Nitrofurantoin in Elderly Patients with Reduced Renal Function
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**Background**
- Nitrofurantoin is one of our first line antibiotics used in treatment of urinary tract infections.
- It’s antibacterial effect occurs when it is excreted into the urinary tract, therefore efficacy is reduced in people with renal failure.
- It is linked with treatment failure in people over 65 years with eGFR<45 hence now contraindicated in this group as per current guidelines.

**Aim**
To audit how many patients over the age of 65 years have been prescribed nitrofurantoin with an eGFR<45.

To see if practice is meeting prescribing target of 90% adherence to current guideline criteria.

Current Northern Ireland Management of Infection Guidelines for Primary and Secondary Care 2016:

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<tr>
<th>Urinary Tract Infection (Adults First Line):</th>
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<tbody>
<tr>
<td>Trimethoprim or 200mg BD</td>
<td>Females: 3 days Males: 7 days</td>
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<tr>
<td>Nitrofurantoin or 50mg QOS or 100mg MIR BD</td>
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<td>Pymecillinam (amoxicillin in penicillin hypersensitivity)</td>
<td>400mg stat then 200mg TDS</td>
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Nitrofurantoin can be considered first line if GFR over 45 and there are risk factors for resistance including: care home resident, recurrent UTI, hospitalisation >72 h in last 6 mths, unresponsive urinary symptoms, recent travel outside Northern Europe or Australia, previous known resistance to trimethoprim, quinolone or cephalosporin. If GFR >30-50mL/min use nitrofurantoin only if resistance and no alternative, otherwise it is contraindicated in this group.

**Results**
The results showed that 19% of patient’s over age 65yrs who were prescribed nitrofurantoin had an eGFR <45. 81% compliance with guidelines

**Outcome Measures**
- % of staff with increased knowledge of guidelines
- Is the prescribing target reaching 90% adherence to current guidelines re: prescription of nitrofurantoin in reduced renal function.

**Process Measures**
- % staff attending the practice meeting and education session
- Do all consultations rooms have guidelines displayed?
- % staff with microguide phone app

**Outcome**
- All prescribers were present during practice meeting in February. Quality Improvement project presented along with results – all keen to see improvement and reach target of at least 90% guideline adherence.

- Education: Reasoning behind nitrofurantoin being contraindicated in this group. Understanding helps to reinforce message and hopefully more people can remember to check renal function prior to prescribing.

- Posters in all rooms displaying the current guidelines. Also encouraged doctors to consider microguide phone app - allows easy access to guidelines at all times.

**Next Steps**
- Re-audit in August – 6 months following the practice meeting.
- If still not reaching target; plan to liaise with microbiology department to implement other changes:
  - Perhaps different guidelines or treatment pathway for UTI treatment in renal impairment can be introduced. This could be incorporated onto the “microguide” mobile phone app and also distributed via the NI Formulary.