

The feasibility of care mapping to improve care for physically ill older people in hospital

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Abstract

Background: providing dignity in health care for older people is an important policy and clinical objective but requires implementation using reliable methods. Our objective was to investigate the feasibility of a person-centred observational practice development method known as dementia care mapping (DCM) in hospital wards for physically ill older people, including those who do not have dementia.

Methods: DCM (version 8) was conducted in three elderly care general hospital wards and in two community hospitals. Summary statistics were calculated from the DCM data to assess feasibility and adequacy of the DCM coding system.

Results: fifty-eight participants were mapped for 84 observation hours/414 patient hours (4,968 5-min time frames). There was a relatively high proportion (942/2,376; 40% time frames) of missing data in the community hospitals due to time patients spent away from the area under observation. All 3,624 of the time frames with patient-observed data could be coded utilising the existing Behaviour Category and Mood/Engagement Value coding frameworks.

Discussion: the results from this preliminary study are promising and indicate that DCM is potentially feasible in elderly care general hospital wards, without the need for major modification.

Keywords: elderly, personhood, general wards, person-centred care, DCM

Background

The NHS is committed to ensuring patients receive high-quality hospital care in a dignified manner [1–5]. Several policy initiatives have related to this objective [6–10] but it has proved difficult to make a real impact on the hospital care experience for older people [11]. Reliable methods of quantifying and developing dignity in hospital wards are required. Person-centred care has been identified as a key factor for upholding dignity in health and social care [6], and Dementia Care Mapping (DCM) is a method that has been specifically developed to improve person-centred care [12, 13]. Although other person-centred care tools exist [14–16], few are as well developed or as widely used as DCM.

Dementia Care Mapping

DCM is a complex care improvement process whereby 5–8 individuals within a care setting are continuously observed over 4–6 h by a trained DCM practitioner (a

mapper). At 5-min intervals, a record is made of what has happened to each individual being observed using two coding frameworks. *Behaviour Category Codes* capture the type of activity engaged in, and *Mood/Engagement Values* are a judgement of the state of affect and engagement experienced using a six-point scale ranging from +5 (very positive mood or deep engagement) to –5 (very negative mood) (see Appendix 1 in the supplementary data on the journal's website <http://www.ageing.oxfordjournals.org>). Mood/Engagement Values are averaged over the mapping period to provide a summary Well/Ill-being score for an individual or group. A detailed set of operational coding rules informs decision-making. For example, if more than one activity is observed in a 5-min time frame, the Behaviour Category Codes that offer the highest potential for positive mood and engagement take precedence. In addition to the two main coding frames where recordings are made every 5 min, staff interactions with participants that either enhance personhood [*Personal Enhancers (PEs)*] or detract from personhood [*Personal Detractions (PDs)*] are recorded as

they occur (see Appendix 1 in the supplementary data on the journal's website <http://www.ageing.oxfordjournals.org>).

Observations are undertaken, with the knowledge of patients, in communal places. The observation style is unobtrusive, and if it is seen to be increasing feelings of ill-being in patients, then the mapping is stopped. Observations are analysed and summarised, then fed back to the care team, and action plans for change can be developed at an individual, group or organisational level. After a suitable time period, the care setting is mapped again to evaluate whether the action arising from the initial evaluation has had any impact on the lived experience of care. A cycle of mapping, action planning and evaluation is established.

DCM has face validity [17–19], and there is some evidence to support its efficacy in long-term care [17, 20]. The latest version (DCM8) has been validated in psychiatric services [21]. Using the DCM method to develop person-centred care practice could apply equally well to people who have health conditions other than dementia [22], including older people receiving general hospital care. Systematic research is required to establish the suitability of the current care-mapping tool in general hospital wards, as a precursor to evaluating efficacy. This paper reports on the first phase of a research project where our objective was to investigate the feasibility of DCM8 in hospital wards for physically ill older people.

Methods

Setting and participants

Three elderly care general hospital wards (26–33 beds), and two community hospitals (18 beds each) participated. Mapping took place in 10 general hospital ward bays (4–8 beds each), and in the community hospital day areas.

All patients in the wards being observed were considered for study inclusion. Patients in single rooms, receiving palliative care, or with discharge planned within 24 h were excluded. Written consent was obtained from the patient or, where appropriate, assent from the carer. The study was funded by the NHS and approved by the local research ethics committee.

We collected baseline data on patients' age, sex, physical function (Barthel Index) [23], length of hospital stay, comorbidity (number of medications), screening for depression (Hammond Scale) [24] and whether a formal diagnosis of dementia had been recorded or signs of confusion observed.

Care mapping

Two staff workshops were held before the start of care mapping at the general hospital to explore the views of ward staff ($n = 16$) on the practicalities of the mapping process and to provide a contextual framework for the study. The staff workshops were audio-recorded and transcribed and used to compare perceived data collection and coding issues with those actually encountered during mapping.

DCM data collection took place between July 2006 and January 2007 using DCM8 guidelines [12]. A data collection

modification was made to use the Behaviour Category Code 'H' ('hidden from view') to denote when the patient was still in the ward area but receiving care privately behind curtains and unobservable. The feasibility of observing rehabilitation activities away from the ward was also investigated. Three-quarters of the mapping was undertaken by an experienced mapper, and the remaining quarter by a recently trained mapper. A concordance inter-rater reliability co-efficient of 78% was established before mapping was undertaken independently. Mapping and coding difficulties were recorded by contemporaneous field notes.

Analysis

SPSS/Excel programmes were used to produce statistical summaries of the combined mapping data. DCM feasibility was assessed by calculating the number of patients that could be mapped, proportion (%) of unobserved time frames and the proportion (%) of patients with less than 4 h observation (the minimum recommended to calculate Well/Ill-being scores). The adequacy of the DCM coding system as applied to elderly care wards was assessed by the proportion (%) of 5-min time frames that could be allocated DCM codes and the range of codes used. Contemporaneous field notes were used to describe patient observation issues and to contextualise missing data and practical problems with coding.

Results

Patients

One hundred and thirty-two patients were considered for inclusion, of whom 99 were eligible, and 63 were recruited. Fifty-eight participants were subsequently mapped, of whom 54 were mapped for a 6-h period. Fifteen community hospital patients were mapped for 6 h on two separate occasions because they were still in hospital during sequential mapping periods. There were, therefore, 69 patient datasets comprising 84 observation hours or 414 patient hours of mapping obtained between 08:35 and 19:50 over 21 days. Patient characteristics are shown in Table 1.

The feasibility of care mapping

Missing data

There were 4,968 5-min time frames observed of which 1,344 (27%) had missing data (i.e. no Behaviour Category Code or Mood/Engagement Value), the main reason for which was the absence of patients from the mapping area (798/1,344 (59%)) (Figure 1). The largest proportion of missing data was at the community hospitals: 942/2,376 (40%) time frames. In the general hospital this was lower: 402/2,592 (16%) time frames. Overall, 20 (29%) of the patients mapped had less than the 4-h observation required to calculate individual Well/Ill-being scores (community hospitals: 17/33 patient datasets; general hospital: 3/36 patient datasets).

Table 1. Patient characteristics (mapped patients only)

	Participants (<i>n</i> = 58)
Age: mean (SD)	83.2 (5.5)
Males: <i>n</i> (%)	20 (34)
Number of health problems: median (range; IQR)	5 (1–13; 3–7)
Number of daily medications: median (range; IQR)	7 ^a (2–17; 5–9)
Barthel Index score: median (range; IQR)	11 ^b (0–20; 6–14)
Diagnosis of dementia recorded: <i>n</i> (%)	12 (21)
Evidence of confusion: <i>n</i> (%)	27 (47)
Hammond scale of depression score (signs of depression ≥ 3): <i>n</i> (%)	23 ^c (40)
Length of hospital stay in days: median (range; IQR)	15 (1–238; 7–30)

SD, standard deviation; *n*, number; IQR, interquartile range.

^a Based on 49 patients;

^b based on 50 patients;

^c based on 50 patients.

Allocation of codes

All 3,624 of the time frames with patient-observed data could be coded, although 56 (1%) of time frames could not be ascribed a Mood/Engagement Value in accordance with guidance because bedside care was hidden from view by curtains (Figure 1). This had been identified as a potential issue in the staff workshops and a consensus was reached that incidences of care delivered behind curtains or in the toilet could be coded if they were clearly heard. This was perceived to be useful because elements of good/poor interaction often occur that could be useful for staff feedback. For example:

Patrick: 18:25—Can hear staff shouting at Patrick in the toilet ‘Stop that, Patrick’ ‘Take your shirt off’ and telling him off a couple of times—coded as Accusation (a Personal Detraction).

Observing therapy input

Rehabilitation with therapy staff often took place away from the mapped area but it proved possible to map these activities for nine patients and two physiotherapists, provided a second mapper was available to continue observing the other patients.

Adequacy of the coding framework

Behaviour Category Codes

Twenty-two of the 23 Behaviour Category Codes were observed in the wards, but six categories (interacting with others; eating or drinking; sleeping or dozing; being passively engaged; engaging in leisure, fun and recreation; receiving practical, physical or personal care) accounted for 74% of the time frames (Table 2). Some activities were observed that are not described in the DCM8 manual, for example, getting into bed or needing to inhale oxygen. These could nevertheless be coded using existing Behaviour Category Codes such as self care. Only two time frames (0.06%) contained patient activity (pressing the call-bell and moving

and dialling a telephone) that could not be ascribed to an existing category.

The Behaviour Category Code receiving practical, physical or personal care was used for 277 (8%) of time frames. Concerns about this code were raised in the workshops because of the diversity of activities that might need to be subsumed within it. This proved to be the case with the inclusion of rehabilitation, ensuring safety, physical examination, medical routines (e.g. taking blood pressure) as well as more direct personal care. Moreover, sometimes several physical activities were observed within a single time frame, for example:

Lily: 16:51—Adjusting Lily’s hearing aid, then positioned in chair, then planning to take blood.

As DCM aims to view care from the perspective of the patient, and the opportunities for promoting person-centred care appeared similar across the range of observed physical or technical activities, it was decided there was no advantage in increasing complexity by modifying or subdividing this Behaviour Category Code.

Mood/Engagement Values

About half the time frames were spent by patients in neutral mood (Mood/Engagement Value +1) and a third in considerable positive mood/engagement (Mood/Engagement Value +3) (Table 2). The mean (range) Well/Ill-being score was +1.3 (–1.0 to +3.3).

Many of the patients were physically unwell, for example, in pain, vomiting, coughing or breathless, and this obviously affected their observed mood/engagement state which could, however, be readily coded in accordance with DCM8 guidance. However, on other occasions, patients displayed positive mood/engagement whilst clearly also being in some physical pain or discomfort, for example:

Alice: 10:00—(During a therapy session, trying to move independently) Getting painful for her, but not negative mood . . . chatted . . . joked.

In these circumstances it was decided the observed positive affect should take precedence over the evidence of discomfort, in this example, a value of +3 (positive Mood/Engagement) was recorded.

Personal Enhancers and Personal Detractions

In all, there were 237 PEs and 69 PDs recorded in relation to staff-patient interactions (Table 2). One hundred and fourteen (48%) PEs were staff actions which supported what is defined in DCM as participants’ need for ‘occupation’ (such as, agreeing with patients what will happen next, or encouraging them to eat independently). Fifty-five (23%) PEs related to enhancing patient ‘comfort’. The most frequently observed types of PDs were those which undermined ‘occupation’ (19; 28%), and acts which ‘excluded’ patients socially (20; 29%). In accordance with the guidance [12],

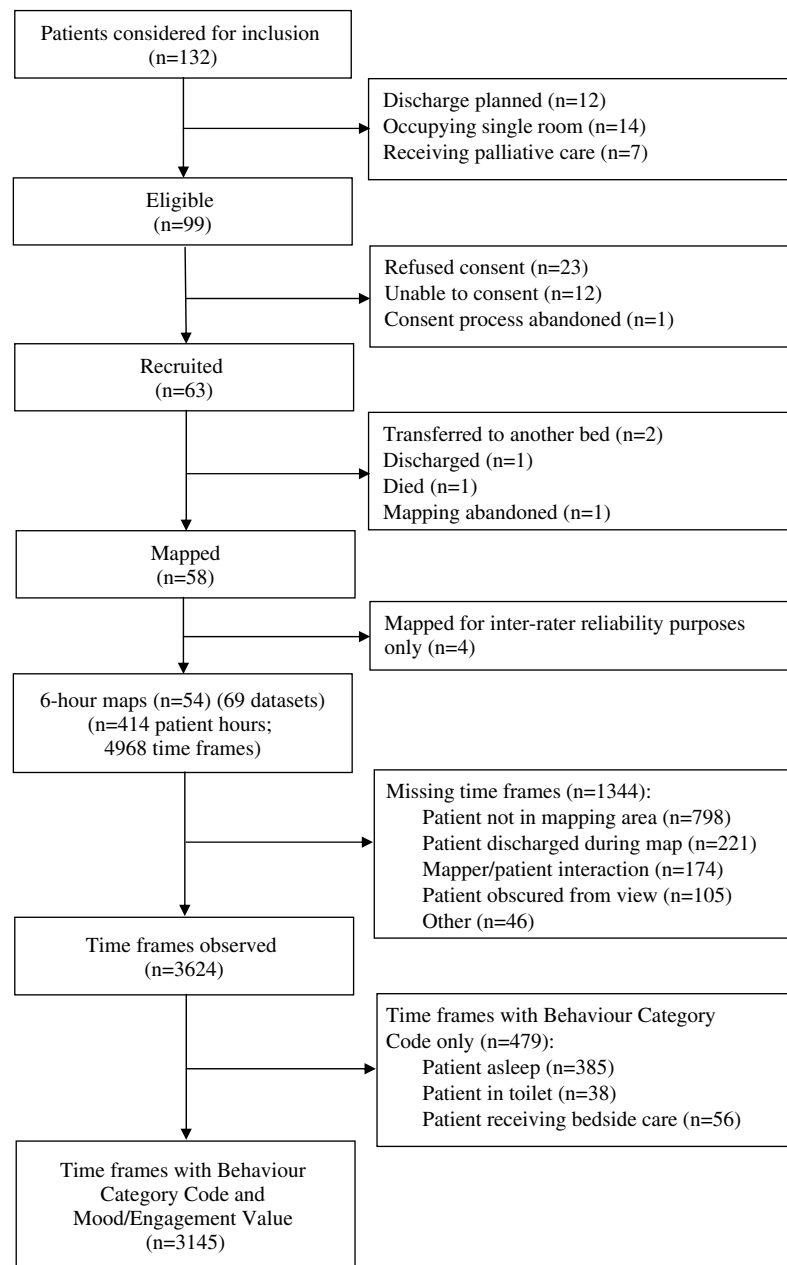


Figure 1. Study inclusion flow chart.

the PE and PD code types were allocated after mapping, sometimes with difficulty, because staff-patient interactions could be coded under more than one type.

Discussion

This is the first study to explore systematically the feasibility of DCM8 in elderly care wards. The participant eligibility criteria were purposefully broad, and therefore, the majority (three-quarters) of patients were eligible to be included in the DCM observations, of whom 66 consented to research participation and 58 were mapped.

There were no major data collection issues encountered other than the relatively high proportion (40%) of missing

data in the community hospitals due to patients spending less time in the day areas where the mapping took place. This implies that DCM may only be practical in wards with multi-occupancy bays and is probably inappropriate for wards with many single rooms if patients spend little time in communal areas. It was feasible to observe some rehabilitation activities that took place for patients away from the main mapping area, when mapping resources allowed. Bedside activities that were hidden from view (such as personal care) might also be important from the perspective of the patient. However, only a small proportion (2%) of activities in the mapping area was completely unobservable. The overall proportion of missing data (27%) is comparable to that reported in other care settings in which DCM has been successfully used to improve

Table 2. Details of Behaviour Category codes, Mood and Engagement values, and Personal Enhancers and Personal Detractions

Behaviour Category codes Categories (<i>n</i> = 23)	Time frames	
	<i>n</i>	(%)
Interacting with others verbally or otherwise, with no obvious accompanying activity	707	20
Eating or drinking	642	18
Sleeping or dozing	392	11
Being engaged but passively (watching)	365	10
Leisure, fun and recreational activities	285	8
Receiving practical, physical or personal care	277	8
Self care	258	7
Being disengaged, withdrawn	213	6
Attempting to communicate without receiving a response	142	4
Episodes relating to urinary excretion or bowel movement	100	3
Walking, standing or moving independently	92	3
Other	151	4
Total	3,624	100
Mood/Engagement values		
Values	<i>n</i>	(%)
−5	1	0
−3	60	2
−1	495	16
+1	1,560	50
+3	1,002	32
+5	27	1
Total	3,145	100
Group Well/Ill-being scores: mean (range)	+1.3	(−1.0 to +3.3)
Personal Enhancers (PEs) and Personal Detractions (PDs)		
Personal Enhancers	<i>n</i>	(%)
Occupation	114	48
Comfort	55	23
Inclusion	31	13
Attachment	24	10
Identity	13	5
Total	237	100
Personal Detractions	<i>n</i>	(%)
Inclusion	20	29
Occupation	19	28
Comfort	14	20
Attachment	13	19
Identity	3	4
Total	69	100

care standards for patients or to survey the care provided (17, 36 and 21% missing data, respectively) [17, 21, 25].

DCM was developed for improving person-centred care for people with dementia. This study investigated the extent to which the existing coding framework might apply to physically ill patients in elderly care wards. The Behaviour Category Codes and Mood/Engagement frameworks were largely adequate and could be readily applied to patients in general elderly care wards. Six Behaviour Category Codes accounted for 74% of the observed 5-min time frames and the four most frequently occurring categories (interacting with others; eating or drinking; sleeping or

dozing; passively watching) were similar to those previously observed in non-acute-based settings [21, 25]. The range of activities observed has demonstrated potential for person-centred care improvement with the implication that DCM might be similarly useful in improving ward practices. About half the combined study group time frames were recorded with Mood/Engagement Values of +1 (neutral mood/intermittent engagement), but with a relatively high proportion (32%) with a +3 value (considerable positive mood/engagement) compared to previous studies of people with dementia [21, 25]. Similar proportions of PEs were reported in our study compared to elsewhere [21].

The description of the staff–patient interactions, and the allocation of PEs/PDs is based on Kitwood's [26] theoretical perspective of psychological needs of people with dementia. He specified these as the need for comfort, occupation, inclusion, identity and attachment. The categories of PEs most frequently observed were those of 'occupation' and 'comfort', and this was reassuring as these categories have much potential for stimulating person-centred care in physically ill people. Applying the PE/PD codes required considerable care. However, they are important as a basis on which to reflect on aspects of care with staff using the rich vocabulary of DCM8 [21], and their measurement (rather than individual Well/Ill-being scores and activity types) has the potential to be a sensitive indicator of changes in person-centred care in hospital wards that have a high throughput of patients.

This study did not assess the practical and cultural issues that might be encountered during the introduction and implementation of DCM as a ward team care improvement process. Also, further work would be required to assess the applicability of DCM to other wards, particularly surgical wards. However, the results from this preliminary study are promising and indicate that the DCM8 system is potentially feasible for use in elderly care hospital wards, particularly in general hospitals, without the need for major modifications to the coding frameworks or method of undertaking data collection. Minor modification to the DCM8 manual would be helpful with the provision of physical illness-based examples and the clarification of identified ambiguities to facilitate consistency in use. This study contributes positively to the DCM literature [19] and provides initial argument for investigating the effectiveness and cost-effectiveness of the DCM approach, and the extent to which it is associated with improvements in patient person-centred care and dignity.

Key points

- Methods to develop and quantify dignified hospital care for older people are required.
- Care mapping is a well-developed observational method designed to improve person-centred care for people who have dementia.

- The feasibility of care-mapping physically unwell people in elderly care wards, including those who do not have dementia, was investigated.
- The results are promising and provide initial argument for testing the efficacy of the care-mapping approach in improving patient person-centred care and dignity in general hospital wards.

Conflicts of interest

There are no conflicts of interest to declare.

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Additional Note: Patients have been allocated pseudonyms in the main text.

Supplementary data

Supplementary data for this article are available online at <http://ageing.oxfordjournals.org>.

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