Are Providers Shifting from NTF to Fosfomycin for Inpatient UTI? Big Data Reveals Small Shifts.

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Background

- Fosfomycin (FOS) and nitrofurantoin (NTF) are IDSA guideline approved drugs for acute cystitis in women.
- However their activity against multi drug resistant gram negatives may be driving increased use among inpatients with more complicated UTI.
- We evaluated trends in inpatient prescribing of these UTI-specific agents in the predominantly male population of the national VA system over a 7 year period.
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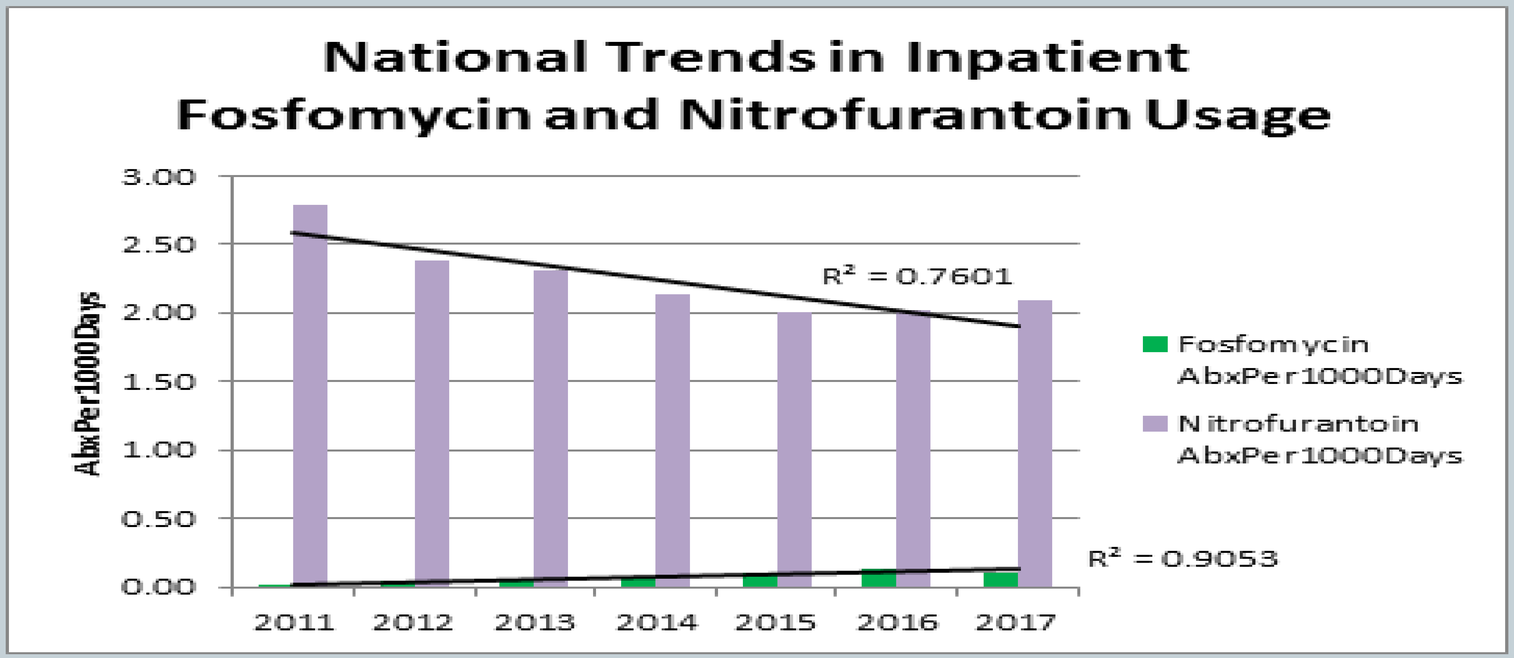
Methods

- All inpatient bar coded administrations for FOS and NTF at every VA facility nationwide from 2011-2017 were captured through a data analytics platform which extracts data from the VA Data warehouse.
- Antibiotic days of therapy and rates per 1000 patient days (DOT/1000CD) were extracted by year and compared using Mantel-Haenszel chi square for linear trend (MH OR).
- Demographics were captured via administrative data.



2017 Data	ICU	MEDSURG	NH	PSYCH	REHAB/SCI
FOS DOT/1000CD	0.06	0.15	0.07	0.03	0.73
NTF DOT/1000CD	0.56	1.46	2.41	2.55	9.35
FOS Days	28	382	229	28	315
NTF Days	251	3699	7826	2634	4013

Results

- Prescriptions from over 65 million patient days spanning 7 years and all inpatient units in 129 VA facilities were included.
- Approximately 90% of patients were male with a mean age range of 55-64 years.
- Fosfomycin use increased from 128 prescriptions in 2011 to a high of 1230 in 2016 and 1003 in 2017 (Figure).
- At the maximum in 2016, prescription rates increased almost 10 fold compared to 2011 (MH OR 9.8, p<.001).
- Nitrofurantoin prescriptions declined from 26,590 in 2011 to 19,343 in 2017. Rates decreased 25% from 2.8 – 2.1, MH OR 0.75, p<.001.
- In 2017, fosfomycin and nitrofurantoin usage rates were highest in Rehabilitation/Spinal Cord Units (Table).

Conclusions

- In this large nationwide cohort, fosfomycin use increased almost 10 fold among predominantly male inpatients while nitrofurantoin use declined slightly.
- Nitrofurantoin is still used orders of magnitude more than fosfomycin, even after adjusting for extended days of activity of fosfomycin.
- Both agents retain activity against many MDR GNRs but differences in efficacy, tissue penetration, familiarity and availability likely influence the choice for oral UTI-specific treatment.