ANALYSIS OF EFFECTIVENESS AND POSITIVE PREDICTIVE VALUE OF ANTIMICROBIAL STEWARDSHIP ALERTS USING A CLINICAL-DECISION SUPPORT SYSTEM

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BACKGROUND AND IMPORTANCE
Clinical decision support systems (CDSS) are commonly used in clinical practice to generate antimicrobial stewardship (ASP)-alerts, which could help implement evidence-based recommendations.

AIM AND OBJECTIVE
To analyse use, effectiveness, and positive predictive value (PPV) of a bundle of ASP alerts generated by CDSS in a first-level hospital.

MATERIALS AND METHODS
Observational, retrospective study. ASP alerts generated between 2021-11-01 and 2022-08-31.

Bundle of alerts

- (1) ≥7 days of intravenous antimicrobial therapy (IAT)
- (2) Transitions from IAT to oral therapy
- (3) Antimicrobial dosage adjustment in renal impairment (RA)
- (4) Therapeutic antibiotic monitoring (TAM)
- (5) Duration of restricted antimicrobials >72 hours

Alerts requiring intervention

Effectiveness = Alerts requiring intervention
Total number of alerts

Accepted interventions

PPV =
Total number of alerts

RESULTS

2,546 alerts
947 patients

- 28.6% piperacillin/tazobactam
- 13.6% meropenem
- 7.5% linezolid
- 6.7% levofloxacin
- 6.2% ceftriaxone

≥7 days of IAT
Duration of RA>72 hours
Antimicrobial dosage adjustment in RI
Transition from IAT to oral therapy
TAM

<table>
<thead>
<tr>
<th>Alert Type</th>
<th>Frequency</th>
<th>Effect.</th>
<th>PPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥7 days of AIT</td>
<td>32.0%</td>
<td>9.5%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Duration of RA&gt;72 hours</td>
<td>31.6%</td>
<td>21.1%</td>
<td>19.9%</td>
</tr>
<tr>
<td>Antimicrobial dosage adjustment in RI</td>
<td>19.2%</td>
<td>11.0%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Transition from IAT to oral therapy</td>
<td>13.2%</td>
<td>19.6%</td>
<td>11.8%</td>
</tr>
<tr>
<td>TAM</td>
<td>4.0%</td>
<td>18.1%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Global 14.5% 9.6%

CONCLUSION AND RELEVANCE
Most frequently triggered alerts were duration of IAT and RA. Alerts with a higher PPV were transitions from IAT to oral therapy and TAM. Further studies are needed to optimise their use and avoid alert fatigue.

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