Follow-up of serious offender patients in the community: multiple methods of tracing

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ABSTRACT *Longitudinal studies of people with mental disorder are important in understanding outcome and intervention effects but attrition rates can be high. This study aimed to evaluate use of multiple record sources to trace, over 12 years, a one-year discharge cohort of high-security hospital patients. Everyone leaving such a hospital in 1984 was traced until a census date of 31 December 1995. Data were collected from several national databases (Office for National Statistics (ONS), Home Office (HO) Offenders' Index, Police National Computer Records, the Electoral Roll) and by hand-searching responsible agency records (HO, National Health Service). Using all methods, only three of the 204 patients had no follow-up information. Home Office Mental Health Unit data were an excellent source, but only for people still under discharge restrictions (<50% after eight years). Sequential tracing of hospital placements for people never or no longer under such restrictions was laborious and also produced only group-specific yield. The best indicator of community residence was ONS information on general practitioner (GP/primary care) registration. The electoral roll was useful when other sources were exhausted. Follow-up of offenders/offender-patients has generally focused on event data, such as re-offending. People untraced by that method alone, however, are unlikely to be lost to follow-up on casting a wider records net. Using multiple records, attrition at the census was 38%, but, after certain assumptions, reduced further to 5%.*

Key words: high security (special) hospitals; methods of tracing discharged psychiatric patients, follow-up

Background

Follow-up studies of violence or offending by psychiatric patients tend to have a high attrition rate, whether they rely on records only or include patient contact. Even in the well-resourced US-based MacArthur risk study, in which patients were actively engaged in the follow-up process, 16% were lost in just the one year of follow-up (Steadman et al., 1998). Further, previous English high-security hospital follow-up studies have largely disregarded civil or unrestricted offender patients, probably due to the difficulties in tracing them.

Attrition or the loss of subjects from a survey can introduce unknown biases. In the US-based patient contact study (Fischer et al., 2001) of 1,744 people discharged from a private psychiatric facility over 18 months, 40% were lost to the one-year follow-up. They showed that there were significant and important

differences between those traced and those lost to follow-up. Those who were of lower socio-economic status, male, unmarried, racial minorities and those with records of substance abuse or assault, and who were generally more severely impaired during the hospitalization, were underrepresented in the contacted group.

Studies that rely exclusively on the acquisition of records have the advantage of not having to depend on patient co-operation, but they have other limitations. Most rely exclusively on records of events – usually recorded crime, death and, in some cases, admissions to hospital. In these circumstances, location of a reliably matched record confirms a 'sighting' of the individual, but absence of such a record does not equate with unblemished survival of the individual concerned. The subject may have used an alias; there may have been delays or errors in recording.

Belfrage (1998), having studied records in Stockholm, highlighted a number of bureaucratic reasons for caution when relying on single national databases. The police register, for example, deletes crimes committed 10 years ago or more (10 years after the sentence or 10 years after discharge from an institution) (exceptions to this are when mental illness is noted in the register), records within one month of the death of a person, when a person attains the age of 80, and if s/he has been diverted from the criminal justice system on psychiatric grounds. The death register is usually two years behind events – thus a person may appear alive without a criminal record but in reality may have recently died in possession of an extensive one.

Our study borrowed from the methodology of longitudinal patient population studies, such as the Cambridge Study in Delinquent Development (Farrington et al., 1990). They calculated the relative efficacy of each method and concluded that success in tracing was achieved by persistence, and by using a wide variety of methods. No one method on its own was successful in breaking an initial failure but every succeeding method had a constant probability of contributing to the final successful tracing. However, theirs was a study that involved repeated personal contact.

Our study sought to apply the principle of tracing former high-security hospital patients through multiple sources, but relying on records only, to establish the usefulness of each source and to test the effectiveness of this approach in keeping attrition of sample size to a minimum.

We believe that the data sources and the tracing procedures may have their equivalents in other countries and that at least some of the principles are generalizable.

Method

Sample

The subjects under study were all people who left one of the English high-security hospitals in 1984. The special hospitals' case register was used to identify this discharge cohort. This register was set up in 1972 and holds extensive admission information extracted from records and interviews with each patient, and limited discharge and follow-up information. Discharge information includes date and place of discharge, type of discharge (for example, absolute, conditional, or transfer

to hospital or prison – see below) and information as to who discharged the patient (for example, the responsible medical officer, the Home Office or a Mental Health Review Tribunal). Follow-up information includes details of post-discharge convictions, readmission to special hospital, death and registration with a Family Health Service Authority. Changes in legal status during admission are recorded. Patients known to have changed their name for any reason, up to and during high-security hospital admission, and the details of that name change, can also be extracted from the register. All known names were supplied when requesting data from the various sources.

Procedures

Length of follow up

Data were recorded from the date of discharge from special hospital, or the date of departure if on trial leave, if that were sooner. People who departed on trial leave and who were returned to special hospital without having been discharged were excluded. Tracing was maintained until the last recorded placement, to a census date of 31 December 1995, or to death, whichever came earlier, with a maximum follow-up period, therefore, of 12 years.

Home Office Mental Health Unit

Under English mental health legislation the Crown Court may impose a restriction order on those convicted of an imprisonable offence and sentenced to a hospital order if it is considered necessary to do so for the protection of the public from serious harm. Restrictions are generally added in the case of transferred prisoners. The effect of this is that these patients may be transferred to a less secure hospital only with the permission of the Secretary of State and they may be discharged from hospital only by the Secretary of State or by a Mental Health Review Tribunal. Such a discharge may be absolute, in which case there is no legal requirement for further psychiatric or other supervision, or it may be conditional, in which case the psychiatric and social supervision continues and reports are submitted at regular intervals to the Mental Health Unit at the Home Office until the Secretary of State considers that reporting conditions can be lifted or the patient can be absolutely discharged. Restriction orders were, effectively, also imposed under the Criminal Procedure (Insanity) Act 1964 and under its 1991

successor. For all patients under such restrictions on discharge, Home Office Mental Health Unit (MHU) files were hand searched (by EJ). These files contained a range of documentation pertaining to the index offence, previous criminal records, and annual reports from the psychiatrist in charge of the case and, on discharge, reports at more frequent intervals. The latter are usually quarterly, and from both social and psychiatric supervisors.

Sequential tracing

For civil patients, and offender patients originally, but no longer, on restriction orders, information was obtained by writing to the place to which the patient had been discharged, asking for confirmation of the dates of residence and the name of the person in charge of the case. If the person were no longer resident, then the address of the next place of residence was sought, together with the name of any professional involved. If no answer were received, follow-up telephone calls were made to the records departments of the institutions in question. The process was repeated for each person/ place identified until there was no further record, or up to the census date. No direct approaches were made to patients, so once a patient had left in-patient or out-patient hospital care, this method of tracing ceased.

Offenders' Index

The Offenders' Index is part of the Research and Statistics Division of the Home Office. It holds a record of all standard list convictions from 1963. Data were applied for from the Offenders' Index in 1995 (OI 95) shortly after the census date (31 December 1995). Data were then applied for again from the Offenders' Index in 1999 (OI 99) to allow time for all convictions to be entered, as there is always a lag year on year. Moreover, sometimes the matching procedure may incorrectly match a patient to a conviction or match against a person with the details closest to those supplied. A 'match' depends on the sophistication of the matching process (which has improved over time) and the details supplied to the Offenders' Index – for example, date of birth, details of index offence, known names and CRO number (Criminal Records Office Number), if known. Occasionally convictions can be added to records at later dates and thus it is necessary to specify the year used for extraction of the offending data. In this study data were taken from the year that

had a correct match or had the most information for each patient.

One method of verification available to us was the special hospital record of the index offence and the criminal history record obtained on admission. If these matched the Offenders' Index record, we assumed correct recording up to that point. If not, we treated the OI data as unreliable in that case and, in such cases, offending histories were then applied for from an independent records source, the Police National Computer (PNC). These records also have the advantage of showing up minor convictions and convictions prior to 1963, the starting date for the Offenders' Index database. Finally, if convictions post discharge were obtained in addition to any of the above from the Mental Health Unit or special hospital case registers' files, this information was added to the offending data.

For tracing purposes (establishing that the individual was alive and in a particular place) only one conviction per patient per year was counted (it represented a trace and was *not* representative of the total number of convictions or conviction episodes).

Office for National Statistics

Data relating to deaths, hospitalization periods over two years (as this is all ONS supply for hospitalizations), and registration with local family health service authorities (primary care) were obtained from the Office for National Statistics (formerly the Office of Population Censuses and Surveys). The Office for National Statistics is a government-funded organization whose main function is to support the work of the health authorities for England, Wales and the Isle of Man, by maintaining a central record of all patients registered for National Health Service (NHS) purposes. Liaison with Registries in Scotland and Northern Ireland also ensures that there is a comprehensive system for the whole of the UK. Death certificates cite not only cause of death, but also location of death and last known address of the deceased, so place of residence and date at that residence can be established if not known from other sources.

Electoral roll

Finally, a search of the computerized electoral roll was made, using the UK-Info Disc 2000 to see if a patient was living in the community. The electoral roll contains information in the public domain and provides evidence as to possible addresses of people. The UK-Info Disc

2000 database is available to any subscriber from certain publishing companies and stores information from the 1999 Electoral Roll, which is then cross-referenced with a number of other sources. It includes forename, surnames, address, postcode and telephone numbers. It proved impossible to obtain a UK-Info-Disc retrospectively for 1996. Under the Representation of the People Act 2000, patients resident in psychiatric hospitals (other than those with criminal convictions) had become eligible to vote, together with unconvicted or remand prisoners, and so a search was made for all patients other than those who had died before 2000.

Three types of matching were used:

- Match 1: Details matched to previously known address.
- Match 2: Details matched by name and GP registration area.
- Match 3: More than one match to name and GP registration area.

Patient contact

No direct approach was made to any of the patients using any of the methods.

Assumptions and organization of data

In order to manage the continuities and discontinuities in the data obtained and to allow for analysis, the following assumptions and constraints were made:

1. Something was known about the survival or placement of every patient in 1984 because the place of discharge was known in all cases.
2. For 1985 and subsequently, if an event or placement were known for all or part of a year, this was counted as a 'trace' for that year.
3. For this paper, where a major change in legal status occurred during the course of one calendar year, the change was treated as affecting the following year. For example, if a patient was under a restriction order at the start of 1987, and became unrestricted later that year, the patient was counted as restricted (principally under Home Office tracing procedures) for 1987 and then unrestricted (sequential tracing) for 1988 onwards. Conversely, if a patient was unrestricted in 1987 and later that year as a result of an offence became subject to a restriction order, the patient was counted as unrestricted in 1987 and restricted from then on.
4. Where a major change in residence occurred during one year, the patient was treated for these analyses as being resident under the lesser security for the year. For example, if during the year the individual had had any period of residence at all in the community, s/he was treated as a community resident for that year. For tracing purposes, they would thus be eligible to register with a general practitioner or to register to vote.
5. If a patient were discharged on trial leave to live in the community, the trial leave date was used as an entry point into the community if this was earlier than the formal discharge date. Any residential placement that was neither a recognized hospital nor nursing home, nor a prison, was taken as a community residence. If there was no other information except a discharge date to the community, and no trace on any other central record, the patient was assumed to be lost to follow-up from the following year.
6. If there were a discharge date into the community, then information from at least one of the other data sources was necessary as a marker of continued residence in the community. This might be an indication of place of death, registration with a general practitioner after known discharge to the community, or electoral roll data, and they were all taken as evidence of continuous community residence in the absence of specific data to the contrary.
7. If there were no discharge date from a hospital placement, but there was a later date indicating registration with a general practitioner, this date was taken to indicate certain entry to the community with, therefore, the risk of underestimating length of community residence. Deregistration was taken as confirmation of re-entry into institutional care if the patient had not died.
8. It was assumed, if not known otherwise, that two thirds of a prison sentence was served in prison and that, unless there were specific data to the contrary, this point would mark re-entry into the community.

Validation

Every data source was cross checked with information already held in order to test for discrepancies. For example, special hospital records and Home Office Mental Health Unit records, where available, were used to check Offenders' Index data; last known

addresses and NHS numbers were used to check information obtained from the Office for National Statistics. All new information coming to light from other sources, such as patient files, was included in verification checks.

General characteristics of the cohort

There were 223 patients in the high-security hospital discharge cohort of 1984. Of these, 183 were men (82%) and 40 women (18%), proportions typical of a high-security hospital population. Seventeen (7.6%) of the 223 were technical discharges because these patients died in one of the high-security hospitals that year. Two people were repatriated to their country of origin, and no further follow-up was possible for them. This left a cohort of 204 for follow-up – 171 men (84%) and 33 women (16%).

Results

From the cohort of 204, 35 patients (17%) had other names, some of which were aliases and some of which represented changes on marriage (11 women). No difficulty was found in tracing these patients. Thirty-two of these patients were correctly matched to family health service registrations, and the missing three were all traced as offenders on follow-up on the Offenders' Index. Thirty-three of these were traced on the Offenders' Index with two missing; these two were matched to ONS registrations. Two of the patients with other names had died and the death certificates were registered under one of the known names. Thus, all patients known to have a history of name changing were traced using a combination of information sources but a few would have been missed if reliance were placed on one source.

The Home Office mental health unit as a data source

One-hundred-and-thirty-nine patients were on their original restriction orders just prior to discharge, but 13 of these were absolutely discharged from special hospital, so no further Home Office involvement was required. Thus, 126 cases were eligible for tracing through the Home Office Mental Health Unit, for whom all but six files were available. Additional files became available when two people who had been discharged without restrictions became the subject of restriction orders in 1987 and 1989; five people whose restrictions had expired were later the subject of another restriction order. These files added data for the

prior period as well as for the period after the restriction order was introduced.

By the end of the study, only 48 patients were still on restriction orders (35% disregarding the new restriction orders) and thus traceable through this route. Table 1 shows the attrition in value of this data source over time through falling numbers available (band one, column two), but confirms the high likelihood of tracing eligible cases by this means (band one, column one).

Sequential tracing through medical records departments

In the first year of follow-up, the total sample for sequential tracing was 84, including all 65 unrestricted patients, all 13 absolute discharges and the six missing restricted cases. Overall, 72 people were discharged directly to the community, 18 of those not on restriction orders. In subsequent years, the potential numbers each year for tracing by the sequential route reflect both departures from hospital records and new entries, the latter generally people with Home Office restrictions lifted. A person did not have to remain resident in hospital for this method of tracing, but he or she did at least have to attend as an outpatient.

In Table 1, band two, column two, shows the potential increase in this as a data source over time, but the much greater difficulty in achieving a trace by this method (band two, column one).

Events as a source of data on survival

Deaths

Band three in Table 1 shows the distribution over the 12 years of the 34 deaths (17%) among the 204 people after their departure from special hospital. Twenty-four of these were confirmations of information in Home Office files or data collected through sequential tracing, but 10 of these were cases that would not otherwise have been traced (column two). The ONS mortality database was, therefore, an important source of additional data. There were no deaths recorded by the Home Office or found in sequential follow-up that were not known to the ONS.

Hospitalization

Band five in Table 1 shows that there were 52 re-admission episodes to special hospital from the discharge cohort, accounted for by 38 patients. This was a highly reliable source of data, in that each entry

Table 1. Tracing data on former high-security hospital patients: number of people traced in each year by method of tracing (N = 204)

	Band one		Band two		Band three		Band four		Band five		Band six		Band seven		Band eight					
	HOME OFFICE MHU	SEQUENTIAL PLACEMENT TRACING	ONS DEATH	GP REGISTRATION (max n = 185; 19 never made community)	SHRE- ADMISSION EPISODES (n = 38)	HOME OFFICE OFFENDERS' INDEX OFFENDING EPISODES (n = 74)	Number in community	Total n traced by any means	Max (after deaths)	ELECTORAL ROLL 1999 (max n=160) ¹										
	Actual	Max	Actual	Max	N1	N2	N1	N2	N1	N2	N1	N2	N1	N2	March 1 N1	March 2 N1	March 3 N1	March 3 N2		
COL	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
YEAR	Actual	Max	Actual	Max	N1	N2	N1	N2	N1	N2	N1	N2	N	nk						
1984	120	26	84	78	3	0	11	0	0	7	0	83	(1)	204	204					
1985	117	115	36	79	5	0	13	2	8	14	6	110	(25)	160	160			201		
1986	113	110	32	79	2	1	12	4	11	27	5	115	(22)	155	155			196		
1987	107	104	26	82	2	3	5	4	12	14	5	116	(20)	145	145			193		
1988	98	98	29	83	1	0	9	4	3	8	3	122	(15)	135	135			188		
1989	88	87	28	93	1	1	15	5	3	11	6	126	(13)	128	128			187		
1990	77	77	25	101	1	0	13	14	5	4	3	128	(12)	119	119			185		
1991	68	67	28	110	1	0	5	5	3	8	4	134	(11)	105	105			184		
1992	61	60	24	116	1	1	1	4	2	10	7	135	(11)	97	97			183		
1993	55	54	22	120	3	0	2	5	1	6	8	133	(10)	90	90			181		
1994	48	48	20	123	0	3	6	4	1	4	10	135	(10)	85	85			178		
1995	47	48	21	118	4	1	4	5	3	8	4	134	(10)	78	78	10	8	19	11	15
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	170

¹'Actual' refers to the actual number of patients traced in that group.

'Max' refers to the maximum number of patients available to be traced in that group.

N1: the number of patients in this band who had been traced either through Home Office or sequential tracing, and for whom the event was known from these sources.

N2: the number of patients lost through Home Office or sequential tracing, but for whom this source yielded a new piece of information.

If a patient is lost to tracing, and then in one year registers with a GP and offends, only count the GP as new information in N2 and put offence into N1 figures. Similarly, with the electoral roll information, this was only counted as new information if there was no other tracing (Home Office or sequential), GP registration or offending.

in the hospital record system had been verified by a face-to-face interview by a case register worker, and no other source of information identified a special-hospital admission that had not been captured by the case register. However, no new cases were identified that had not previously been identified through the Home Office Mental Health Unit or sequential tracing route and this method applied to only 38 (19%) of the patients.

Hospitalization data were the only data provided by ONS that were neither useful nor reliable. Only 13 hospitalizations were identified, 10 of these special hospital readmissions. The ONS only collects data on hospitalization periods over two years and, as 33 of the 52 special hospital readmissions in the follow-up were for two years or longer, it thus had a two-thirds failure rate on special hospital data alone. Only three other hospitalizations were identified, but we had definite records of 72 hospitalization periods lasting over two years (excluding special hospitals) – this method of tracing produced almost negligible results. Just one patient was identified by this route who had otherwise been lost to follow-up.

Offenders' Index

Band six, columns one and two in Table 1, show that 74 patients were responsible for the 182 offending traces. Sixty-one of these offence traces (approximately one-third) were of people who were not or no longer under Home Office restrictions or lost to sequential tracing (Column 2).

Table 2 illustrates how the best match offending data were obtained by combining data from the various offending sources. Twenty cases were traced through PNC records where there was a record of previous offending but no details from the Offenders' Index. In 16 of the PNC records, the offending had been prior to the commencement of the Offenders' Index in 1963. Three cases contained records of offences committed throughout the follow-up, which had not been matched by the Offenders' Index (Appendix 1). Six other patients had additional offences found from the file. Most had been matched by name, date of birth and CRO number on the OI, but offences committed through the follow-up period had not all been entered. In one of the cases the conviction was for manslaughter. Further details are

Table 2. Reliability of official records of criminal offending (before and after discharge): a comparison between two years (1995 and 1999) of offenders' index data

		Correct offence record	No offence data/none expected	Incorrect or missing data	Partially correct	Mismatch
1999	Correct offence record	113 (55%)		21 (10%) (14 had additional offences to the 95 record; 7 were not traced in 95)		
	No offence data/none expected		27 (13%)			
	Incorrect or missing data	4 (2%)		22** (11%)		
	Partially correct				13* (6%)	
	Mismatch					4 (2%)
	TOTAL	117	27	43	13	4

* Additional information obtained from case register or mental health unit files.

** These were cases where information was known about previous offending but data was missing from both OI95 and OI99. Twenty were applied for from police national computer records.

given in Appendix 1. Sentence data are added as indicative of the additional information about institutional versus community residence that may be obtained given a trace of this kind.

Indicators of community residence

Registration with general practitioner (GP)/primary care physician

Table 1, band four, columns 1 and 2, shows that by the census date, 81% of patients had registered with a GP (150 people with 152 registration episodes) from the available population reaching the community at some point over follow-up ($n = 185$). Two patients had two separate registrations within the study period. New registrations occurred throughout the 12 years, but peaked around the midpoint in 1990 (27 new registrations). Of the remaining 35 patients available for registration during follow-up, 15 died and three were imprisoned for lengthy periods.

Fifty-six people were traced by this method when Home Office or sequential tracing had ceased (column two). Given assumptions 6 to 8 in the methodology, the cumulative figure is likely to represent maintained registration and therefore continued community residence, or at worst, very brief admissions to hospital or prison and, in the absence of deregistration data, continued registration is likely to mean continued residence in the community.

The ONS also provided details of 12 GP deregistrations (cancellations) over the follow-up period, three of whom had registered over follow-up and the others who had registered prior to follow-up. In two cases this was because the patient had died. For six cases this was independent evidence that they had returned to institutional living, albeit at varying periods before deregistration (immediate, two years ($n = 2$), five years ($n = 2$) and 10 years). In one case cancellation had been shortly prior to return. In the remaining three cases there was no definitive evidence of whereabouts but it seemed a safe assumption that these individuals were no longer living in the community. Deregistration is therefore a good indicator of when residence in the community no longer continues but a poor indicator of when residence ceases.

Electoral roll listing

By the time of the electoral roll inquiry, there had been 44 patient deaths. This left 160 patients who could

have been on the 2000 electoral roll. Band eight in Table 1 shows that 47 patients (29%) from the 160 available patients in the sample were matched on the electoral roll register by name and registration area. In 20 of these cases the match was to a previously known address (match 1) and in 27 the match was by name and GP registration area (match 2). Another 26 (16%) were possible matches (match 3) in that a person of the name required was resident in the predicted area and registered with a GP in that area, but there was more than one person with the same surname and initials. A further 35 (22%) were matched on name only and 54 (34%) were not traced at all. (Two of the death cases between 1995 and 2000 actually showed up in Match 1, indicating that perhaps records had not been updated.)

Summary

There were only three patients (2%) from the original cohort who did not have a single piece of information post discharge using any of the above sources for 12 years after their discharge. They were all absolutely discharged from special hospital to their parents.

Thirty-four patients had died by the census date (17%). Thus, 170 patients should have had placement information by end 1995. Of these, definite information on placement was obtained from government databases or service records for 77 (45%). From Infodisc 2000, 73 patients had one of the most likely matches (matches 1 and 2). This added 10 highly probable (previously known addresses) and 19 probable (name and geographic area, but not specific addresses) confirmations of residence (those for whom information would not otherwise have been known (band seven, column 2)). If it were assumed that these people, known to have been discharged to the community, and without event data, had therefore continued residence in the community from the date of loss of follow-up until these traces in 2000, then information was available for the year 1995 on 106 cases (62%).

The number of patients in the community (band seven) was calculated by applying assumptions 6 and 7 set out in the methodology. If patients were registered with a GP, and had no record of deregistration, offending or rehospitalization, we assumed that they remained in the community. Applying these assumptions at the census date, the number of patients for whom location was known or could be estimated was 194 (95%). One-hundred-and-thirty-one patients

would be in the community (64%), 24 in hospital (12%), 34 had died (17%)(5 in 1995), five were in prison (2%) and there were 10 whose whereabouts was not known (5%). Thus, the attrition rate dropped to 5%. (The figures differ slightly from band seven as band seven was representative of whether a patient had had a community placement at any time during 1995 whereas these figures were taken at 31 December 1995.)

Discussion

Use of multiple records sources

The aim of the study was to look at the relative proportions of patients traced by individual sources and to see how combining them might lead to a reduction in attrition. The use of multiple methods together with certain assumptions meant that almost everyone could be traced even 12 years after leaving a special hospital through records alone. By building in certain assumptions (4 and 8 on page 115) community time may be overestimated in certain cases, but we believe it is nearer the actual time than if we had used 'known' times and dates only and allowed for the serving of maximum prison sentences. Most patients could be traced under their own names, and for those who had previous other names there appeared to be no further name changes.

One example of a contemporaneous two-year follow-up study of psychiatric patients in this country was the UK700 (Walsh et al., 2000) study. This study seemingly had a better result as, using multiple methods, they lost only $8/353 = 2\%$ in their intensive management cases and $6/355 = 2\%$ in the standard case-management cases. However, they were studying people who were actively engaged in the treatment/case-management process. Their follow-up success has its equivalent in our MHU tracing system, which had an almost perfect 'sensitivity'. We do not know whether a similar system operates in other countries.

Limitations of using single databases

Each data source was found to have its limitations: it may seem obvious to say that each only covered eligible cases, but many previous studies have depended exclusively on data from a source limited by this caveat.

Sequential tracing through medical records

A major cause of attrition was the absolute discharges to the community in 1984 and thus a large drop was seen in sequential tracing in 1985. Therefore, due to the poor 'sensitivity' of this method, this is the group for whom it was absolutely crucial to detect from GP registrations or offending databases.

Office for National Statistics

It was found that a marker of community residence was registration with a GP and, if there were no record of deregistration (implying institutionalization or imprisonment), offending or hospitalization, and/or there were evidence of an electoral roll registration at the end of the study period, it was highly likely that the patient survived in the community for the entire period. The perspective of counterfactual theory (Reiss, 2001) might be useful to draw upon here. This postulates that certain rules governing thought processes (mutability rules) tend to restrict or distort the outcome of deliberations. A choice might tend to be of the most obvious or salient features. Thus an obvious event like offending might be focused on more than the less obvious but more desirable non-event, namely its absence. In this study we are suggesting that a non-event be seen as a positive outcome.

Eighty-two per cent of ex-patients registered when community status was attained during follow-up. This figure reaches almost 91% when deaths, imprisonment and continued institutionalization are taken into account. Cancellations correctly identified termination of a community placement, but only in some of the cases, and they often occurred long after community placements had ceased.

Deaths proved to be a very useful source of information, not only to indicate when a person reached an earlier census date, but also because the certificates provided information as to place of death, and patient's last known address.

The information provided by ONS was reliable in that it correctly referred to particular patients who had been hospitalized for over two years but it was woefully inadequate in that it captured a tiny fraction of true hospitalizations.

Offenders' Index

The majority of offences occur in the community but approximately 15% of patients who are re-convicted

committed their offences in hospital or on trial leave in the community whilst still under the care of the hospital. This means that there are differential risks of reoffending in community and hospital placements.

The fact that the PNC records captured three subjects who had been convicted of offences during follow-up that had not been detected by other sources is important when considering follow-up offending rates. As in these cases, the number of post-discharge convictions was high (42 in one of the cases), this could have serious implications when calculating mean number of offences if these cases had not been traced. However, a high proportion of the missing offences were driving and drug offences, which are not included in the Offenders' Index. Similarly, Mental Health Unit files and the special hospital case register files also picked up offences on follow-up for seven patients that would have been missed if the investigation had relied solely upon Offenders' Index data. This was not a matching error but presumably a breakdown in data entry that had occurred at some point. Several of these offences were serious offences that would affect findings from any reconviction studies.

This was the only data source where incorrect matches were made. Mismatches occurred in 5/204 (2%) of cases.

Electoral roll

Electoral roll information was useful in conjunction with FHSA registration information as, once the area in which patients registered with general practitioners was known, a search could be made in the electoral roll listings for a named person living in that particular area.

At least 30% of patients were living successfully in the community and were using previously known names. It does highlight the need to know exact spellings and middle names where possible but it is particularly useful for unusual names. As 20 of the 47 were addresses previously recorded (prior to the census date of 31 December 1995), it also implies a degree of stability in that certain patients are settling for long periods at one address. The database is updated every October and two death cases were still on the register so it is probable that it was prepared some time in advance.

Farrington et al. (1990) state that according to the Labour Force Survey, 11% of adults move during the currency of any electoral register. Properties may also

be vacant or derelict. However, when used in conjunction with other methods, it may verify what is already known or suspected. Some of the addresses listed were actually institutions and thus an entry on the electoral roll does not always indicate a community placement but these were rare. According to Hough and Mayhew (1983), about 96% of addresses of private households are listed on electoral registers. Even though it is a legal requirement, people may neglect or fail to fill in the form for the electoral register so the data by themselves may be unreliable but useful to back up other data. The Cambridge study showed that the absence of a man's name on the register for a particular address did not necessarily mean he did not live there. Several of the men in their study, contrary to legal requirements, either neglected or chose not to fill in the form. The presence of a man's name on the register did not necessarily mean that he lived there at the time of registration. Some boroughs simply duplicated the last entry on the register. Also information rapidly becomes out of date. The form is completed in October, and the electoral register is then current from the following February until the February afterwards, 16 months later.

Conclusions

Different people will have different aims when they do follow-up studies and these aims will require different sources of data. Although this study focuses on a forensic sample, similar problems occur in clinical research in general. An epidemiologist looking at mortality would only need ONS data and this is accurate. A Home Office Minister, responsible for the reconvictions of restricted patients under supervision would require the Mental Health Unit files and these would be accurate and sufficient. A sociologist interested in social integration would find that the MHU files are an excellent source, because social decompensation is a reason for recall and conversely social stability is necessary for the lifting of restrictions. However, this would work only for restricted patients. For others you would have to adopt the sequential tracing approach or make contact through GPs and this is far less certain.

The majority of patients can be traced under known names. Events databases are important in such studies, but incomplete without some possibility of checking the context and whether negatives are true negatives. For a psychiatric cohort, electoral roll is helpful, but registration is not common enough to rely on it as a

sole indicator of community residence. General practitioner registration proved a good indicator of community entry and, taken in conjunction with other event data, an indicator of continuing community residence. We would recommend including this in all long-term follow-up of psychiatric patients in the UK and other countries where registration with a primary care physician would be the rule.

We believe that the data sources and the tracing procedures may have their equivalents in other countries and that at least some of the principles are generalizable. Thus, we recommend the following strategy for follow-up:

Essential steps

1. Obtain list of patient names and all aliases at start of project; supply all names to sources. Also useful at the start is the place of birth, which will help with verification of death, PNC records and ONS data.
2. Identify patients on restriction orders at the time of discharge.
3. Obtain Home Office MHU records to obtain placement types and dates for those on restriction orders.
4. Obtain dates of absolute discharge from restriction orders.
5. Follow through by sequential tracing writing letters to onwards placements progressively for all patients not on restriction orders and for absolute discharges.
6. Obtain offending records at least one year after discharge to allow for time lag in data entry. Extract all prison disposals and note dates and years of sentence. Similarly, extract all hospital order disposals. Build dates and placements into the follow-up.
7. Obtain death data from the ONS (which removes patients from follow-up); apply for the death certificate.
8. Obtain details of all FHSA registrations from ONS, including cancellations. Registrations can be used as a proxy measure for entry into the community and cancellations for commencement of institutional time or death.
9. Obtain details of all special hospital readmissions from the special hospitals' case register. On re-admission a pre-admission history will fill in any gaps.
10. Always approximate if exact dates are not known, for example, assume two thirds of a prison sentence has been served, if dates are unavailable.

Desirable

1. For cases where offending histories are not known or there is no trace of the person on the Offenders' Index, apply also for PNC records, which list details of minor offences and offences pre-1963.
2. Check file records (MHU and any hospital records) for offences on follow-up.
3. Electoral roll: as a method on its own, this is not useful because it is extremely time consuming, but as a confirmation of a community placement taken together with the FHSA registration area, it is a useful method. However, unless the address is recognized one cannot be sure that a particular name in an area is the correct person.

Not useful

1. Office for National Statistics data on hospitalization periods over two years have very poor sensitivity, as this study has shown.
2. Offending records provide details of dates of hospital order and prison disposals but do not specify the actual prison. Presumably prison names could be obtained by telephoning the appropriate court, although this was not attempted in this study.

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Appendix

Details of convictions post discharge that would have been missed with exclusive reliance on the Offenders' Index

Traced offenders' index	Additional information obtained from	Convictions missing
1 Yes: date of birth, CRO number and early offences correct	Readmission file	Theft. CD Unlawful wounding; affray. Probation order with psychiatric treatment. Burglary. CD
2 Yes: date of birth, CRO number and early offences correct	MHU	3 × motoring offences Driving whilst disq. Probation order 3y. Deception; receiving × 2; obstructing police; assault. CD. 12m. Dishonesty; motoring offences. Prison 15 m, susp 2y. Unlawful sex; breach susp sentence; driving. Prison 2y. Manslaughter – dim res. Life.
3 Yes: CRO number and early offences correct, minor difference in dob	MHU	GBH Prison. AOABH Prison susp 2y. Common assault/breach. CD. Prison 6m susp 2y; prison 1m susp 2y
4 Yes: date of birth, CRO number and early offences correct	MHU	Theft. Theft, false fire CD. Att robbery. Prison 18 m.
5 Yes: date of birth, CRO number and early offences correct	MHU	Indecent assault, false imprisonment; imitation firearm, ABH life. Indecent assault revoked to 7.5 y.
6 Yes: date of birth, CRO number and early offences correct	MHU	GBH w/I; arson w/I rob prison 5y. Arson. Prison 4m. Arson/ manslaughter life (quashed).

Traced offenders' index	Additional information obtained from	Convictions missing
7 Yes. but blank record (s.37/41). Date of birth incorrect. CRO number not shown but one provided.	PNC	42 convictions. Burglary and theft. CD. 12m. Attempted theft. Prison 3 months. Taking motor vehicle. Prison 6 months. 24 driving related offences with prison, various fines and disq. Damage to property. Prison 4 weeks. Interfering with vehicle. Prison 8 weeks. Found on enclosed premises. Prison 16 days. Theft of vehicle. Fine. Attempt to obtain property by deception. Fine. Having article with blade. Fine. Breach of the peace. Bound over. Theft. Fine. Failure to surrender to custody × 6. Fine and CD and prison. Using threatening words. CD. 12m. Wounding. Prison 12 months. AOABH. Prison 120 days. Theft × 2. Fine. Attempt/fraud: accumulated. TDA. Fine. No insurance/ no driving licence. Fine. Burglary and theft. Prob order 6 months. Failure to surrender to bail. AD. AOABH probation order 6 months. Theft. Prison 12 months. Theft. Prison 12 months. Robbery Prison 5 years. Common assault Fine/comp. Damage to property CD 12 months.
8 Yes, but blank record (s.37/41). Date of birth correct. CRO number not shown but one provided.	PNC	Possession offensive weapon × 4 Prison/Hospital order. Possession controlled drugs. Fine.
9 Yes. but blank record (s.37). Date of birth, incorrect. CRO number not shown but one provided.	PNC	