

Short report

Randomised evaluation of assertive community treatment: 3-year outcomes

Helen Killaspy, Stella Kingett, Paul Bebbington, Robert Blizard, Sonia Johnson, Fiona Nolan, Stephen Pilling and Michael King

Summary

The only randomised controlled trial to test high-fidelity assertive community treatment (ACT) in the UK (the Randomised Evaluation of Assertive Community Treatment (REACT) study) found no advantage over usual care from community mental health teams in reducing the need for in-patient care and in other clinical outcomes, but participants found ACT more acceptable and engaged better with it. One

possible reason for the lack of efficacy of ACT might be the short period of follow-up (18 months in the REACT study). This paper reports on participants' service contact, in-patient service use and adverse events 36 months after randomisation.

Declaration of interest

None.

Assertive community treatment (ACT) teams have been implemented across England since 1999 as part of the National Service Framework for Mental Health. These teams target people with severe and enduring mental health problems who are high users of in-patient care and have problems engaging with standard mental health services.¹ There is good evidence for their clinical efficacy in the USA and Australia^{2,3} in terms of reducing the need for in-patient care and associated costs. However, these advantages have not been replicated in the UK.^{4,5} A meta-analysis of trials of intensive case management concluded that the advantages of ACT were most evident where there was high local use of in-patient care and where the comparison intervention did not replicate key aspects of ACT.⁶ The Randomised Evaluation of Assertive Community Treatment in North London (REACT) study assessed outcomes 18 months after randomisation and found no clinical advantage over usual care from community mental health teams (CMHTs) but recipients of ACT were better engaged with services.⁷ Selection criteria for participants in the REACT study included high use of in-patient care and the comparison CMHTs had high fidelity for only one of the key ACT components (offering a time-unlimited service).⁸

Another possible explanation for the REACT findings is that outcomes were assessed relatively soon after teams were set up. We therefore assessed outcomes 36 months after randomisation to investigate whether reductions in in-patient service use might be evident following initial engagement with the service.

Method

The REACT study was carried out with full adherence to CONSORT guidelines for the management of randomised controlled trials. The methods and results 18 months after randomisation have been reported elsewhere.⁷ In brief, the 251 participants were recruited from all CMHTs in the London boroughs of Camden and Islington between July 1999 and July 2002. They were high users of in-patient care (at least 100 consecutive in-patient days or at least five admissions within the past 2 years; or at least 50 consecutive in-patient days or at least three admissions within the past year) who were living independently and whom the CMHTs had found problematic to engage over at least the previous 12 months. There were no statistically significant differences between the two groups in clinical or social functioning at baseline. Since including only consenting participants would render the results irrelevant to the service users most likely to be referred for ACT, the local research ethics

committee approved randomisation and collection of case note and key informant data on all participants, whether or not they agreed to participate in the research interviews. Participants were randomly allocated on an equal basis to the care of one of the two local ACT teams or to continue with their CMHT. The teams' fidelity to ACT was independently assessed using the Dartmouth Assertive Community Treatment Scale during the REACT study and found to be high for one team and 'ACT-like' for the other⁹ and low for the CMHTs.⁸

Approval for collection of 36-month outcome data from the case notes of all REACT study participants was gained from the local research ethics committee. S.K. collected data on participants' current accommodation, contact with services, in-patient service use, use of the Mental Health Act and adverse events (deaths, incidents of self-harm, violence, imprisonment, homelessness and loss to follow-up). Data were collected from case notes except for three participants who had moved away. Their data were gathered from their new care coordinators by email or telephone. Five ACT and seven CMHT files covering the relevant period were missing, and in-patient service use data were thus collected from the electronic records for these individuals. Other data for these participants were collected directly from care coordinators except the number of face-to-face contacts that was recorded as missing.

The REACT study required 250 participants to detect a difference in mean in-patient bed-days (the primary outcome) of a third between the two interventions with 80% power. Of 251 study participants recruited, 127 were allocated to ACT and 124 to CMHT care. Eighteen months after randomisation, three ACT and four CMHT participants had died and one CMHT participant had emigrated, so primary outcome data were available for 124 ACT and 119 CMHT participants. Thirty-six months after randomisation, a further three ACT and two CMHT participants had died and one ACT participant had emigrated. Hence 36-month outcome data were available for 120 ACT and 117 CMHT participants. At 36-month follow-up, 20 of the original ACT clients had been transferred back to the care of a CMHT and 20 of the CMHT clients had been transferred to an ACT team. Data reported were analysed on an intention-to-treat basis, but repeat analyses excluding these clients and comparing all those who received any ACT with those who received none did not substantially alter the results.

Since data were not normally distributed, the median in-patient service use was compared using the Mann–Whitney test. Confidence intervals for the median difference were

Table 1 In-patient service use outcomes at 36 months for REACT study participants

In-patient service use	Assertive community treatment team (n = 120)			Community mental health team (n = 117)		
	Mean (s.d.)	Median	IQR	Mean (s.d.)	Median	IQR
Total in-patient days	290.9 (280.8)	209.0	88.5–422.8	267.5 (239.8)	229.0	65.0–443.0
Admissions, n	2.0 (1.8)	2.0	0–3.0	2.1 (2.1)	2.0	0–3.0
Days per admission	107.8 (151.7)	55.5	0–166.5	117.8 (136.8)	87.0	0–173.5
Involuntary admissions	1.4 (1.3)	1.0	0–2.0	1.5 (1.4)	1.0	0–2.5

REACT, Randomised Evaluation of Assertive Community Treatment; IQR, interquartile range.

calculated using Hodges–Lehmann estimates. Categorical data were compared using the χ^2 -squared test, whereas Student's *t*-test was used to compare normally distributed continuous variables.

Results

There were no statistically significant differences between the ACT and CMHT participants in total in-patient days over the 36 months (median difference 0 (95% CI –50 to 56), Mann–Whitney test $P = 0.866$) (Table 1; breakdown of admissions and further outcomes appear in online Table DS1). Three ACT and three CMHT participants remained in hospital throughout the 36 months. Fewer CMHT than ACT participants were admitted to a medium secure facility, but there were no other differences between the groups in any indicators of in-patient service use. Similar proportions were referred to supported accommodation. There were no statistically significant differences in adverse events between ACT and CMHT participants (Table DS1). When analysis was restricted to participants whose care had not transferred at the end of the REACT study, there was a statistically significant difference in the proportion of clients lost to follow-up (3/95 ACT *v.* 11/89 CMHT, $\chi^2 = 5.53$, $P = 0.019$). The mean face-to-face contacts made between staff and clients over the preceding 3 months at 36-month follow-up was statistically significantly greater for ACT than CMHT participants (ACT team 12.20 (s.d. = 12.05); CMHT 7.22 (s.d. = 9.52), difference in means 4.98 (95% CI 2.11–7.85), $P = 0.001$).

Discussion

The main findings from this pragmatic follow-up study were that even over a longer period of intervention, the clinical gains for ACT clients and reductions in the need for in-patient service use demonstrated in the international literature were not replicated in the UK setting. We used an intention-to-treat analysis of outcomes recorded in case notes and were able to report on 94% of the original REACT study participants. Our findings therefore appear robust. The lack of effectiveness of ACT was not explained by CMHTs finding sources of extra support for their clients through referral to supported accommodation.

The ACT teams made more face-to-face contacts with their clients in the previous 3 months than the CMHTs, and fewer ACT clients were lost to follow-up, although this difference failed to show statistical significance in the intention-to-treat analysis. It therefore appears that of the original aims identified for ACT¹ only improved client engagement was achieved.

These findings concur with the 18-month outcomes reported in the REACT study⁷ and national data on the impact of ACT teams on in-patient service use.⁵

We conclude that in the UK, a longer period of ACT does not reduce the need for in-patient care and CMHTs are able to prevent admissions as successfully as ACT teams using fewer contacts. Although ACT model fidelity was low for CMHTs, both types of service shared four of seven features identified as important for the success of intensive case management (primary clinical

responsibility, based in the community, team leader doing clinical work, time-unlimited service).⁶ This may partly explain our results. It may also be that reducing the need for in-patient care is particularly difficult in areas with a high threshold for admission such as inner London. Further evaluation of ACT in the European context is needed to assist our understanding of the findings from the REACT studies. In the meantime we question the continuing investment in ACT in the UK, unless its greater acceptability to clients is very highly valued by policy makers and service commissioners.

Helen Killaspy, PhD, MRCPsych, Department of Mental Health Sciences, University College London (UCL) Medical School, Hampstead Campus and Camden and Islington NHS Foundation Trust, London; **Stella Kingett**, MRCPsych, Camden and Islington NHS Foundation Trust, London; **Paul Bebbington**, PhD, FRCP, FRCPsych, Department of Mental Health Sciences, UCL Medical School, Bloomsbury Campus and Camden and Islington NHS Foundation Trust, London; **Robert Blizard**, BSc, MSc, FRSS, Department of Mental Health Sciences, UCL Medical School, Hampstead Campus, London; **Sonia Johnson**, DM, MRCPsych, Department of Mental Health Sciences, UCL Medical School, Bloomsbury Campus and Camden and Islington NHS Foundation Trust, London; **Fiona Nolan**, BSc, **Stephen Pilling**, BSc, MSc PhD, Centre for Outcomes Research and Effectiveness, UCL, Torrington Place, London; **Michael King**, PhD, FRCP, FRCGP, FRCPsych, Department of Mental Health Sciences, University College London (UCL) Medical School, Hampstead Campus and Camden and Islington NHS Foundation Trust, London, UK

Correspondence: Helen Killaspy, Department of Mental Health Sciences, UCL Medical School, Hampstead Campus, London NW3 2PF, UK. Email: h.killaspy@medsch.ucl.ac.uk

First received 16 Sep 2008, final revision 8 Feb 2009, accepted 5 Mar 2009

References

- 1 Department of Health. *Mental Health Policy Implementation Guide. Assertive Community Treatment Teams*. Department of Health, 2001.
- 2 Marshall M, Lockwood A. Assertive community treatment for people with severe mental disorders (Cochrane Review). *Cochrane Library*, issue 4. Update Software, 1998.
- 3 Issakidis C, Sanderson K, Teeson M, Johnston S, Buhrich N. Intensive case management in Australia: a randomized controlled trial. *Acta Psychiatrica Scandinavica*, 1999, **99**: 360–7.
- 4 Fiander M, Burns T, McHugo GJ, Drake RE. Assertive community treatment across the Atlantic: comparison of model fidelity in the UK and USA. *Br J Psychiatry*, 2003, **182**: 248–54.
- 5 Glover G, Arts G, Kanna S, Babu S. Crisis resolution/home treatment teams and psychiatric admission rates in England. *Br J Psychiatry*, 2006, **189**: 441–5.
- 6 Burns T, Catty J, Dash M, Roberts C, Lockwood A, Marshall M. Use of intensive case management to reduce time in hospital in people with severe mental illness: systematic review and meta-regression. *BMJ*, 2007, **335**: 336.
- 7 Killaspy H, Bebbington P, Blizard R, Johnson S, Nolan F, Pilling S, et al. REACT: a Randomised Evaluation of Assertive Community Treatment in North London. *BMJ* 2006, **332**: 815–9.
- 8 Killaspy H, Johnson S, Pierce B, Bebbington P, Pilling S, Nolan F, et al. Successful engagement: a mixed methods analysis of interventions delivered by assertive community treatment and community mental health teams in the REACT trial. *Soc Psychiatry Psychiatr Epidemiol* 2008, Nov 28 (Epub ahead of print).
- 9 Wright C, Burns T, James P, Billings J, Johnson S, Muijen M, et al. Assertive community treatment teams in London: models of operation. Pan London Assertive Community treatment Study Part I. *Br J Psychiatry*, 2003, **183**: 132–8.

