

Evidence-based first aid guidelines for Flanders, Belgium

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BACKGROUND & OBJECTIVES

As part of its strategy, Belgian Red Cross-Flanders strengthens all its activities using evidence-based guidelines. The objective was to develop evidence-based guidelines to train lay people how to manage and prevent emergency situations. Based upon these guidelines an evidence-based first aid handbook for Flanders (Belgium) was developed¹.

METHODS

For each first aid/preventive intervention or risk factor, a PICO (Population, Intervention, Comparison, and Outcome) question was defined and a search strategy was composed. Evidence on effectiveness of various first aid, preventive procedures and risk factors was searched in 3 databases: Medline, Embase and the Cochrane Library, between date of inception until the search date (March-November 2015). Data were extracted in a tabular format. The quality of the scientific evidence was determined according to the GRADE² methodology. Draft recommendations were formulated.

RESULTS

- A total of 118,716 references were screened (Figure 1).
- 533 studies were finally included as a basis for the guidelines.
- 319 evidence summaries were developed:
 - 181 about first aid interventions
 - 76 about prevention
 - 6 on a combination of first aid and prevention
 - 46 about risk factors
 - 10 about diagnostics.
- The quality of the majority of the level of evidence was graded low to very low (limitations in study design and/or imprecision due to large variability of results, lack of data, limited sample size or low number of events).
- For 128 PICO questions (100 first aid interventions, 14 on prevention, 11 on risk factors and 3 diagnostic PICOs) no evidence was found.

EXAMPLE GUIDELINE: EFFECTIVE TICK REMOVAL

PICO question: "In humans with a tick bite (P), which tick removal device (I) compared to another tick removal device (C) is most effective to remove the tick (O)?"

- 2,046 references were screened (Figure 2).
- 6 experimental animal studies were included.
- These studies compared different techniques for tick removal:
 - Chemical treatments (gasoline, petroleum jelly, fingernail polish or methylated spirit)
 - Mechanical techniques (forceps or specialized devices)
 - Mechanical removal after chemical treatment
- The level of evidence of the identified studies was graded low to very low.

Figure 2: PRISMA flowchart of identification and selection of studies on effective techniques for tick removal

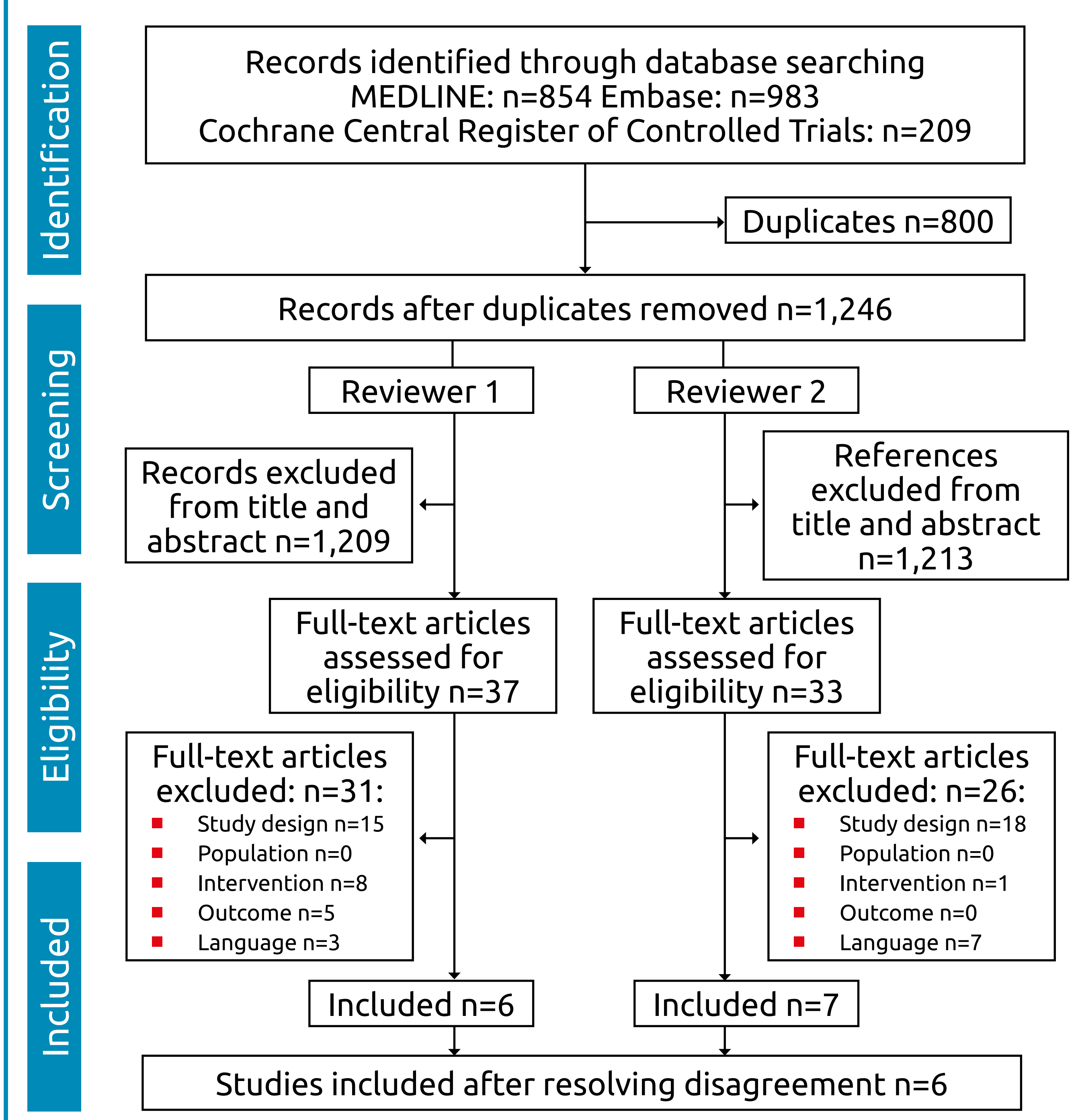
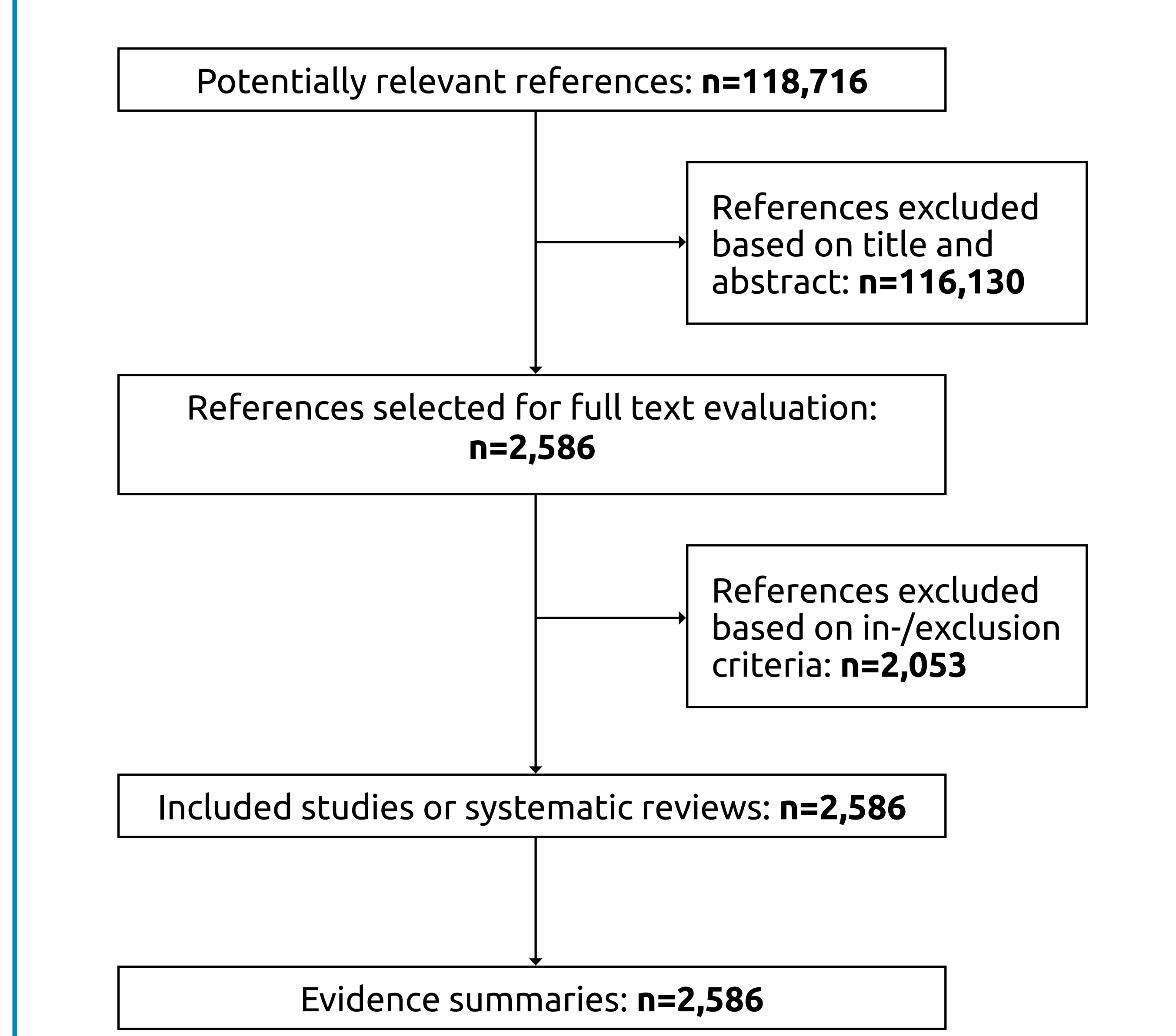


Figure 1: Overview of study selection for all 319 PICO questions



DISCUSSION

Final evidence-based first aid recommendations were formulated based on the evidence-based conclusions, combined with the preferences of the target population and taking into account expert medical consensus. For example, recommendations were developed for effective tick removal techniques. The identified studies suggest that there is limited evidence in favour of pulling with forceps compared to rotation with forceps, and in favour of the use of commercial devices to remove ticks. The final recommendations were: 'Grab the tick by its mouthparts as close to the skin as possible by pulling with forceps or preferably using a specialised device'. A large lack of evidence indicates that more primary research is definitely needed in first aid settings.

IMPLICATIONS FOR GUIDELINE DEVELOPERS/USERS

An evidence-based handbook for first aid was developed and will be used as a guidance for first aid courses provided by Belgian Red Cross Flanders and can be consulted by anyone with interest in first aid.

References: ¹ Borra V. et al., Development of Evidence-Based First Aid Guidelines for Laypeople in Flanders, Belgium. J Epidemiol Public Health Rev 2016; 1(4).

² Atkins D. et al., Grading quality of evidence and strength of recommendations. BMJ 2004; 328(7454): 1490.

