

# Sepsis Survivors Readmitted with Sepsis or Pneumonia

## Systematic Review and Meta-analysis

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### BACKGROUND

Sepsis is defined as organ dysfunction in the presence of infection<sup>1</sup>



Almost 50 million people have sepsis each year<sup>2</sup>

21.4% of survivors return to hospital within 30-days<sup>3</sup>



Knowing why survivors readmit may help reduce readmissions



Do survivors readmit with infection?



This study aimed to review and summarise the available evidence for readmission with sepsis or pneumonia diagnoses following an initial sepsis admission.

### METHODS

Two reviewers did screening, data extraction, and quality assessment



Modified Newcastle Ottawa Scale & GRADE to assess study quality and confidence in results



Minimum of 3 studies reporting the same outcome and study population to be eligible for meta-analysis.



Meta-analysis were performed in R software<sup>4</sup> using Freeman-Tukey double arcsine transformations and random effect models. Prediction and confidence intervals were calculated



### RESULTS

Figure 1 – PRISMA flowchart

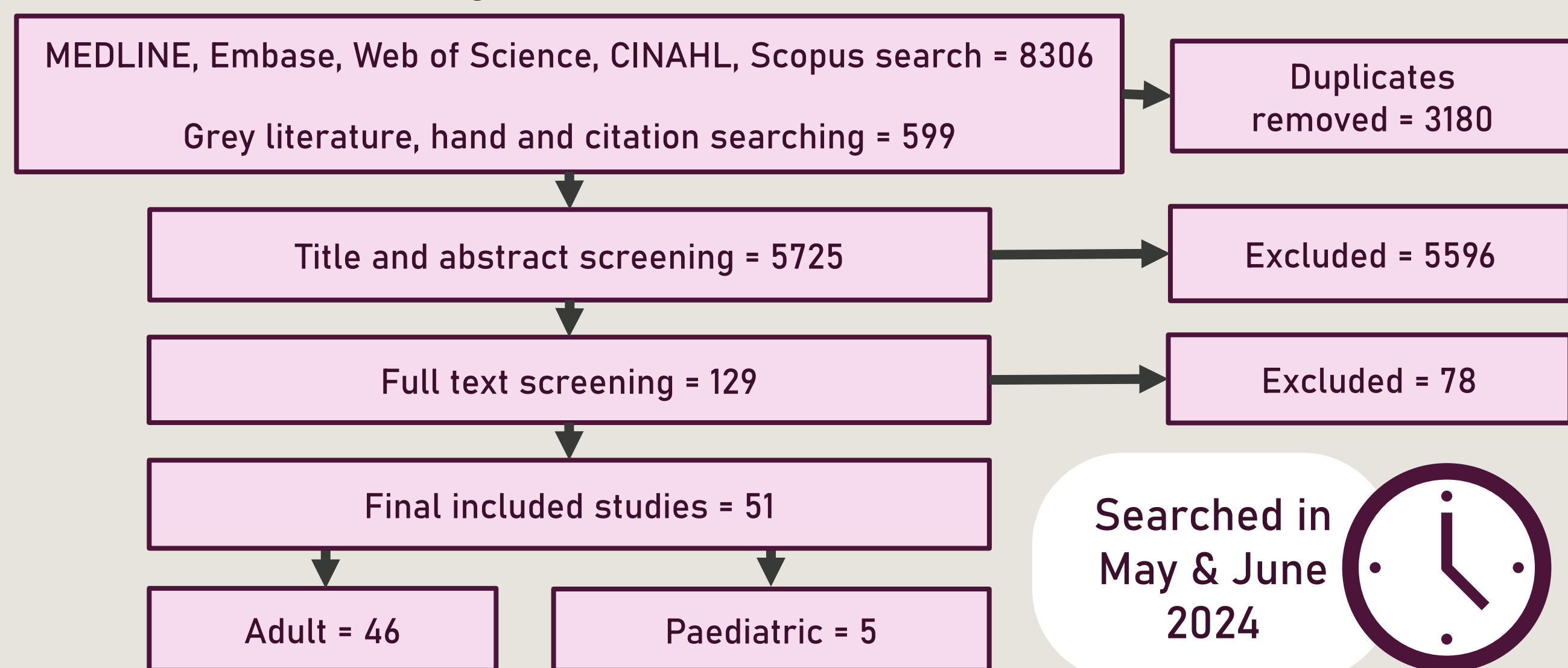


Figure 2 – Proportion of sepsis survivors readmitted within 30-days with a diagnosis of A) Sepsis, or B) Pneumonia

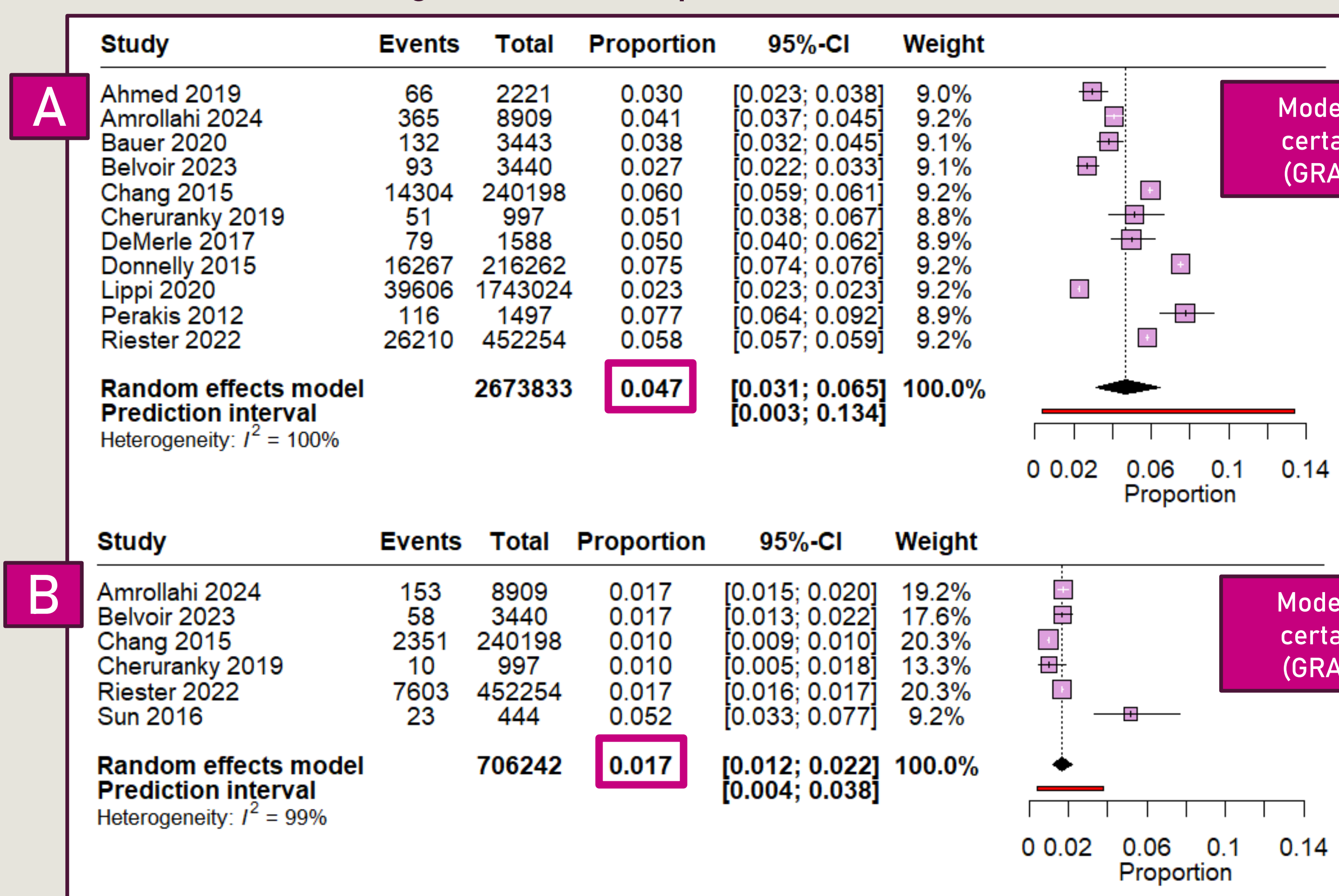


Table 1 – Methods used to identify index admission and readmission diagnoses

	ICD-coding	Database querying	Chart review	Chart review & ICD-coding	Chart review & database querying
Index sepsis admission (N = 42*)	30 (71.4%)	6 (14.3%)	2 (4.8%)	4 (9.5%)	0 (0%)
Readmission (N = 31*)	19 (61.3%)	3 (9.7%)	5 (16.1%)	3 (9.7%)	1 (3.2%)

\*9 studies did not report how the index sepsis admission diagnoses was identified

\*20 studies did not report how the readmission diagnoses were identified

Figure 3 – Proportion of sepsis survivors readmitted within 90-days with a diagnosis of A) Sepsis or B) Pneumonia

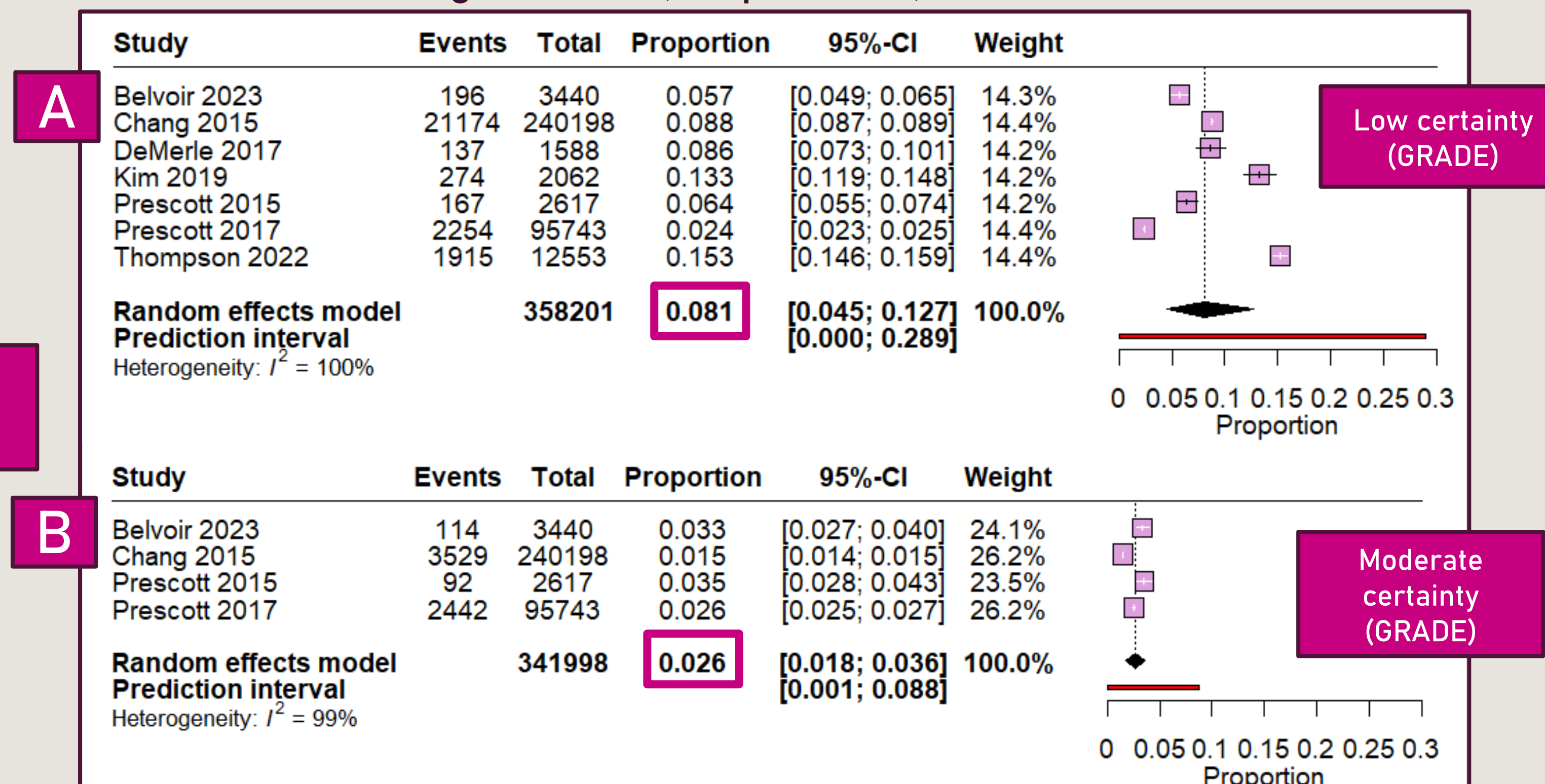
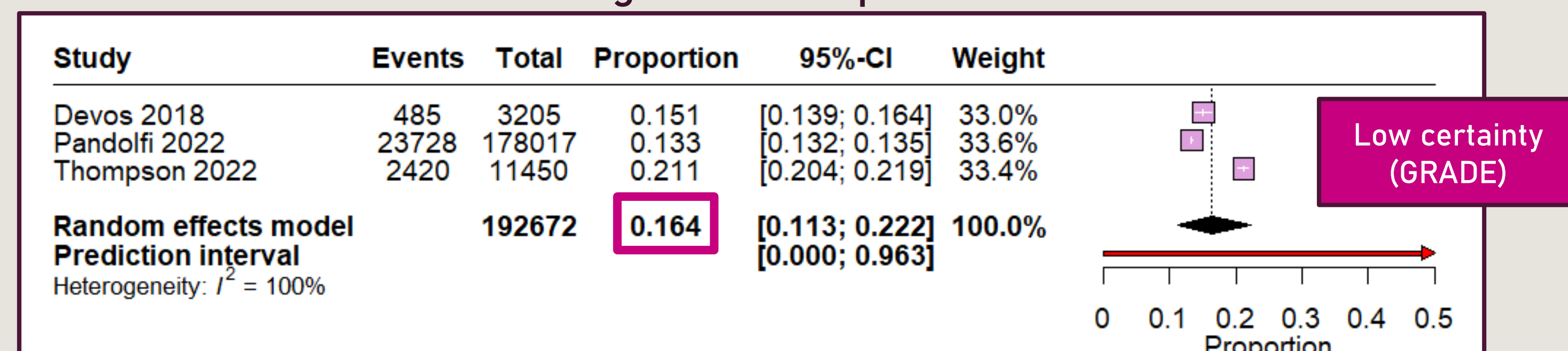
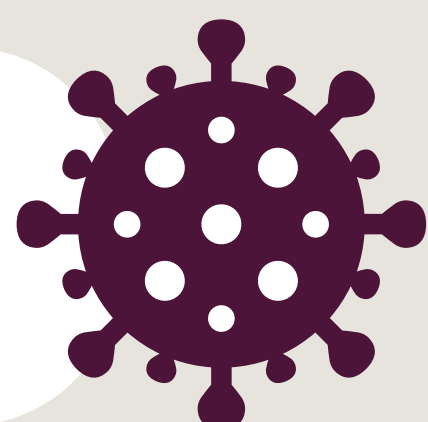


Figure 4 – Proportion of sepsis survivors readmitted within 1 year with a diagnosis of sepsis



Readmission with an infectious diagnosis, particularly sepsis or pneumonia, is common in sepsis survivors with 1 in 6 readmitted with a second sepsis diagnosis within 1 year

Within 30-days, 1 in 21 and 1 in 59 survivors are readmitted for sepsis or pneumonia respectively



### CONCLUSIONS

Clear research gaps are readmission reasons in children and infants who survive sepsis and studies set in countries outside the United States



Literature suggests only half are recurrent or relapsed infections<sup>7,8</sup>



Identification of diagnoses is most often through ICD coding; this may underestimate true diagnoses rates