

Why systematic reviews?

Loads of research on COVID-19 is now being published. We have to gather the studies that address similar questions to be able to make decisions based on the currently available evidence.



Professor Atle Fretheim

– The validity of the findings in single studies is often questionable, and results may seem to point in different directions. Many of the published studies are small and many journals are even taking short cuts with their regular peer review processes at the moment. Therefore we must assess the study methods and quality and produce systematic reviews, says Atle Fretheim.

Atle is a medical doctor by training, professor of community medicine at Oslo Metropolitan University and has 20 years experience of preparing systematic reviews.

Who decides which systematic reviews are to be made?

– Many systematic reviews are made on commission, e.g. by guideline development groups or policymakers who want to make informed decisions. Researchers also sometimes produce systematic reviews out of interest, or as part of research projects, to get an overview of the current state of knowledge for a particular question. During the current COVID-19 pandemic public health officials and clinicians have to give advice and treat patients based on the best available evidence. Many questions are raised, often after results from a single study are reported in the media. Will wearing a face-mask prevent you from being infected? If you are infected, but do not have symptoms, how infectious are you to others? And what about children – how infectious are they?

>> [Live map of COVID-19 evidence](#)

How can the new map of COVID-19 research help in producing systematic reviews?

– One of the most time consuming and difficult tasks when preparing a systematic review, is to identify relevant research papers. Databases, such as the live map of COVID-19 research, are powerful tools that can simplify and speed up this process.

How many studies are needed to make a systematic review?

– There is no minimum number of studies needed for a systematic review, since the goal is to find all relevant studies that address your question. If you end up finding no studies, you have what we call an “empty review”. This can be frustrating, especially for people who need evidence to make decisions.

You can never be 100% certain that you haven’t missed some studies, since it’s impossible to know about studies that you haven’t personally been told about. That’s why we put so much effort into carefully systematically searching for studies – to minimize that risk.

New research on COVID-19 is added on a daily basis. How fast will a systematic review be out of date?

– It is impossible to say when a systematic review is not up to date. If a systematic review has included a large number of studies with consistent findings, it’s unlikely that a couple of new studies will change the overall results. But in the current situation with COVID-19, where so much is uncertain, a new study could change everything!

For questions about COVID-19, we will monitor the publication of new studies continuously. As we’re doing with the map, we will know immediately this happens and we can update systematic reviews as soon as a new relevant study is published. In principle, this is what we should do for all systematic reviews.

NEWSLETTER

Our weekly newsletter will keep you updated on the Live COVID-19 evidence map and associated systematic reviews. [Subscribe to the newsletter.](#)

How to make a systematic review

The production process is complicated and may under time constraints be simplified, resulting in a rapid review.

A systematic review aims to provide a complete summary of current evidence relevant to a particular question. Preparing a systematic review is similar to most other research processes. You start with a well-defined question and an explicit method for trying to answer that question. There are different types of systematic reviews; for quantitative and qualitative research and for a variety of research questions. All are based on results from already published primary research. This primary research is data that is collected to address a specific problem. Systematic reviews are produced in a systematic, scientific and transparent way. Several comprehensive and detailed international guides and handbooks for producing systematic reviews are available (1-3).

PICO

Systematic reviews on the effect of interventions use «PICO» as a model and tool for developing a research question and a search strategy for literature to include:

- P – what is the problem, patient or population of interest?
- I – what sort of intervention is to be studied?
- C – what is the comparison or alternative to the intervention?
- O – what are the possible outcomes of the intervention (disease prevention, complications, death etc.)

Stepwise process

The production of systematic reviews follows a stepwise process, is done by specialised researchers and librarians and will normally take months to complete:

- Develop and define the question (PICO and inclusion/exclusion criteria)

- Search in relevant databases, and select studies based on inclusion criteria
- Assess the risk of bias of the studies, extract information and synthesize the data
- Grade, interpret and present the results
- Write the review and ensure peer review
- Publish the review and consider updating

Rapid reviews

When decisions have to be made quickly, like during the COVID-19 pandemic, the need for evidence is urgent. The process has to be speeded up, leading to a **rapid review**. Rapid reviews are defined as «a form of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a timely manner» (3). Rapid reviews are in principle generated by the same stepwise process as systematic reviews, but the shortened time for quality assessment increases the risk of including biased or poor quality studies and there is little time for external review of the final report. Rapid reviews should ideally be followed by regular systematic reviews on the same topic to secure quality.

Literature

1. [Cochrane Handbook for Systematic Reviews of Interventions](#).
2. [Systematic Reviews](#). York: Centre for Reviews and Dissemination, University of York, 2008.
3. [Tricco AC, Langlois EV, Straus SE eds. Rapid reviews to strengthen health policy and systems: a practical guide](#). Geneva, WHO, 2017

LIVE MAP OF COVID-19 EVIDENCE

[Main map: NIPH systematic and living map on COVID-19 evidence](#)

More detailed maps are available for these topics:

- [Etiology](#)
- [Diagnosis](#)
- [Infection prevention and control](#)
- [Interventions to treat the infected patient](#)
- [Interventions targeted at system level](#)
- [Prognosis](#)
- [Experiences and perception, social, political, economic aspects](#)

The maps will not work in Internet Explorer. You will have to use Microsoft Edge, Firefox or Google Chrome.

RECENT RAPID REVIEWS

1. [Case fatality rate for serious Covid-19](#)
2. [Immunity after SARS-CoV-2 infection](#)
3. [Contact based transmission of SARS-CoV-2](#)

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