

## CONFERENCE ABSTRACT

# Evaluating the cost-effectiveness of population health interventions alongside literature reviews: the case of comprehensive geriatric assessment

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**Introduction:** Decision-makers are interested in the cost-effectiveness of population health interventions but there is often lack of (robust) evidence from empirical economic evaluations. Thus, data synthesis and decision-modelling are frequently used by health economists to inform evidence-based decision-making. However, most literature reviews of evaluation studies are not designed to support an economic evaluation.

**Aim:** We sought to develop a methodological approach to assess the cost-effectiveness of population health interventions alongside literature reviews.

**Methods:** Several research methods and data sources were used to perform an economic analysis alongside a COCHRANE literature review of randomised controlled trials that compared inpatient comprehensive geriatric assessment (CGA) to usual care for older people urgently admitted to hospital. The review followed standard methodological procedures expected by Cochrane and EPOC. In addition, individual patient data (IPD) was requested from trialists and a survey of trialists was conducted to obtain details of the delivery of CGA. Mean hospital length of stay was derived from meta-analysis of seventeen studies and the relative costs were valued using English unit cost prices 2013/2014. Quality Adjusted Life Years (QALYs), were calculated by converting the Barthel Index from 3 trials, using IPD, to EQ-5D scores based on mapping studies. Life years (LYs) were estimated using the IPD from four trials by calculating the time-to-death from recruitment, and expressed as a fraction of a year. We created a variable 'life years living at home' (LYLAHs) after discharge from hospital, as a measure of independence and well-being in an older population, based on IPD from two trials. A decision model combined information from the meta-analyses and IPD and estimated an incremental cost-effectiveness ratio (ICER) of inpatient CGA expressed as a cost per QALY gained, cost per LY gained and cost per LYLAH gained from a health service perspective. Uncertainty was addressed by performing probabilistic and univariate sensitivity analysis.

**Results:** The review of twenty nine trials recruiting 13,766 participants across nine countries found that patients who received CGA were more likely to be alive and in their own homes at follow-up. This is similar to the results from the economic evaluation that showed that CGA was more effective with respect to all three health outcome measurements (0.012 more QALYs, 0.037 more LYs, and 0.019 LYLAHs per patient). The health care costs per patient in the CGA group were £234 (95% CI -£144 to £605) higher than in usual care group. The ICER in terms of QALYs was £19,802, which is close to the £20,000 threshold that NICE suggests as a ceiling value for a QALY; the cost for a LY gained was £6,305 and for a LYLAH gained was £12,568. The probability of CGA to be cost-effective at a £20,000 ceiling ratio for a QALY, LY and LYLAH was 0.50, 0.89, and 0.47 respectively.

**Conclusions:** The methodological approach used in this study provides decision-makers with economic evidence about CGA and could be used to evaluate any other health intervention. CGA is likely to be cost-effective at the NICE cut-off value of £20,000 for a QALY but the uncertainty is high.

**Limitations:** The analysis did not include costs after patient discharge.

**Future research:** Further work is required to establish the optimum way of combining review-based results with model-based economic evaluations.

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**Keywords:** economic evaluation; literature review; comprehensive geriatric assessment

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