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Effects of a crisis resolution and home treatment team on in-patient admissions

AIMS AND METHOD

To evaluate the effects of a crisis resolution and home-based treatment team upon in-patient admission rates. We collected data for 2 years prior and 1 year post-implementation of such a service in Leeds. The chosen time frame allowed the new service to settle

in and controlled for seasonal variations.

RESULTS

There were 4353 admissions during the period of the study, with 3325 in the 2 years prior to the service and 1028 in the year after. Generalised linear analysis found a 37.5% reduction in monthly admissions

after the introduction of the team ($P < 0.0001$).

CLINICAL IMPLICATIONS

This study shows that in everyday clinical practice crisis resolution and home treatment teams lead to a sustained reduction in in-patient admission rates.

Crisis resolution and home-based treatment teams were pioneered in the 1970s. Such services aim to assess patients experiencing psychiatric crises in the community, where possible avoiding hospitalisation (Weisman, 1989). Although in recent decades such teams have been implemented across Australia, North America and now Europe, past research into their effectiveness has been limited. Within the UK the National Health Service (NHS) Plan and Policy Implementation Guidance set the agenda for establishing crisis resolution and home-based treatment teams (Department of Health, 2001). This was in the belief that such teams could reduce the need for in-patient admissions (Brimblecombe, 2001).

In terms of reducing in-patient admission rates, the best available evidence for the effectiveness of crisis resolution and home treatment teams is provided by a randomised controlled trial (Johnson *et al*, 2005a) which found that those randomised to a crisis resolution team were less likely to be admitted to hospital 8 weeks after the crisis. A quasi-experimental study (Johnson *et al*, 2005b) of 9 months' duration found a reduction from 71 to 49% (using an operational definition of crisis) in admission rates in the 6 weeks following a crisis. A Cochrane Review which selected randomised controlled trials evaluating crisis intervention and home treatment teams reported data from 5 studies (with 21 excluded; Joy *et al*, 2004). On considering the included studies they concluded that home care crisis treatment, coupled with an ongoing home care package, is a viable and acceptable way of treating people with serious mental illnesses.

To date there have been no long-term service evaluation reports to support the effects of crisis resolution and home treatment teams upon admission rates in everyday clinical practice. When Leeds Mental Health Trust introduced such a service in October 2004, we took the opportunity to measure its effects upon admission rates for 2 years prior to its introduction and for 1 year after. This time frame was chosen to allow time for the service to settle in, and also to control for any seasonal variation in in-patient admissions. The aim of the service was to provide community-based assessment and home treatment for people with serious mental health problems. There was an expectation that the team would lead to a reduction in in-patient admissions. Therefore two in-patient wards were closed in the month following the implementation of the service. This represented a total reduction from 155 to 101 general adult in-patient beds across Leeds. No other significant changes in service provision occurred over the study period.

Method

Leeds is a busy metropolitan city with a population of approximately 750 000 people. It is culturally diverse and densely populated with areas of both affluence and poverty located within close geographical proximity. Within Leeds a crisis resolution and home treatment service was implemented on 23 October 2004. This city-wide service provided 24 h community assessment and home-based treatment for adults aged 17–65 years. The


Box 1. Criteria for referral to the crisis resolution and home treatment team

Referral criteria:

- requirement for hospitalisation if not seen by the team
- assessment required within the next 24 h
- serious mental health problems presenting a risk to self or others.

Although no firm exclusion criteria existed, people with the following primary diagnosis or service needs were not usually seen:

- moderate to severe intellectual disability
- organic brain disease
- patients under the care of forensic psychiatry.

service was staffed by a multidisciplinary team including 2 consultant psychiatrists, 1 staff grade psychiatrist, 3 clinical team managers, 12 senior keyworkers (G grade or equivalent), 8 keyworkers (F grade or equivalent), 3 health support workers and 4 administrative staff. The keyworker skills mix included mental health nurses, social workers and occupational therapists. A shift system enabled 24 h cover. Assessments were conducted by two practitioners. During the day a minimum of 5 qualified staff, including a triage person, were on duty. At night, this decreased to 2 staff. The team base remained permanently open, although at night, while undertaking assessments, the triage referral line was diverted to a pager service. Psychiatrists were not routinely involved in assessments. The consultant's role as the senior medical member of the multidisciplinary team included professional leadership and clinical supervision during twice-daily clinical meetings. During these meetings home-based treatment plans and all assessments during the past 24 h were reviewed.

The team accepted referrals from many sources including accident and emergency departments and police stations. The referral criteria for the service are shown in Box 1. The team also acted as the final gate-keeper for all in-patient admissions. They attempted to assess in person all referrals considered in need of in-patient admission, the only exception being patients detained under the Mental Health Act 1983. Where possible, intensive home-based treatment was offered to suitable patients as an alternative to hospital admission. It was expected that the service would be able to manage a home-based treatment case-load of up to 25 patients. When patients were accepted for home-based treatment a care plan was agreed that included specifying the frequency of home visits. Although no specific crisis houses or beds were available, the team had access to five pre-existing locally based acute community day service teams. These provided 18 places for each team, of which half were expected to be used for people assessed by the crisis resolution and home treatment team. Each acute community day service team operated from 7.30 am to 10.00 pm. There was also, developed in partnership with social services, exclusive access to one community respite bed. Prior to the formation of the

crisis resolution and home treatment team, a standard model of psychiatric care was available. This included emergency assessment by the duty psychiatrist, self-harm service or liaison psychiatry departments. Acute in-patient care, acute community day service teams and community mental health team management were also available.

The study was registered with Leeds Mental Health Trust and granted approval by the Leeds (East) Research Ethics Committee. To maintain a naturalistic design no patients were excluded. Data were collected from information records that were compiled using ward returns. Repeat admissions were included in the study. Monthly admission rates were calculated to aid statistical analysis and help consider any effects caused by seasonality or periodic fluctuations in admission rates. Statistical analysis was performed using SPSS for Windows version 14. In addition the statistical software package R was used to model the results (<http://www.r-project.org>).

Results

The total sample for the duration of the study was 4353 admissions; of these, 3325 occurred in the 2 years prior to the crisis resolution and home treatment team and 1028 occurred in the year following its implementation. The number of monthly admissions for the period of the study are shown in Table 1. The data were not normally distributed. The median number of monthly admissions prior to the team was 140.5 and 86.5 occurred post-implementation of the service. The Mann–Whitney *U*-test showed a significant difference in admission rates following the implementation of the service, with the point estimate for the difference between groups being 53 (95% CI 38–71, $P < 0.0001$, adjusted for ties). To model for periodic fluctuations in monthly admissions a generalised linear model was used. This model found that overall there was a 37.5% reduction in monthly admissions after the introduction of the crisis resolution and home treatment team ($P < 0.0001$).

Table 1. Monthly admissions 2 years before and 1 year after the introduction of the crisis resolution and home treatment team

Month	Admissions, <i>n</i>		
	2 years before	1 year before	1 year after
October	62	152	103
November	92	140	107
December	110	145	119
January	111	165	107
February	141	139	99
March	150	170	88
April	153	160	84
May	160	136	85
June	172	125	59
July	155	132	51
August	153	134	54
September	129	139	72

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Discussion

In keeping with previous research, this service evaluation found long-term evidence to support the hypothesis that the implementation of a crisis resolution and home treatment service in a large city can lead to the sustained reduction of hospital admissions. There are a number of possible explanations. First, the fact that the team is able to offer home-based treatment as an alternative to hospital admission is likely to be a significant factor, since patients taken on for home-based treatment would otherwise have been admitted to the ward. The experience and continuity of care associated with crisis resolution and home treatment might have meant that practitioners were less likely to admit patients inappropriately. The familiarity of practitioners with patients who regularly present to casualty might have aided their judgement in determining whether admission was necessary. In addition, this may have further improved their gatekeeping skills when clinicians requested planned admissions. The multidisciplinary nature of the crisis resolution and home treatment team means that a much larger skills base is channelled into the assessment process; this may have helped improve the accuracy of assessments. It is possible that practitioners' knowledge of local statutory and voluntary services might have led to an increased ability to offer pragmatic and realistic alternatives to in-patient admission.

The results of the study must be interpreted in the light of the complete service model at the time of the study. Although no additional service developments occurred during the study period, the effects of the planned reduction in hospital beds must be considered. It might have created an expectation that the crisis resolution and home treatment service would lead to reduced admission rates. This might have indirectly influenced the assessment and decision-making process, increasing the threshold for admission and resulting in fewer admissions. The results of the study might also be influenced by the fact that the crisis resolution and home treatment team was newly formed. It is possible that as the team becomes more established its practices and performance may change.

Consideration must also be given to the methodological limitations of the study; its uncontrolled nature makes it difficult to attribute the observed results directly to the intervention. When designing the study a suitable

control group could not be identified, since all patients in Leeds fell within the remit of the crisis resolution and home treatment service. We were unable to measure baseline characteristics for both groups and adjust statistically for potential confounders, since as this was a service evaluation this information could not be collected. However, we believe that the study is of value given its long-term follow-up and high level of external validity. It directly reports the results of actual service development without any interference in clinical practice.

The policy for implementing crisis resolution and home treatment services is now firmly developed and many such services are being commissioned throughout the UK. This rapid reconfiguration of services has proceeded despite a credible evidence base being largely unavailable. On balance our findings are in keeping with past research that suggests that crisis resolution and home treatment teams lead to decreased admission rates. Furthermore, our study shows that such services lead to a sustained reduction in the number of hospital admissions in everyday clinical practice.

Declaration of interest

None.

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