The effectiveness of rural assertive outreach: A prospective cohort study in an English region

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Abstract

Background: Assertive Outreach has yet to be demonstrated to be effective in the UK. Few studies have explored its implementation in rural settings.

Aims: To establish whether the Assertive Outreach Team (AOT) model is effective in reducing hospital bed use and in improving engagement with services and social functioning in a mixed rural and urban area in the UK.

Method: A prospective within subject control design, following a cohort of 42 patients during a period of 2 years prior to the implementation of an AOT, and for the first year of its operation.

Results: There was a statistically significant reduction in bed use among the cohort during the first year of AOT, with secondary findings of improved engagement with services and social functioning.

Conclusions: AOT can be effectively implemented in a mainstream NHS setting, in an area with a substantial rural population.

Declaration of interest: None.

Keywords: Assertive outreach, effectiveness, community mental health services, hospital bed utilisation, mental health community care

Introduction

The implementation of Assertive Community Treatment (ACT) within the United Kingdom, in the form of Assertive Outreach, has been driven by central government, as part of a national strategy aimed at improving mental health services, and outlined in the National Service Framework for Mental Health (Department of Health, 1999). It remains a high government priority and the successful development of Assertive Outreach Teams is used as a key measure of quality.

The Assertive Outreach model has introduced the delivery of a broad-range of services within one dedicated, multi-disciplinary team, which aims to support patients using intensive case management through in-vivo work around everyday activities, in an attempt to reduce symptomatology, relapse and unnecessary admission. Fidelity to a number of critical components of the model, including a low patient to staff ratio and shared responsibility for...
patient care, has been considered essential in ensuring its effectiveness (Drake & Burns, 1995; Hemming et al., 1999; Witheridge, 1991).

Research from the US has shown ACT to be beneficial across a number of factors including reduced hospital inpatient days (Essock & Kontos, 1995; Fiander et al., 2003; McGrew et al., 1995; Quinlivan et al., 1995a), reduced homelessness (Essock & Kontos, 1995; Morse et al., 1997), better engagement with services (Herinckx et al., 1997), reduced overall mental health service costs (Quinlivan et al., 1995b; Santos et al., 1993), improved family and social support; improved daily living skills (McGrew et al., 1995) and greater patient satisfaction with the services available (Latimer, 1999; Marshall & Lockwood, 2003; Wolff et al., 1997). Improved social networks and reduced carer burden have also been demonstrated (Aberg-Wistedt et al., 1995). However, these studies utilized a range of measures over a relatively brief time period (often 12 months) and it remains unclear whether improvements were maintained.

Questions remain as to the effectiveness of assertive outreach (AOT) in the context of the United Kingdom healthcare setting, with the suggestion that standard care is of a quality that renders the advantages of the model demonstrated in other countries to be non-reproducible in Britain (Burns et al., 2000). The UK700 and PriSM studies failed to demonstrate significant advantages of intensive case management over standard care (Burns et al., 1999; Thornicroft et al., 1998a). Failure to remain faithful to the AOT model has been offered as a significant contributing factor to the disappointing outcomes in the UK (McGovern & Owen, 1999), an issue which continues to be disputed (Fiander et al., 2003).

Although there have been descriptions of the successful provision of ACT in rural areas outside the UK (Lachance & Santos, 1995), the majority of studies have been conducted within densely populated urban areas and limited focus has been placed on the applicability of this approach in more rural districts. There are certain practical considerations when deliberating the viability of providing AOT away from the predominantly urban or suburban settings in which it was developed, and where each of the major randomized-controlled trials have taken place. Frequent visits, which are a feature of the AOT model, may be much more difficult to achieve when spread over a large geographical area, and social interventions may be harder to deliver in isolated rural settings, because of the need to link with colleges, employers, housing associations, and other agencies.

A further point of contention regarding the efficacy of AOT in the UK is whether treatment has focused on individuals with the most severe types of mental illness, for whom the approach was originally devised (Thornicroft et al., 1998b). It is proposed that failure in this area may significantly dilute any possible benefit of the intervention, thereby weakening its power and potentially contributing to the failure to replicate the findings of other countries.

The aim of the current study was to determine whether an Assertive Outreach Team, operating in an ordinary clinical environment in a mixed rural and urban area, in the UK NHS setting, was effective in reducing hospital bed usage, with a secondary exploration of the nature and degree of engagement with services, and of health and social functioning.

**Method**

**Design**

The study involved a within subject control design, comparing data from a cohort of Assertive Outreach patients at a series of defined time points. A comparison was carried out
between cohort data relating to the two-year period prior to referral to Assertive Outreach and at one year following implementation of this approach.

Research setting and cohort

The study was set in South Warwickshire, which includes substantial rural and semi-rural areas in addition to a number of small towns and three larger settlements of Warwick, Royal Leamington Spa and Stratford-upon-Avon. The total population is in the region of 240,000 and 45 out of the 55 electoral wards have been classified as rural (Countryside Agency, 2000), with 10 wards ranking in the most deprived nationally for access, according to the Index of Deprivation Scale 2000 (Department of the Environment, 2000). The research cohort resides across the South Warwickshire region, with clusters around the three settlements.

The first 42 patients on the South Warwickshire Assertive Outreach Team (SWAOT) caseload were included in the cohort. The data for five individuals originally referred to the service were not included in the study as two were deceased (one of carcinoma and one of chronic obstructive airways disease), two had moved out of the South Warwickshire area prior to collation of the data and one had returned to the area but bed days data were not available for this earlier period.

Team characteristics

The SWAOT is a multi-professional group implementing shared responsibility for caseload management. It was established in September 2000 according to the guidelines for team composition laid down in *The National Service Framework for Mental Health* (Department of Health, 1999). The team continues to operate successfully with a caseload of approximately 10 clients to every keyworker. The SWAOT comprises staff from several disciplines including nursing, psychology, occupational therapy, social work and psychiatry, and operates flexible hours of work with the ability to provide 24 hour care on a planned basis, where needed. A number of therapeutic initiatives, driven by team members, have become core psychosocial activities, including woodwork, art and sports groups, theatre and cinema trips and eating out.

The Dartmouth Assertive Community Treatment Scale (Teague et al., 1998)

This 28 item measure facilitates the rating of a team’s fidelity to the Assertive Community Treatment model. Items fall into one of three categories (human resources, team structure and composition, organizational boundaries and nature of services) and are scored according to anchors across a 1 to 5 range. Items rated 4 or greater represent high fidelity to the model, in contrast to those rated as less than 3, which represent low fidelity.

Initial reports of the psychometric properties of the DACTS indicated good internal consistency, with Cronbach’s alpha at .92 (Teague et al., 1998). Subsequent examination of the scale has indicated acceptable internal consistency and inter-rater reliability, but with low total score test-retest reliability, despite many individual items achieving acceptable test-retest reliability (Winter & Caslyn, 2000).

The team fidelity rating was conducted by JW through scrutiny of relevant case notes and documents, in addition to interviews with the team leader (as recommended by the DACTS implementation guidelines). Team contacts with 10 patients, selected at random,
and service provision over a two-week period were examined. Fidelity was measured once during the duration of the study.

**Time spent in hospital**

For each subject, the number of occupied bed days at the local mental health inpatient unit during the two year period prior to referral to Assertive Outreach and during the first year following referral, was calculated. This information is collected routinely by the South Warwickshire Primary Care NHS Trust information technology services. From the occupied bed days it was possible to differentiate between the number of nights spent in hospital care and those spent on home leave.

**Engagement measure (Hall et al., 2001)**

The observer rated engagement measure is an 11-item tool designed to evaluate six dimensions of engagement: appointment keeping (2 items); client-therapist interaction (1 item); communication and openness (3 items); client’s perceived usefulness of treatment (1 item); collaboration with treatment (3 items) and compliance with medication (1 item). Patients’ level of engagement is rated on a five-point Likert scale ranging from 1 (e.g., never keeps appointments) to 5 (e.g., always keeps appointments). The score for each item can be summed to give an overall total score with a range of 11–55.

The Engagement Measure has been found to have good test-retest reliability, with a total score correlation score of .90 (Spearman’s $r$). High levels of inter-rater reliability, with a total score correlation of .95 (Spearman’s $r$), were found using two clinicians rating 20 clients on one occasion. Internal consistency of the Engagement Measure was also high ($\alpha = .89, n = 44$). Hall et al. (2001) reported that a score of 33 maximally separates well and poorly engaged clients with no mis-classification (hence 33 and above indicates good levels of engagement).

This measure was completed upon referral to the Assertive Outreach Team by the existing care co-ordinator, in order to gain a base line level of engagement. Following acceptance to the Assertive Outreach Team the measure was then completed by the care co-ordinator or most involved worker at three monthly intervals, commencing within the first two months of contact with the team.

**Functional Assessment of Care Environments (FACE): Health and Social Assessment (Clifford, 2000)**

The FACE Health and Social Assessment was chosen as it examines a variety of aspects of functioning considered to be central to this approach and was already widely used within the health trust.

This assessment tool was developed to measure an individual’s complex health and social care needs by multi-professional teams. The 38-item observer-rated measure examines issues relating to the following five areas of functioning: psychological well-being, physical well-being, activities of daily living, interpersonal relationships and social circumstances. Each item is rated using a five-point Likert scale from 0 (no problem) to 4 (very severe problem pervading all aspects of the person’s life and behaviour). The item can also be rated as “not known” if insufficient information is available or “not applicable” if the item is not relevant to the person’s circumstances. When scoring is complete, an aggregate
score is achieved for each area of functioning by dividing the total score by the number of items rated on the 0 to 4 scale. An overall score is achieved by summing the aggregate scores.

Psychometric properties of the FACE scale have been studied (Clifford, 2004). Cronbach’s alpha values have been found to be in the range .8 to .85 on sample sizes of 878 and 307. Investigation of inter-rater reliability showed that the weighted kappas were above .7, indicating a good level of agreement between raters. Consistency over time was assessed in a study of 165 patients and 20 raters (not always the same at the two time periods) which reported Kappa values of .56 in patients who were judged not to have changed over time (4–5 months) and .3 for patients who had been judged to have “improved” or “worsened” over the same time period. This indicates that the tool is likely to be stable where no change has occurred but sensitive to change where change has been observed.

Concurrent validity has been assessed by comparing with the Brief Psychiatric Rating Scale (Overall, 1974). A correlation of .71 has been demonstrated between FACE items and their counterparts within the BPRS.

The FACE assessment was completed by the care co-ordinator or most involved worker within the first two months of acceptance to the Assertive Outreach Team and at six monthly intervals thereafter.

Results

The cohort comprised 42 patients who typically had a diagnosis of schizophrenia or schizoaffective disorder, and tended to have histories of multiple involuntary hospital admissions, with many also having comorbid alcohol, substance misuse or personality disorders. For each patient, data was collected between 24 and 12 months prior to the initiation of assertive outreach (described as “2 years pre-AOT”), between 12 months prior to assertive outreach and the start of the service (“1 year pre-AOT”) and for the first 12 months of receiving assertive outreach (“first year of AOT”). During the first year in assertive outreach services there were improvements in engagement with services and reductions in hospitalisation, with decreased bed use and a greater proportion of hospital stays being spent on leave.

Demographic and clinical characteristics of the cohort

A range of demographic data for the cohort was collated, including age, gender and duration of mental health history (Table I). Diagnosis was based on the ICD-10 criteria and included any comorbid personality disorder or disorders due to psychoactive substance misuse.

Statistical analysis

Descriptive statistics showed the data relating to hospital admissions, bed occupancy and time on leave from hospital to be highly skewed. Therefore it was decided to use non-parametric tests. The Friedman test was used to check for differences across the three time periods. Post hoc testing was carried out using 2-tailed Wilcoxon signed rank tests to detect any pairwise differences between any of the 3 time periods. In order to reduce the possibility of type 1 error associated with multiple testing, a Bonferoni correction was made to the \( p \) values obtained from post hoc tests.
Data relating to FACE and engagement measures were much less skewed and as the sample size was greater than 30, paired t-tests were used.

**Fidelity to the Assertive Community Treatment model**

The South Warwickshire AOT was found to have high fidelity to the ACT model as measured by the DACTS (Teague et al., 1998), with a total score of 4.4 (>4 denotes high fidelity). Since data analysis for this study, a repeated DACTS measure has been undertaken demonstrating no significant score changes across the three dimensions.

**Hospital admissions**

During the period 2 years prior to assertive outreach 24 of the 42 patients were admitted to hospital a total of 31 times (range1 – 3, median 1). In the one year prior to assertive outreach 28 patients were hospitalized a total of 44 times (range 1 – 4; median 1). During the first year of assertive outreach only 16 patients required admission a total of 25 times (range 1 – 4; median 1).

A Friedman test showed that there was a significant difference in the number of hospital admissions across each of the 3 time periods ($p = 0.029$). In order to assess where the difference lay 2-tailed Wilcoxon tests were carried out between each of the 3 periods. This demonstrated no significant difference between the two time periods prior to assertive outreach ($p = .339$), or between the 2 year time period and the first year of assertive outreach ($p = .765$), but a significant reduction in admissions between 1 year prior to assertive outreach and the first year of assertive outreach ($p = .009$).

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Table I. Clinical and demographic characteristics of the cohort.

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 – 29</td>
<td>13</td>
<td>(31)</td>
</tr>
<tr>
<td>30 – 39</td>
<td>14</td>
<td>(33)</td>
</tr>
<tr>
<td>40 – 49</td>
<td>6</td>
<td>(14)</td>
</tr>
<tr>
<td>50 – 65</td>
<td>9</td>
<td>(21)</td>
</tr>
<tr>
<td><strong>Female sex</strong></td>
<td>16</td>
<td>(38)</td>
</tr>
<tr>
<td><strong>Duration of previous psychiatric history in years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 – 5</td>
<td>12</td>
<td>(29)</td>
</tr>
<tr>
<td>6 – 10</td>
<td>14</td>
<td>(33)</td>
</tr>
<tr>
<td>11 – 20</td>
<td>8</td>
<td>(19)</td>
</tr>
<tr>
<td>21 – 30</td>
<td>7</td>
<td>(17)</td>
</tr>
<tr>
<td>31 or above</td>
<td>1</td>
<td>(2 )</td>
</tr>
<tr>
<td><strong>ICD-10 Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>30</td>
<td>(71)</td>
</tr>
<tr>
<td>Schizoaffective disorder</td>
<td>10</td>
<td>(24)</td>
</tr>
<tr>
<td>Bipolar affective disorder</td>
<td>2</td>
<td>(5 )</td>
</tr>
<tr>
<td><strong>Comorbid disorders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality disorder</td>
<td>17</td>
<td>(40)</td>
</tr>
<tr>
<td>Illicit drug use</td>
<td>14</td>
<td>(33)</td>
</tr>
<tr>
<td>Alcohol misuse</td>
<td>12</td>
<td>(29)</td>
</tr>
</tbody>
</table>
Changes in bed use over time

Occupied bed days was defined as the number of days from admission to final discharge from hospital and is the sum of the number of nights a person spent in hospital and the nights on home leave. Separate analyses were carried out of both occupied bed days and nights in hospital with results summarized in Table II.

*Occupied bed days*

In the two years prior to the AOT the mean occupied bed days was 63.4 days (SD = 90.6), in the year immediately prior to AOT the mean occupied bed days was 88.4 days (SD = 91.3). In the one year following the instigation of the AOT occupied bed days had reduced to a mean of 44.5 days (SD = 49.0).

A Friedman test was performed and a significant effect for time was observed ($p = .02$), indicating that occupied bed days differed in the three consecutive years studied.

Wilcoxon tests were then conducted to assess the pairwise differences in occupied bed days in each of the three years that were studied. A significant difference between the year immediately preceding the AOT and the year proceeding the AOT was observed ($p = .012$).

*Nights in hospital*

In the period two years prior to the AOT the mean number of nights the cohort spent in hospital was 55.6 days (SD = 79.3). In the year immediately prior to AOT the mean nights in hospital was 74.7 days (SD = 81.1). In the one year period following acceptance to the AOT, nights in hospital had reduced to a mean of 32.0 days (SD = 36.8).

A Friedman test was performed and a significant effect for time was observed ($p = .02$), indicating that nights in hospital differed in the three consecutive years studied.

Post hoc testing was carried out, using Wilcoxon signed rank tests in order to examine pairwise differences in nights in hospital for each of the 3 time periods studied. A significant difference between the year immediately preceding the AOT and the year proceeding the AOT was observed ($p = .003$).

Changes in the proportion of time spent in hospital versus time spent on leave

The proportion of time spent on leave, defined as the number of nights on leave divided by the total length of stay (i.e., occupied bed days), was calculated for each patient. Of those who were inpatients during the 2 years pre-AOT time period 9.6% of their bed occupancy

Table II. Trends in hospital bed use.

<table>
<thead>
<tr>
<th></th>
<th>2 years pre-AOT</th>
<th>1 year pre-AOT</th>
<th>1st year of AOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupied bed days</td>
<td>63.4 (90.6)</td>
<td>88.4 (91.3)</td>
<td>44.8 (49.0)*</td>
</tr>
<tr>
<td>Nights in hospital</td>
<td>55.6 (79.3)</td>
<td>74.7 (81.1)</td>
<td>32.0 (36.8)**</td>
</tr>
<tr>
<td>Proportion of hospital stay on leave</td>
<td>9.6%</td>
<td>15.9%</td>
<td>29.0%***</td>
</tr>
</tbody>
</table>

*Significant difference between 1 year pre-AOT and 1st year of AOT $p = .012$; **Significant difference between 1 year pre-AOT and 1st year of AOT $p = .003$; ***Significant differences between: 2 year pre-AOT and 1st year of AOT $p = .012$, and between 1 year pre-AOT and 1st year of AOT $p = .009$. 

The effectiveness of rural assertive outreach
was spent on leave. The corresponding figures for the 1 year pre-AOT and first year of AOT were 15.9% and 29.0% respectively. A Friedman test showed that there was a significant difference in the proportion of time spent on leave across the 3 time periods ($p = .012$). Post hoc testing using the Wilcoxon signed rank test showed no significant difference in proportion of time spent on leave during the 2 years pre-AOT period and the 1 year pre-AOT period ($p = .101$). There was a significant pairwise difference in proportion of time spent on leave between the 2 years pre-AOT time period and the first year of AOT ($p = .012$), and also between the 1 year pre-AOT time period and the first year of AOT ($p = .009$).

**Face health and social assessment**

Thirty-four participants provided data on the total FACE score on entry to the AO programme and after one year post AOT. A dependent samples 2-tailed t-test showed a significant reduction in total FACE score ($t_{33} = 2.13$, $p = .04$), with a mean FACE total score of 8.7 (SD = 3.7) on entry to the AOT and a total score of 7.0 (SD = 3.3) after one year in the programme. In order to identify which components of the FACE were effected by the AOT programme the nine subscales of the FACE were compared, with both Mental Health and the Social Circumstances sub-scales of the FACE showing statistically significant improvement (see Table III). To test for internal consistency, Cronbach’s Alpha was found to be .71 at entry to AOT, and .68 one year later.

**Engagement**

A measure of engagement with services (Hall et al., 2001) was completed on referral to AOT and one year after the acceptance to the team. Prior to the AOT the mean engagement score was 30.5 (SD = 7.7) and one year following commencement of the team the mean engagement score had increased to 38.0 (SD = 7.2). The difference between the mean engagement scores prior to and one year after acceptance to the AOT was statistically significant ($t = 6.76; p < .001$; dependent samples $t$ test). In a study validating the scale a score of 33 or above distinguished those who were described as well engaged (Hall et al., 2001) and hence the change observed was likely to have been clinically meaningful.

<table>
<thead>
<tr>
<th>FACE Subscale</th>
<th>On entry to AOT</th>
<th>1 year post AOT</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td></td>
</tr>
<tr>
<td>Behaviour</td>
<td>0.47 (0.41)</td>
<td>0.34 (0.39)</td>
<td>.09</td>
</tr>
<tr>
<td>Cognition</td>
<td>0.62 (0.62)</td>
<td>0.51 (0.57)</td>
<td>.42</td>
</tr>
<tr>
<td>Mental health</td>
<td>0.89 (0.64)</td>
<td>0.64 (0.43)</td>
<td>.03</td>
</tr>
<tr>
<td>Physical well-being</td>
<td>0.47 (0.43)</td>
<td>0.45 (0.44)</td>
<td>.74</td>
</tr>
<tr>
<td>ADL</td>
<td>1.52 (0.85)</td>
<td>1.26 (0.74)</td>
<td>.13</td>
</tr>
<tr>
<td>Interpersonal relationships</td>
<td>1.75 (0.76)</td>
<td>1.59 (0.82)</td>
<td>.27</td>
</tr>
<tr>
<td>Family &amp; carers</td>
<td>0.69 (1.05)</td>
<td>0.50 (0.91)</td>
<td>.17</td>
</tr>
<tr>
<td>Social circumstances</td>
<td>0.76 (0.46)</td>
<td>0.53 (0.48)</td>
<td>.03</td>
</tr>
<tr>
<td>Response to care</td>
<td>1.71 (1.09)</td>
<td>1.54 (1.01)</td>
<td>.45</td>
</tr>
<tr>
<td>Total score</td>
<td>8.66 (3.68)</td>
<td>7.01 (3.30)</td>
<td>.04</td>
</tr>
</tbody>
</table>
Discussion

We were able to demonstrate that it is possible to implement assertive outreach with high fidelity to the prescribed model in a rural setting in the UK. There were significant reductions in hospital admissions, and occupied bed days for the cohort following the introduction of AOT, with improvements in engagement with services and some aspects of health and social functioning.

Bed usage

The reductions in bed use complements findings of efficacy studies in other countries, and may be linked to a combination of high model fidelity and targeting patients with severe enough levels of illness to bring about a difference. The question might perhaps be raised as to the quality of “standard” community services in South Warwickshire, as the comparatively well developed nature of such services in the UK has been frequently used as an explanation for the failure of the UK700 study to show a reduction in bed use. Although we do not present detailed information concerning this, CMHTs have been well established with CPNs having been available throughout the study area at weekends and evenings for several years prior to the functionalization of services, providing evidence that the previous “standard” service was at least as well resourced as average, and probably better so for the UK.

It is possible that the reduced need for hospitalization is linked to the ability to manage greater degrees of risk in the community. Consistent with the findings of this study, the AOT model may promote improved engagement and a more collaborative relationship, which might be expected to result in greater awareness of signs of relapse, with more scope for negotiating crises with patients and their families.

In addition to occupied bed days, defined as the time from day of admission to day of discharge from hospital, we also explored the nights actually spent in hospital. It is common practice for patients to spend increasing time “on leave” from hospital prior to discharge to facilitate a smooth transition back to normal life. Thus, many patients will have spent fewer nights in hospital, than their gross occupied bed days will have indicated. We discovered that there was a statistically significant reduction in nights spent in hospital, and furthermore the proportion of a hospital stay that was spent on leave increased significantly.

This increased proportion of occupied bed days spent on leave is not unexpected as part of the ethos of AOT is to maintain active involvement with people when they are admitted to hospital, and to help facilitate leave and early discharge. There have been no changes in local or national policy or legislation which might account for such a change. We are not aware that the issue of leave in relation to bed days has been examined in previous studies.

Engagement with services

The AOT model aims to engage with people who often feel marginalized by society, and disillusioned by mainstream psychiatric services, perhaps describing themselves as “survivors”, not of mental illness, but of the mental health system itself. However, the concept of engagement is complex and has not been given the attention it deserves in this context. The use of a multidimensional scale, which has previously been shown to be both valid and reliable, enabled a clear demonstration of statistically significant improvements in engagement during the first year of assertive outreach compared to the rating on referral to the team.
The results demonstrate a significant improvement in engagement measured across a number of dimensions. Previous research in this area has suggested that development of quality of the relationship with workers and having more opportunities for openness are highly valued by patients (Gillespie et al., 2004). A more detailed examination of which aspects of engagement are most subject to change following the introduction of AOT may prove to be a useful area for future study.

**Health and social functioning**

Because large randomized controlled trials have not generally shown changes in measures of mental state in AOT groups there would have been little purpose to attempting to rate mental functioning in detail, in this study. The FACE scale has been previously found to be a clinically useful and reliable tool and comprises health and social functioning dimensions.

A variety of possible social benefits of AOT have been demonstrated in previous studies. This study revealed a statistically significant improvement in the social circumstances subscale. This subscale includes items such as stability of accommodation, financial security, access to health services, social vulnerability, daytime activity, and social contacts. Again this may be closely related to the progress that can be obtained through focusing on engaging people in services, often by taking a patient-centred approach, helping to address the social difficulties which are frequently subjectively perceived as being more important than symptoms, or illness.

**Methodology**

The design of the study used a pragmatic outcome, occupied bed days, linked to a within subject control. This bed use data can be considered robust and free from possible bias. The other measures were open to observer bias, particularly as ratings were completed by team members. Despite this, rating scales with proven validity and reliability were used.

However, it is important to consider alternative explanations for the findings other than the impact of the AOT itself. For example, it might be suggested that there was a pre-existing downward trend in bed use, and regression to the mean. These alone could explain some of the findings. In practice, on entering the study the cohort trend was for increasing bed use over the two years pre-AOT. Despite its close replication of AOT efficacy studies, it would not be possible to conclusively exclude other influencing factors using this type of study, and therein lies its weakness.

Future areas for effectiveness research might include a more in-depth examination of the relationship between engagement with services and reduced hospital use. It would also be useful to include a qualitative appraisal of the impact of the team, examining other factors, for example satisfaction. A longer-term follow-up of this cohort might be worthwhile particularly as many studies have been limited to one or two years, despite clinical experience and research indicating that many patients take many months or even years to begin to make changes.

**Conclusion**

This study did not attempt to discover new treatments or to test unexplored hypotheses, but simply to establish whether an intervention which had previously been shown to be efficacious could be made to work in a mainstream NHS setting. No special funding was
sought or obtained and the study examined the workings of an assertive outreach team which had been established as a long-term venture, away from the excitement of the big city teaching hospital in an area where mental health services are provided to the residents of a number of small towns and rural districts.

The prospective cohort within subject control design enabled the avoidance of difficulties with matching and proved a pragmatic method for studying the implementation of the AOT model in what amounted to a non-research setting. A high degree of fidelity to the model was demonstrated and those included in the service were shown to be typical of people with the most severe varieties of psychotic disorder and associated problems, known to be more likely to benefit from the approach. The significant reductions in occupied bed days, including the finding that even when admitted to hospital people spent a far greater proportion of their time on “overnight leave” could indicate that the intervention was effective, which can only be proved by carrying out a controlled trial. Furthermore, there did not appear to be evidence of deterioration in general measures of physical and mental health, and the multidimensional measures of engagement with services indicated significant improvements following acceptance by the AOT. The results of this study are consistent with the effectiveness of the Assertive Outreach model in a rural UK setting with significant benefits for people with severe psychotic disorders who are high users of inpatient beds.

References


