

## Background

- Sepsis is the leading cause of maternal death in 11-15% of women worldwide<sup>1,2</sup>.
- Physiological changes associated with pregnancy increase the challenge of diagnosing infection in the peripartum period<sup>3</sup>.
- The administration of intravenous broad-spectrum antibiotics to women with suspected or confirmed sepsis during this peripartum period is recommended<sup>3-5</sup>.

## Objectives

- To observe the clinical parameters used to assist the diagnosis of sepsis
- To describe bacterial isolates in patients with suspected or confirmed sepsis
- To quantify the incidence of bacterial isolates in patients with suspected or confirmed sepsis
- To describe the types of antimicrobial agents prescribed to these patients.

## Method

- A prospective observational cohort study in a single Scottish health region with 12,233 annual live births.
- Data were collected on women diagnosed with sepsis in the peripartum period.

## Results

- A total of 89 patients with a mean age of 29.8 ± 5.3 years were identified with suspected or confirmed sepsis from a total of 2690 pregnancies.
- Inconsistent clinical application of SIRS criteria to inform sepsis diagnosis was observed as only 51.7% (n=46) of women had SIRS ≥2
- Antimicrobial therapy administered ranging from 1 to 17 therapies per patient, with a median ± IQR of 3 ± 2 antibiotic therapies per patient.
- Good overall adherence to the local guidelines for the empiric antibiotic treatment of sepsis was observed.
- Group B Streptococcus was associated with 20.8% of maternal sepsis, whilst in 60% of clinical specimens no causative pathogen was isolated.
- Appropriate switching from intravenous to oral therapy was observed in 92.3% of cases.
- No statistically significant differences in CRP were observed between methods of delivery (P = 0.258); positive or negative culture specimens (p= 0.091) or SIRS score (<2 or ≥2, p= 0.688).

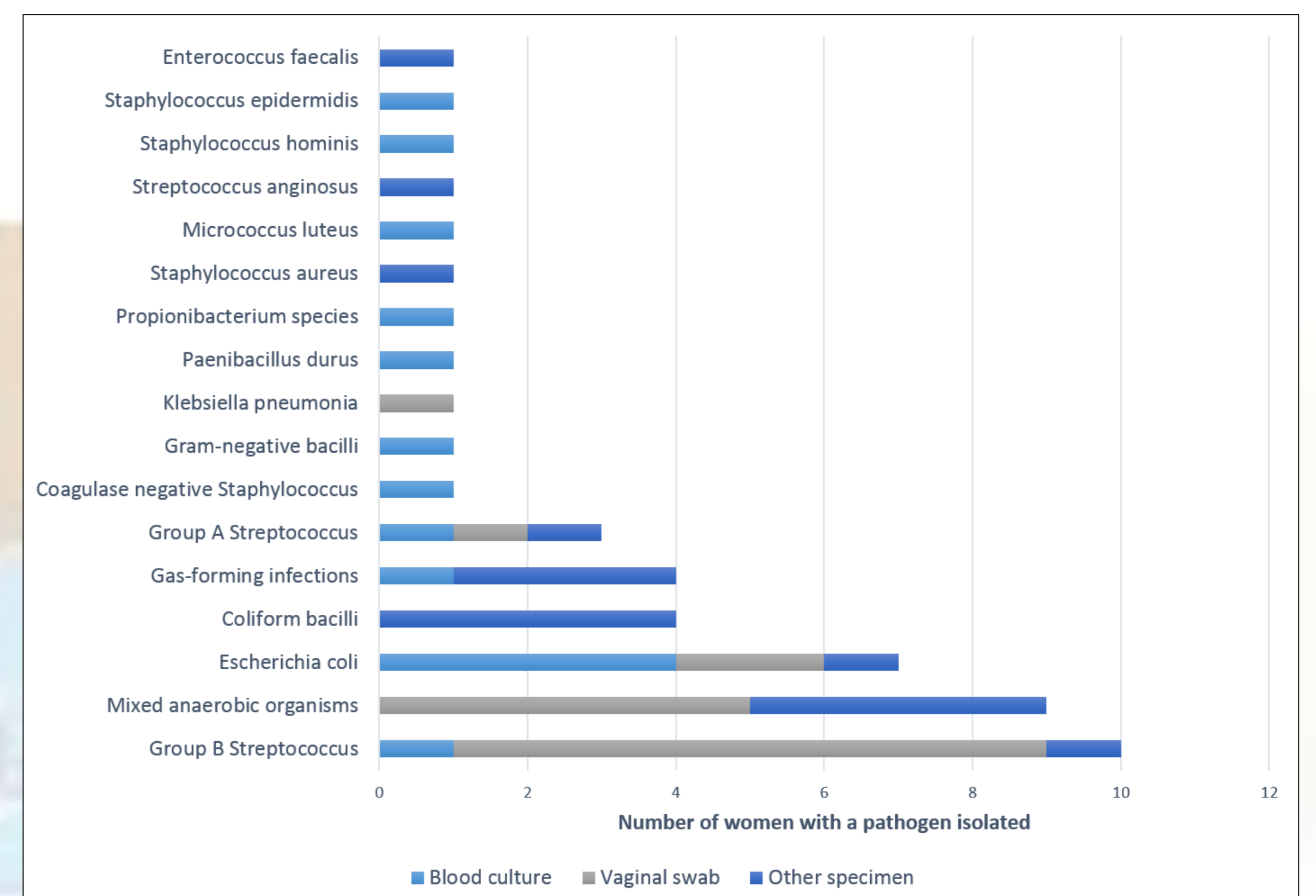


Figure 1: Pathogens isolated from clinical specimens

Table 1: Antibiotic categories and the number of prescriptions based on the British National Formulary categories

Antibiotic name	Number of prescriptions (%)			
	Total (100%)	SIRS ≥2 (59.4%)	SIRS <1 (28.8%)	Unknown (11.8%)
Penicillins	213 (68.05%)	124 (66.7%)	59 (65.5%)	30 (81.1%)
Cephalosporin, carbapenems and other beta-lactams	7 (2.24%)	7 (3.7%)	0	0
Aminoglycosides	40 (12.78%)	24 (12.9%)	12 (13.3%)	4 (10.8%)
Macrolides	5 (1.60%)	2 (1.1%)	3 (3.3%)	0
Clindamycin	14 (4.47%)	10 (5.4%)	2 (2.2%)	2 (5.4%)
Vancomycin	5 (1.60%)	2 (1.1%)	3 (3.3%)	0
Trimethoprim	2 (0.64%)	2 (1.1%)	0	0
Metronidazole	25 (7.99%)	13 (6.9%)	11 (12.2%)	1 (2.7%)
Quinolones	2 (0.64%)	2 (1.1%)	0	0
<b>Total</b>	<b>313</b>	<b>186</b>	<b>90</b>	<b>37</b>

Table 2: Route, dose and frequency of some antibiotic therapies

Antibiotic	Route	N (%)
Co-amoxiclav (n=180)	IV	77 (42.8%)
	PO	103 (57.2%)
Metronidazole (n=25)	IV	8 (32%)
	PO	16 (64%)
Flucloxacillin (n=17)	PR	1 (4%)
	IV	9 (52.9%)
Clindamycin (n=14)	PO	8 (47.1%)
	IV	7 (50%)
	PO	7 (50%)

## Conclusion

The lack of specific and sensitive clinical markers for sepsis, coupled with their inconsistent clinical application to inform diagnosis, hindered effective antibiotic stewardship. This was further exacerbated by the lack of microbial isolates from clinical specimens which meant that patients were often continued on broader-spectrum empiric treatments, without opportunity for de-escalation to narrower-spectrum antibiotics.

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