

Recording professional activities to aid economic evaluations of health and social care services

Sarah Byford and Matthew Fiander¹

Introduction

An important component of a large number of complex health and social care services is the professional responsible for the co-ordination and/or provision of packages of care. Whilst the focus of activities and the balance between service co-ordination and provision may vary, care managers, care co-ordinators, key workers and social workers all perform similar case management roles. The services they provide are highly variable, being dependent upon the needs of each individual, which presents challenges for the accurate costing of such professionals in economic evaluation.

Various methods can be used to record the amount of time professionals spend on different activities or different clients. Record searches are a commonly used method. For example, a study of non-infant adoptions collected data for the calculation of the unit costs of the adoption process from social services department case files (Selwyn et al., 2004). Professional self-report is also common, with professionals being asked to retrospectively estimate the amount of time they spend on a particular client, client group or activity over a specified period of time. One example is the Volunteer Activity Form used in an evaluation of Home-Start, a service which offers volunteer support to families under stress where there is at least one child under 5 years of age (McAuley et al., 2004). The activity form recorded information on the type, frequency and duration of support offered to families, and the volunteers were asked to complete the form at the end of the first, sixth and twelfth month of contact with a family, covering retrospective one-month periods. Alternatively, questionnaires can be given to service users. A good example is a study by Beecham and colleagues (2007) which used a family questionnaire to collect information on face-to-face and telephone contact with a key worker service for disabled children and their families. The questionnaire was completed over a retrospective three-month period. Expert opinion is a further possibility. One recent study used expert focus groups to estimate the amount of time social workers spend on various activities related to the support of children in Local Authority care (Ward et al., 2004).

¹ Centre for the Economics of Mental Health, Institute of Psychiatry, London.

These methods of data collection involve varying degrees of burden (respondent and research burden) and accuracy. Record searches remove respondent burden but add to the research burden of a study; they do not rely on retrospective recall but can be hindered by illegible entries, missing records and inaccurate or incomplete reporting (Mauskopf et al., 1996). Retrospective questionnaires, whether completed by service users or professionals, reduce the burden on researchers (and thus the financial burden of the research) but increase the respondent burden and are reliant on accurate recall (Johnston et al., 1999). Expert opinion and focus groups reduce the research and respondent burden but are based on estimates and opinions rather than concrete evidence.

The main alternative is prospective recording by professionals. However, concerns are often raised about the additional burden this may place on the staff involved. This paper describes a systematic and prospective method of collecting detailed information on professional input into the care of people with severe mental health problems, which was designed to be brief and simple to complete.

The study

The UK700 Case Management Trial evaluated the effectiveness and cost-effectiveness of intensive case-management (case load 10 to 15 patients per case manager) compared to standard case-management (case load 30 to 35 patients per case manager), for patients age 18-65 years with severe psychotic illness (Creed et al., 1999; Burns et al., 1999). This randomised, controlled trial took place in four centres in the UK and recruited 708 patients who were each followed-up for two years. Detailed information on the activities of the mental health professionals involved in the care of study participants was important for two main reasons: to evaluate the process of care (Burns et al., 2000) and to provide information on the time case managers spent with each participant for costing purposes (Byford et al., 2000). Given the scale of the trial, and the importance of the data, record searches and retrospective estimations were not feasible options. Instead, a pragmatic and brief method of prospectively recording the quantity and content of case management activities was developed — the event record.

The event record

The UK700 event record was based on an activity collection form used in a previous study of case management services (Ford et al., 1993), but was substantially modified. The final version is shown in Figures 1 (front) and 2 (back).

To enhance portability and likelihood of completion, the event record was A5 in size and designed to fit in a standard filofax, making it easy to carry around and to complete on the move. It contained only 11 items, including name of patient, name of case manager, date of event, whether or not the event took place out of hours ('Out of hours'), whether the event was a scheduled care plan intervention or an unscheduled crisis intervention ('Care plan or crisis') and whether or not a depot was administered ('Depot administered'). Other variables included the following:

- *Location of the activity*

The three 'place' categories were: 1) Service setting — any health or social service setting whether statutory or voluntary (e.g. ward, out-patients department, GP surgery, community group, day centre, drop-in facility); 2) Patient's home or neighbourhood — at or inside the patient's home or accommodation, within the patient's block (if flats) or on

Figure 1 Event record form (front and back)

EVENT RECORD	
Name of patient
Completed by
Date of event
Time spent (excluding travel) in minutes	<input type="text"/> <input type="text"/> <input type="text"/>
Travelling time <u>to visit only</u> in minutes	<input type="text"/> <input type="text"/> <input type="text"/>
PLACE <input type="checkbox"/>	EVENT TYPE <input type="checkbox"/>
OUT OF HOURS <input type="checkbox"/>	CARE PLAN OR CRISIS <input type="checkbox"/>
DEPOT ADMINISTERED <input type="checkbox"/>	
Housing <input type="checkbox"/>	Carers and significant others <input type="checkbox"/>
Occupation and leisure <input type="checkbox"/>	Engagement <input type="checkbox"/>
Finance <input type="checkbox"/>	Physical health <input type="checkbox"/>
Daily living skills <input type="checkbox"/>	Specific mental health intervention/assessment <input type="checkbox"/>
Criminal justice system <input type="checkbox"/>	Medication <input type="checkbox"/>
	Case conference <input type="checkbox"/>
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SCORING	
PLACE	
1 = Service setting (team base, OP, etc.)	
2 = Client's home or neighbourhood	
3 = Other	
EVENT TYPE	
1 = Direct contact with client	
2 = Indirect contact with client (e.g. telephone)	
3 = Direct or indirect contact with carer	
4 = Contact with other agencies/care co-ordination	
5 = Contact not made	
OUT OF HOURS	
1 = YES	
0 = NO	
CARE PLAN OR CRISIS	
1 = Event is a scheduled care plan intervention	
2 = Event is unscheduled crisis intervention	
DEPOT ADMINISTERED	
1 = YES	
2 = NO	
FOCUS OF EVENT	
1 = Primary focus i.e. <u>The</u> major concern	
2 = Secondary focus i.e. Up to <u>one</u> substantial secondary concern	
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the street or estate outside; and 3) Other — anywhere not covered above, e.g. a cafe, leisure centre, shopping centre, prison, police station, etc.

- *Event type*

Five categories of activities were recorded: 1) Direct (face-to-face) contact with the patient of any duration; 2) Indirect (telephone) contact with the patient if contact exceeded 15 minutes; 3) Direct and indirect contact with a patient's carer — face-to-face or telephone contact exceeding 15 minutes; 4) Contact with other agencies and co-ordination of care — face-to-face contact, telephone contact, meetings, reviews and liaison with staff of other agencies concerning the patient were included if they exceeded 15 minutes; and 5) Attempted face-to-face contact — an unsuccessful attempt, of any duration, to make face-to-face contact with the patient.

All direct and attempted face-to-face contact with patients' was recorded, regardless of duration. Asking staff to account for all their working hours would not have been

acceptable to staff and would have reduced the reliability of the data. It was therefore decided that activities categorised as 'telephone contact', 'carer contact' or 'care co-ordination' should only be recorded when it exceeded 15 minutes.

- *Focus of event*

A number of categories for describing the focus of case management activities were generated using a three round, conventional Delphi approach (Linstone & Turoff, 1975). Eight intensive case managers participated in the process which aimed to adequately and accurately describe their clinical work practices. Full details are provided in Fiander & Burns (2000). Eleven categories were generated: housing, finance, daily living skills, criminal justice system, occupation and leisure, engagement, physical health, caregivers and significant others, specific mental health intervention or assessment, medication, and case conference. Each category was broken down into relevant sub-categories and accompanied by explanatory notes. Staff were required to identify the main purpose of the event, referred to as its 'focus'. They were also permitted to identify one or more secondary focuses but this was not a requirement.

- *Time spent and travelling time*

Time spent on the activity and travel time (if applicable) were recorded separately on the event record and formed the basis of the costing exercise. Time was recorded to the nearest five minutes.

Methods used to maximise successful completion of event records

All staff were trained in the use of the event records, and provided with detailed written guidelines. They met frequently with MF to solve problems and monitor performance. Event record forms were distributed to team bases and a supply of event record forms placed in a plastic folder in each of the study patients' clinical notes. A collection point was established in each team base from which completed forms were collected at least monthly. The data were entered into SPSS Data Entry II, usually within a month of collection, and omissions and obvious errors investigated in writing at this time. The completeness of the event record data was verified by audits of the clinical and social work notes of all study participants. Audits took place at approximately yearly intervals to identify direct and attempted face-to-face patient contacts not recorded on event records. Staff were sent lists of missing data and asked to complete an event record for each missing event.

Data cleaning was thorough, with each variable being subjected to frequency tests and any incorrect, missing or unusual entries investigated, first with reference to the paper event record and where necessary by referring to the staff member who had completed the record. Once data cleaning had been completed, any remaining missing data for the variables based on continuous data (i.e. time) were imputed from the average for that type of event performed with a particular patient or, where this was impossible (e.g. because the patient received no other care activity of that type), from the average for that type of event performed with all patients in the patient's treatment group. The time was rounded to the nearest five minutes according to the data-recording protocol. Although missing categorical data could not be imputed its incidence was low.

Costing of case management activities

All contacts and attempts at contact with trial participants (Event types 1 to 5) were included in the economic evaluation. For each case manager, a cost per minute was

calculated from the mid-point of the relevant salary scale (including employers national insurance and superannuation contributions, London weighting where appropriate and overhead costs) and applied to the total number of minutes (including travel time) spent on activities relating to each individual trial participant, as recorded on the event records.

To take into consideration time spent on non-patient specific activities, such as supervision and training, case manager costs were inflated using estimates for non-event to event recorded time based on time diary exercises, audits of event recording activity and published inflation ratios for similar professionals. For more detailed information on the economic methods of the UK700 trial, see Byford et al. (2000).

Limitations

No method of collecting activity data, particularly on the scale of the UK700 trial, is without its limitations. Event recording is undoubtedly time consuming and requires the support and commitment of the staff involved. Staff must be trained, the event recording process must be monitored, and auditing to check on accuracy is recommended.

The event recording method described here did not include all activity relating to trial participants, excluding brief telephone contacts, carer contacts and care co-ordination tasks (of less than 15 minutes duration). This decision was taken to avoid over-burdening the case managers and to ensure they did not feel that they had to account for every minute of their working day, which could have reduced their willingness to complete the event records.

Travel time was only recorded one-way. Whilst this may have underestimated the total time involved in a proportion of activities, this method was chosen to avoid double-counting in situations where a case manager travels from one activity to another. Requiring respondents to provide travel time estimates for two-way journeys in some situations (i.e. where they travel to the activity and then straight back to their community base) and one-way journeys in others (i.e. where they travel to see one client and then travel directly to see another client), would have greatly increased the complexity of the reporting and the likelihood of error.

Finally, it is possible that the level of recording in the UK700 trial varied between the intensive and standard case managers. Intensive staff may have identified more with the study and may have felt the need to ensure that their difference from standard practice was demonstrated. It is equally possible, however, that standard case managers may have felt the need to demonstrate the quality of their work, in the face of 'competition' from intensive staff.

Conclusion

Prospective recording of the activities of case managers in the UK700 trial proved feasible, despite the large numbers of staff and patients involved, the geographical distribution of the four centres and the two-year follow-up period. The level of detail achieved with event recording would not have been possible using retrospective case note searches or staff self-report. Whilst the 'focus of event' category used in the process evaluation may not be applicable to all health and social care professionals, the categories of particular interest to the economic evaluation could easily be replicated for use in future studies.

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