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Comparison of outcomes following after-care from forensic and general adult psychiatric services

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Background Forensic psychiatry services are expanding in England and Wales but require support from general services for patient after-care.

Aims To compare outcomes following community after-care from forensic or general adult psychiatry services.

Method An observational comparison was made of case management following discharge from medium security in seven pre-reorganisation health regions of England and Wales, by forensic services (n=409) and general adult services (n=652). Criminal convictions, hospital readmissions and deaths were compared over a mean follow-up period of 6.2 years, adjusting for difference in case mix.

Results Forensic services did not supervise more high-risk patients in the community. Neither service was superior in outcome. More patients managed by general services died from natural causes.

Conclusions Neither service was superior on measures of subsequent offending or hospitalisation. Specialist forensic after-care conveyed no added benefit. Case management may have been the same in both services.

Declaration of interest J.W.C. developed a specialist service evaluated in this study.

The terms 'parallel' and 'integrated' were originally used to differentiate between the models of after-care provided in the UK following discharge from forensic psychiatric services (Gunn, 1977). In the parallel after-care model patients continued to be supervised by the forensic services following discharge, whereas in the integrated model responsibility for supervision was transferred to the general adult psychiatric services. More recently, an integrated model has been described in which specialist forensic staff provide advice and/or treatment interventions in conjunction with the general adult team, but the latter retain ultimate clinical responsibility (Mohan *et al*, 2004). It might be expected that healthcare professionals in the forensic services, having received specialist training in treatment and management of offender patients, would provide better after-care than those in general adult services. Forensic psychiatry services in the UK have moved towards providing parallel models of after-care, but development has been slow and there are wide geographical variations in provision. Most forensic services now employ specialist community psychiatric nurses and provide dedicated community-based consultant forensic psychiatrist sessions. However, none has sufficient provision to offer a parallel service to all patients and, as a result, forensic services rely on local general adult psychiatry services to accept clinical responsibility for varying proportions of discharged patients. As specialist forensic services are expected to reduce the risk of offending among patients in their care (MacCulloch & Bailey, 1991), this raises questions as to whether the public are put at greater risk from patients supervised by staff with less experience and training in the management of offender patients, and whether the long-term clinical outcome is worse for patients managed within an integrated model of psychiatric care.

To date, no study has compared the effectiveness of the forensic and general adult psychiatry services in relation to clinical and offending outcomes. The aim of this study was to compare the two services on rates of hospital readmissions, death rates and rates of criminal convictions during the follow-up period after discharge from medium security.

METHOD

The sample comprised patients who had been admitted to medium secure forensic psychiatry services provided by 7 of the 14 (pre-reorganisation) Regional Health Authorities in England and Wales during the years 1989–1993. These services covered a representative range of geographical areas – large urban, small town and rural – characterised by different levels of socio-economic deprivation. This was an original admission cohort from the North West Thames, North East Thames, South Western, West Midlands, Merseyside, North Western and East Anglian Regional Health Authority catchment areas and has been described in previous publications (Coid & Kahtan, 2000). Patients admitted to these services during the study period but placed in the private sector or other National Health Service (NHS) secure units as extra-contractual referrals were included so as not to underrepresent the catchment areas.

The follow-up period was calculated from the date of discharge from a medium secure unit to the end of the study period (31 December 1998), or to date of death or leaving the country, whichever occurred first. Time at risk of reconviction was defined as any time spent in the community during the follow-up period. The original admission cohort consisted of 2085 patients over the 5-year period 1989–1993. A total of 472 patients (23%) were excluded from the follow-up study owing to hospital case files being unavailable, or insufficiency of information to complete coding schedules. Subsequent comparison revealed no statistically significant difference between this group and those included in terms of demography, previous convictions, previous psychiatric hospitalisation and age at admission to medium security. However, significantly more excluded patients were admitted for non-criminalised behaviour, detained under a civil order of the Mental Health Act 1983, and admitted from a psychiatric hospital or directly from the community. A further 269 (13%) were excluded from the analysis because they did not enter the community during the

follow-up period and therefore did not enter a period of 'time at risk' of reoffending in the community. Patients who were initially transferred from medium security to a local psychiatric hospital were only considered to enter 'time at risk' once they had been discharged from that location to the community. Those who died during the follow-up period but who had previously spent time at risk were included. The mean length of follow-up was 6.2 years (range 1 month to 9.9 years).

Data for each patient were obtained from a range of sources and different sites. Medical records files from the medium secure units were examined in the medical records office at each location. These included pre-admission psychiatric reports, case conference reports, social histories, general correspondence and discharge summaries. In addition, medical records files were examined in private hospitals. The Mental Health Unit at the Home Office, which is responsible for monitoring the progress of patients subject to restriction orders under sections 41 and 49 of the Mental Health Act 1983, also gave access to their files. The medical records departments in all relevant general psychiatric hospitals and special hospitals were requested to provide information on participants' post-discharge contacts to complete the tracing process.

Diagnostic data on lifetime categories of mental illness were included and assessed from case notes by a trained psychiatrist using ICD–10 criteria (World Health Organization, 1992). Personality disorder was included, but sub-categories of disorder were considered to be infrequently and inaccurately specified in the case notes; the researcher therefore made a diagnostic decision based on available information using DSM–III–R Axis II criteria (American Psychiatric Association, 1987). Comorbid diagnoses of lifetime alcoholism and alcohol abuse, drug dependence and drug abuse, and sexual deviation (paraphilias) were obtained from case notes. Categories of mental disorder included in the analysis described the primary psychopathological disorder and included mutually exclusive categories of schizophrenia or schizoaffective disorder, paranoid psychosis, personality disorder, mania or hypomania, depression and organic brain syndrome. Comorbid categories included alcoholism and alcohol abuse, and drug dependence and drug abuse. Antisocial personality disorder could be a primary diagnosis within the category of personality disorder, or a comorbid diagnosis with other conditions.

The Offenders Index at the Home Office provided data on convictions for standard list offences committed in England and Wales up to the end of the study period (31 December 1998). For purposes of analysis, offending outcome measures included offences of violence against the person; sexual offences; arson; acquisitive offences of burglary, theft, fraud and deception and robbery; and any convictions for 'grave' offences. The Home Office defines 'grave' offences as homicide, serious wounding, rape, buggery, arson, robbery and aggravated burglary. The NHS Central Register which is administered by the Office for National Statistics was searched to determine whether individuals who had not been traced by the end of the follow-up period had died.

Hospital readmission as an outcome was considered to be a measure of control and maintenance of stability of the patient's mental state in the community (Robertson, 1989). Reconviction data have been recommended as a key indicator of the performance of security services (Carter *et al*, 1992) and have been used in many studies (Friendship *et al*, 1999; Maden *et al*, 2004). Lowering of suicide rates has become a key mental health target in the UK (Department of Health, 1997) and such rates are therefore an important measure of comparison. Risk of death from natural causes, particularly coronary heart disease, is increased in people with severe mental illness (Phelan *et al*, 2001); the excess risk is not wholly accounted for by medication or socio-economic deprivation, and indicates the need for research and information to promote improved physical health (Osborn *et al*, 2006).

The project was approved by the East London and City Health Authority ethics committee.

Statistical analysis

Comparisons between patients in the two services on background characteristics, mental disorder on admission to the medium secure unit, hospitalisations prior to admission and criminal behaviour were conducted using Pearson's chi-squared statistics and *t*-tests with the Statistical Package for the Social Sciences, version 12 for Windows. For the offending outcomes, incidence rates (Woodward, 2004) were calculated based on the number of offences for which individuals had been convicted and the total person-years of 'time at risk' during the follow-up period. This was the difference between the sum of follow-up in days, months or years since discharge and the sum of days, months or years spent in hospital or back in prison during the follow-up period. This outcome measures the density or speed of reconviction, and is independent of the different lengths of follow-up period. Confidence intervals for the raw incidence rate ratios (IRR) between the forensic and general adult psychiatric services, for each offence type, were estimated using Stata version 7 and were based on Poisson distribution. Multivariate Poisson regression models were used to estimate the differences between the two services while controlling for confounding effects of the factors on which the patients in the services differed significantly. The individual 'time at risk' was entered in the model as an offset or weighting factor. This type of modelling also takes into account the interaction effects between the various categories of offence (e.g. violence, sexual, acquisitive and arson) because each patient could potentially have been convicted of all the offence types during the follow-up period. The 'grave' and 'any offences' outcomes are not mutually exclusive from the other offence categories, therefore univariate Poisson regression models adjusting for the same confounding covariates were conducted.

The same statistical methods were used to analyse the hospital readmission outcomes. The incidence rates for hospital readmissions were calculated using the number of readmissions and the total person-years of follow-up.

For the mortality outcomes, differences between the two services were measured by odds ratio, and logistic regression analysis was used to estimate the service effects for each cause of death while adjusting for the possible confounders. All Poisson and logistic models were fitted by means of MLwiN version 2.0 (Rasbash *et al*, 2003).

RESULTS

A total of 409 patients were case-managed by mental health professionals from forensic psychiatry services and 652 patients were managed by staff from general psychiatric services following discharge from medium security. Those managed by the forensic services were older, fewer had ever

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Table 1 Comparison between patients managed by forensic and general adult psychiatric services (n=1061)

	Forensic services (n=409)	General adult services (n=652)	Test statistics	P
Demographic factors				
Male, *n* (%)	354 (86.6)	555 (85.1)	χ^2=0.42, d.f.=1	0.518
Black, *n* (%)	82 (20.0)	149 (22.9)	χ^2=1.22, d.f.=1	0.270
Never married, *n* (%)	194 (47.7)	246 (37.9)	χ^2=9.81, d.f.=1	0.002
UK born, *n* (%)	324 (79.2)	560 (85.9)	χ^2=8.05, d.f.=1	0.005
Age, years: mean (s.d.)	32.0 (11.2)	29.0 (9.9)	t=4.51	<0.0001
Previous hospitalisation				
Any psychiatric hospital, *n* (%)	296 (72.5)	531 (81.6)	χ^2=11.9, d.f.=1	0.001
Special hospital, *n* (%)	98 (24.0)	61 (9.4)	χ^2=42.2, d.f.=1	<0.0001
Private hospital, *n* (%)	15 (3.7)	63 (9.7)	χ^2=13.3, d.f.=1	<0.0001
Criminal admission, *n* (%)	347 (84.8)	449 (68.9)	χ^2=34.2, d.f.=1	<0.0001
Number of psychiatric hospital admissions: mean (s.d.)	3.6 (5.2)	4.5 (5.1)	t= 2.74	0.006
Mental disorder on admission, *n* (%)				
Schizophrenia/schizoaffective disorder	252 (63.2)	452 (71.4)		
Personality disorder	54 (13.5)	30 (4.7)		
Mania/hypomania	24 (6.0)	72 (11.4)	χ^2=38.33, d.f.=5	<0.0001
Paranoid delusion	23 (5.8)	32 (5.1)		
Depression	30 (7.5)	33 (5.2)		
Organic brain disorder and other	16 (4.0)	14 (2.2)		
Antisocial personality disorder	87 (21.3)	83 (12.7)	χ^2=13.68, d.f.=1	<0.0001
Alcohol dependence	105 (25.8)	140 (21.5)	χ^2=2.59, d.f.=1	0.107
Drug dependence	117 (28.7)	192 (29.5)	χ^2=0.08, d.f.=1	0.783
Behaviour during or after MSU, *n* (%)				
Treatment-resistant symptoms	5 (1.4)	42 (6.7)	χ^2=12.83, d.f.=1	<0.0001
Cooperation with initial supervision	331 (88.5)	399 (89.9)	χ^2=0.39, d.f.=1	0.531
Adherence to initial medication	275 (86.2)	383 (90.5)	χ^2=3.41, d.f.=1	0.065
Violent towards others	88 (21.5)	222 (34.0)	χ^2=19.09, d.f.=1	<0.0001
Criminal behaviour				
Age at first court appearance, years: mean (s.d.)	23.3 (11.3)	22.1 (9.3)	t=1.72	0.085
Index offence, *n* (%)				
Homicide	70 (17.1)	26 (4.0)	χ^2=52.63, d.f.=1	<0.0001
Violence	216 (52.9)	249 (38.2)	χ^2=22.18, d.f.=1	<0.0001
Sexual	32 (7.8)	36 (5.5)	χ^2=2.22, d.f.=1	0.136
Acquisitive	70 (17.1)	120 (18.4)	χ^2=0.28, d.f.=1	0.594
Grave	245 (59.9)	218 (33.4)	χ^2=71.58, d.f.=1	<0.0001
Arson	51 (12.5)	47 (7.2)	χ^2=8.30, d.f.=1	0.004
Other	108 (26.5)	158 (24.2)	χ^2=0.67, d.f.=1	0.414
Any index offence	346 (84.8)	449 (68.9)	χ^2=34.00, d.f.=1	<0.0001
Previous offence, *n* (%)				
Violence	175 (42.8)	250 (38.3)	χ^2=2.07, d.f.=1	0.151
Sexual	28 (6.8)	34 (5.2)	χ^2=1.22, d.f.=1	0.270
Acquisitive	224 (54.9)	331 (50.8)	χ^2=1.72, d.f.=1	0.190
Grave	178 (43.9)	215 (33.0)	χ^2=12.21, d.f.=1	<0.0001
Arson	34 (8.3)	26 (4.0)	χ^2=8.81, d.f.=1	0.003
Other	193 (47.2)	295 (45.3)	χ^2=0.36, d.f.=1	0.551
Any previous offence	289 (70.8)	423 (65.0)	χ^2=3.91, d.f.=1	0.048
Restriction order[1]	155 (38.3)	69 (11.9)	χ^2=94.42, d.f.=1	<0.0001

MSU, medium secure unit.
1. Sections 37 and 41 of the Mental Health Act 1983.

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been married, and more were born outside the UK (Table 1). They were more likely to have previously been admitted to a high-security hospital, and were more likely to have an index offence of homicide, violence and arson, and previous grave or arson offences. They were also more likely to have a primary diagnosis of personality disorder, and a specific primary or comorbid diagnosis of antisocial personality disorder. Finally, patients managed by the forensic services were more likely to be discharged subject to a restriction order under the Mental Health Act 1983, and were more likely to be rated as adhering to their prescribed medication and the supervision process during the initial stage of management in the community.

Patients managed by general adult services were younger, had more previous psychiatric hospital admissions and were more likely to have been placed in the private sector on admission to medium security. They were less likely to have been admitted to medium security as a result of criminal behaviour, and were more likely to have received a diagnosis of schizophrenia or schizoaffective disorder, or of mania or hypomania (but not of paranoid psychosis). As a group, their mental disorders were more likely to have been considered 'treatment-resistant' while in medium security, and they were more likely to have demonstrated violence towards others in the medium secure unit.

Patients in the two groups did not differ on gender, ethnicity, primary diagnosis of depression or organic brain syndrome, comorbid diagnosis of substance dependence or abuse, or age at first court appearance; nor did they differ on previous convictions for violent, sexual or acquisitive offences, or a mixed group of 'other' offences.

Regression analyses

The results of the regression analyses, adjusting for the potential confounding factors, are presented in Tables 2–4. No difference was observed between the two groups on the measures of total number of hospital readmissions and number of readmissions to a special hospital. However, patients managed by general adult services were, if readmitted, more likely to be admitted to a general adult psychiatric hospital, whereas those managed by forensic services, if readmitted, were more likely to be readmitted to medium secure facilities.

No difference was observed between the two groups in relation to the number of criminal convictions during the follow-up period. Further analysis using Cox's regression, comparing the groups on average time (in years) to first reconviction for each of the different offence categories, revealed no difference between the two services for any offence, sexual offences, acquisitive offences, arson and grave offences. However, patients managed by the forensic services had a shorter time to first reconviction for a violent offence (mean 2.3 years, s.d.= 2.2) compared with patients managed by general adult services (mean 2.5 years, s.d.=2.1): adjusted hazard rate estimate 0.54 (95% CI 0.34–0.85, $P<0.01$).

There was no significant difference between the two groups in relation to the number of patients who died by suicide during the follow-up period. Deaths from natural causes were higher among patients managed by general adult services, and risk of death from 'any cause' was twice as high among patients managed by general adult services compared with those managed by the forensic services.

DISCUSSION

The development of specialist forensic community services has proceeded on the assumption that staff who are specifically trained in the management of mentally disordered offenders will achieve better outcomes and ensure public protection. Nevertheless, it has been argued that forensic services should reject the trend for developing independent outreach services and should instead join with general adult services to provide a truly 'integrated' model of after-care (Burns, 2001). In this first study to examine which model of service delivery produces better outcomes, no evidence of superiority, as measured by reoffending behaviour or rehospitalisation, was found for either service. There was evidence that patients managed by the forensic services were quicker to reoffend violently than their counterparts managed by the general adult services. However, this finding could have been a result of differences in the violent propensities of patients, as indicated by their previous criminal careers, although this would require further study. Although patients managed by the general adult services were younger than those managed by the forensic services, factors other than those measured in this study, such as treatment resistance, chronicity of psychotic illness and medication dosage, might have contributed to this group's increased risk of death from natural causes. On the other hand, the importance of awareness among mental health professionals of the vulnerability of patients with severe mental illness to a higher risk of mortality from physical illness has been strongly emphasised (Phelan *et al*, 2001). Further research into the possibility that the patients managed by specialist services received better physical care, or more screening for physical illness, is suggested by these findings.

There was little evidence that the forensic services selected patients for parallel after-care with a greater risk of reoffending on the basis of their previous offending behaviour. Seriousness of the index offence leading to medium secure admission appeared to have significant impact. It is possible that patients who had committed serious offences were 'less attractive' to general adult psychiatrists. Alternatively, forensic psychiatrists might have felt an obligation or preferentially opted to manage this group. Furthermore, the bureaucratic requirements associated with restriction orders, to which many serious offenders are subject, can place heavy demands on general adult psychiatric services where patients stay for relatively shorter periods as in-patients.

Strengths and weaknesses of the study

The question of whether after-care provided by forensic or general adult services results in a 'better' outcome can only be answered by a randomised controlled trial. This study was an observational, retrospective comparison, attempting to control for putative confounders related to risks of rehospitalisation, reoffending and death. Furthermore, the classification of patients as having been managed by one or other service in this study was based on the initial provider of supervision following discharge from the medium secure unit. In some cases, the responsibility for the patient's after-care might have been transferred to the other service at some point during follow-up. In addition, the development in some geographical regions of a model of 'integrated' care, in which forensic specialists provide varying degrees of input to the general psychiatry team (Mohan *et al*,

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Table 2 Regression analysis comparing outcomes between the two service groups: hospital readmission

	Forensic services (n=409)		General adult services (n=652)		IRR (95% CI)	
	Number of readmissions	Incidence (%)	Number of readmissions	Incidence (%)	Raw data	Adjusted[1]
Any psychiatric hospital	564	23.0	1076	26.1	0.88 (0.79–0.98)*	1.12 (0.90–1.38)
General adult	193	7.9	836	20.2	0.39 (0.33–0.45)**	0.47 (0.34–0.65)**
Medium security	355	14.5	219	5.2	2.76 (2.32–3.28)**	3.29 (2.42–4.46)**
Special hospital	18	0.7	19	0.5	1.59 (0.79–3.20)	2.15 (0.91–5.06)
Base	2454 person-years of follow-up		4121 person-years of follow-up			

IRR, incidence rate ratio.
1. Adjustments: never married, age at discharge, criminal admission, primary personality disorder, primary schizophrenia/schizoaffective disorder, primary mania, previous psychiatric hospital admissions, discharge order (sections 37/41), antisocial personality disorder, initial symptom treatment resistance, violence in medium secure unit, any previous offence, any index offence (multivariate Poisson regression analysis for the three types of readmission and univariate Poisson regression for any hospital admission).
*$P \leqslant 0.005$, **$P \leqslant 0.01$.

Table 3 Regression analysis comparing outcomes between the two service groups: reoffences

Offence type	Forensic services (n=405)		General adult services (n=580)		IRR (95% CI)	
	Number of offences	Incidence (%)	Number of offences	Incidence (%)	Raw data	Adjusted[1]
Violence	84	4.0	151	4.9	0.83 (0.62–1.09)	0.83 (0.54–1.27)
Sexual	6	0.3	18	0.6	0.50 (0.16–1.30)	1.64 (0.42–6.44)
Acquisitive	226	10.9	349	11.3	0.96 (0.81–1.14)	1.72 (0.90–3.29)
Grave	67	3.2	81	2.6	1.23 (0.88–1.72)	1.44 (0.91–2.28)
Arson	13	0.6	8	0.3	2.41 (0.93–6.72)	0.37 (0.00–26.8)
Any offence	477	23.0	845	27.4	0.84 (0.75–0.94)	1.16 (0.94–1.43)
Base	2078 person-years of 'time at risk'		3086 person-years of 'time at risk'			

IRR, incidence rate ratio.
1. Adjustments: age at discharge, criminal admission, primary personality disorder, primary schizophrenia/schizoaffective disorder, primary mania, discharge order (section 37/41), hospital order, antisocial personality disorder, violence in medium secure unit, any previous offence, any index offence (multivariate Poisson regression analysis for violence, sexual, acquisitive and arson offences and univariate Poisson regression for grave offence and any offence separately).

Table 4 Regression analysis comparing outcomes between the two service groups: cause of death

	Forensic services (n=409)		General adult (n=652)		OR (95% CI)	
	Number of deaths	Frequency (%)	Number of deaths	Frequency (%)	Raw data	Adjusted[1]
Suicide	10	2.4	20	3.1	0.79 (0.37–1.71)	1.25 (0.50–3.12)
Natural causes	8	2.0	25	3.8	0.50 (0.22–1.12)	0.30 (0.11– 0.78)*
All causes	20	4.9	58	8.9	0.53 (0.31–0.89)*	0.49 (0.28–0.88)**

1. Adjustments: never married, age at discharge, criminal admission, primary personality disorder, primary schizophrenia/schizoaffective disorder, primary mania, previous psychiatric hospital admissions, discharge order (sections 37/41), antisocial personality disorder, initial symptom treatment resistance, violence in medium secure unit, any previous offence, any index offence (logistic regression model for each cause of death separately).
*$P \leqslant 0.05$, **$P \leqslant 0.01$.

2004), suggests that the two models might have been very similar in these locations. This reveals the most serious shortcoming of the study. Although measures of patients' previous histories, behaviour and treatment while in medium security and outcomes during follow-up were included in the study, there were few specific measures of the after-care these patients actually received. Most importantly, little information was collected on their experiences in the community, which might have had a direct impact on the observed outcomes.

Implications of the study

The findings of the study do not support the further development of 'parallel' forensic mental health after-care services. An argument for the development of integrated services is that both forensic and generalist services benefit because this combination results in a service structure more accurately reflecting the natural history of the patients' disorder (Burns, 2001). In addition, the general adult services would improve their understanding of forensic patients, and stigmatisation from association with specialist forensic services might be

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reduced. However, the original development of medium secure forensic in-patient services in Britain was the result of the poor quality of care provided to offender patients following psychiatric bed closures, together with unrealistic adherence to a model of care in the community for those requiring security (Home Office & Department of Health and Social Services, 1975).

This study demonstrated that each service tended to arrange readmission to its own in-patient services for patients previously discharged from medium security. However, if decisions on location for readmission are thus made on the basis of convenience rather than clinical need and level of security, there are major cost implications. The costs of medium secure in-patient care are among the highest in the NHS, representing low-volume, high-cost provision. To operate cost-effectively when providing after-care, forensic services would require additional beds at a lower level of security.

A further question is raised by the findings of this study: if the outcome for both services is the same, is there any difference in the after-care offered by the two services? The likelihood is that after-care was exactly the same in each service during the follow-up period. Although forensic specialist training places substantial emphasis on the assessment and management of patients in conditions of security, training programmes for managing patients in the community are based on those originally developed by adult general services which adhere to the care programme approach (Department of Health, 1999). If forensic specialist services are to develop a parallel model of after-care in the future, they will need to develop new community-based interventions to reduce risk and which take account of the needs of high-risk patients.

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