed in 2017 TZ NEMLIT (N = 770) | | | |
| No | 220 (72.6) | 83 (27.4) | < 0.01 |
| Yes | 193 (41.3) | 274 (58.7) | |
| All medications prescribed using their generic names (N = 770) | | | |
| No | 171 (48.9) | 179 (51.1) | 0.02 |
| Yes | 242 (57.6) | 178 (42.4) | |
| Was malaria treatment prescribed (N = 770) | | | |
| No | 407 (54.2) | 344 (45.8) | 0.05 |
| Yes | 6 (31.6) | 13 (68.4) | |
| Presence of injectable formulation in the prescription (N = 770) | | | |
| No | 388 (55.0) | 317 (45.0) | 0.01 |
| Yes | 25 (38.5) | 40 (61.5) | |

p-values are from Pearson Chi-Square Test or Fisher's Exact Test (*); DT, Dental Therapist; AMO, Assistant Medical Officer; ADO, Assistant Dental Officer