

## **E.2 Step-up/Step-down**

Study	Monitor 2015 <sup>204</sup>			
Study details	Population & interventions	Costs	Health outcomes	Cost effectiveness
<p><b>Economic analysis:</b> CC</p> <p><b>Study design:</b> Discrete event simulation model</p> <p><b>Approach to analysis:</b> Simulation model of individual patients flowing through a local health economy based on input data including patient characteristics, system capacity and referral pattern. Comparison of capacity used with and without a scheme with unit costs applied, broken down into fixed, semi-fixed and variable.</p> <p><b>Perspective:</b> UK NHS (societal also included)</p> <p><b>Time horizon<sup>(a)</sup>:</b> 5 years</p> <p><b>Discounting:</b> Costs: n/a; Outcomes: n/a</p>	<p><b>Population:</b> Simulated hospital inpatients.</p> <p><b>Cohort settings:</b> n/a</p> <p><b>Intervention 1:</b> Usual hospital care.</p> <p><b>Intervention 2:</b> Short-term treatment to patients who are not suffering a hyper-acute episode in a community hospital setting. Patients referred by GP or ambulance, receiving treatment within two hours from a multidisciplinary team led by a consultant, seven days a week.</p>	<p><b>Total cumulative costs over five years:</b> Intervention 1: NR Intervention 2: NR Incremental (2–1): £1m (95% CI: NR; p=NR)</p> <p><b>Cost of patient spell in fifth year of the scheme:</b> Intervention 1: £674 Intervention 2: £559 Incremental (2–1): -£115 (95% CI: NR; p=NR)</p> <p><b>Currency &amp; cost year:</b> UK pounds; year NR</p> <p><b>Cost components incorporated:</b> Setup, fixed, semi-fixed and variable costs.</p>	<p>N/A</p>	<p>Results show the scheme will not break even over five years. However, in the fifth year, uptake of the service is high enough to see it be cost saving.</p> <p><b>Analysis of uncertainty:</b> Estimated that a similar scheme would need to cost around £550 to £600 per patient intervention to be cost saving compared to treating patients in the acute setting.</p>
Data sources				
<p><b>Health outcomes:</b> NA <b>Quality-of-life weights:</b> NA <b>Cost sources:</b> Bottom-up costs reviewed through data requests to providers running similar schemes and used to build costs models identifying the workforce, variable and setup costs of schemes. Identified key factors that influence cost structure of schemes and then test with other providers and clinicians. Acute pathway costs from a combination of patient-level information and costing systems, cost data and ward staffing model.</p>				

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<b>Comments</b>				
<b>Source of funding:</b> NHS England <b>Applicability and limitations:</b> Not enough detail around methodology and modelled cohort. Costs not explicitly reported as per patient value. Cost year not reported for comparison. Full breakdown of cost inputs and outputs not reported.				
<b>Overall applicability<sup>(b)</sup>:</b> Partially applicable <b>Overall quality<sup>(c)</sup>:</b> Potentially serious limitations				

Abbreviations: CC: Comparative costing analysis; 95% CI: 95% confidence interval; CUA: cost–utility analysis; EQ-5D: EuroQol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death); ICER: incremental cost-effectiveness ratio; NR: not reported; pa: probabilistic analysis; QALYs: quality-adjusted life years; SA: sensitivity analysis.

(a) One year modelling with extrapolation for further 4 years.

(b) Directly applicable/Partially applicable/Not applicable.

(c) Minor limitations/Potentially serious limitations/Very serious limitations.

Study	O'Reilly 2008 <sup>220</sup>			
Study details	Population & interventions	Costs	Health outcomes	Cost effectiveness
<b>Economic analysis:</b> CUA (health outcome: QALYs)  <b>Study design:</b> RCT <b>Approach to analysis:</b> Within-trial analysis of individual patient level cost and outcome data. Resource use data collected from hospital patient administration system and via questionnaires. Data collected from patient questionnaires were corroborated against a community database and agreement ascertained. Missing values were	<b>Population:</b> Elderly patients requiring rehabilitation following hospital admission with an acute illness  <b>Cohort settings: (n=490)</b> Mean age: NR Male: NR  <b>Intervention 1: (n=210)</b> General hospital care  <b>Intervention 2: (n=280)</b> Community hospital care	<b>Total costs (mean per patient):</b> Intervention 1: £8,226 Intervention 2: £8,946 Incremental (2–1): £720 (95% CI: -£523 to £1,964; p=NR)  <b>Currency &amp; cost year:</b> 2001-2002 UK pounds  <b>Cost components incorporated:</b> Hospital admissions, visits to emergency department, day hospitals, day centres, general practitioners, outpatient visits, out-of-hours services, home visits	<b>QALYs (mean per patient):</b> Intervention 1: 0.298 Intervention 2: 0.340 Incremental (2–1): 0.048 (95% CI: -0.028 to 0.123; p=0.214)	<b>ICER (Intervention 2 versus Intervention 1):</b> £16,324 per QALY gained (pa) 95% CI: NR Probability Intervention 2 cost-effective (£10k/30K threshold): 47%/50%  <b>Analysis of uncertainty:</b> Bootstrapping was used to assess the impact of uncertainty. Costs of initial hospital admission, subsequent readmission and institutional care costs were explored in sensitivity analyses which gave similar results to the base case analysis. A threshold analysis showed that when the per diem cost of the community hospital is reduced by over 30%, the mean cost per patient treated at a community hospital

<p>imputed using the mean value for the treatment group.</p> <p><b>Perspective:</b> UK NHS and PSS</p> <p><b>Follow-up:</b> 6 months</p> <p><b>Treatment effect duration<sup>(a)</sup>:</b> 12 months</p> <p><b>Discounting:</b> Costs: n/a; Outcomes: n/a</p>		<p>by health or social care staff, residential and nursing homes, equipment and adaptation.</p>		<p>becomes lower than at a general hospital.</p>
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#### Data sources

**Health outcomes:** Within-trial analysis with EQ-5D data collected at baseline, at one week after discharge. And 3 and 6 months after randomisation. **Quality-of-life weights:** EQ-5D UK tariff was used to calculate QALYs. **Cost sources:** Resource use data were collected one week after discharge, and 3 and 6 months following randomisation using an interviewer-completed questionnaire administered to the patients and their carers. Hospital inpatient use data were obtained from the hospital patient administration system. Both local and national sources including PSSRU and NHS Reference Costs and NHS Purchasing and Supply Agency were used to calculate costs. Cost of hospital stay was based on data from the hospitals' finance departments and included both direct and indirect costs. Costs were calculated net of patients' contribution, where this occurred (for example in case of some community services such as chiropody and home care).

#### Comments

**Source of funding:** Government and charity funding. **Applicability and limitations:** Some uncertainty regarding the applicability of resource use and unit costs from 2001-2002 to current NHS context. Within-trial analysis so does not reflect all the evidence available for this comparison between care at a community hospital and at a district general hospital setting. The short time horizon (6 months) may not reflect all potential differences in costs and outcomes. An assumption was also made about the persistence of effect up to 1 year, which was not supported by evidence. Both local and national unit costs were used for the analysis. It is not clear whether the local unit costs used for some of the community care resources would be representative of national unit costs. Additionally, only a limited number of assumptions was tested in sensitivity analysis.

**Overall applicability<sup>(b)</sup>:** partially applicable **Overall quality<sup>(c)</sup>:** minor limitations

*Abbreviations: 95% CI: 95% confidence interval; CUA: cost-utility analysis; EQ-5D: Euroqol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death); ICER: incremental cost-effectiveness ratio; NR: not reported; pa: probabilistic analysis; QALYs: quality-adjusted life years.*

*(a) For studies where the time horizon is longer than the treatment duration, an assumption needs to be made about the continuation of the study effect. For example, does a difference in utility between groups during treatment continue beyond the end of treatment and if so for how long.*

*(b) Directly applicable/Partially applicable/Not applicable.*

*(c) Minor limitations/Potentially serious limitations/Very serious limitations.*