



The growing importance of reserve antibiotics in organ transplant care and the role of timely appropriate antibiotic treatment to preserve the benefits of prior health investments

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OBJECTIVE

The growing threat of antimicrobial resistance (AMR) and the increasing prevalence of multi-drug resistant (MDR) infections present significant challenges for kidney organ transplant (SOT) recipients.¹ This review examines the burden of AMR in SOT patients, explores management strategies, and assesses the financial implications, weighing the cost-benefit against the initial investment in SOT.

METHODS

A focused targeted literature review identified 11 publications from a 5-year period (2020-2025) using PubMed and Google Scholar (figure 1). Cost data were extracted from public databases or specific publications on costs.

FIGURE 1: LITERATURE FLOW CHART

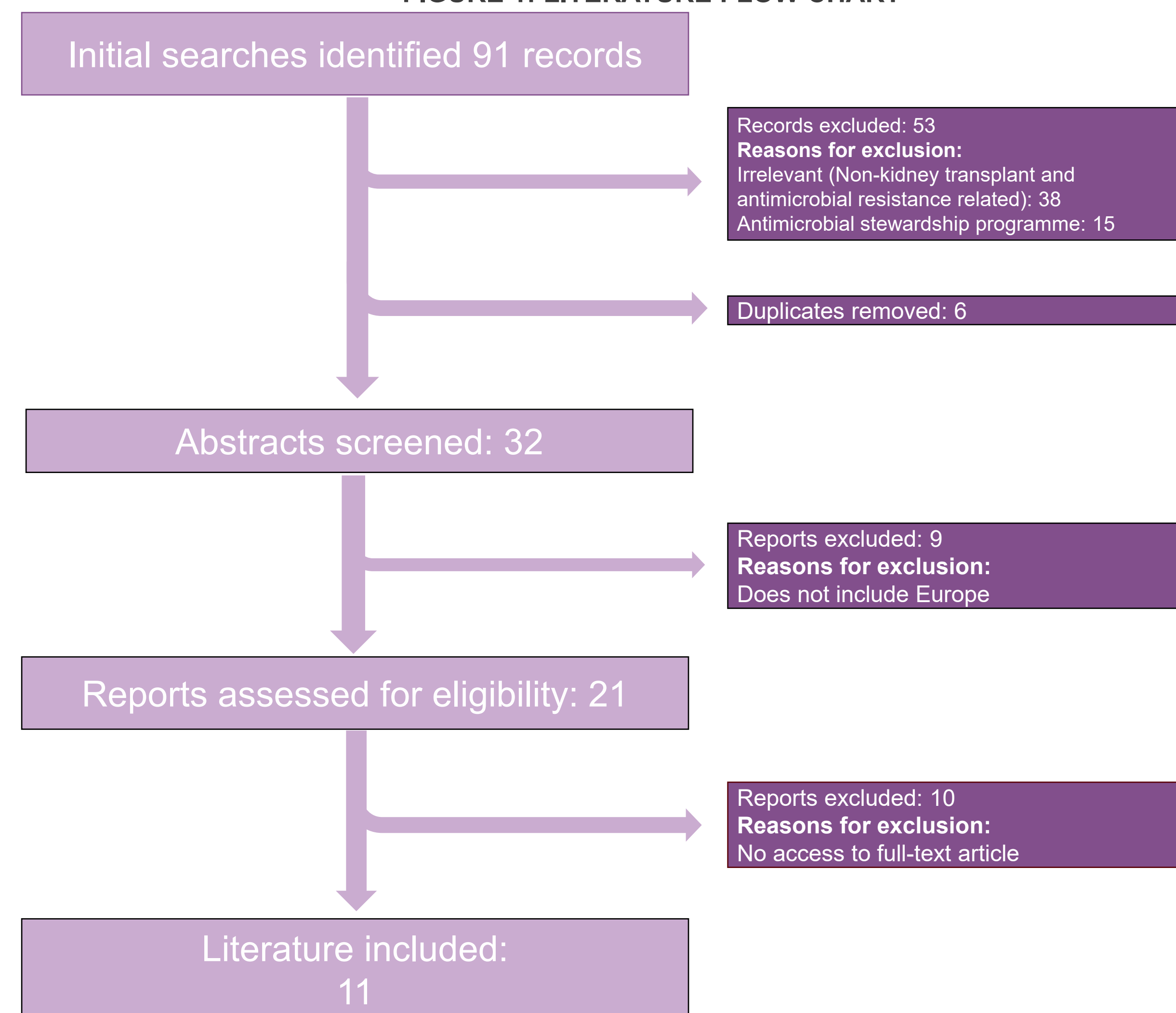
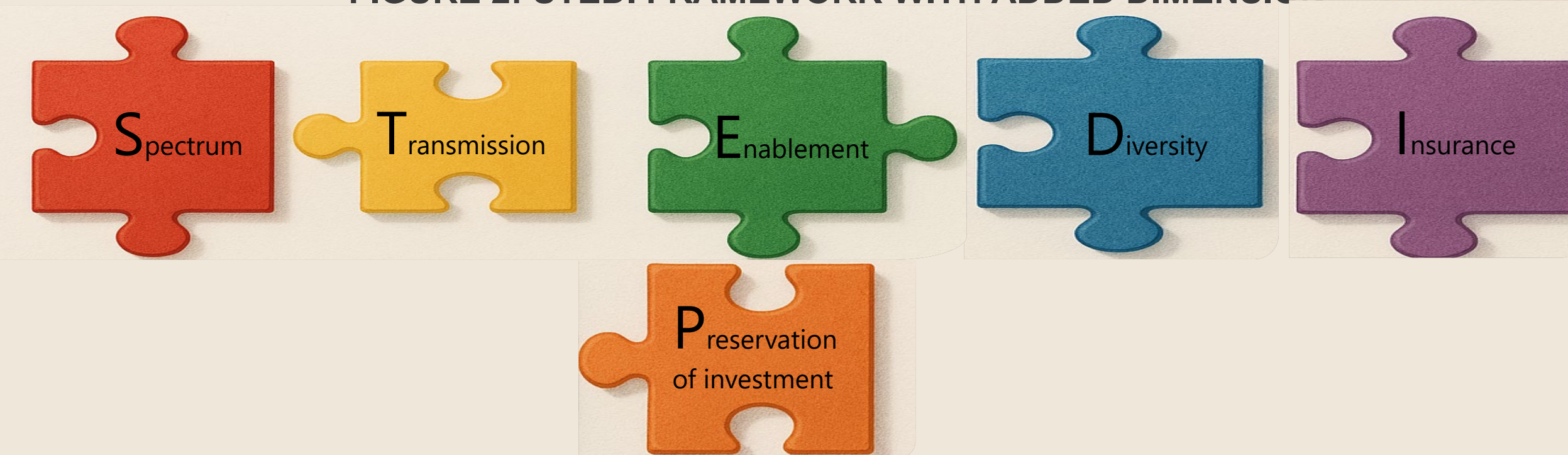


FIGURE 2: STEDI FRAMEWORK WITH ADDED DIMENSION



When prior health investments are considered in MDR infections:

- Early empiric therapy with broad-spectrum antibiotics may be justified for high-risk patients
- Investing in rapid diagnostics can improve outcomes and reduce use of inappropriate antibiotics and hospital stays

CONCLUSIONS

Investing in timely, appropriate antibiotic therapy and diagnostic tools helps preserve the value of prior health investments like SOT. Current value frameworks (e.g., STEDI) may underestimate this dimension of care.

REFERENCES

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5 Garnacho-Montero J, *et al. Rev Esp Quimioter.* 2025;38(3):197-207. doi:10.37201/req/121.2024

6 Bains K, *et al. Anaesthesia & Surgery Open Access Journal.* 2020;2(1). doi: 10.33552/ASOAJ.2020.02.000530

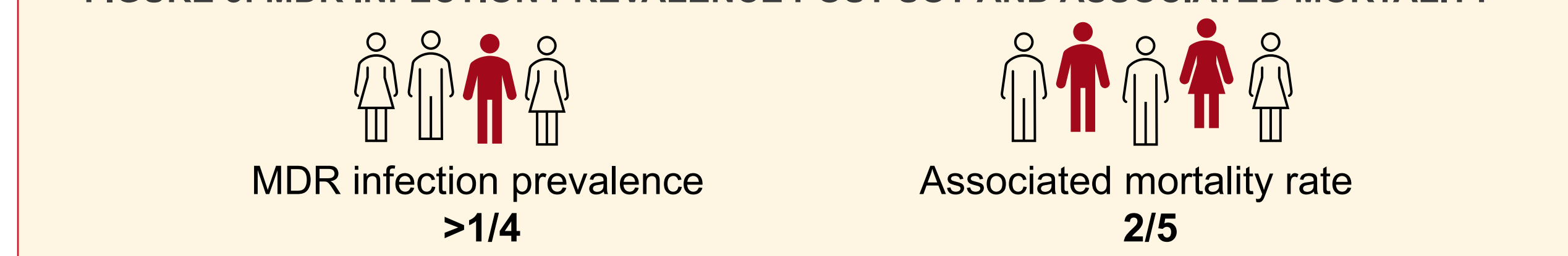
7 Bassetti, M. *et al. Int J Antimicrob Agents.* 2020;56(6):106184. doi:10.1016/j.ijantimicag.2020.106184

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RESULTS

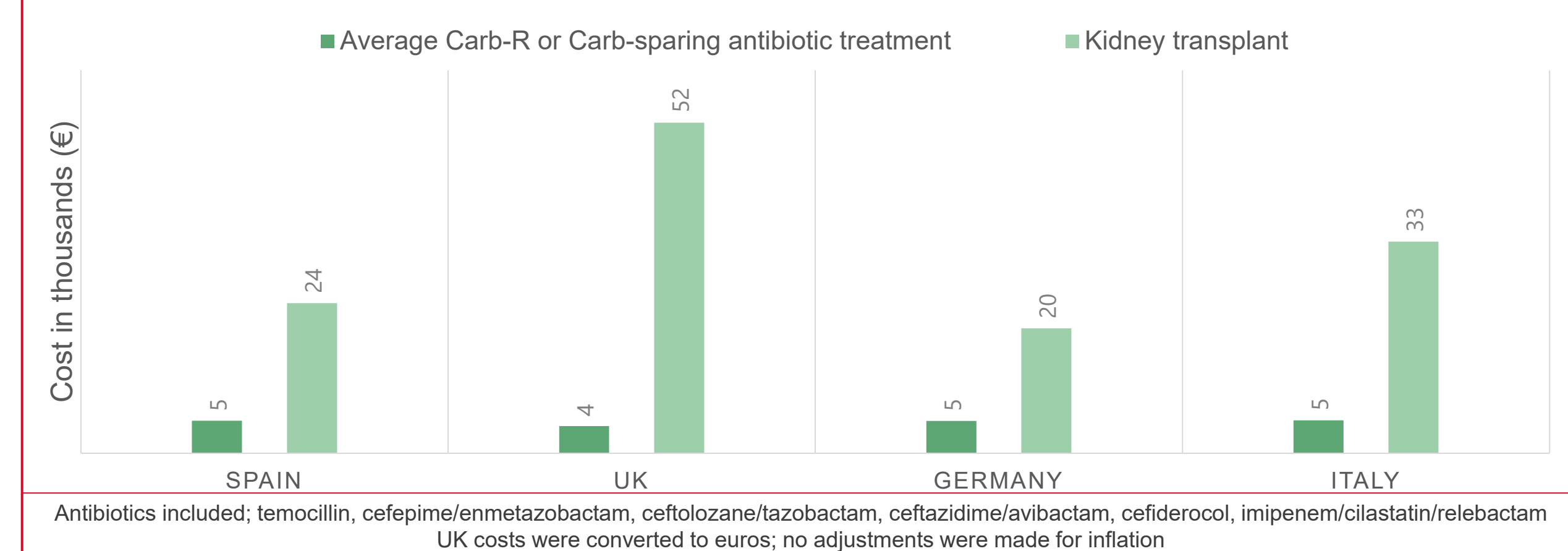
Post-SOT prevalence of MDR infections affected up to 28.6%, with mortality rates reaching 40% (figure 3).² Extended-spectrum beta-lactamase (ESBL)-producing bacteria were the most prevalent MDR pathogens, particularly among kidney transplant (KT) recipients.^{2,3}

FIGURE 3: MDR INFECTION PREVALENCE POST-SOT AND ASSOCIATED MORTALITY



The cost of a KT in four European countries ranged from €19,570 to €52,083, while antibiotic treatments for MDR infections varied between €1,200 and €9,500 (10 days of treatment; doses as per SPC; list prices from NAVLIN). Inappropriate initial therapy of MDR infections contribute to prolonged and costly hospital stays.²⁻⁵

FIGURE 4: COST OF A KIDNEY TRANSPLANT VS MDR ANTIBIOTIC TREATMENT IN FOUR EUROPEAN COUNTRIES⁸⁻¹¹



Several studies highlight the importance of timely identification of the appropriate antibiotic therapy to improve survival rates and minimize costs associated with ineffective treatment while safeguarding prior healthcare investments.^{6,12}

Rapid diagnostics can improve treatment outcomes but are not routinely practiced.⁷ In the absence of rapid diagnostics, initiating broader-spectrum antibiotics for at-risk patients and adjusting therapy based on diagnostic results may be appropriate.⁷

FIGURE 5: DIAGNOSTICS COMPARISON: COST VS TIME TO RESULTS^{13,14}

