A retrospective quasi-experimental study of a community crisis house for patients with severe and persistent mental illness

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study evaluated the service use and clinical effects of a crisis house, within the Alternatives to Hospital (AtH) programme, for patients with severe and persistent mental illness, during and after an initial exacerbation requiring hospitalisation. The authors concluded that the AtH house was not appropriate for all patients, but could produce cost savings. The study was generally well conducted, using appropriate observational data, but there was inadequate control for some confounders, which limits the reliability of the results.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study evaluated the service use and clinical effects of a crisis house, within the Alternatives to Hospital (AtH) programme, for patients with severe and persistent mental illness, during and after an initial exacerbation requiring hospitalisation.

Interventions
The two interventions were patients who received normal hospitalisation for their mental health exacerbation (control), and patients who received a shorter hospital stay, by spending some time in an AtH facility. The AtH facility was a residential house for up to five patients, who could stay for up to two weeks, with extensions on a case-by-case basis. The house had 24-hour nursing, with occupational therapists available daytime on weekdays. Patients were expected to contribute to their own recovery and relapse prevention plan, and to assist in the running of the house (cooking and cleaning). Families and carers were involved in care planning, and received psycho-education if the patients consented. Employees at the AtH facility were integrated into the wider mental health care system, and patients continued to receive standard case management.

Location/setting
Australia/secondary care.

Methods
Analytical approach:
The economic evaluation was based on a retrospective quasi-experimental study. Patients admitted for an exacerbation of severe and persistent mental illness, between April 2006 and March 2009, were identified from several hospitals, in the outer Brisbane area, that had similar demographics. Follow-up was at one year after hospitalisation. The study perspective was not stated.

Effectiveness data:
The primary outcome was in-patient hospital bed days for the initial episode. Outcomes in the year after discharge from hospital or the AtH house, included re-hospitalisation or re-entry to the AtH house; emergency room attendance; Health of the Nation Outcome Scale (HoNOS) measures for suicidal ideation, substance use, and problems with living conditions; mortality; and days under case management. Outcomes were adjusted by demographic characteristics including age, marital status, diagnosis (psychosis, affective disorders, anxiety disorders, personality disorders, or substance abuse), indigenous status, and date of initial episode. Negative binomial regression was used to control for covariates and produce estimated marginal mean initial bed days.
Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The clinical outcomes were the measures of benefit.

Cost data:
The costs were calculated for each group, by the number of days spent in in-patient care and AtH care, for the first hospitalisation only. The unit costs for in-patient bed days were from hospital in-patient pricing data. The average per day cost of the AtH programme was from its 2008 to 2009 annual costs. The costs were in Australian dollars (AUD) and the price year was 2009. The perspective was that of the health service.

Analysis of uncertainty:
The differences were assessed for statistical significance.

Results
Without adjusting for demographics, in-patient bed days were 14.67 (SE 1.30) for AtH patients, and 21.15 (SE 1.34) for controls, a difference of 6.48 days. After adjustment, this difference reduced to 5.35 days. The length of stay in the AtH house was 9.45 days (SE 0.44).

The mean duration of the initial episode was 24.12 days for the AtH house, and 22.87 days for controls (p<0.001). Shorter stays in hospital led to AUD 5,948.22 less expenditure for the initial episode, which was greater than the AUD 3,071.44 cost per patient for the AtH programme.

In the year after discharge, AtH patients were statistically significantly more likely to be readmitted to hospital than controls, and had higher HoNOS scores (worse mental health), a higher rate of clinically significant problems with living conditions, a higher rate of emergency presentations, and a longer duration of case management. AtH patients tended to have more problems with substance abuse (p=0.093), and higher mortality (AtH 3.1%, six of 193; control 1.3%, five of 371; p=0.151), but neither trend was statistically significant.

Authors' conclusions
The authors concluded that crisis houses such as the AtH house were not appropriate for all patients, but could be cost saving to mental health services, for patients with frequent episodes of chronic illness who did not need a secure hospital.

CRD commentary
Interventions:
The crisis house intervention was described with appropriate detail. The control was standard management; a more detailed description would have allowed a better assessment of the generalisability of the intervention and treatment.

Effectiveness/benefits:
The effectiveness data were well reported and were from appropriate linked databases. There was a rigorous process for selecting the control patients, and appropriate methods were used to control for potential confounders in the results. The primary effectiveness outcome, in-patient bed days during the initial episode, was primarily a resource use outcome, rather than a health outcome.

Costs:
The costs were generally sufficiently reported. The service use in the year after the initial episode was not assessed for either intervention. This led to an incomplete, and short economic evaluation. As re-hospitalisations were greater for the AtH group, this would have increased their costs, as acknowledged by the authors. The authors indicated that patients entering the AtH house were required to be in case management, which may have increased the incidence of re-hospitalisation; there was a statistically significant correlation between case management and re-hospitalisation (p<0.001). They stated that they were unable to adjust the results for case management.

Analysis and results:
The analyses were well reported, with some appropriate adjustments for potential confounders. The authors described their analysis as a cost minimisation, which implied that there were equivalent clinical outcomes. This was inaccurate as the authors found statistically significant differences between the groups in the clinical and resource use outcomes. This was a cost-consequence analysis; indicating that the costs and clinical outcomes were measured separately and not presented as a ratio. The authors stated some limitations to their study, for example there were demographic differences between the groups even after controlling for potential confounders, and it was not possible to adjust the outcomes and costs by case management status. The two populations may have been too dissimilar on important characteristics. Appropriate comparisons were made with other studies and differences in the findings were explained.

Concluding remarks:
The study was generally well conducted, using appropriate observational data, but as acknowledged by the authors, differences in the patient groups may have driven differences in the outcomes, and there was inadequate control for some confounders.

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