

Understanding changes in diagnostic stages, treatment outcomes and health care use in persons with cancer or cardiovascular diseases during the COVID-19 pandemic – A review of reviews to support modelling of non-pharmaceutical interventions

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Background: When modelling effects of non-pharmaceutical interventions (NPI) in pandemics or other disruptive events, the possible drawbacks in the care of persons with chronic conditions have to be considered. During the COVID-19 pandemic, we have seen changes in the treatment of people with serious illnesses, including those with cancer or cardiovascular diseases and we expect this to happen in any situation where NPIs would be needed. To support semi-quantitative parametrisation of an agent-based model that includes collateral effects of NPIs we conducted an umbrella review to summarize the existing synthesized evidence on cancer and cardiovascular disease treatment delays, modifications or cancellations and the use of healthcare services during the use of NPIs.

Methods: Electronic databases PubMed, Scopus, Web of Science and Cochrane Library were searched on 15 – 19 January 2024 for relevant systematic reviews. Inclusion criteria were the assessment of diagnostic stages, treatment outcomes and health care use in cancer or cardiovascular disease patients during the COVID-19 pandemic. International studies were included if they were in English or German. Two independent researchers carry out screening and extraction. AMSTAR-2 tool will be used to assess the quality. Evidence tables are developed and applied to narratively synthesize information.

Results: We found 2.834 publications. After title and abstract screening of 1.413 articles, we identified already nine systematic reviews relating to telemedicine, 23 focusing on modification or delay in treatment of cardiovascular diseases, 13 addressing delays in cancer diagnosis, 14 discussing delays in surgery and 38 exploring modification or delay in cancer treatment.

Discussion: Sufficient international synthesized evidence exists to inform on changes in diagnostic stages, treatment outcomes and health care use treatment during the COVID-19 pandemic. To inform the German-based agent-based model in OPTIM-Agent we will, therefore, complement the evidence on collateral effects from this review with specific systematic reviews of literature and data existing in the German context.