

Clinical and economic impact of pharmacists' interventions related to antimicrobials in the hospital setting: A systematic review



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Objective

Summarize evidence regarding clinical and/or economic impact of Pharmacists' Interventions (PI) related to antimicrobials in the hospital setting, in order to identify those to prioritize.

Methods

Search:

- PubMed + references in citations
- From Jan-2003 to Mar-2016
- Searching terms:
 - pharmacist* or clinical pharmacist* and
 - antimicrobial* or antibiotic* or anti infective*

Table 1. Inclusion and exclusion criteria for study selection

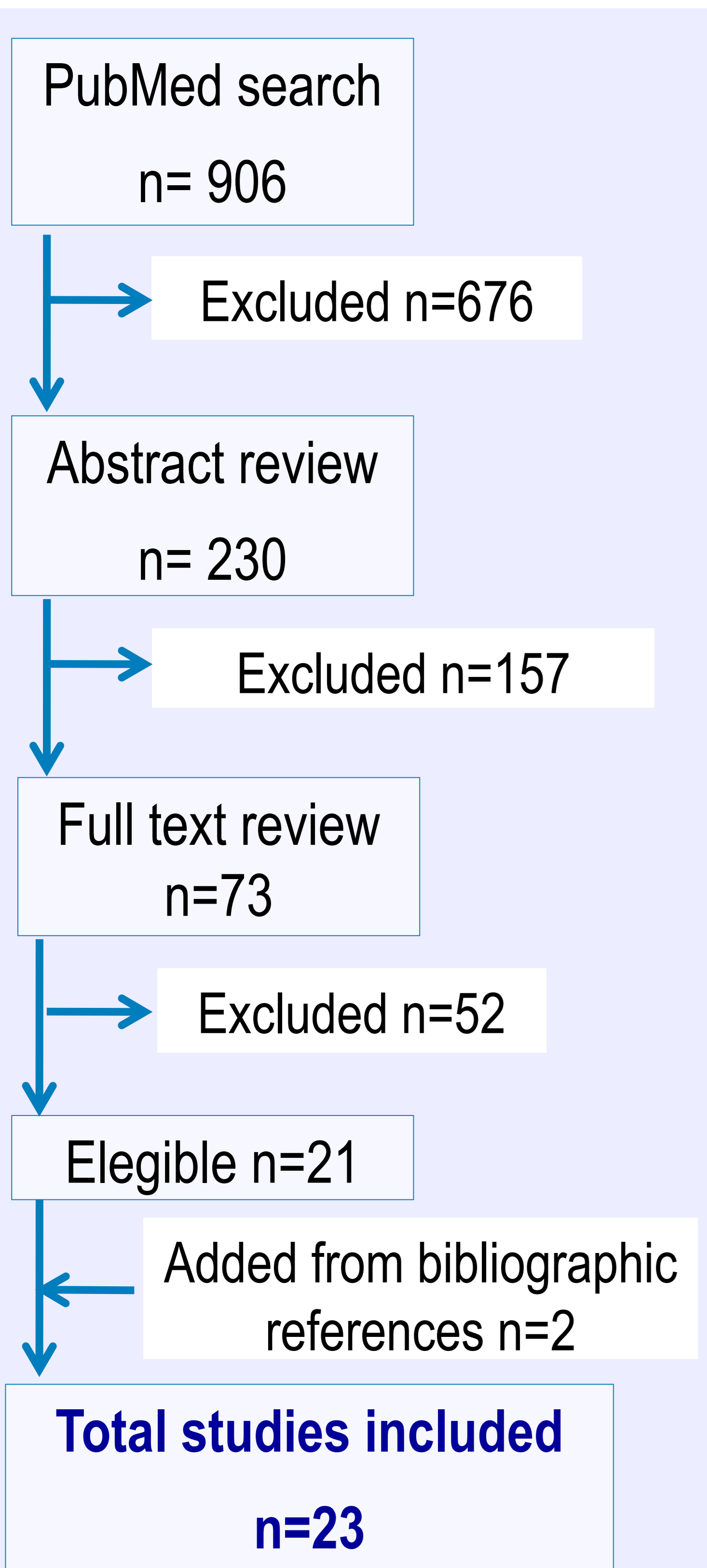
	Inclusion criteria	Exclusion criteria
Design	Comparative	Non-comparative, reviews
Language	English, Spanish or French	
Population	Adults	Solely pediatric or cystic fibrosis
Setting	Hospital or emergencies	Community or primary care
Intervention	PI only in antimicrobials	Multidisciplinary team interventions
Comparison	With PI vs. without PI	Generalist vs. Infectious pharmacist
Outcomes	Economical and/or clinical	--

Data collected from each selected paper:

- Author, year, country
- Patients' characteristics
- Outcomes and type of outcome
- PI and type of PI (SR= specific recommendations for specific patients, Policy= establishment of treatment policies, Education= sessions or education to health professionals)
- Design, setting (ward, hospital type)
- Sample size
- Comparison tests

Risk of bias of studies was assessed using Cochrane Collaboration's tool.

Results



Characteristics of studies

- 74% Published after 2010
- 17% European, 39% American
- 13% Multicenter
- 56% Focused on specific ward
- 100% With high risk of bias

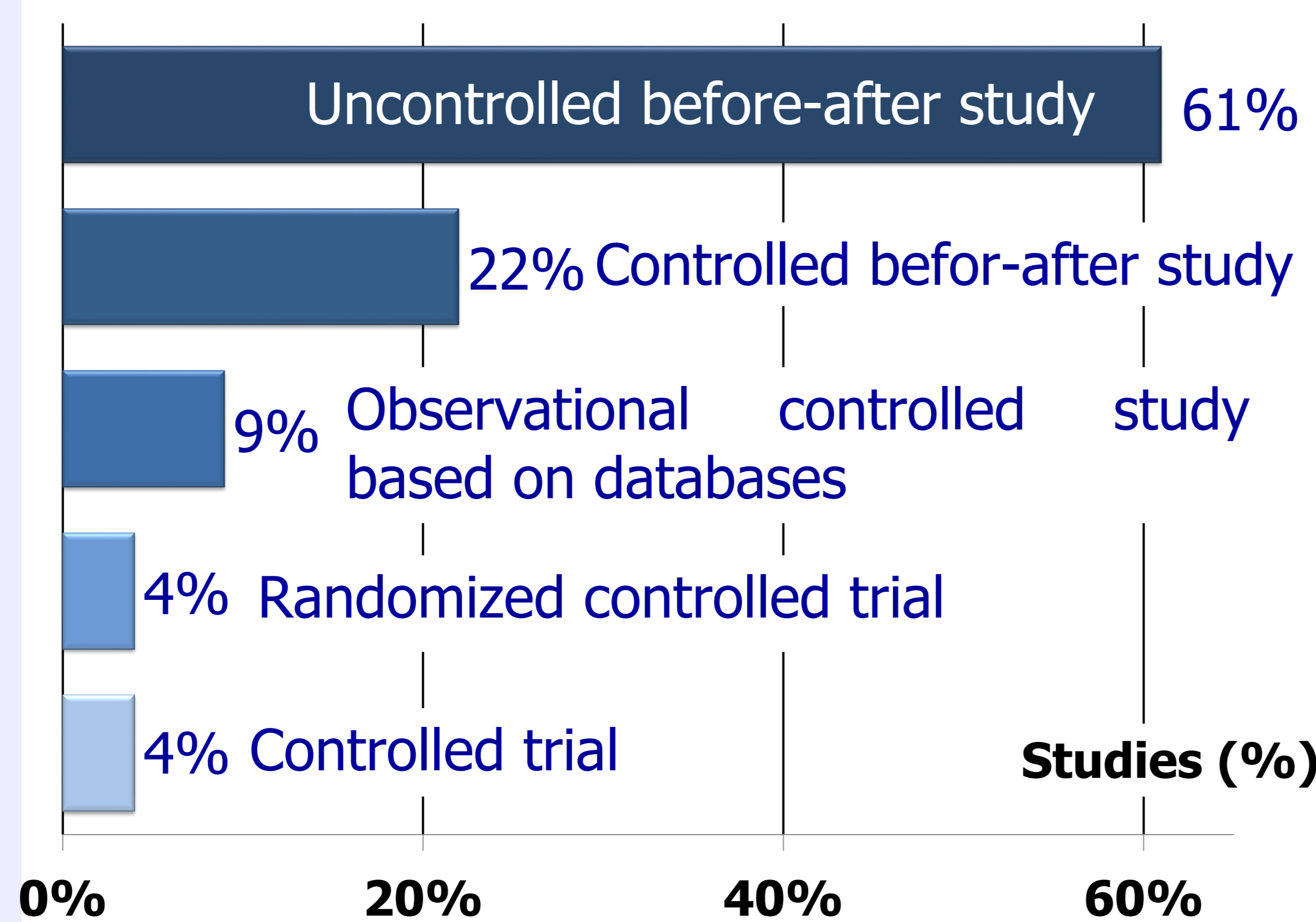


Figure 2. Study designs

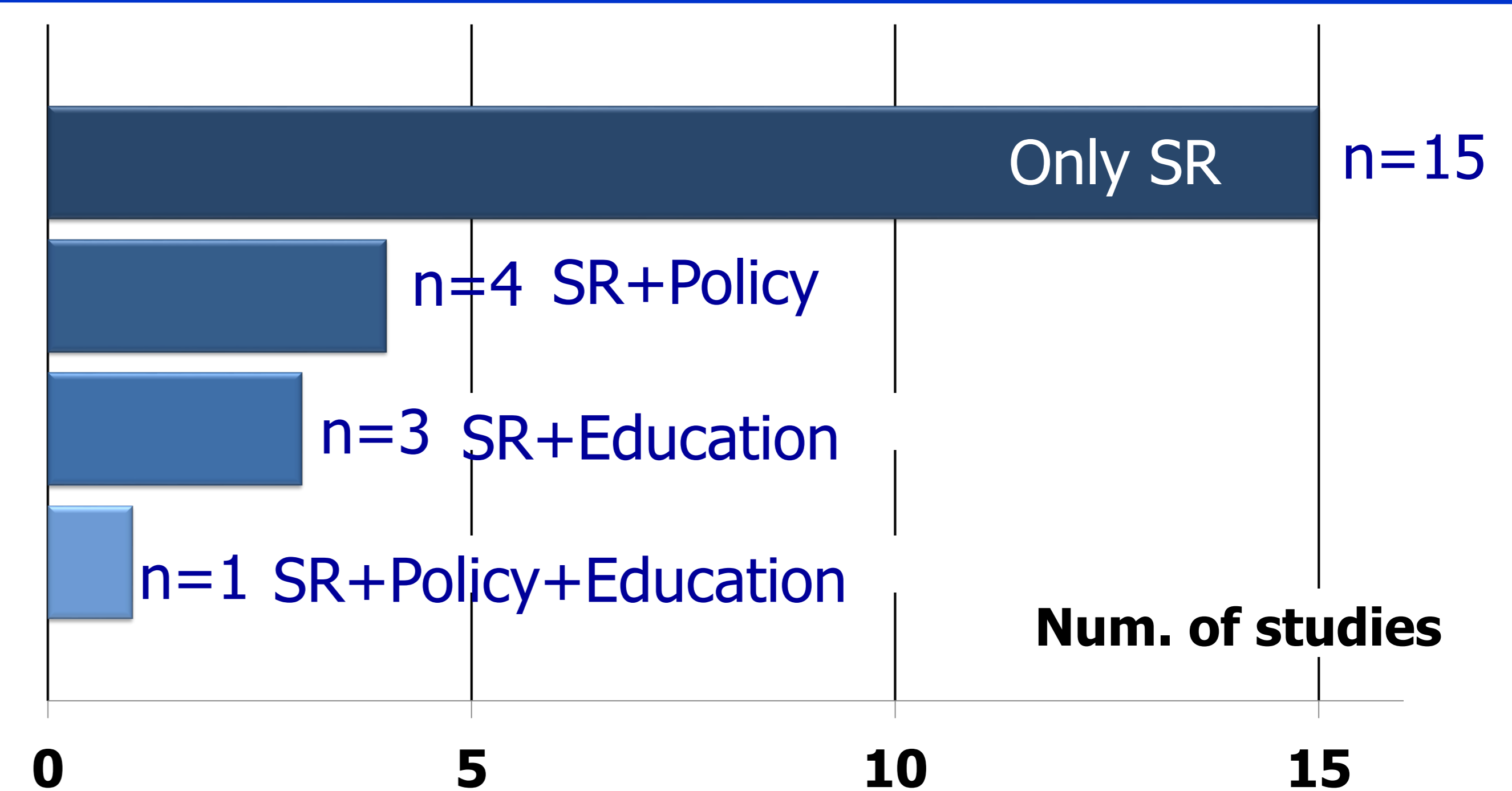


Figure 3. Type of PI analyzed in studies

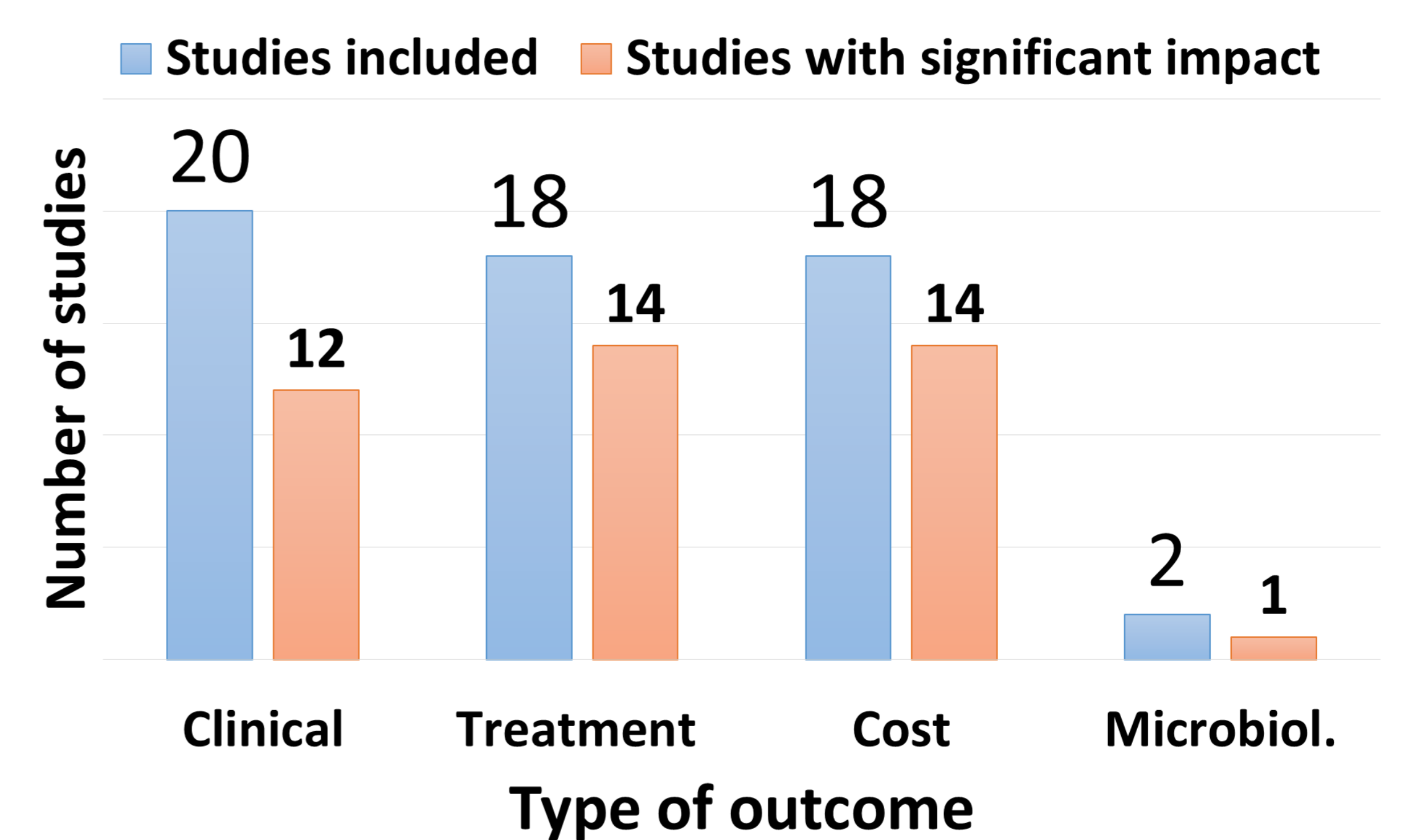


Figure 4. Studies that evaluate each outcome and those with significant impact of PI

Pharmacist Interventions:

- Related to a specific patient
- Integrated in the health team
- Participating in rounds
- Incorporating guidelines, protocols, and education

Improved clinical outcomes

Decreased:

- Post-operative infections
- Antimicrobial adverse effects
- Length of stay
- Unplanned readmissions
- Mortality

Cost:Benefit (in 2 studies):

11-19 € avoided per 1€ invested

✓ No study found negative impact.

✓ 70-92% accepted recommendations

✓ Can't conclude that adding other type of strategies to SR would improve results.

Limitations: poor quality studies.

Conclusions

- Pharmacists' interventions regarding antimicrobials have a positive impact on treatment related and clinical outcomes, and decrease hospital expenditures.
- Pharmacist in the health team giving advice related to specific patients has impact on key clinical outcomes