

Supporting Information

# Determinants of Appropriate Antibiotic Dosing in Patients with Chronic Kidney Disease in a Kenyan Referral Hospital

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**Table 4:** Bivariable analysis of determinants of appropriate antibiotic dose administration in patients with chronic kidney disease

Variable	Dose not appropriate	Dose appropriate	P	Variable	Dose not appropriate	Dose appropriate	P
<b>Sex</b>				<b>Weight recorded</b>			
Female	122 (69.3%)	54 (30.7%)	0.23	Yes	229 (74.1%)	80 (25.9%)	0.10
Male	152 (74.9%)	51 (25.1%)		No	45 (64.3%)	25 (35.7%)	
<b>Age group (years)</b>				<b><sup>a</sup>Weight (kg)</b>	60	65.5	0.24
≥ 45	142 (68.9%)	64 (31.1%)	0.11		[53, 67], 45	[58,69], 25	
< 45	132 (76.3%)	41 (27.7%)		<b>Cause of CKD</b>			
<b>Marital status</b>				Diabetes	24 (61.5%)	15 (38.5%)	
Married	217 (71.2%)	88 (28.9%)	0.37	Diabetes, <sup>b</sup> BP	36 (69.2%)	16 (30.8%)	
Single	55 (76.4%)	17 (23.6%)		BP	29 (67.4%)	14 (32.6%)	
<b>Highest level of education</b>				<sup>c</sup> PGD	64 (82.1%)	14 (18.0%)	0.27
None	32 (68.1%)	15 (31.9%)		<sup>d</sup> HIVAN	27 (73.0%)	10 (27.0%)	
Primary	100 (71.4%)	40 (28.6%)	0.80	<sup>e</sup> OU	43 (75.4%)	14 (24.6%)	
Secondary	90 (75.0%)	30 (25.0%)		Drug induced	1 (50.0%)	1 (50.0%)	
Tertiary	35 (74.5%)	12 (25.5%)		Other	3 (100%)	0 (0.0%)	
<b>Employment status</b>				Unknown	85 (76.6%)	26 (23.4%)	
Unemployed	171 (71.6%)	68 (28.5%)	0.83	<b>Frequency of drug administration (times daily)</b>			
Employed	45 (71.4%)	18 (28.6%)		Once	12 (60%)	8 (40%)	
Self	57 (75.0%)	19 (25.0%)		Twice	120 (75%)	40 (25%)	
<b>Clinical setting</b>				Thrice	117 (88%)	16 (12.0%)	<0.01
Medical Ward	233 (72.1%)	90 (27.9%)	0.89	Four times	19 (52.8%)	17 (47.2%)	
Renal Unit	41 (73.2%)	15 (26.8%)		> 4 times	6 (25.0%)	18 (75.0%)	
<b>Stage of Chronic Kidney Disease</b>				<b>Indication for antibiotic/Infection</b>			
1	0 (0%)	1 (100%)		<sup>f</sup> RTI	53 (79.1%)	14 (20.9%)	
2	0(0%)	7 (100%)	<0.01	Catheter site	5 (62.5%)	3 (37.5%)	
3	3 (17.7%)	14 (82.4%)		Sepsis	31 (64.6%)	17 (35.4%)	
4	24 (55.8%)	19(44.2%)		<sup>g</sup> UTI	24 (70.6%)	10 (29.4%)	
5	247 (79.4%)	64 (20.6%)		Gastroenteritis	19 (67.9%)	9 (32.1%)	0.63
<b>On Dialysis</b>				Prophylaxis	4 (100%)	0 (0%)	
No	123 (65.8%)	64 (34.2%)	0.01	Bone, soft tissue	2 (66.7%)	1 (33.3%)	
Yes	151 (78.7%)	41 (21.4%)		<b>Co-morbidity</b>			
<b>Type of antibiotic</b>			<0.01	None	91 (74.6%)	31 (25.4%)	
<b>Route of administration</b>				Diabetes	50 (70.4%)	21(29.6%)	
Intravenous	189 (70.5%)	79 (29.5%)	0.23	Hypertension	86 (73.5%)	31(26.5%)	
Oral	85 (76.6%)	26 (23.4%)		HIV/AIDS	20 (69.0%)	9 (31.0%)	
<b>Duration of administration</b>				Heart disease	3 (37.5%)	5 (62.5%)	0.20
5	86 (78.9%)	23 (21.1%)	0.01	<sup>h</sup> BPH	15 (83.3%)	3 (16.7%)	
7	78 (82.1%)	17 (17.9%)		Prostate cancer	1 (33.3%)	2 (66.7%)	
14	6 (54.6%)	5 (45.5%)		Cervical cancer	1 (33.3%)	2 (66.7%)	
<b><sup>i</sup>eGFR</b>	844	477	<0.01	Breast cancer	1 (100%)	0 (0%)	
(ml/min/1.73 m <sup>2</sup> )	(519, 1162)	(240, 926)		Others	6 (85.7%)	1 (27.7%)	

<sup>a</sup>Median (IQR), n, <sup>b</sup>BP-Hypertension, <sup>c</sup>PGD-Primary Glomerular Disease, <sup>d</sup>HIVAN-HIV Associated Nephropathy, <sup>e</sup>OU-Obstructive Uropathy, <sup>f</sup>RTI-Respiratory Tract Infection, <sup>g</sup>UTI-Urinary Tract Infection, <sup>h</sup>BPH-Benign Prostrate Hypertrophy, <sup>i</sup>eGFR-estimated glomerular filtration rate

**Table 5:** Multivariable analysis of determinants of appropriate antibiotic dose administration in patients with chronic kidney disease

Variable	Crude OR [95% CI]	P value	Adjusted OR [95% CI]	P value
Age below 45 years	0.689 [0.436, 1.090]	0.11	0.422 [0.198, 0.898]	<b>0.03</b>
Stage of CKD	0.255 [0.166, 0.392]	<b>&lt;0.001</b>	0.159 [0.082, 0.309]	<b>&lt;0.001</b>
Patient on dialysis	0.522 [0.330, 0.826]	<b>0.01</b>	0.458 [0.192, 1.090]	0.08
Route of administration	0.732 [0.439, 1.221]	0.23	1.685 [0.489, 5.811]	0.41
Frequency of drug administration	1.519 [1.308, 1.765]	<b>&lt;0.001</b>	1.724 [1.185, 2.508]	<b>0.004</b>
<b>Duration of administration (days)</b>				
Not written in the prescription	-	-	-	-
1 to 4	0.806 [0.260, 2.498]	0.71	0.563 [0.104, 3.046]	0.51
5	0.431 [0.241, 0.772]	<b>0.01</b>	0.377 [0.104, 3.046]	<b>0.03</b>
7	0.351 [0.186, 0.663]	<b>0.001</b>	0.262 [0.099, 0.692]	<b>0.01</b>
9 to 12	0.230 [0.050, 1.057]	0.06	0.153 [0.027, 0.861]	<b>0.03</b>
14	1.343 [0.389, 4.639]	0.64	1.927 [0.313, 11.755]	0.48
≥ 15 days	6.449 [0.700, 59.377]	0.10	1.030 [0.81, 13.167]	0.98
<b>Type of Antibiotic</b>				
Benzyloxyphenoxymethyl penicillin	-	-	-	-
Vancomycin	2.423 [0.908, 6.490]	0.08	1.589 [0.245, 10.294]	0.63
Norfloxacin	0.452 [0.101, 2.024]	0.30	0.876 [0.066, 11.700]	0.92
Amoxicillin/clavulanic acid	0.098 [0.040, 0.240]	<b>&lt;0.001</b>	0.101 [0.024, 0.420]	<b>0.002</b>
Amoxicillin	0.528 [0.086, 3.283]	0.49	0.284 [0.008, 10.485]	0.49
Ceftazidime	0.576 [0.176, 1.883]	0.36	4.850 [0.859, 27.386]	0.07
Cefuroxime	0.274 [0.096, 0.784]	<b>0.02</b>	0.504 [0.123, 2.063]	0.34
Gentamycin	0.633 [0.132, 3.044]	0.57	3.157 [0.382, 26.100]	0.29
Amikacin	0.352 [0.033, 3.701]	0.38	0.198 [0.010, 3.850]	0.29
Metronidazole	0.640 [0.732, 1.498]	0.30	3.005 [0.600, 15.035]	0.18
Clarithromycin	0.440 [0.129, 1.499]	0.19	0.979 [0.124, 7.764]	0.98
Meropenem	0.352 [0.082, 1.512]	0.16	2.200 [0.338, 14.302]	0.41
Imipenem/cilastatin	0.704 [0.105, 4.713]	0.72	5.567 [0.438, 70.760]	0.19
<b>Co-morbidities</b>				
No co-morbidity	-	-	-	-
Diabetes	1.233 [0.642, 2.368]	0.53	0.868 [0.311, 2.421a]	0.79
Hypertension	1.058 [0.593, 1.887]	0.85	1.026 [0.430, 2.445]	0.95
HIV/AIDS	1.321 [0.545, 3.204]	0.54	0.961 [0.248, 3.723]	0.95
Heart disease	4.892 [1.105, 21.671]	<b>0.04</b>	12.718 [1.867, 86.629]	<b>0.01</b>
BPH	0.587 [0.159, 2.165]	0.42	0.073 [0.009, 0.609]	<b>0.02</b>
Prostate cancer	5.871 [0.514, 67.01]	0.15	1.486 [0.076, 29.17]	0.79
Cervical cancer	5.871 [0.514, 67.01]	0.15	12.151 [0.313, 471.0]	0.18