

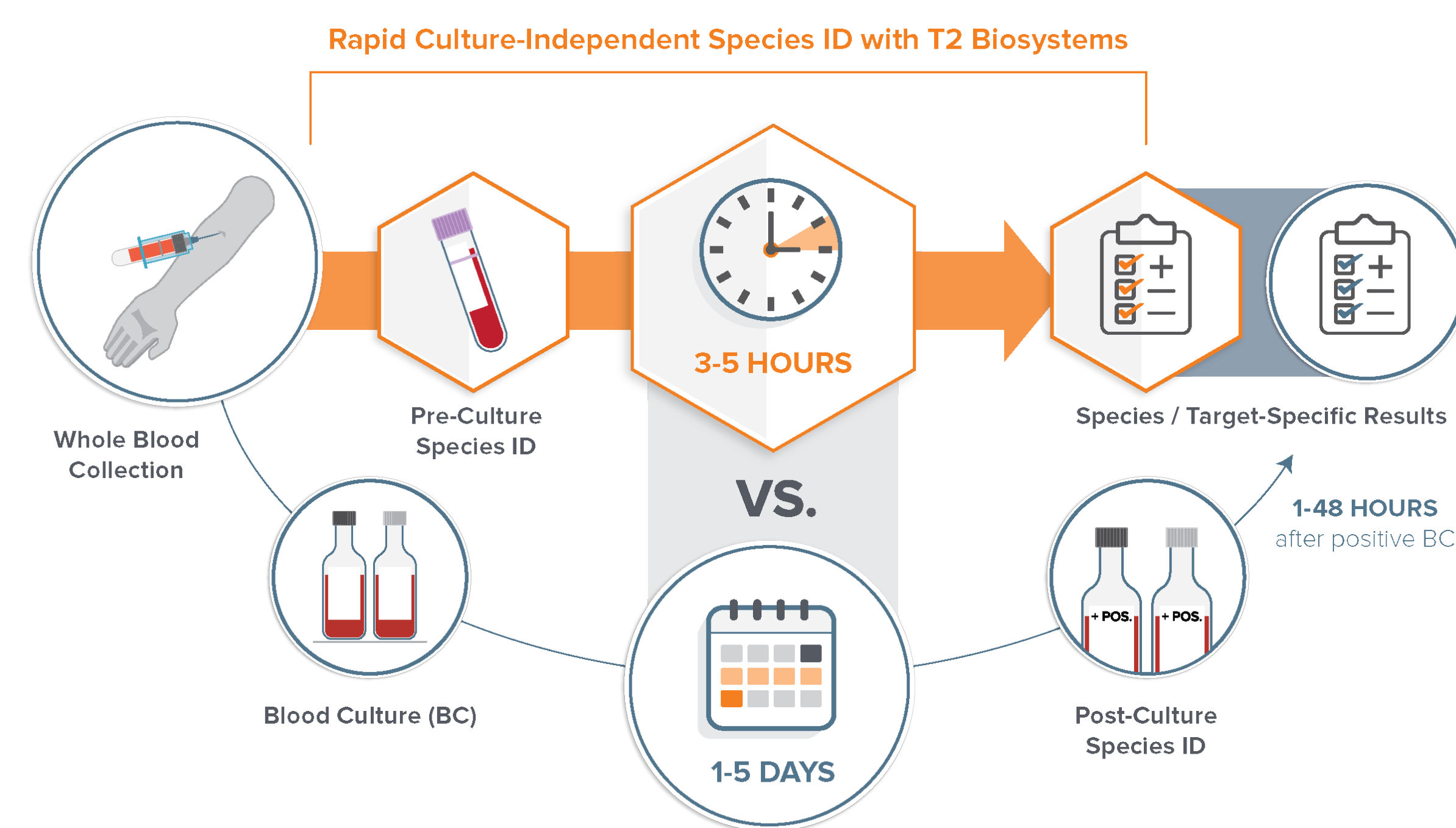
# The T2Bacteria Panel Covers 74% of Bacterial Pathogens Causing Bloodstream Infections

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## Background

- The T2Bacteria<sup>®</sup> Panel is an FDA cleared and CE marked culture independent in vitro diagnostic test that identifies common species that cause bacterial sepsis utilizing T2 magnetic resonance technology.
- This FDA cleared panel detects *Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and *Escherichia coli* within 3-5 hours.
- The CE-marked panel also has *Acinetobacter baumannii* as a sixth target.
- Early identification of these six pathogens is key as all are included within the WHO Critical Pathogens list and CDC Antibiotic Resistance Threats.<sup>1,2</sup>
- The SENTRY surveillance program found that these six organisms accounted for 63.4% of bacterial bloodstream infections from 2013-2016.<sup>3</sup>
- The purpose of this study is to evaluate the proportion of organisms from bloodstream infections that were on-panel, in studies evaluating T2Bacteria.



## Methods

**INCLUSION:** Publications, presentations, and abstracts evaluating the T2Bacteria Panel were systematically screened and included if the study reported organisms grown from conventional blood cultures for all included subjects.

**EXCLUSION:** Studies were excluded if organism level data were not available for both on and off-panel organisms. Data relating to *Candida* species and the T2Candida Panel were excluded from analyses.

**OUTCOMES:**

- Primary outcome: the percentage of identified pathogens, excluding contaminants, that are on-panel for the T2Bacteria Panel.
- Secondary outcomes include description of the distribution of on and off panel organisms and the time to species ID for blood culture and T2Bacteria.

## Results

Table 1: Included Studies

Author	Year	Location	Population	Time to Species ID Blood Culture (h)	Time to Species ID T2Bacteria (h)	Δ (h)
Bonura C <sup>4</sup>	2023	Italy	BSI	93.64	4.91	88.73
Giacobbe DR <sup>5</sup>	2022	Italy	ICU	NR	NR	NR
Lucignano B <sup>6</sup>	2022	Italy	Pediatrics	65.7	4.4	61.3
Seitz T <sup>7</sup>	2022	Austria	ICU	41.5	4.3	37.2
Quirino A <sup>8</sup>	2022	Italy	BSI	NR	4.5	NR
Drevinek P <sup>9</sup>	2021	Czech Republic	ICU	62	6.1	55.9
Walsh TJ <sup>10</sup>	2019	USA	HemOnc	12.5	3.7	8.8
Voigt C <sup>11</sup>	2019	USA	ED	72.2	6.1	66.1
Nguyen MH <sup>12</sup>	2019	USA	BSI	71.7	3.61	68.09
Robinson C <sup>13</sup>	2018	USA	ED/ICU	NR	NR	NR
Weisz EE <sup>14</sup>	2018	USA	ED	24.15	3.82	20.33
DeAngelis G <sup>15</sup>	2018	Italy	ED	25.2	5.5	25.2

Figure 1: Coverage of Bacteria in Positive Blood Cultures

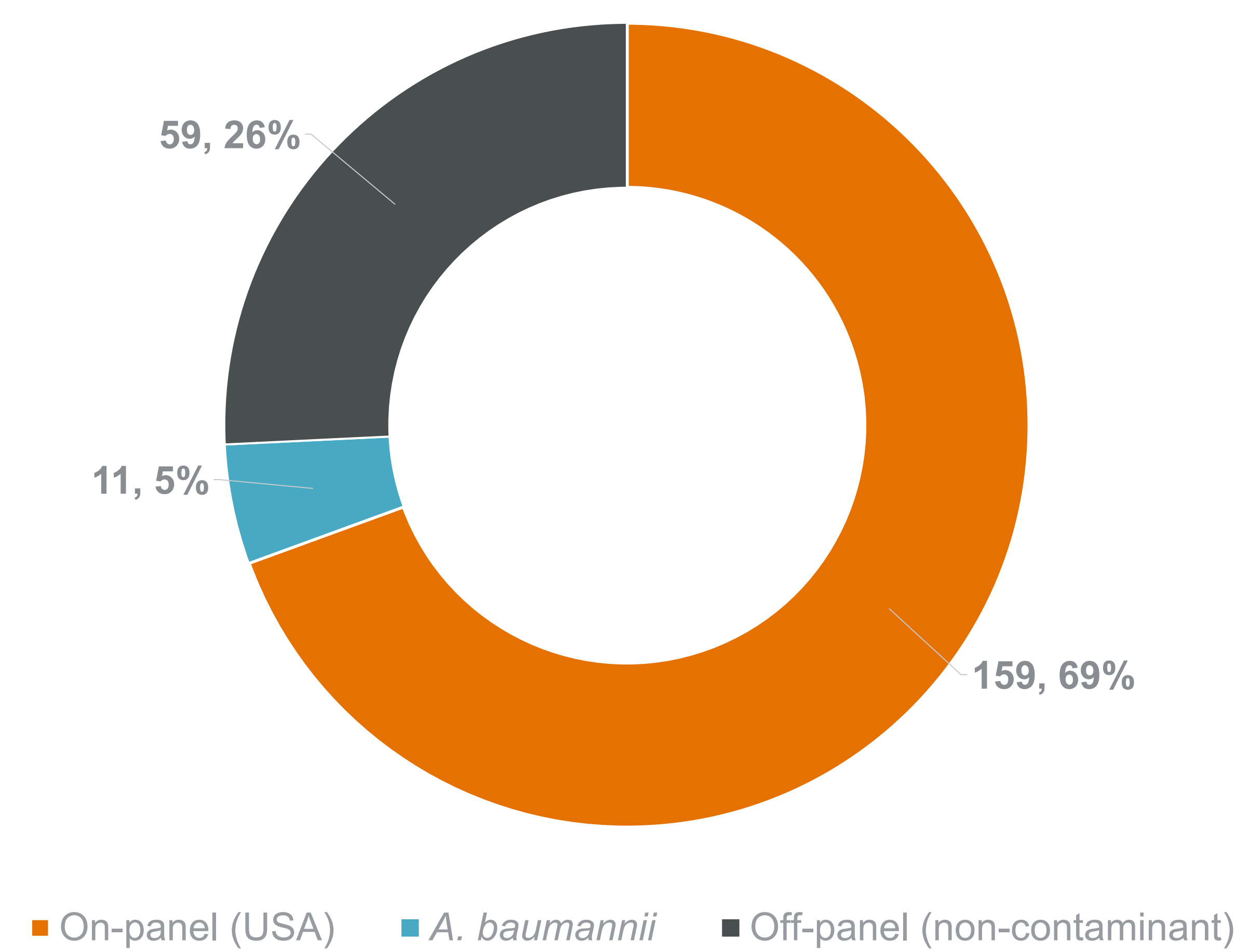


Figure 2: On-panel Bacteria Isolated

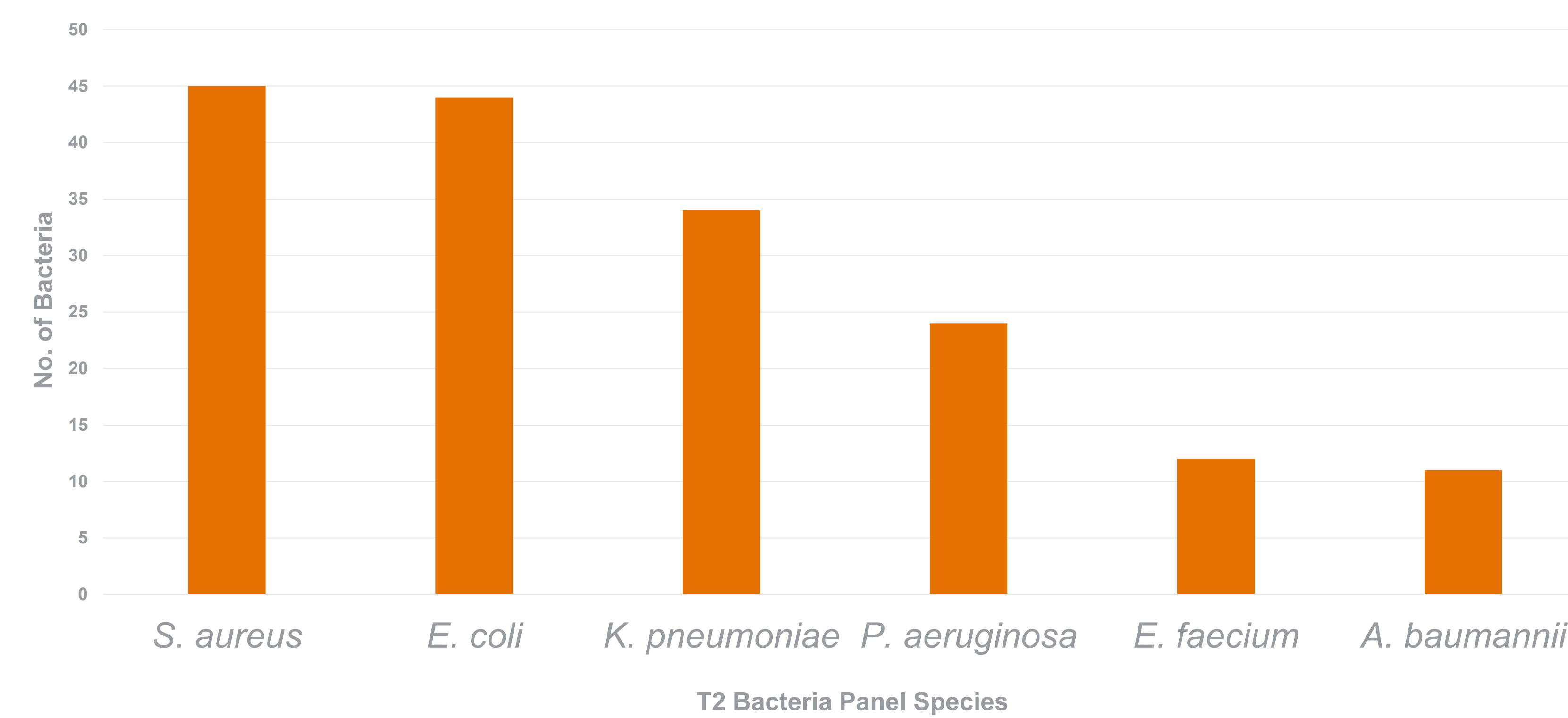


Figure 3: Contaminants Identified

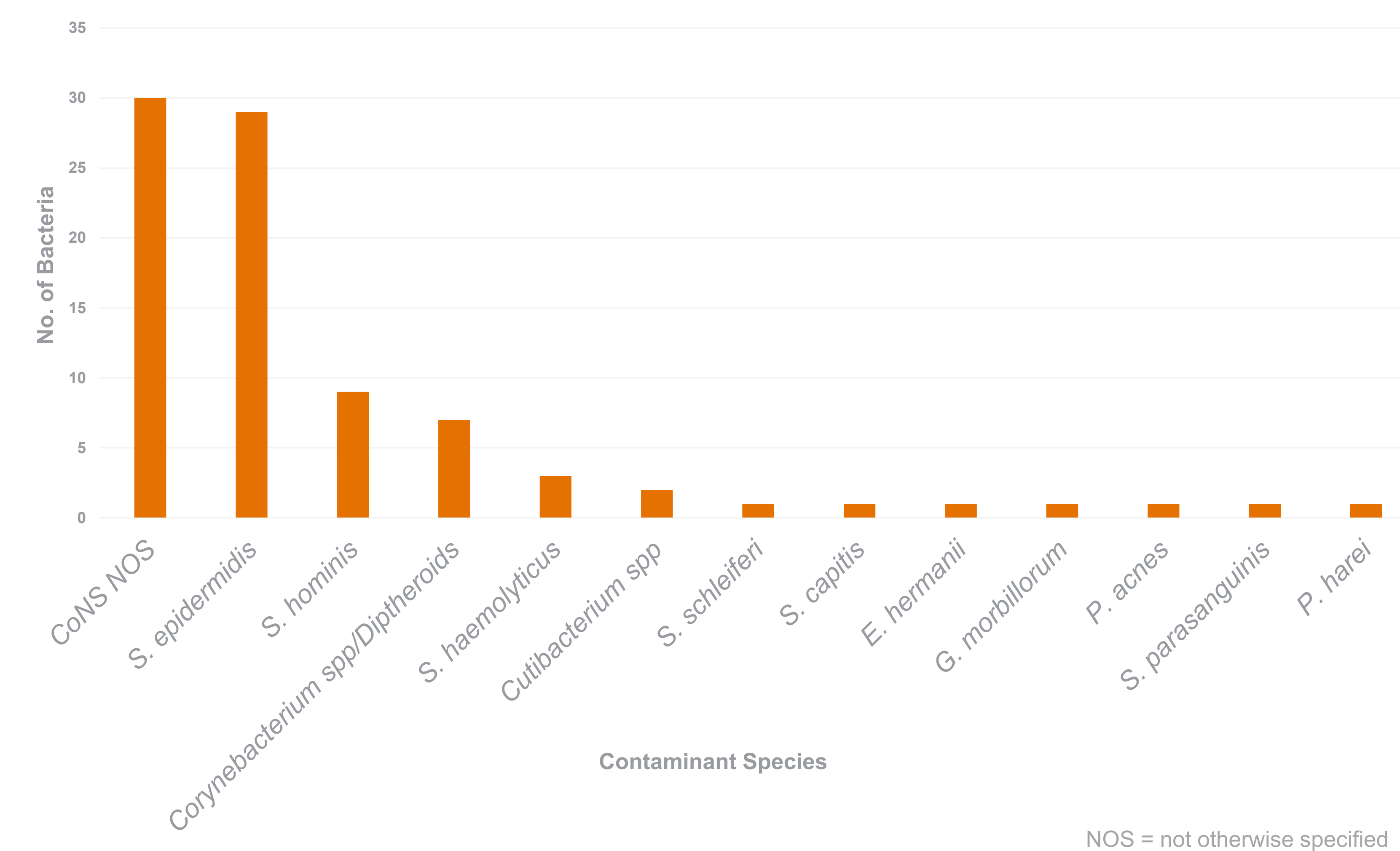
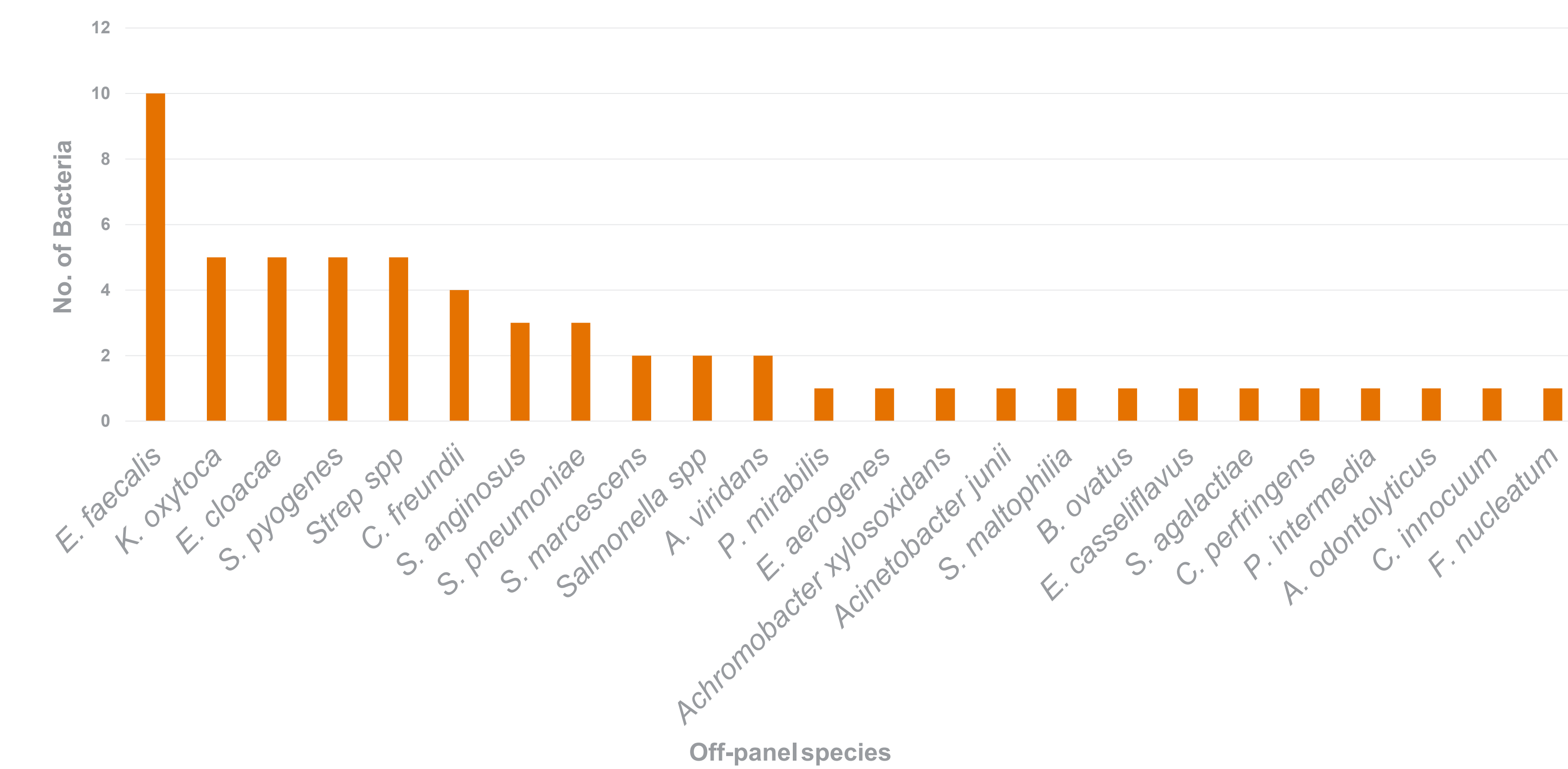


Figure 4: Off-panel Pathogens Identified



## Discussion

- 74% of identified blood culture pathogens, across 12 studies, were on the T2Bacteria Panel.<sup>4-15</sup> Notably, the T2Bacteria Panel pathogens represented a higher proportion of bloodstream isolates than previous surveillance data would suggest.<sup>3</sup>
- The most commonly identified pathogens were *S. aureus* (n=49), *E. coli* (n=48), and *K. pneumoniae* (n=34).<sup>4-15</sup>
- The pathogens included on the T2Bacteria Panel are all implicated as WHO critical pathogens or antibiotic resistance threats according to the CDC in their resistant phenotypes.
- E. faecalis* (n=10) was the most common off-panel pathogen followed by *K. oxytoca* (n=5), *E. cloacae* (n=5), and *S. pyogenes* (n=5).<sup>4-15</sup>
- Coagulase-negative *Staphylococcus* spp. were the most commonly identified contaminants (n=73).<sup>4-15</sup>
- T2Bacteria rapidly identified on-panel pathogens and reduced time to species ID by as much as 88.73 hours.<sup>4</sup>

## Conclusion

The T2Bacteria Panel identified the majority bacterial pathogens causing blood stream infections isolated during 12 clinical studies.

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