# Narrative review protocol: respiratory infection and cardiovascular disease

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## Background and objectives:

Acute respiratory infections have a temporal association with cardiovascular diseases (CVD). There have been studies making this association for decades, and systematic reviews of different elements of the association, including assessing the impact of influenza on CVD and the impact of vaccines. This evidence is disparate across different disciplines, and addresses different questions. Of interest in particular is the association between common medical problems: acute viral and bacterial infections of the respiratory tract, and vascular CVD (meaning angina, myocardial infarction, transient ischeamic attack, and stroke).

The objectives of this review are to map, summarise, and synthesise the available evidence relating to acute respiratory infections and CVD.

Methods: This protocol is pre-specified and will be uploaded to GitHub to datestamp it.

Search strategy: I will search using a PECO strategy: combining terms for the population, exposure, comparator and outcome. The population is adults, the exposure is acute infections of the respiratory tract, the comparator is patients without acute infection of the respiratory tract, and the outcome is cardiovascular diseases.

I combine terms within domains with ‘or’, then combined the domains with ‘and’. I will search the databases Medline & Embase, from 2000 to 2023. I use the OVID search system, and tree terms to increase sensitivity of the search.

#### Search domains:

Population: Acute

Exposure: Respiratory tract infections (tree term)

Comparator: No terms

Outcome: CVD cardiovascular disease, stroke (tree terms)

### Evidence selection:

Studies will be screened using Rayyan software, by one reviewer, at the title and abstract level, and again at full text.

Eligible study types are observational studies and trials, and systematic reviews. Case studies are ineligible.

Exclusion criteria: studies relating to chronic infections (Mycobacterial, HIV), or fungal or parasitic infections. Studies about non-vascular CVD (e.g. pericarditis, myocarditis, endocarditis).

### Mapping and summary:

This will be an iterative process, but I anticipate there will be studies mapping to systematic reviews, and clusters of studies by infection type, e.g. COVID-19, influenza. I also expect there will be studies addressing pathology and or aetiology, as well as studies examining risk prediction and treatment. I will attempt automated document clustering.

### Synthesis:

I anticipate this being a narrative review, however if appropriate I may combine results of studies with meta-analyses (Random effects models, using I squared as a measure of heterogeneity and investigating publication bias with funnel plots if there are more than 10 studies).

### Dissemination:

I may attempt publication. The review will inform part of my DPhil thesis.