

Cost-effectiveness modelling of telemonitoring after discharge from hospital with heart failure

Abstract

Introduction

To estimate the cost-effectiveness of home telemonitoring (TM) or structured telephone support (STS) strategies versus usual care for adults recently discharged (within 28 days) after a heart failure (HF) exacerbation in England and Wales.

Method

A Markov model was used to evaluate three interventions: 1) STS via human to machine (HM) interface; 2) STS via human to human (HH) contact; and 3) TM, against 4) usual care. Given heterogeneity in the interventions, cost-effectiveness analysis was performed using bottom up costing scenarios. Costs and quality adjusted life years (QALYs) over a 30-year horizon were estimated based on monthly probabilities of death and monthly risks of hospitalisations (HF-related complications or other causes) estimated from clinical effectiveness parameters computed using a network meta-analysis of randomised controlled trials.

Results

Base case monthly costs per patient were: £27 for usual care, £119 for STS HM, £179 for STS HH and £175 for TM. TM was the most cost-effective strategy in the scenario using these base case costs. Compared with usual care, TM had an estimated incremental cost effectiveness ratio (ICER) of £9,552/QALY, whereas STS HH had an ICER of £63,240/QALY against TM. STS HM was dominated by usual care. Probabilistic sensitivity analysis (PSA) showed 44% chance of TM being cost-effective with STS HH 36%, STS HM 18% and usual care 2%, respectively. Threshold analysis suggested that the monthly cost of TM has to be higher than £390 to have an ICER greater than £20,000/QALY against STS HH. Scenario analyses performed using higher costs of usual care, higher costs of STS HH and lower costs of TM do not substantially change the conclusions.

Conclusion

Cost-effectiveness analyses suggest TM was an optimal strategy in most scenarios, but there is considerable uncertainty in relation to clear descriptions of the interventions and robust estimation of costs.

Location

United Kingdom

Year

2013

Related Integrated Care keywords

- DIGITAL HEALTH: ICT (INFORMATION AND COMMUNICATION TECHNOLOGY) SOLUTIONS, DEVICES, MONITORING

Pervasiveness

Small scale in a local jurisdiction

Status

Completed

Links

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