

## Assertive outreach teams in London: patient characteristics and outcomes

### Pan-London Assertive Outreach Study, Part 3†

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**Background** Although the model of assertive outreach has been widely adopted, it is unclear who receives assertive outreach in practice and what outcomes can be expected under routine conditions.

**Aims** To assess patient characteristics and outcome in routine assertive outreach services in the UK.

**Method** Patients ( $n=580$ ) were sampled from 24 assertive outreach teams in London. Outcomes – days spent in hospital and compulsory hospitalisation – were assessed over a 9-month follow-up.

**Results** The 6-month prevalence rate of substance misuse was 29%, and 35% of patients had been physically violent in the past 2 years. During follow-up, 39% were hospitalised and 25% compulsorily admitted. Outcome varied significantly between team types. These differences did not hold true when baseline differences in patient characteristics were controlled for.

**Conclusions** Routine assertive outreach serves a wide range of patients with significant rates of substance misuse and violent behaviour. Over a 9-month period an average of 25% of assertive outreach patients can be expected to be hospitalised compulsorily. Differences in outcome between team types can be explained by differences in patient characteristics.

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Despite progress in the move to community-based mental health services, there is a subgroup of patients with severe mental illness whose needs the community mental health teams struggle to meet, both in Britain and elsewhere. They have been described variably as difficult-to-engage and revolving-door patients. To serve this patient group, assertive outreach has become a central part of British governmental policy on mental health (Department of Health, 1999), following evidence of the effectiveness of the model compared with ‘control’ services in the USA (Mueser *et al*, 1998) and practical experiences in North Birmingham. However, although assertive outreach is mandated to treat an estimated 20 000 people who are difficult to engage by December 2003, it is unclear who actually receives assertive outreach and what outcome is achieved. This study aims to examine patient characteristics and outcomes, and whether these vary across different types of assertive outreach teams.

## METHOD

### Sampling

Subjects were sampled from all 24 mental health services in Greater London that operated assertive outreach teams meeting the criteria described by Wright *et al* (2003, this issue). The Jarman Underprivileged Areas Scores for the London boroughs ranged from the 2nd most deprived area in the UK to the 206th (Jarman, 1983). Fifty-five per cent of the patients were served by teams covering extremely deprived areas. Two of the 24 teams were culturally specific.

A census of all team patients on the case-load was taken on 18 June 2001. The case-load for each team was divided into patients who had been on the case-load

for 3 months or longer (‘established patients’) and those who had joined the case-load in the previous 3 months (‘newly accepted patients’). The latter group were oversampled, assuming that the initial period of assertive outreach provision may be a ‘stabilisation’ period with a relatively poorer outcome than at a later stage of treatment (McGrew *et al*, 1995). To increase further the proportion of new patients in the sample, another census was taken on 18 September 2001, whereby all patients who had joined the team in the previous 3 months were added to the sample. By sampling all new patients, but only a random 0.37 fraction of established patients from each team, we had an adequate sample to test differences in outcome during the 9-month follow-up period between newly accepted and established patients. New patients were oversampled so that we recruited a significant number of them in established teams with low current admission rates as well as in teams that were newly set up. This procedure prevented differences between teams being strongly confounded by the length of time patients had been in assertive outreach, with exclusively established patients in long-running teams. In total, there was a sample of 391 established patients and 189 new patients. In several voluntary-sector teams without Care Programme Approach (CPA) responsibility, patients were not discharged from the case-load but were made ‘less active’ or ‘inactive’. This allowed these teams quickly to resume care for transient patients who, for example, moved frequently between boroughs. Such patients were included in the study if an attempt had been made to see the patient in the preceding month.

### Case note review

A team of independent researchers conducted the research. A case note review provided socio-demographic information, including age, gender, ethnicity (categorised as in the UK 2001 census by the Office for National Statistics) and clinical information, including age at first psychiatric hospitalisation, number of admissions and diagnosis. A protocol was developed during the piloting stage to ensure that all researchers used the same definitions across the 24 sites. Information was sought and checked with the help of local clinicians and through local computerised patient administration systems where possible.

†See Parts 1 and 2, pp. 132–147, this issue.

For voluntary teams, admission history was sought from the local statutory secondary services. The Jarman index used was for the Local Authority covered by each team. Follow-up information was collected after 9 months and consisted of measuring hospital admissions, including the number of days spent in hospital and compulsory detention in the study period. The reliability of the case note review was checked through triangulation with other data sources, such as information from clinicians at the piloting stage, and all data were checked and cleaned.

### Ratings of substance misuse

Clinician-rated scales for drug and alcohol use were completed at baseline (Drake *et al*, 1989). These scales were chosen because informed consent for administering self-rated scales would have been difficult to obtain in this patient group, resulting in a high refusal rate. Both scales have been reported to be valid and reliable (Drake *et al*, 1989, 1990). The clinician-rated scale for alcohol use in a sample of out-patients with DSM-III-R (American Psychiatric Association, 1987) schizophrenia was found to have a sensitivity ranging from 84.2% for current use to 94.7% for lifetime use of alcohol, and a specificity of 100% for either current or lifetime use of alcohol (Drake *et al*, 1990).

The scales are based on criteria from the DSM-III-R, and clinicians used multi-modal data (self-report, observations, reports from significant others) to rate substance misuse into one of five mutually exclusive categories: abstinence, use without impairment, misuse, dependence and severe dependence. For the drug use clinician-rated scale the drug that causes the most functional problems was rated and a separate question asked for all drugs used. The rating period for both scales was the preceding 6 months. In the majority of cases, the care coordinators holding responsibility for care programming completed the rating scales. Where the care coordinator was not available during the rating period, or when a team did not hold responsibility under the CPA, the clinician with the most frequent contact with the patient was asked to complete the scales. Both scales were completed within a 1-month time-frame after the census dates.

### Statistical analysis

A check was made for missing values and patients with missing values were excluded from relevant analyses. Initial analysis consisted of a description of the sample using frequencies (with ranges) where the data were categorical and means (with standard deviations) where the data were continuous.

Two further analyses were performed for both baseline variables and outcomes. The first examined differences between established and newly accepted patients. The data were reported, wherever appropriate, separately for both groups and hence the analyses were not weighted to account for oversampling of the newly accepted patients.

The second analyses examined whether patient characteristics differ as a function of team type, given that differences in team characteristics may be associated with outcomes. These analyses used the teams developed as part of the Pan-London Assertive Outreach Study, which showed the existence of three team clusters A, B and C. Teams in clusters A and B held CPA responsibility and integrated health and social care. Teams in cluster A had more psychiatric input and dedicated in-patient beds, a wider multi-disciplinary team, lower case-loads and more contacts outside office hours than teams in cluster B. Finally, teams in cluster C consisted of all non-statutory teams, had no dedicated in-patient beds, no psychiatric input, tended to be smaller and had the lowest level of disciplines represented but the highest frequency of *in vivo* contacts (see Wright *et al*, 2003, this issue).

In the comparative analyses, *t*-tests and one-way analysis of variance *F*-tests were used with normally distributed data, whereas Mann-Whitney *Z*-tests and Kruskal-Wallis  $\chi^2$  tests were used with skewed data. In some of the analyses, logistic regression was used to control for the effects of patient characteristics on outcome.

## RESULTS

### Patient characteristics

Table 1 shows the baseline demographic details of patients receiving assertive outreach provision in London, comparing established and newly admitted patients. Patients were most frequently male, single, unemployed, living alone and had a

diagnosis of schizophrenia or schizoaffective disorder. The average age was 37 years. A substantial minority of patients were White (White British/White Irish/White 'other') (44.5%), with over one-quarter of patients coming from Black Caribbean communities (28.2%). Black Africans constituted 12.3% of the sample, Asians (Indian/Pakistani/Bangladeshi/Other Asian) 5.8%, mixed race 5.4% and 'other' 3.7%. Ethnicity was re-coded in the analysis to provide sufficient cases in each group for statistical comparisons. Although the majority lived alone (57%), more than one-quarter lived with partner/family and 10% were in supported housing. More than one-third of patients had been physically violent in the previous 2 years, whereas one-fifth of patients had been arrested. Almost 20% of the sample misused or were dependent on drugs and 16% misused or were dependent on alcohol. The most commonly reported street drug was cannabis (22.8%), followed by cocaine (7.4%). A total of 29% of the sample misused at least one type of substance.

Most patients had their first psychiatric admission in their early twenties and almost two-fifths had been admitted between one and three times. Over half had been admitted to hospital compulsorily in the previous 2 years. Patients had spent an average of 44 days in hospital in the past 2 years.

Patients new to the case-load were significantly younger than the established patients and were more likely to have been physically violent, to have been arrested and to have been admitted compulsorily in the past 2 years. They were significantly more likely to misuse or to be dependent on alcohol or other substances.

Table 2 shows the characteristics of patients in the three different types of teams. The average age of patients varied between the team types, with patients in cluster A teams being younger than those in the other two types. Patients in cluster C teams were less likely to be White. The proportion of patients living alone varied significantly between the three clusters, with the fewest living alone in cluster A teams. Incidents of violence were more frequent for patients in cluster A teams than in the others, although there was no significant difference in the number of patients who had been arrested. Patients in cluster B teams tended to have had more psychiatric admissions than those in the other teams. Patients in cluster C teams were far

**Table 1** Patient characteristics at baseline by type of patients

	Established (n=391)	New (n=189)	Total (n=580)	
<i>Socio-demographic characteristics</i>				
Age, mean (s.d.)	37.6 (11.6)	34.8 (11.8)	36.7 (11.7)	$t = -2.74$ , d.f.=571, $P=0.006$
Gender				
Male	252 (64.5%)	122 (64.4%)	374 (64.5%)	$\chi^2=0.001$ , d.f.=1, $P=0.981$
Ethnicity				
White	175 (45.8%)	79 (42.0%)	254 (44.5%)	$\chi^2=0.951$ , d.f.=3, $P=0.813$
Black Caribbean	107 (28.0%)	54 (28.7%)	161 (28.2%)	
Black African	46 (12.0%)	24 (12.8%)	70 (12.3%)	
Other (Black/mixed race/non-White)	54 (14.1%)	31 (16.5%)	85 (15.0%)	
Marital status				
Single	269 (70.8%)	139 (74.7%)	408 (72.1%)	$\chi^2=1.20$ , d.f.=2, $P=0.549$
Divorced/separated	71 (18.7%)	32 (17.2%)	103 (18.2%)	
Married/cohabiting	40 (10.3%)	15 (8.1%)	55 (9.7%)	
Living situation				
Alone	201 (52.3%)	96 (51.3%)	297 (52.0%)	$\chi^2=1.76$ , d.f.=2, $P=0.416$
Partner/family	127 (33.1%)	56 (29.9%)	183 (32.0%)	
Other	56 (14.6%)	35 (18.7%)	91 (16.0%)	
Employment (full-time/part-time/sheltered employment)	47 (12.2%)	17 (9.0%)	64 (11%)	$\chi^2=1.25$ , d.f.=2, $P=0.164$
<i>Admission history (covering 2 years prior to baseline assessment)</i>				
Previous admissions				
Never been hospitalised	30 (8.3%)	14 (7.8%)	44 (8.1%)	$\chi^2=4.16$ , d.f.=3, $P=0.245$
1–3	127 (35.1%)	77 (42.8%)	204 (37.6%)	
4–9	132 (36.5%)	63 (35.0%)	195 (35.9%)	
10+	73 (20.2%)	26 (14.4%)	100 (18.5%)	
Hospitalisation	265 (68.3%)	152 (81.7%)	417 (71.9%)	$\chi^2=11.4$ , d.f.=1, $P=0.001$
Compulsorily admitted	190 (50.5%)	121 (66.5%)	311 (55.7%)	$\chi^2=12.65$ , d.f.=1, $P<0.0001$
In-patient episodes (median, range)	1 (0–9)	1 (0–7)	1 (0–9)	$Z = -2.01$ , $P=0.04$
In-patient days (median, range)	36.5 (0–731)	63 (0–750)	44 (0–730)	$Z = -2.10$ , $P=0.04$
<i>Other clinical characteristics (covering 2 years prior to baseline assessment)</i>				
Diagnosis				
Schizophrenia	282 (73.2%)	138 (73.4%)	420 (73.6%)	$\chi^2=0.95$ , d.f.=2, $P=0.954$
Bipolar	43 (11.2%)	20 (10.6%)	63 (11.0%)	
Other	58 (15.1%)	30 (16.0%)	88 (15.4%)	
Alcohol misuse/dependency	51 (14.1%)	34 (21.3%)	85 (16.3%)	$\chi^2=4.17$ , d.f.=1, $P=0.041$
Drugs misuse/dependency	61 (16.9%)	42 (26.4%)	103 (19.8%)	$\chi^2=6.22$ , d.f.=1, $P=0.013$
Violence	117 (30.5%)	82 (44.3%)	199 (35.0%)	$\chi^2=10.54$ , d.f.=1, $P=0.001$
Arrest	73 (19.4%)	44 (24.4%)	117 (21.0%)	$\chi^2=1.90$ , d.f.=1, $P=0.017$

less likely to have been admitted compulsorily in the past 2 years and they also had fewer in-patient days in the preceding 2 years.

**Outcomes**

A total of 494 patients (87.7%) were still on the case-load of an assertive outreach team after 9 months. Out of the 86

patients who were no longer on the case-load, 11 (2.0% of the total sample) were classified as inappropriate referrals, 21 (3.7%) were referred to other services because they were seen as not needing assertive outreach anymore, 17 (3.0%) had moved out of the locality, 8 (1.4%) were impossible to engage, 3 (0.5%) had died by suicide and 5 (0.9%) from natural causes and 4 (0.9%) had been sent to prison.

Table 3 reports the outcomes for new and established patients after 9 months. Newly accepted patients were significantly more often hospitalised and compulsorily admitted. When hospitalised, they spent more days in hospital. The difference in hospitalisation between new and established patients in the 9-month follow-up remained statistically significant when baseline patient characteristics (demographic and clinical) that were significantly

**Table 2** Patient characteristics at baseline by type of cluster

	Cluster A (n=342)	Cluster B (n=97)	Cluster C (n=141)	
<i>Socio-demographic characteristics</i>				
Age (mean, s.d.)	35.1 (12.3)	39.6 (10.4)	38.6 (10.5)	$F=8.34$ , d.f.=2,570, $P<0.001$
Gender				
Male	223 (65.2%)	68 (70.1%)	83 (58.9%)	$\chi^2=3.359$ , d.f.=2, $P=0.187$
Ethnicity				
White	154 (45.8%)	62 (66.7%)	38 (27.0%)	$\chi^2=37.92$ , d.f.=6, $P<0.001$
Black Caribbean	92 (27.4%)	15 (16.1%)	54 (38.3%)	
Black African	44 (13.1%)	5 (5.4%)	21 (14.9%)	
Other (Black/mixed race/non-White)	46 (13.7%)	11 (11.8%)	28 (19.9%)	
Marital status				
Single	234 (70.1%)	75 (82.4%)	99 (70.2%)	$\chi^2=7.73$ , d.f.=4, $P=0.102$
Divorced/separated	62 (18.6%)	10 (11.0%)	31 (22.0%)	
Married/cohabiting	38 (11.4%)	6 (6.6%)	11 (7.8%)	
Living situation				
Alone	157 (46.4%)	60 (65.2%)	80 (56.7%)	$\chi^2=15.44$ , d.f.=4, $P=0.004$
Partner/family	124 (36.7%)	16 (17.4%)	43 (30.5%)	
Other	57 (16.9%)	16 (17.4%)	18 (12.8%)	
Employment (full-time/part-time/sheltered employment)	43 (12.7%)	6 (6.3%)	15 (10.6%)	$\chi^2=3.12$ , d.f.=2, $P=0.210$
<i>Admission history (over 2 years prior to baseline assessment)</i>				
Previous admissions				
Never been hospitalised	26 (7.8%)	3 (3.4%)	15 (12.4%)	$\chi^2=22.67$ , d.f.=6, $P=0.001$
1–3	135 (40.5%)	22 (25.0%)	47 (38.8%)	
4–9	108 (32.4%)	39 (44.3%)	48 (39.7%)	
10+	64 (19.2%)	24 (27.3%)	11 (9.1%)	
Hospitalisation	260 (76.3%)	74 (77.1%)	83 (60.6%)	$\chi^2=13.21$ , d.f.=2, $P=0.001$
Compulsorily admitted	213 (63.0%)	52 (57.8%)	46 (35.4%)	$\chi^2=29.24$ , d.f.=2, $P<0.0001$
In-patient episodes (median, range)	1 (0–8)	1 (0–7)	1 (0–9)	$\chi^2=13.34$ , d.f.=2, $P<0.0001$
In-patient days (median, range)	62 (0–750)	99.5 (0–730)	13 (0–730)	$\chi^2=13.18$ , d.f.=2, $P<0.0001$
<i>Other clinical characteristics (over 2 years prior to baseline assessment)</i>				
Diagnosis				
Schizophrenia	250 (74.0%)	78 (80.4%)	92 (67.6%)	$\chi^2=14.1$ , d.f.=4, $P=0.007$
Bipolar	40 (11.8%)	12 (12.4%)	11 (8.1%)	
Other	48 (14.2%)	7 (7.2%)	33 (24.3%)	
Alcohol misuse/dependency	51 (16.3%)	14 (16.7%)	20 (15.7%)	$\chi^2=0.004$ , d.f.=2, $P=0.982$
Drug misuse/dependency	63 (20.2%)	18 (20.7%)	22 (18.3%)	$\chi^2=0.235$ , d.f.=2, $P=0.889$
Violence	136 (40.1%)	24 (26.1%)	39 (28.3%)	$\chi^2=9.87$ , d.f.=2, $P=0.007$
Arrest	79 (23.7%)	14 (15.2%)	24 (18.0%)	$\chi^2=3.92$ , d.f.=2, $P=0.141$

different between the two groups were controlled for ( $P=0.01$ ). However, the difference between new and established patients in compulsory admission disappeared after controlling for these variables ( $P=0.11$ ).

Seventy-seven patients (13.8%) had been discharged from the care of the teams after 9 months. There was no significant difference between new (15.2%) and

established patients (13.1%) ( $\chi^2=0.65$ , d.f.=1,  $P=0.42$ ).

Table 4 reports the outcomes for patients in different types of teams at follow-up. Patients in cluster C teams were less likely to be admitted compulsorily or hospitalised within the study period than patients in cluster A and B teams. However, these differences failed to reach statistical significance when the effects of the patient

characteristics, which were significantly different between teams at baseline, were controlled for ( $P=0.09$  for hospitalisation in the 9-month follow-up;  $P=0.06$  for compulsory admission in the 9-month follow-up).

Patients in different types of teams had different rates of being discharged from the care of the teams ( $\chi^2=14.07$ , d.f.=2,  $P=0.001$ ). Patients in cluster C teams

**Table 3** Outcomes after 9 months for patients who have been accepted recently on assertive outreach case-load (3 months) compared with established patients (more than 3 months)

Outcome	Established n (%)	New n (%)	Total n (%)	
Compulsorily admitted <sup>1</sup>	74 (22.4)	47 (30.5)	121 (24.8)	$\chi^2=3.74$ , d.f.=1, $P=0.05$
Hospitalised <sup>2</sup>	114 (34.4)	74 (49.3)	188 (38.7)	$\chi^2=11.76$ , d.f.=1, $P=0.002$
In-patients days for those hospitalised (median, range)	59.5 (1–273)	69.5 (2–274)	63.0 (1–273)	$Z=-1.020$ , $P=0.308$

1. Controlling for the effects of the patient characteristics (demographic and clinical) that were significantly different between the two groups at baseline made the association with compulsory admissions non-significant ( $P=0.11$ ).

2. Controlling for the effects of the patient characteristics (demographic and clinical) that were significantly different between the two groups at baseline did not affect the significance of the association with hospitalisation ( $P=0.01$ ).

**Table 4** Outcome comparison of patients in different types of assertive outreach teams

Outcome	Cluster A n (%)	Cluster B n (%)	Cluster C n (%)	
Compulsorily admitted <sup>1</sup>	88 (29.6)	47 (30.5)	10 (9.6)	$\chi^2=16.74$ , d.f.=2, $P<0.001$
Hospitalised <sup>1</sup>	128 (43.0)	37 (43.5)	23 (23.5)	$\chi^2=12.62$ , d.f.=2, $P=0.002$
In-patients days for those hospitalised (median, range)	66 (2–273)	83.5 (3–274)	38 (1–273)	$\chi^2=5.64$ , d.f.=2, $P=0.060$

1. Controlling for the effects of the patient characteristics (demographic and clinical) that were significantly different between the type of teams at baseline made the association with compulsory admission ( $P=0.06$ ) and hospitalisation ( $P=0.09$ ) non-significant.

(23.8%) were more likely to be discharged compared with patients in cluster A teams (11.2%) and patients in cluster B teams (9.4%).

There were more established (76.6%) than new patients (23.4%) in cluster C teams than in cluster A (62.3% and 37.7%, respectively) and cluster B (72.2% and 27.8%, respectively) teams ( $\chi^2=10.51$ , d.f.=2,  $P=0.005$ ). During the follow-up period, established patients in cluster C teams were less likely to have been hospitalised (19.3%) compared with established patients in cluster A (32.6%) and cluster B teams (42.9%) ( $\chi^2=9.66$ , d.f.=2,  $P=0.008$ ). They were also less likely to have been admitted compulsorily (8.4%) compared with patients in cluster A (25.8%) and cluster B (28.6%) teams ( $\chi^2=12.07$ , d.f.=2,  $P=0.002$ ). For new patients, there was no statistically significant difference in outcomes across the different types of teams ( $\chi^2=1.98$ , d.f.=2 and  $P=0.371$  for hospitalisation;  $\chi^2=5.68$ , d.f.=2 and  $P=0.06$  for compulsory admissions).

## DISCUSSION

### Who receives assertive outreach provision in practice

The Pan-London Assertive Outreach Study is the first study to examine the

characteristics of a substantial number of patients who receive the newly provided assertive outreach services in the UK. Patients were most frequently young, single, male, unemployed, living alone and had a diagnosis of schizophrenia. Forty per cent were from Black Caribbean and Black African communities. The over-representation of these groups in assertive outreach teams may reflect evidence that Black individuals are more likely to be admitted compulsorily (Bhui *et al*, 2003) but also may reflect a deliberate targeting of patients from ethnic minorities in some teams.

Assertive outreach teams appear to accept patients who do not fall into the conventional target group for this type of intensive service. For instance, 8.1% of the sample had never had a psychiatric hospitalisation and 10.3% joined an assertive outreach case-load while living in supported accommodation, implying some level of engagement with either statutory or voluntary services. In practice, services are subject to local resource demands and may pick up complex cases – as well as ‘revolving-door’ patients – from local agencies. Also, some teams might modify their approach over time and, for example, aim to treat patients at an earlier stage of the illness before they get hospitalised and disengage with services. However, most

research examines the effectiveness of assertive outreach in teams with tight inclusion criteria focusing on the core group of patients who have disengaged with services (Mueser *et al*, 1998). Thus, patients receiving assertive outreach in practice include a significant number who would not have met the inclusion criteria of experimental research studies. Assertive outreach teams, therefore, are likely to adopt an approach that differs from the one assessed in research to date.

There was a 29% 6-month prevalence of substance misuse or dependency with a higher proportion misusing or dependent on drugs (20%) than on alcohol (16%), a proportion that is in line with other recent studies of UK community populations of patients with severe mental illness (Duke *et al*, 2001). Given the poor outcomes associated with the dual diagnosis population (Drake *et al*, 2001), there appears to be a need for services to target patients with dual diagnosis and to provide specific expertise for this group. However, although dual diagnosis is a key Government priority in the UK, dual diagnosis training was identified as very inadequate by staff in the Pan-London Assertive Outreach Study (see Billings *et al*, 2003, this issue). Thirty-five per cent of the sample were reported to have been violent in the previous 2 years and 21% of patients had been arrested.

Traditionally, patients with problems of substance misuse and very severe cases of violent behaviour have been served by separate services, such as substance misuse and forensic services. As long as these patient groups are cared for in assertive outreach, the need for specific expertise within assertive outreach teams for their treatment is evident.

### What is the outcome of assertive outreach provision?

Newly accepted patients were more often hospitalised than established patients, even when baseline differences were controlled for. This may reflect a positive outcome of assertive outreach in established patients over time. Also, some newly accepted patients might get admitted because the assertive outreach team succeeds in assessing them more thoroughly than has been possible before and sets up a treatment plan resulting in admission.

Even in the established group more than 20% were admitted compulsorily and more than 30% were hospitalised within the 9-month follow-up period. Some hospitalisations might be a positive outcome indicating a degree of engagement with services and compliance with appropriate treatment. This does not apply to compulsory treatment, which is an outcome that services normally try to avoid. Our findings suggest that assertive outreach teams in practice do not prevent such a negative outcome for a significant number of patients, and that expectations as to what assertive outreach teams can and cannot achieve should be set accordingly.

The rate of compulsory treatment may simply reflect the severity of the illness of the patients and their reluctance to engage with services and receive treatment. It might also indicate that the current assertive outreach model is not appropriate for all patients (i.e. those who are difficult to engage), and that there is a need for further service development. This might entail a more flexible approach within existing teams or establishing different services for a subgroup of patients who still get detained when on the case-load of a current assertive outreach team.

### Differences between types of teams

Patients in the majority of non-statutory teams (cluster C) had distinctive

characteristics. They were more likely to be non-White but less likely to have been admitted compulsorily in the 2 years before the study. They were also less likely to be admitted compulsorily or hospitalised during the study period. Given the fact that these teams are non-statutory, there is arguably more flexibility to respond to local needs. Patients in these voluntary teams were more likely to be transferred to other services during the study period, indicating that the focus of these teams is on engagement as a goal. Once this is achieved, needs may be met by local statutory services or community groups. Interestingly, at least two of the teams in the sample are considering changing their inclusion criteria because their case-loads are becoming primarily dual diagnosis or primarily homeless. Balanced against these responses is the organisational requirement to have a team that serves a clear remit, and the lack of clarity about 'what works for whom' in assertive outreach provision (Mueser *et al*, 1998).

Non-statutory teams achieved a more favourable outcome than teams in the other two clusters. The difference did not hold true when baseline differences in patient characteristics were controlled for. However, the similar outcome was not necessarily achieved by the same methods and might have been based on qualitatively different processes. Voluntary teams are likely to be perceived by many patients as independent of the established mainstream services, which, by contrast, may be seen as controlling rather than supportive (Watts & Priebe, 2002). They tend to care for limited and more specific patient groups and are free of CPA and other administrative responsibilities of statutory services. As a result, their methods to engage patients are likely to differ from those of statutory services and may be suitable for different patient groups. It remains unclear whether the differences in patient characteristics between the teams reflect a selection of patients to each cluster who tend to benefit from the given approach.

It should be noted that only a limited number of baseline characteristics and simple outcome criteria were obtained in this study. Characteristics of patients served by the different team types might differ in respects other than those assessed, and their outcomes might vary on more detailed outcome criteria, including those reflecting patients' views.

### Comparison with other studies

Although assertive outreach provision has been mandated in the UK (Department of Health, 1999), it is unclear whether evidence of positive outcomes from other contexts can be extrapolated directly to the UK. This study shows that characteristics and outcomes vary for patients in different types of assertive outreach teams, and thus there is a need to avoid seeing assertive outreach patients as a homogeneous group and assertive outreach care as a monolithic approach.

It appears pertinent to ask how these patient groups compare with those forming the basis of the research literature. We looked at four main studies of assertive outreach with sample sizes of more than 45 patients that had been conducted in the USA (Bond *et al*, 1990; Essox & Kontos, 1995; McGrew *et al*, 1995; Chandler *et al*, 1996) and two community care studies conducted in the UK (Thornicroft *et al*, 1998; Burns *et al*, 1999). Very few characteristics of samples and outcomes have been reported consistently in the publications of the aforementioned studies, so direct comparisons are difficult. The average age and the male/female ratios of patients in the Pan-London Assertive Outreach Study are not substantially different from other inner-city studies of assertive outreach. What is notable is that the frequency of non-White patients in the Pan-London Assertive Outreach sample (55%) is higher (even after excluding patients from culturally specific teams) and rather similar to the frequencies in the PRISM (Thornicroft *et al*, 1998) and UK700 (Burns *et al*, 1999) studies. Also, the number of previous hospital admissions in the Pan-London Assertive Outreach sample – even among the new patients – is lower than in the US studies. Patient characteristics in the types of teams that are predominantly statutory are more similar to samples in other studies.

With respect to outcome, routine assertive outreach provision in the UK appears to be associated with higher readmission rates than the experimental assertive outreach services in the USA (Essox & Kontos, 1995; McGrew *et al*, 1995; Chandler *et al*, 1996). This might be due to differences in samples and service provision as well as favourable factors in experimental services that cannot be replicated easily in routine practice, such as tight criteria for including patients. One may conclude that results on the effectiveness of assertive outreach provision in other countries cannot be

taken uncritically without recognition of the heterogeneity of assertive outreach patient groups and differences in outcomes.

All of the investigated assertive outreach teams operated in London and several of them had been established recently. Outcome might be more favourable outside metropolitan areas and once all teams have developed a routine practice over a long period of time. Yet, based on the findings of this study, the implementation of assertive outreach services cannot be expected to prevent voluntary and compulsory admissions in a significant proportion of patients who had been difficult to engage with previous services.

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## APPENDIX

### The Pan-London Assertive Outreach Study Group

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## CLINICAL IMPLICATIONS

- Assertive outreach teams serve a wide variety of patients and the patient characteristics differ between teams.
- The 6-month prevalence of non-alcohol substance misuse was 29% and the 2-year incidence of physical violence was 35%, reflecting a need for assertive outreach expertise in forensic mental health and dual diagnosis.
- Even in established assertive outreach patients, more than 20% can be expected to be admitted compulsorily and more than 30% to be hospitalised within a 9-month period. Non-statutory teams achieve more favourable outcomes, which can be explained by baseline differences in patient characteristics.

## LIMITATIONS

- The study is not a controlled trial and does not establish the effectiveness of assertive outreach.
- The 24 teams were taken from across London and results cannot be extrapolated directly to the whole of the UK or other national health care systems.
- The outcome criteria – voluntary and compulsory hospitalisations – are limited and do not reflect detailed changes and patients' views.

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