Antimicrobials are the most frequently prescribed drugs in LTCF. Antibiotic prescriptions may be unnecessary, even when necessary, the antibiotics prescribed are often excessively broad spectrum or longer duration.

**Background**

**Objectives**

To evaluate appropriateness of antibiotic prescriptions in a LTCF and analyse possible factors related with inappropriateness.

**Material and methods**

Prospective study: July 2019 – December 2020 (18 months)

Included: antibiotic prescriptions for suspected lower respiratory infection (LRTI), skin and soft-tissue infection (SSTI) or urinary tract infection (UTI)

Excluded: confirmed positive COVID-19 infections without suspected bacterial/fungal co-infection and prophylactic antibiotic prescriptions

**Results**

489 antibiotic prescriptions 416 included 194 (46.6%) inadequacy

Age: 83.2 ± 9.6 years, 43.6% women

<table>
<thead>
<tr>
<th>Type of therapy</th>
<th>Empirical: 83.2 %</th>
<th>Targeted: 16.8 %</th>
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<tbody>
<tr>
<td>Type of infection</td>
<td>UTI: 43.3 %</td>
<td>LRTI: 34.6 %</td>
</tr>
<tr>
<td>Treatment duration</td>
<td>5 (IQR: 1 - 7) days</td>
<td>&gt; 7 days: 9.4%</td>
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<tr>
<td>Antibiotics prescribed</td>
<td>Fosfomycin-tromethamine: 25 %</td>
<td>Cephalosporins: 18.8 %</td>
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<tr>
<td>Sample collecton</td>
<td>29.6 % of cultures</td>
<td>Urocultures: 74 %</td>
</tr>
<tr>
<td>Location antibiotic initiated</td>
<td>LTCF: 84.1 %</td>
<td>Emergency department: 12.7 %</td>
</tr>
</tbody>
</table>

Unnecessary 16.9 %

- Use of antimicrobials for non-infectious syndromes or non-bacterial infections 1.3 %
- Days of therapy beyond the indicated duration of therapy without any clinical reason for a lengthened course 13.4 %
- Use of redundant antimicrobial therapy and/or continuation of empiric broadspectrum therapy when cultures have revealed the infecting pathogen 2.2 %

Inappropriate 70.6 %

- Use of antimicrobials in the setting of established infection to which the pathogen is resistant 7.4 %
- Use of antimicrobials not recommended in treatment guidelines 63.2 %

Suboptimal 12.5 %

- Drug choice 3.9 %
- Drug route 0.4 %
- Drug dose 8.2 %

Multivariable analysis showed that empirical therapy, some classes of antibiotics (cephalosporins, fluoroquinolones, fosfomycin calcium, macrolides) and prescription initiation in the emergency department were independent predictors of antimicrobial inappropriateness.

**Conclusions and relevance**

Almost half of antimicrobials prescriptions are inappropriate. Antibiotics initiated in the ED constitutes a small but not unimportant percent of all prescriptions. Antimicrobial stewardship programmes should include interventions in this setting because of the high inappropriate use.