Improving the cost-effectiveness of a health care system for depressive disorders by implementing telemedicine: A health economic modelling study

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Objectives: Depressive disorders are significant causes of disease burden and are associated with substantial economic costs. It is therefore important to design a healthcare system that can effectively manage depression at sustainable costs. This article computes the benefit-to-cost ratio of the current Dutch healthcare system for depression and investigates whether offering more online preventive interventions improves the cost-effectiveness overall.

Methods: A health economic (Markov) model was used to synthesize clinical and economic evidence and to compute population-level costs and effects of interventions. The model compared a base case scenario without preventive telemedicine and alternative scenarios with preventive telemedicine. The central outcome was the benefit-to-cost ratio also known as return-on-investment (ROI).

Results: In terms of ROI, a healthcare system with preventive telemedicine for depressive disorders offers better value for money than a healthcare system without Internet-based prevention. Overall, the ROI increases from €1.30 ($1.55) in the ‘no prevention’ base case scenario to €1.61 ($1.92) in the ‘prevention-only’ alternative scenario in which preventive telemedicine is offered. In the scenario where prevention is added to the current intervention mix, the ROI increases to €1.32 ($1.58). In the scenario in which the costs of offering preventive telemedicine are balanced by reducing the expenditure for curative interventions, ROI is also €1.32 ($1.58) but while keeping the healthcare budget constant. Lowering the coverage of the relative cost-inefficient curative interventions does not further increase the ROI as this is only a minor change in terms of reduced coverage.

Conclusions: For a healthcare system for depressive disorders to remain economically sustainable, its cost-benefit ratio needs to be improved. Offering preventive telemedicine at a large scale is likely to introduce such an improvement.

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