SAPC ABSTRACT

Cost-Effectiveness of Home-Based COVID-19 Treatments: Findings From the PRINCIPLE Trial

Background: The PRINCIPLE (Platform Randomised trIal of treatmeNts in the Community for epidemic and Pandemic iLlnEsses) trial is a community-based clinical trial designed to identify treatments for managing acute COVID-19 symptoms in higher-risk populations (e.g., individuals aged 18+ with comorbidities or aged 65+ without comorbidities). The population was largely unvaccinated at the trial's start with azithromycin, remaining so until favipiravir and ivermectin were introduced. While the trial evaluated clinical effectiveness of six treatments, their cost-effectiveness remains unexplored.

Aim: To assess the cost-effectiveness of six COVID-19 treatments (azithromycin, doxycycline, inhaled budesonide, colchicine, favipiravir, and ivermectin) compared to usual care for home-based recovery.

Methods: Within-trial cost-effectiveness analyses were conducted among participants testing positive for SARS-CoV-2 in the PRINCIPLE trial's primary analysis population. Incremental cost-effectiveness ratios (ICERs) were calculated for mean costs versus two co-primary outcomes: hospitalisation/death avoided and day saved until recovery. The base case analysis, from an NHS and personal social services perspective, evaluated costs and outcomes over 28 days post-randomisation, using multiple imputation for missing data. Sensitivity analyses were conducted.

Results: Findings indicated that inhaled budesonide was cost-effective, with an ICER of £6,386 per hospitalisation/death avoided and -£821 per day saved until recovery (south-east quadrant). Colchicine had the most favourable ICER for hospitalisation/death avoided at £2,858, but its ICER for day saved until recovery (£283) suggested limited cost-effectiveness in accelerating recovery. Azithromycin and doxycycline were cost-saving in terms of day saved until recovery but had high ICERs for hospitalisation/death avoided (£27,490 and £21,278, respectively), indicating limited cost-effectiveness for preventing severe outcomes. Favipiravir, with an ICER of £136 per day saved until recovery, showed a dominated ICER for hospitalisation/death avoided. Ivermectin exhibited the least favourable ICERs for both outcomes, making it unlikely to be cost-effective relative to usual care. Sensitivity analyses largely supported these findings.

Conclusions: Inhaled budesonide is a cost-effective option for home-based management of acute COVID-19 symptoms, reducing hospitalisations and accelerating recovery compared to usual care.

Implications for policy and practice: These findings offer insights for policymakers regarding resource allocation in community-based COVID-19 management. Future research should explore strategies for implementing cost-effective treatments and addressing post-acute COVID-19 symptom management.