Novel diagnostic strategies for urinary tract infection in hospital

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Inappropriate antibiotic prescribing has a major impact in hospital

- Drug-resistant infection, vulnerable patients
- High frequency (broad spectrum) prescribing

**Urinary tract infection (UTI) syndromes**

- **Septic shock**
- **Pyelonephritis**
- Localised and/or non-specific symptoms of urinary tract infection

**22% Emergency admissions in 2012/13**
## The epidemiology of UTI syndromes in hospital

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Prescribing</th>
<th>Resistance</th>
<th>Individual-level</th>
<th>Scale</th>
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<tbody>
<tr>
<td>Hospital Episode Statistics</td>
<td>N</td>
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<tr>
<td>Electronic health records</td>
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<td>Surveys eg ECDC</td>
<td>Y</td>
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<td>Local studies</td>
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<td>Hospital Prescribing Audit (HPA)</td>
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</tbody>
</table>
Phenotyping patients with suspected UTI syndromes

Clinical codes (ICD-10)

Microbiology
Biomarkers (vital signs, CRP, WCC, PCT)

Symptoms

Host gene signature
Conclusions

• Integration of clinical data + omics is a potential strategy to identify patients for early antibiotic cessation

• Clinical trials would be required to test this approach

• Developing a test is only part of the problem......