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 [#nitrofurantoin](https://twitter.com/search?q=%23nitrofurantoin) was licensed as an oral antibiotic for urinary tract infections (UTIs) in the 1950’s & it is notable for still being in 1st line use with little anti-microbial resistance. In the 1970’s trimethoprim (TMP) became more popular, but resistance issues (28% of E.coli is resistance to TMP in UK) led to renewed interest

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Day 2: [#nitrofurantoin](https://twitter.com/search?q=%23nitrofurantoin) is broad spectrum for uropathogens, with high cure rates equivalent to trimethoprim. ESBL producing E.coli & Klebsiella are still sensitive & nitrofurantoin is used as 1st line treatment in primary care. Effective as a 3 day course for uncomplicated UTI in healthy women, 100mg m.r x2/day; also used 50mg x4/day for 5 days

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Day 3: Unusual kinetics for [#nitrofurantoin](https://twitter.com/search?q=%23nitrofurantoin) mean it is used as treatment for UTIs only. Rapid oral absorption & 60-75% 1st pass metabolism. The remainder is highly soluble & concentrates in renal/urinary tissue as unchanged drug for elimination where it can kill the bacteria. t½ ~30 mins. Macrobid forms a gel in GI tract allowing slow release

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Day 4:Bacterial nitroreductases transform #nitrofurantoin into a reactive entity inflicting multiple system attacks on RNA,DNA,proteins & inhibiting the citric acid cycle. Its action is confined to the urinary tract with negligible tissue penetration elsewhere; this prevents carcinogenic risk to other tissues

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Day 5: [#nitrofurantoin](https://twitter.com/search?q=%23nitrofurantoin) was in clinical use predating regulation standards, so much information is unknown re ADRs! Include brown urine, abdominal pain, blood disorders e.g agranulocytosis, peripheral neuropathy. Psychiatric effects unknown frequency. Pulmonary fibrosis associated with long-term use (months/years);not exhaustive

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Day 6: Drug-drug interactions are mostly moderate re increased risk of peripheral neuropathy e.g isoniazid, amiodarone, metronidazole; Severe DDIs with methaemoglobinaemia for dapsone & prilocaine. Action antagonised by quinolones & there is reduced absorption if antacids/foods which delay gastric emptying. Inactivates the typhoid vaccine (not exhaustive)



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Day 7: Low resistance to [#nitrofurantoin](https://twitter.com/search?q=%23nitrofurantoin) is thought to be because of the multiple attacks on bacterial structures - bacteria find it difficult to overcome more than one line of attack & survive to pass on several resistance mutations. This scenario is improbable in one organism