OP58 Diagnostics And Treatments For COVID-19: Update From A Living Systematic Review Of Economic Evaluations

Gareth Hopkin,
Jamie Elvidge (jamie.elvidge@nice.org.uk),
Nithin Narayanan, David Nicholls and Dalia Dawoud

Introduction: The COVID-19 pandemic put substantial strain on healthcare systems globally. Early decision-making about diagnostic tests and treatments was driven by the need for rapid responses with a focus on reducing clinical burden. As COVID-19 continues its transition into an endemic state, health technology assessment (HTA) agencies will need to consider the clinical- and cost-effectiveness of tests and treatments, as with other conditions.
Methods: We first conducted a systematic literature review in July 2021 and updated the search in July 2023. The review aimed to identify economic evaluations of diagnostics for SARS-CoV-2 and treatments for COVID-19 using predefined search strategy across journal databases and sources of grey literature. In the update, an additional targeted search was completed with terms relating to novel treatments. Search results were screened by title and abstract, and full texts of potentially relevant studies were reviewed against selection criteria. Studies with very serious methodological limitations were excluded. Findings from studies were synthesized narratively due to high levels of heterogeneity.
Results: The database search identified 8,287 unique records, of which 54 full texts were reviewed, 28 were quality assessed, and 15 were included. Three further studies were included through HTA sources and citation checking. Of the 18 studies ultimately included, 16 evaluated pharmacological treatments including corticosteroids, antivirals, and immunotherapies. Two studies in lower-income settings evaluated the cost-effectiveness of rapid antigen tests and critical care provision. In most studies, a healthcare or payer perspective was used, and the comparator was standard care. There were 17 modeling analyses and one trial-based evaluation. Cost–utility analyses using QALYs were the most common analysis type.
Conclusions: This update indicates that there are cost-effective treatments for COVID-19, with repurposed pharmacological treatments like dexamethasone presenting best value. There also appear to be promising options for people with severe disease alongside standard care. Future economic evaluations would benefit from reflecting the changing context around COVID-19 with parameters that reflect current circumstances, and fully incremental analyses comparing different treatment options.

OP61 Target Trial Emulation To Determine The Population-Level Cost-Effectiveness Of Multigene Panel Sequencing For Advanced Melanoma

Emanuel Krebs (ekrebs@bccrc.ca), Deirdre Weymann,
Samantha Pollard and Dean Regier

Introduction: Compared to single-gene BRAF testing to guide targeted treatment with BRAF/MEK inhibitors for advanced melanoma, multigene panels can identify additional gene mutations with known therapeutic or prognostic relevance. Implementation of multigene panels remains uneven across healthcare systems given an uncertain clinical and economic evidence base. We determined the population-level cost-effectiveness of multigene panels compared to single-gene BRAF testing for advanced melanoma.
Methods: Our population-based retrospective study emulated a hypothetical pragmatic trial comparing multigene panel sequencing to single-gene BRAF testing. We drew on comprehensive patient-level clinical and health administrative data between September 2016 and December 2018 in British Columbia, Canada. To emulate random treatment assignment, we 1:1 matched multigene panel patients to contemporaneous single-gene tested controls using genetic algorithm-based matching. We estimated three-year overall survival and healthcare costs (2021 CAD), and incremental net monetary benefit (INMB) for life years gained (LYG) using inverse probability of censoring weighted linear regression and nonparametric bootstrapping. We also estimated overall survival using Weibull regression and Kaplan–Meier survival analysis.
Results: We matched 147 patients with advanced melanoma receiving multigene panel sequencing to contemporaneous single-gene-tested controls, achieving good balance for all 15 baseline clinical and sociodemographic covariates. After matching, mean incremental costs were CAD19,447 (USD14,217) (95% confidence interval [CI]: −CAD18,517 [−USD13,537], CAD76,006 [USD55,565]; p=0.41) and mean incremental LYG were 0.22 (95% CI: −0.05, 0.49; p=0.12). We found uncertain differences on overall survival using Kaplan–Meier (stratified Log-rank test p=0.11) and Weibull regression (HR: 0.73 [95% CI: 0.51, 1.03]; p=0.07) survival analysis. Cost differences were driven by systemic therapy (ΔC: CAD8,665 [USD6,334]; 95% CI: −CAD36,387 [−USD26,600], CAD53,716 [USD39,268]; p=0.71). The INMB at CAD100,000(USD73,104)/LYG was CAD2,646 (USD1,934) (95% CI: −CAD30,044 [−USD21,963], CAD43,416 [USD31,739]; p=0.89), with a 52.8 percent probability of being cost effective.
Conclusions: There were clinically relevant but uncertain differences in improved survival associated with multigene panel sequencing for advanced melanoma, and the cost-effectiveness of panel-based testing was finely balanced. This real-world evidence generated using randomized trial design principles can support jurisdictions' deliberations on the reimbursement of precision oncology interventions.

https://doi.org/10.1017/S026646232400120X