Treatments and Diagnostics for COVID-19
A Living Systematic Review of Economic Evaluations

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Objectives

Health technology assessment (HTA) agencies will increasingly be expected to assess the value of tests for SARS-CoV-2 and treatments for the disease, COVID-19.
They will need to understand the cost-effectiveness evidence base for such technologies.
By conducting and regularly updating a systematic review of economic evaluations, we sought to:

- Identify up-to-date cost-effectiveness estimates for SARS-CoV-2 tests and COVID-19 treatments.
- Understand the limitations of the cost-effectiveness evidence, such as important data gaps.

Search strategy

The following databases were searched to identify economic evaluations of tests for SARS-CoV-2 or treatments for COVID-19: Medline, including In-Process and Epub, EconLit, EMBASE, CDSR and INAHTA. The search strategy was based on the strategy used by NICE for its rapid COVID-19 guidelines[1].
Grey literature[2], such as HTA reports[3] and model repositories[4,5], and citations of included studies were also searched.
The search was last updated on 14th January, 2022.
Two reviewers (JE, AS) screened titles and abstracts, then reviewed full texts, against the following criteria:

- Full economic evaluations of a test for SARS-Cov-2 or treatment for COVID-19
- Excluding vaccines and public health interventions
- Published from 1st January 2020
- Published in English
- Excluding studies lacking sufficient detail (e.g., letters).

Conflicting selection decisions were mediated by a senior reviewer (DD).

Quality assessment

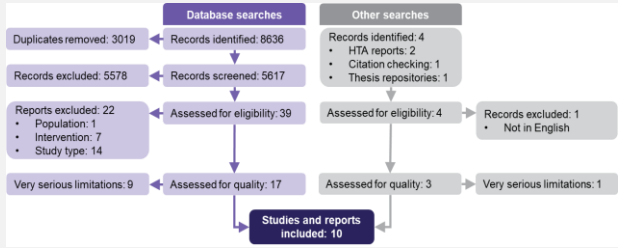
Included studies were quality assessed by JE using the NICE checklist for assessing economic evaluations[6]. If a study was considered to have very serious methodological limitations that undermine its findings, it was excluded from our review. Exclusions were verified by AS.

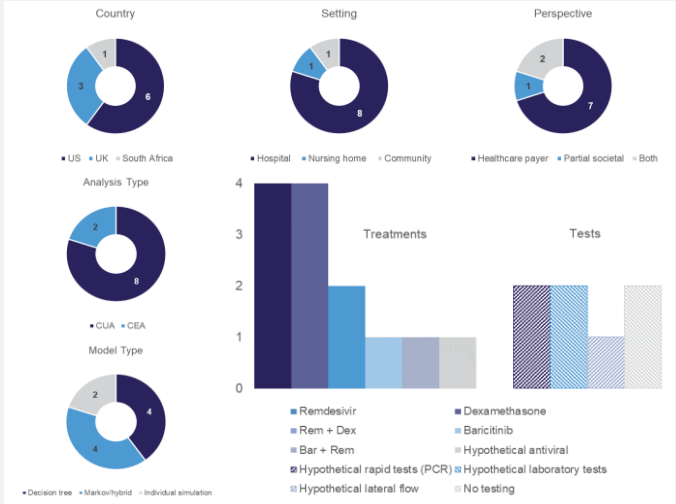
Data extraction

Data extraction tables were developed to collect study characteristics including setting, interventions, analysis type, data sources, and results including cost-effectiveness measures.
The study protocol was registered on the PROSPERO database (CRD42021272219)[7].

Results

From 8636 database records, 39 full-text reports were assessed after removing duplicates and screening titles and abstracts. Of those, 22 did not meet the selection criteria. A further 9 were excluded due to having very serious limitations. Two applicable studies were identified through supplementary searching. In total, we included 10 studies[8-17]. Study characteristics are shown below.





Common self-reported limitations

- Uncertain long-term & downstream outcomes
- Uncertain costs & resource use
- Confounding factors
- Patient heterogeneity
- No COVID-19 utility data
- Limited subgroup analysis

Early and exploratory analyses suggest that COVID-19 treatments for people in hospital – particularly dexamethasone – are likely to be cost effective if they offer a survival benefit, but this is highly sensitive to price. The cost effectiveness of alternative tests is sensitive to accuracy and time to results, but they may be particularly valuable in care settings.

Findings

To date, economic evaluations for COVID-19 technologies have relied on an immature clinical evidence base. Data on long-term outcomes, , including "long COVID", resource use, and quality of life are particularly lacking. Therefore, existing cost-effectiveness results are highly uncertain and provide few conclusions about which tests and treatments offer value for money.
Most modelling analyses are highly simplified, and all have been populated by short-term data, proxy data and developer assumptions. Some have attempted to capture wider effects, such as disease transmission, system capacity and societal outcomes, which may be appropriate during an infectious disease pandemic.
HTA agencies should consider developing and continually refining a modular diagnosis and treatment model for COVID-19. This would support consistent, reactive decision making approach to the rapidly evolving evidence base, treatment pathway and pandemic context.

References

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