



## BACKGROUND

Seasonal influenza vaccination for healthcare workers (HCWs) is recommended by the World Health Organization. Despite this being a stated priority, uptake of vaccination in HCWs remains poor in most countries. The rationale for the recommendation is to protect the individual HCW from occupational exposure to influenza, to maintain health-care services during influenza epidemics and to reduce the spread of influenza to vulnerable patient groups. We undertook a rapid evidence appraisal to evaluate to what extent the published research evidence supports this rationale.

## AIMS

To identify the extent of the evidence which addresses the following questions:

- I. Are HCWs at increased risk of influenza infection as compared to the general population?
- II. Does HCW influenza vaccination reduce HCW absenteeism?
- III. Do HCWs transmit influenza to inpatients in healthcare settings?
- IV. Does influenza vaccination of HCWs provide a protective effect for inpatients in healthcare settings?
- V. If so what proportion of HCWs need to be vaccinated to provide this effect?

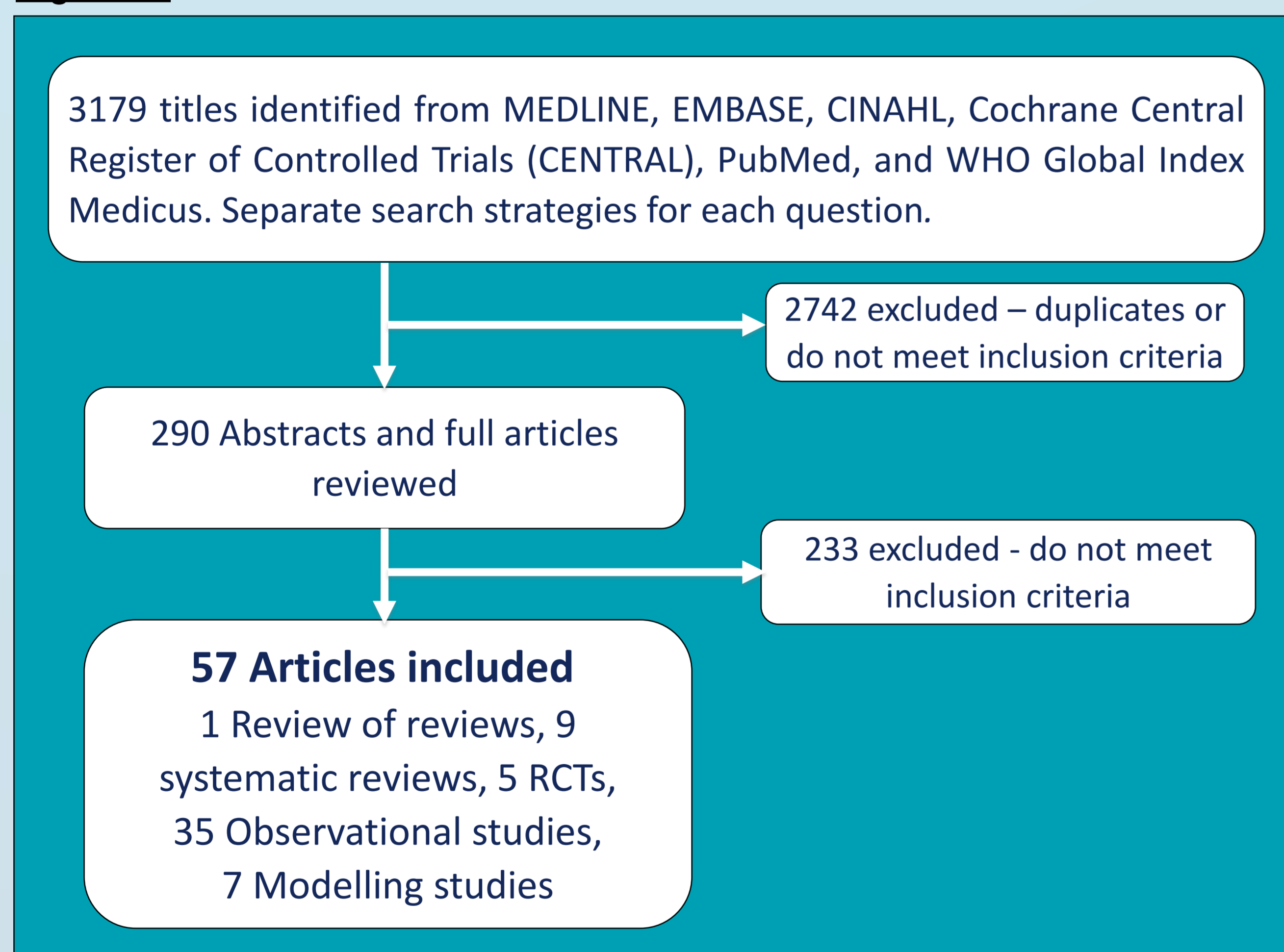
## METHODS

We conducted a systematic search of electronic data bases, limited to materials available in whole or in summary in the English language. Where sufficient published literature existed, evidence selection was limited to that published in the last ten years. Search execution was iterative. Studies were selected and data extracted onto a standardised template. Studies were ranked according to the Maryland Quality Scale. Overall quality of evidence for each question was assessed using GRADE.

## RESULTS

The review identified 62 published studies of direct relevance to the appraisal questions. (Figure 1)

Figure 1.



### I. HCW Risk of Influenza Infection

There was limited evidence of moderate to low quality that HCWs may be at higher risk of influenza infection than non-HCWs, derived from a pooled meta-analysis, with evidence strongest for higher risk of asymptomatic infection. Few studies give within-study head to head comparisons and these provide no consensus on HCW risk.

### II. HCW Influenza Vaccination & Absenteeism

There is limited trial evidence that receiving influenza vaccination reduces laboratory-confirmed influenza infections in HCWs. No consensus can be reached on the effectiveness of influenza vaccinations in reducing influenza like illness or absenteeism due to influenza like illness in HCWs.

### III. HCW transmission of Influenza to inpatients

While evidence suggests that HCWs are implicated in influenza nosocomial transmission, the extent to which they contribute to transmission networks in healthcare is not clear and may vary from setting to setting.

### IV. HCW influenza vaccination as protective for patients.

There is limited evidence of moderate quality that HCW influenza vaccination provides a protective effect for inpatients in healthcare settings, with consistency in direction of effect for a range of non-specific patient outcome measures. Evidence is stronger for patient all-cause mortality in long term care facilities.

### V. Proportion HCW necessary to vaccinate to protect patients.

There does not appear to be a threshold effect for HCW vaccine uptake and patient benefit. Patient protection is likely to be proportionate to the level of HCW vaccination.

## CONCLUSIONS

- The available evidence supports a rationale of vaccinating HCWs against seasonal influenza to protect inpatients in long term care facilities; strategies are needed to increase uptake of HCW vaccination in these settings. Support for vaccination of HCW in acute settings is mainly by extrapolation from studies in long-term care settings, but nevertheless biologically rational.
- Further research is needed to clarify the impact and extent of nosocomial transmission of influenza in diverse healthcare settings.

- Development of a standard definition of healthcare-associated influenza is a priority to allow research in this area to progress.
- Paucity of high quality published evidence means that no conclusions can be drawn on the effectiveness of HCW influenza vaccination as a strategy to reduce HCW absenteeism.
- Further studies are needed which assess specific outcomes including laboratory confirmed influenza infection and influenza related sickness absence in vaccinated as compared to non-vaccinated HCWs over multiple influenza seasons.