

## UPDATE ALERT

**Update Alert 4: Risks and Impact of Angiotensin-Converting Enzyme Inhibitors or Angiotensin-Receptor Blockers on SARS-CoV-2 Infection in Adults**

In this fourth monthly update of our living review (1), we searched MEDLINE (Ovid) weekly from 4 August to 31 August 2020 using the same search strategy as described in the original review. We did not limit the search by language. This search update yielded 82 results (de-duplicated), and after an independent dual-review process, we identified 24 new studies meeting our inclusion criteria—19 observational studies, 4 meta-analyses, and 1 systematic review (2–25). New Evidence

Findings from the 19 observational studies are overall consistent with prior evidence that found a lack of association between angiotensin-converting enzyme inhibitor (ACEI) and angiotensin-receptor blocker (ARB) use and more severe coronavirus disease 2019 (COVID-19) (2–20). Several studies suggest that use of ACEIs or ARBs before developing COVID-19 may be associated with improved outcomes (3, 4, 7, 11, 12).

Two meta-analyses addressed our first key question about use of ACEIs and ARBs and COVID-19 risk, finding that neither ACEI nor ARB use is significantly associated with the odds of COVID-19 disease (22, 24). Three meta-analyses addressed our second key question about ACEI and ARB use and COVID-19 disease severity, finding that use of these medications was not associated with the risk for more severe disease (21–23).

Overall, inclusion of 24 studies from this search update does not change the certainty of evidence rating we reported in the original manuscript for key questions 1 or 2. Studies have not examined the benefits and harms of initiating ACEIs and ARBs (that is, new users) in COVID-19 treatment; therefore, evidence for key question 3 remains unclear.

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