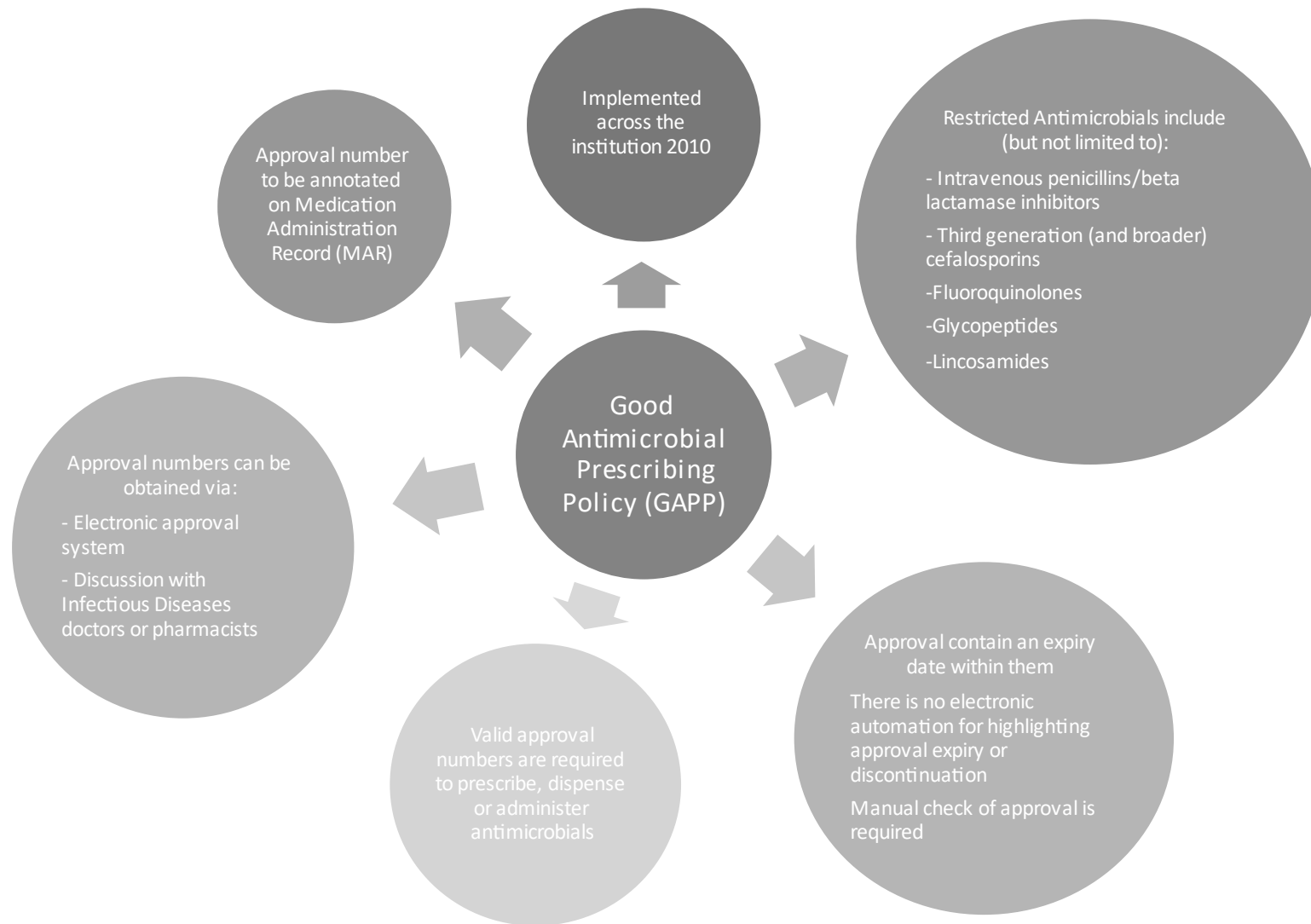


## SUPPLEMENTARY TABLES

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**FIGURE 1. EXISTING ANTIMICROBIAL STEWARDSHIP (AMS) PROGRAM**



**FIGURE 2. IMPLEMENTED ANTIMICROBIAL STEWARDSHIP (AMS) PROGRAM**

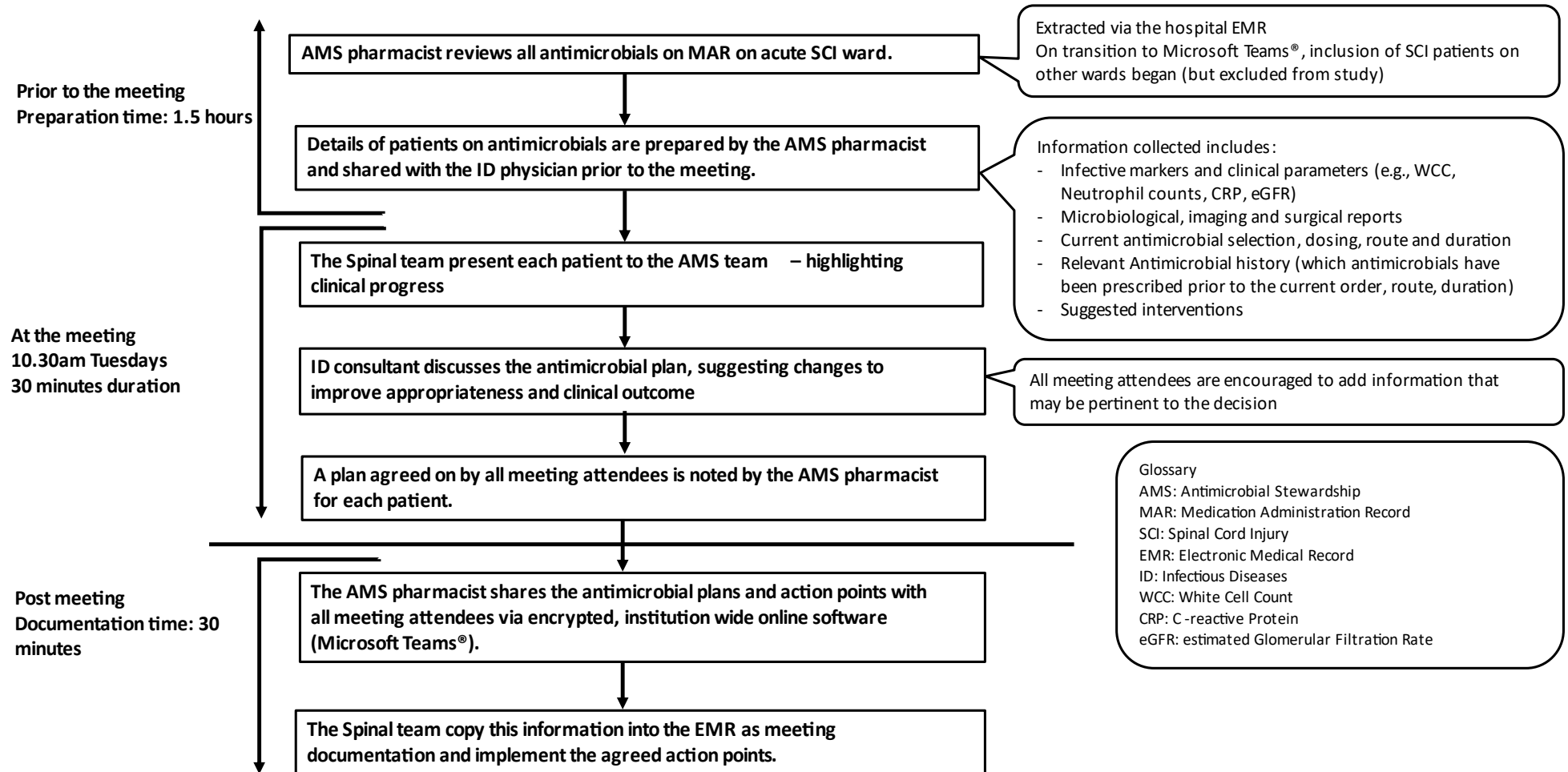
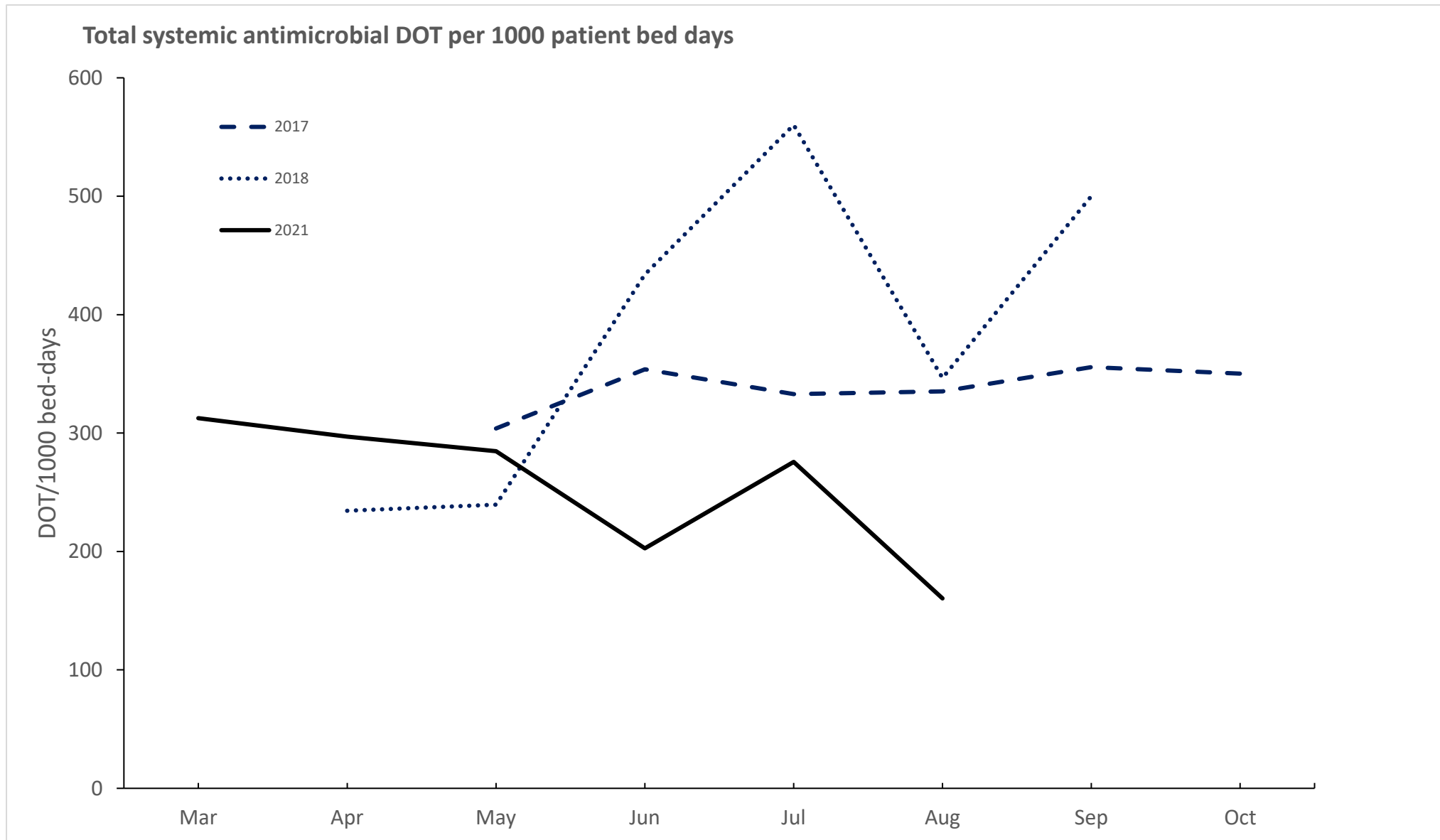


FIGURE 3. TOTAL SYSTEMIC ANTIMICROBIAL DOT PER 1000 PATIENT BED DAYS



<b>TABLE 1. PATIENT DEMOGRAPHICS, ALLERGIES AND OVERALL ANTIMICROBIAL PRESCRIBING FREQUENCY</b>					
<b>DEMOGRAPHICS</b>		<b>PRE-IMPLEMENTATION n (%)</b>	<b>IMMEDIATELY POST-IMPLEMENTATION n (%)</b>	<b>3YRS POST-IMPLEMENTATION n (%)</b>	<b>Overall p-value (Fisher's Exact or Kruskal Wallis)</b>
<b>Sex</b>	Male	50/68 (74)	50/66 (76)	43/51 (84)	0.36
	Female	18/68 (26)	16/66 (24)	8/51 (16)	
<b>Paralysis</b>	Quadriplegia	31/68 (46)	30/66 (45)	29/51 (57)	0.091
	Paraplegia	30/68 (44)	34/66 (52)	22/51 (43)	
	Undefined	7/68 (10)	2/66 (3)	0/51 (0)	
<b>Age</b>	Median [IQR]	55 [44-67]	54 [39-64]	59 [38-71]	0.39
<b>Charlson Co-morbidity Index</b>	Median	2 [0-4]	2 [0-4]	2 [1-4]	0.92
<b>Number of admissions to Austin campus in 6mth period (per patient)</b>	Single admission	42/68 (62)	42/66 (64)	29/51 (57)	0.77
	>1 admission	26/68 (38)	24/66 (36)	22/51 (43)	
<b>LOS (days) (first admission patient reviewed)</b>	Median [IQR]	15 [7-49]	25 [9-65]	20 [9-49]	0.31
<b>Number patients prescribed &gt;1 antimicrobial over period</b>		40/68 (59)	31/66 (47)	22/51 (43)	0.20

				Unadjusted analysis: logistic regression accounting for clustering within the individual			
				Immediately Post vs pre implementation		3yr vs pre implementation	
<b>TABLE 2. PROPORTION OF ORDERS BY ANTIMICROBIAL CLASS</b>				OR (95% CI)	p value	OR (95% CI)	p value
	PRE-IMPLEMENTATION ANTIMICROBIALS n (%)	IMMEDIATELY POST IMPLEMENTATION ANTIMICROBIALS n (%)	3YRS POST-IMPLEMENTATION ANTIMICROBIALS n (%)				
<b>Antimicrobial orders reviewed and included</b>	148	141	108				
Restricted	42/148 (28)	43/141 (31)	31/108 (29)	1.11 (0.58, 2.12)	0.759	1.02 (0.53, 1.95)	0.962
Non-restricted	106/148 (72)	98/141 (69)	77/108 (71)				
<b>Penicillins</b>	55/148 (37)	46/141 (33)	40/108 (37)	0.82 (0.52, 1.29)	0.391	0.99 (0.61, 1.62)	0.983
Restricted Penicillin	9/55 (16)	16/46 (35)	3/40 (8)	2.73 (1.10, 6.73)	0.03	0.41 (0.11, 1.52)	0.185
Non-restricted Penicillin	46/55 (84)	30/46 (65)	37/40 (93)				
<b>Cefalosporins</b>	31/148 (21)	29/141 (21)	20/108 (19)	0.98 (0.52, 1.82)	0.942	0.86 (0.46, 1.61)	0.634
Restricted Cefalosporins	12/31 (39)	8/29 (28)	11/20 (55)	0.60 (0.16, 2.22)	0.448	1.94 (0.47, 7.90)	0.358
Non-restricted Cefalosporins	19/31 (61)	21/29 (72)	9/20 (45)	Ref		Ref	
Carbapenem	2/148 (1)	6/141 (4)	1/108 (1)	3.24 (0.71, 14.81)	0.129	0.68 (0.06, 7.47)	0.754
Glycopeptide (IV and PO)	5/148 (3)	6/141 (4)	4/108 (4)	1.27 (0.35, 4.63)	0.716	1.10 (0.31, 3.89)	0.882
Lincosamide	1/148 (1)	3/141 (2)	0	3.20 (0.27, 38.14)	0.358	n/a	
Macrolide	3/148 (2)	1/141 (1)	1/108 (1)	0.35 (0.04, 3.37)	0.36	0.45 (0.05, 4.32)	0.49
Nitroimidazole	3/148 (2)	7/141 (5)	9/108 (8)	2.52 (0.66, 9.71)	0.178	4.39 (1.27, 15.15)	0.019
Quinolone	5/148 (3)	1/141 (1)	8/108 (7)	0.20 (0.02, 1.70)	0.142	2.29 (0.69, 7.62)	0.178
Sulfamethoxazole +/- Trimethoprim	6/148 (4)	11/141 (8)	11/108 (10)	2.00 (0.66, 6.09)	0.221	2.68 (0.91, 7.93)	0.074

Tetracycline	8/148 (5)	5/141 (4)	1/108 (1)	0.64 (0.21, 1.94)	0.434	0.16 (0.02, 1.33)	0.09
Aminoglycoside	3/148 (2)	2/141 (1)	6/108 (6)	0.70 (0.13, 3.69)	0.67	2.84 (0.83, 9.76)	0.097
Systemic antifungal	2/148 (1)	1/141 (1)	0	0.52 (0.05, 5.39)	0.585	n/a	
Topical antifungal	13/148 (9)	16/141 (11)	6/108 (6)	1.33 (0.62, 2.83)	0.46	0.61 (0.22, 1.70)	
Other*	11/148 (7)	7/141 (5)	1/108 (1)	0.65 (0.23, 1.86)	0.423	0.12 (0.01, 0.92)	0.042

\*The category 'Other' included: Nitrofurantoin, Oseltamivir, Linezolid, Valaciclovir, Trimethoprim (monotherapy), and Chloramphenicol (topical)

				<b>Unadjusted analysis: logistic regression accounting for clustering within the individual</b>	
<b>TABLE 3. ANTIMICROBIAL ORDERS OF INTEREST</b>				3yr vs pre implementation	
<b>ANTIMICROBIAL ORDERS OF INTEREST</b>	<b>PRE- IMPLEMENTATION n(%)</b>	<b>IMMEDIATELY POST IMPLEMENTATION n(%)</b>	<b>3YRS POST IMPLEMENTATION n(%)</b>	OR (95% CI)	p value
Meropenem	2/148 (1)	6/141 (4)	1/108 (1)	0.68 (0.06, 7.47)	0.754
Ciprofloxacin	5/148 (3)	1/141 (1)	8/108 (7)	2.29 (0.69, 7.62)	0.178
Ceftriaxone	9/148 (6)	3/141 (2)	9/108 (8)	1.40 (0.53, 3.71)	0.494
Piperacillin/Tazobactam	7/148 (5)	7/141 (5)	1/108 (1)	0.19 (0.02, 1.49)	0.113
Glycopeptides (IV)	4/148 (3)	3/141 (2)	2/108 (2)	0.68 (0.13, 3.69)	0.654
Trimethoprim (+/- sulfamethoxazole)	6/148 (4)	11/141 (8)	11/108 (10)	2.68 (0.91, 7.93)	0.074
Amoxicillin/clavulanate (O/IV)	24/148 (16)	24/141 (17)	23/108 (21)	1.40 (0.75, 2.60)	0.291
Gentamicin	3/148 (2)	2/141 (1)	4/108 (4)	1.86 (0.41, 8.49)	0.424



							<b>COURSE DURATION</b>	
							Unadjusted analysis: linear regression accounting for clustering within the individual	
<b>TABLE 4. PROPORTION AND DURATION OF ANTIMICROBIAL COURSES</b>							3yr vs pre implementation	
	PRE-IMPLEMENTATION <b>MEDIAN (days) [IQR]</b>		IMMEDIATELY POST-IMPLEMENTATION <b>MEDIAN (days) [IQR]</b>		3YRS POST-IMPLEMENTATION <b>MEDIAN (days) [IQR]</b>		exp coef (95% CI)	p value
Total course duration (for single indication)	11 [8-19]		10 [6-15]		7 [5-11]		0.62 (0.49, 0.77)	<0.001
	PRE-IMPLEMENTATION		IMMEDIATELY POST-IMPLEMENTATION		3YRS POST-IMPLEMENTATION			
	Proportion of antimicrobial courses n (%)	Duration of antimicrobial course (days) Median [IQR]	Proportion of antimicrobial courses n (%)	Duration of antimicrobial course (days) Median [IQR]	Proportion of antimicrobial courses n (%)	Duration of antimicrobial course (days) Median [IQR]		
SSTI	17/104 (15)	12 [7-14]	16/103 (16)	13 [10-15]	7/82 (7)	5 [4-12]	0.57 (0.33, 0.99)	0.045
Bacteremia	5/104 (5)	15 [14-15]	6/103 (6)	14 [12-14]	4/82 (5)	21 [12-30]	1.19 (0.54, 2.59)	0.643
Pulmonary	23/104 (22)	10 [7-12]	17/103 (19)	6 [5-7]	11/82 (13)	5 [5-8]	0.55 (0.33, 0.91)	0.022
Joint/Bone/OM	8/104 (8)	42 [15-72]*	10/103 (10)	46 [41-50]	3/82 (4)	42 [38-46]	1.01 (0.54, 1.90)	0.972
Superficial fungal	12/104 (12)	29 [24-52]	14/103 (14)	15 [12-24]	6/82 (7)	30 [19-41]	0.83 (0.48, 1.44)	0.493
Gastrointestinal	4/104 (4)	12 [9-17]	6/103 (6)	11 [10-20]	8/82 (11)	10 [10-13]	0.93 (0.40, 2.15)	0.85
Urinary	30/104 (29)	9 [6-12]	27/103 (26)	7 [5-10]	39/82 (49)	7 [5-8]	0.69 (0.53, 0.91)	0.009
Prophylaxis	2/104 (2)	10 [9 -10]	4/103 (4)	3 [1-5]	2/82 (2)	3 [3-4]	0.30 (0.13, 0.68)	0.01
Other (eg. Deep seated collections, abscess)	3/104 (3)	19 [13-20]	3/103 (3)	40 [38-54]	2/82 (2)	15 [1-23]	0.41 (0.01, 17.04)	0.589

\*Includes two courses (15 days) - patient ended up on lifelong suppression (maintenance)

<b>TABLE 5. AMS MOMENTS AND ACCEPTANCE RATES</b>		
<b>ACTUAL AMS MOMENTS</b>	<b>IMMEDIATELY POST-IMPLEMENTATION</b>	<b>3YRS POST-IMPLEMENTATION</b>
<b>Number of AMS moments</b>	139	124
<b>Average number of AMS moments per round</b>	5	5
<b>Average number of AMS moments per antimicrobial order</b>	1	1
<b>Number of antimicrobial orders with <math>\geq 1</math> AMS moment</b>	112/141 (79%)	91/108 (84%)
<b>Acceptance rate</b>	128/139 (92%)	118/124 (95%)
<b>Recommendations not implemented</b>	11/139 (8%) 2/11 Escalation 2/11 Discontinuation 1/11 Switch 6/11 Optimisation	6/118 (5%) 1/6 Switch 5/6 Optimisation
<b>Frequency of accepted AMS moments in relation to indication</b>		
<b>SSTI</b>	32/128 (25%)	10/118 (8%)
<b>Bacteremia</b>	8/128 (6%)	4/118 (3%)
<b>Respiratory</b>	22/128 (17%)	14/118 (12%)
<b>Joint/Bone/OM</b>	18/128 (14%)	14/118 (12%)
<b>Superficial fungal</b>	11/128 (9%)	6/118 (5%)
<b>Gastrointestinal</b>	6/128 (5%)	10/118 (11%)
<b>Urinary</b>	27/128 (21%)	47/118 (40%)
<b>Prophylaxis</b>	4/128 (3%)	3/118 (3%)
<b>Other</b>	-	10/118 (8%)
<b>Frequency of each accepted AMS moment</b>		
<b>Escalation</b>	8/128 (6%)	6/118 (5%)
<b>De-escalation</b>	7/128 (5%)	6/118 (5%)
<b>Discontinuation</b>	48/128 (38%)	38/118 (32%)
<b>Switch</b>	15/128 (12%)	13/118 (11%)
<b>Optimise</b>	50/128 (39%)	55/118 (47%)

## **ADDITIONAL INFORMATION**

### **DEFINITIONS:**

Antimicrobial **order** = Single antimicrobial via one route for single indication

Antimicrobial **course** = Intravenous (IV) + oral (PO) for single indication (Can include **more than one** IV and/or PO order)

For example: Two days of gentamicin, followed by 3 days of trimethoprim/sulfamethoxazole to treat acute cystitis. This is made up of two antimicrobial orders but is one antimicrobial course – duration of 5 days.

If, for the above example, the trimethoprim/sulfamethoxazole order was reviewed at the Tuesday meeting, this order was included as a 'reviewed order'. It counted towards the number of oral antimicrobials orders prescribed and reviewed. The preceding order of gentamicin contributed to the total course duration but was not included in the IV orders reviewed – as it was prescribed without involvement from the AMS team.