

Background

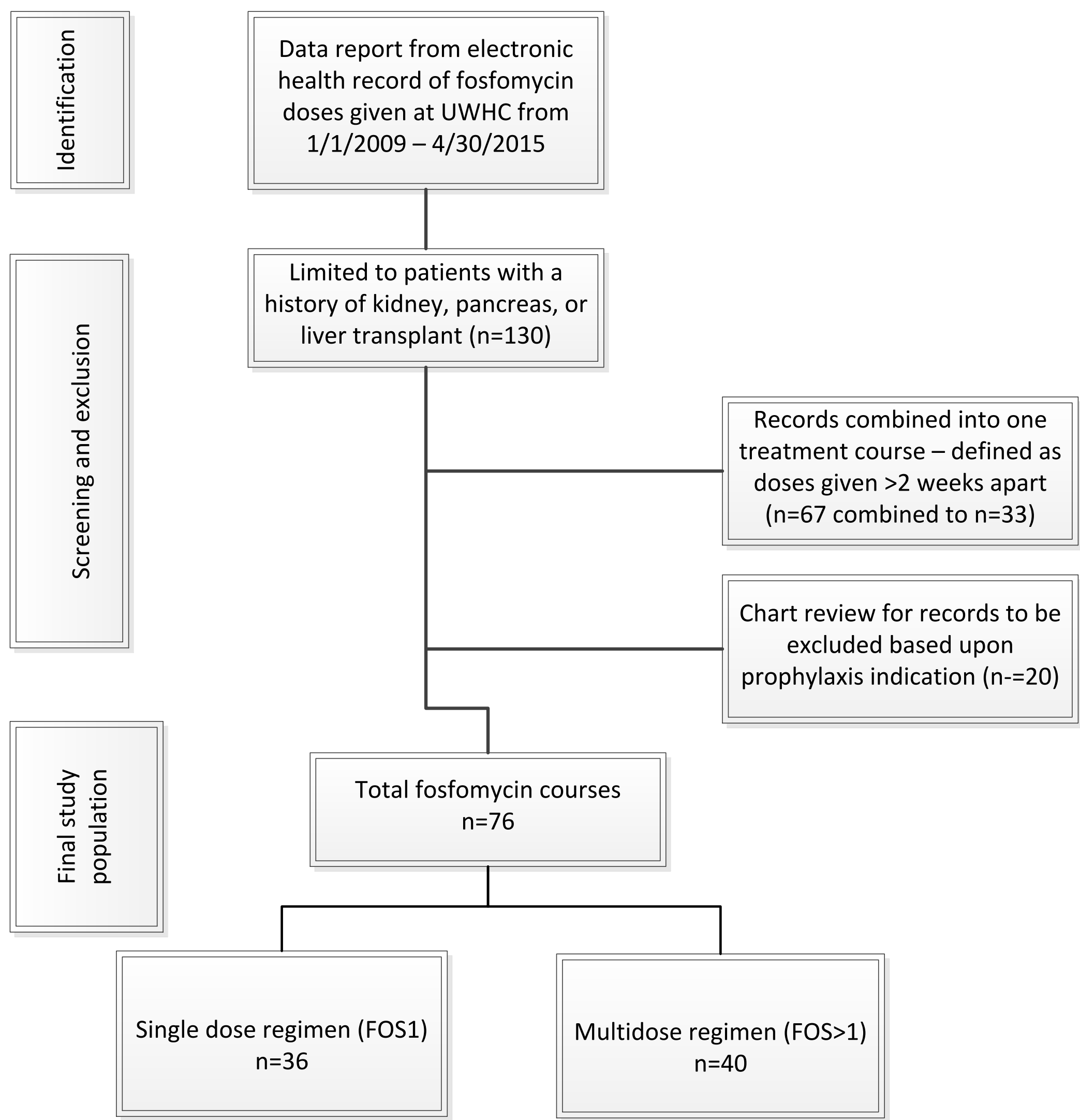
- Increased use of antimicrobial prophylaxis following solid organ transplant has led to a rise in the number of infections caused by drug resistant organisms
- Fosfomycin (FOS) is a phosphonic acid derivative approved by the Food and Drug Administration (FDA) as a single 3g oral dose for the treatment of uncomplicated urinary tract infections (UTI) in women
- FOS has been used off-label as a 3 dose series for the treatment of uncomplicated UTI in males
- Literature demonstrates FOS has in vitro efficacy against multi-drug resistant pathogens including *Klebsiella pneumonia*, extended-spectrum beta-lactamase producing bacteria, and vancomycin resistant enterococci (VRE)
- Clinical data supporting the effectiveness of FOS as a therapeutic treatment option in abdominal solid organ transplant (aSOT) recipients is limited

Objectives and Purpose

- Primary Objective** – To evaluate the overall efficacy of FOS for treatment of cystitis in the aSOT population
- Secondary Objectives** –
 - Identify the causative organism resulting in FOS use in aSOT recipients
 - Examine potential risk factors that have been suggested as contributing to FOS treatment failure in the aSOT population
 - Determine and compare rates of efficacy between the FDA approved single dose regimen and the off-label multidose regimen of FOS

Methods

- Retrospective chart review of aSOT recipients treated with FOS between January 1, 2009 and April 30, 2015



Results

Table 1 Demographics and variables				
		Dosing regimen subgroup analysis		
	Total	FOS1	FOS>1	P value
Average of Age When Treated (years)	57 ± 12	57 ± 13	57 ± 12	
Average of BMI When Treated	27.9 ± 7.6	27.2 ± 9	28.4 ± 6.2	
Sex				
Female	50	24	26	0.87
Male	26	12	14	
Race				
Asian	6	1	5	0.20
Black or African American	9	5	4	0.73
White	61	30	31	0.52
On Concomitant Broad Spec Abx				
No	31	19	12	0.04
Yes	45	17	28	
Time Post-Tx UA+				
<1 month	16	9	7	0.42
<3 month	24	11	13	0.86
>12 months	42	19	23	0.68
Organ Tx Type				
Kidney	45	19	26	0.28
Kidney-Liver	5	3	2	0.66
Kidney-Pancreas	6	2	4	0.68
Liver	18	11	7	0.18
Pancreas	2	1	1	>0.99
Induction				
Deplentionary Induction	22	7	15	0.08
IL-2 inhibitors	37	19	18	0.46
None	15	9	6	0.27
Rejection Incidence	25	13	12	0.57
Immunosuppression at time of Infection				
Triple drug	31	11	20	0.09
Dual drug	30	11	19	0.13
Prednisone alone	18	10	8	0.43
Other	6	4	2	0.41
Urinary complicating factors				
Catheter				
Foley catheter	15	8	7	0.61
Nephrostomy tube	4	1	3	0.62
Ureteral stent	15	7	8	0.95

- Total of 76 courses of FOS identified in 64 patients
- Majority of patients in the study group (74%) had a history of renal transplant alone or in combination (*Table 1*)

- Primary Objective:**
 - Overall success rate of FOS for treatment of cystitis was 85.5% (*Table 2*)
- Secondary Objectives:**
 - 91 organisms were identified on culture with Enterococcal species being the most common (*Table 3*)
 - FOS treatment failure occurred in 14.4% of courses (n=11); half of these (n=5) were successfully retreated with another course of non-systemic therapy (FOS or nitrofurantoin)
 - No significant difference was noted in the incidence of treatment failure for those with urinary hardware in place (*Table 2*)
 - There was no significant difference in success rates when comparing single dose (FOS1) and multidose FOS (FOS>1) regimens (*Table 2*)
 - Although concomitant broad spectrum antibiotics were statistically more frequent in the FOS>1 group (*Table 1*), success rates were not significantly different when compared to the FOS1 group (*Table 2*)

Results

Table 2. Treatment Success Results and subgroup Analysis

	Total	Treatment success	Treatment failure	
Overall	76	65 (85.5%)	11 (14.4%)	
Organism isolated				
Enterococcus	54	44 (81.5%)	10 (18.5%)	
VRE, faecium	39	31 (79.5%)	8 (20.5%)	
Gram negative	20	19 (95%)	1 (5%)	
Urinary hardware				P value
Catheter	19	19 (84.2%)	3 (15.8%)	p>0.99
No catheter	57	49 (86%)	8 (14%)	
Stent	15	11 (73.3%)	4 (26.7%)	p=0.21
No stent	61	54 (88.5%)	7 (11.5%)	
Drug Regimen				
FOS1	36	29 (80.6%)	7 (19.4%)	p=0.33
FOS>1	40	36 (90%)	4 (10%)	
Concomitant antibiotics				
Yes	45	39 (86.7%)	6 (13.3%)	p=0.73
No	31	26 (83.9%)	5 (16.1%)	

Table 3. Isolate Organism Breakdown

91 organisms isolated from 76 cultures	Further treatment required	
ALL ISOLATED ORGANISMS	Yes	No
Candida	2	3
Enterobacter		2
Citrobacter		2
Coagulase-negative staphylococcus		6
E. Coli	1	7
Lactobacillus		2
VRE	8	31
Enterococcus	2	13
Gram positive cocci		1
Pseudomonas		3
Yeast not Candida		1
Klebsiella	1	2
Alcaligenes		1
MRSA		1
Bacteroides		1
Provotella or Porphyromonas sp		1
Total	14	77

Conclusions

- Fosfomycin appears to be efficacious for the treatment of cystitis in aSOT recipients

Disclosure

- The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation