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

Amor MA[1], De Cáceres-Velasco C[1], Melgarejo-Ortuño A[1], García-González X[2], Matilla-García E[1], Rodríguez-Vargas B[1], Bautista-Sanz P[1], Apezteguia-Fernández CA[1], Melero Bermejo JA[3], Mateos-González M[3], Moreno-Díaz R[1]

[1]Pharmacy Service. Hospital Universitario Infanta Cristina. Parla, Spain
[2]Pharmacy Service. Hospital General Universitario Gregorio Marañón. Madrid, Spain
[3]Internal Medicine Service. Hospital Universitario Infanta Cristina. Parla, Spain

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 (RI)
- (4) Therapeutic antibiotic monitoring (TAM)
- (5) Duration of restricted antimicrobials >72 hours

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Total number of alerts
N of patients with ≥1 alert
Type of alert
Antimicrobial related

$$\textbf{Effectiveness} = \frac{\text{Alerts requiring intervention}}{\text{Total number of alerts}} \qquad \textbf{PPV} = \frac{\text{Accepted interventions}}{\text{Total number of alerts}}$$

RESULTS

2,546 alerts
947 patients

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

	Frequency	Effect.	PPV
≥7 days of AIT	32.0%	**9.5%**	**6.2%**
Duration of RA>72 hours	31.6%	**21.1%**	**19.9%**
Antimicrobial dosage adjustment in RI	19.2%	**11.0%**	**9.2%**
Transition from IAT to oral therapy	13.2%	**19.6%**	**11.8%**
TAM	4.0%	**18.1%**	**8.7%**
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.

miguelangel.amor@salud.madrid.org @FarmaHUIC