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Computer templates in chronic disease management: ethnographic case study in general practice

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Abstract

Objective

To investigate how electronic templates shape, enable and constrain consultations about chronic disease.

Design

Ethnographic case study, combining fieldnotes, video-recording, screen capture with micro-analysis of talk, body language and data entry – an approach called linguistic ethnography.

Setting

Two general practices in England.

Participants and methods

Ethnographic observation of administrative areas and 36 nurse-led consultations. 24 consultations directly observed; 12 consultations video-recorded, alongside computer screen capture. Consultations transcribed using conversation analysis conventions, with notes on body language and the electronic record. Analysis involved repeated rounds of viewing video, annotating fieldnotes, transcription, and micro-analysis, to identify themes. Data interpreted using discourse analysis, with attention to socio-technical theory.

Results

Consultations centred explicitly or implicitly on evidence-based protocols inscribed in templates. Templates did not simply identify tasks for completion, but contributed to defining what chronic diseases were, how care was delivered and what it meant to be a patient or professional in this context. Patients' stories morphed into data bytes; the particular became generalised; the complex was made discrete, simple and manageable; and uncertainty became categorised and contained. Many consultations resembled bureaucratic encounters, primarily oriented to completing data fields. We identified a tension, sharpened by the template, between different framings of the patient – as 'individual' or as 'one of a population'. Some clinicians overcame this tension, responding creatively to prompts within a dialogue constructed around the patient's narrative.

Conclusions

Despite their widespread implementation, little previous research has examined how templates are actually used in practice. Templates do not simply document the tasks of

chronic disease management but profoundly change the nature of this work. Designed to assure standards of 'quality' care they contribute to bureaucratisation of care and may marginalise aspects of quality care which lie beyond their focus. Creative work is required to avoid privileging 'institution-centred' care over patient-centred care.

Summary

Article Focus

- How do computer templates for chronic disease management shape, enable and constrain clinical consultations?
- How does the tension between different ways of framing the patient (patient as 'individual'; patient as 'one of a population') play out as clinicians use templates to support chronic disease management and meet institutional targets?

Key Messages

- Electronic templates introduced to assure quality of care in chronic disease management may privilege the needs of the institution for data over the particular needs of individual patients
- Some but not all clinicians sustain a patient-centred approach through creative and flexible use of the template, while maintaining attention to the patient's narrative
- Linguistic ethnography offers potential for studying complex socio-technical practices in healthcare

Strengths and limitations of this study

- Explores the *actual* social practices of working with templates at a level of detail which more conventional qualitative methods (e.g. interviews) cannot reach
- Adopts a novel methodological approach embracing the complexities of interaction between humans and technologies, whilst retaining a broad appreciation of institutional context
- Prompts new ways of conceptualising what is accomplished when templates are used
- We prioritised depth of analysis over breadth. However the two general practices we studied may not be typical of all practices in how they approach chronic disease management or technology use.

Introduction

The electronic patient record underpins one of the cornerstones of chronic disease management, the "three Rs" of registration, recall and regular review.[1] Information technology is seen as key to a high-performing chronic care system.[2] It facilitates effective population management (e.g. disease registration and population risk stratification), supports communication between professionals, and provides data to inform the continuous quality improvement cycle.[2] Over 2000 primary studies, mostly randomised trials, have measured the impact of the electronic record on different aspects of care[3] but many had methodological flaws and questions remain about the circumstances in which the benefits of these technologies outweigh their limitations.[4] Nevertheless it is widely assumed that electronic records and related technologies will result in better care for patients and efficiency savings for clinicians.[5]

In many chronic diseases, clinical trials and cohort studies have produced robust evidence-based guidance on what works – and what may happen if particular conditions or risk factors go untreated.[6] In the UK, best practice in prevention, surveillance and therapy is summarised in patient pathways, guidelines and decision support algorithms which are routinely available on the clinician's desktop computer as pull-down menus, pop-up prompts and templates (electronic forms).[7] These tools support structured management of individual patients ('primary use' of data) and also produce aggregated data on costs and/or organisational performance ('secondary use').[8] The latter may be linked to incentives, for example the UK Quality and Outcomes Framework (QOF).[9]

In the UK, six out of ten adults report having an incurable long-term condition; it is not unusual for an 80-year old to have five or six such conditions.[7;10] Concerns are emerging about fragmentation of care,[11;12] and the dangers of the 'vertical' disease-specific focus implied in translational research and in clinical guidelines.[13] What constitutes 'best care' for patients with multimorbidity is poorly understood [14] and has been identified as a priority area for further research.[15]

It is often said that "chronic diseases require a complex response",[10] and that structured care, for example by using checklists or templates, is a mark of quality in chronic disease management. Templates have also been identified as a way of streamlining consultations and establishing routines.[16] Templates are formal tools which enable care to be undertaken systematically and which open up scope for manipulating, aggregating, transporting and sharing data. Although structured care and attempts to standardise clinical terminology pre-

dated the introduction of electronic records, these technologies introduce new possibilities for such care. For example, a quick search can identify not only the proportion of diabetic patients with an HbA1c below an institutionally defined target, but also which *particular* individuals have been given smoking advice (or not) within a defined time period (or at least the extent to which such activity has been documented). 'Off target' individuals can be identified quickly and in an automated way, triggering responses designed to 'chase' patients, and constructing a new category of 'patient' defined by the practice's procedures – that is, someone whose data fields are incomplete or whose values are out of range.[17;18]

From the patient's perspective, chronic illness is a unique personal experience which may involve pain, disability, loss of status, reduced income and a heroic struggle to retain dignity, rebuild identity and live a moral life in the face of adversity.[19-22] The consultation is an opportunity for the patient to tell their story to an involved listener[23] – who in turn shapes the telling and is witness to their suffering.[24;25] Constructing a narrative in the context of an ongoing therapeutic relationship is one way in which a patient makes sense of their illness.[26;27] Conceptualised this way, the consultation focuses on a patient's specific, particular experience – the 'here and now'. As Balint emphasised, continuity of care in the general practice relationship provides repeated opportunities for recounting the illness narrative, helping to build the therapeutic relationship.[28]

The rationalisation of chronic disease management, guided by a limited set of coded entries on the electronic record exposes what some authors have termed a rationality-reality gap[29] or fatal paradox[30] between the inherently messy and unique nature of healthcare work and the standardisation of this work. Central to this paradox is a tension between different ways of framing the patient – the patient as an individual whose illness narrative is unique, and the patient as one of a population, all of whom need standardised management of the 'same' disease.[31]

In this study, we sought to address two questions. First, how do computer templates for chronic disease management shape, enable and constrain clinical consultations? Second, how does the tension between different ways of framing the patient (patient as 'individual'; patient as 'one of a population') play out as clinicians draw on these templates to support such consultations and meet institutional targets? We adopted a socio-technical approach, meaning we focussed on the dynamic, contingent interaction between humans and technologies rather than assuming technologies are 'causal' of specific effects.[32-34]

Methods

The study was part of the Healthcare Electronic Records in Organisations (HERO) study, funded by the UK Medical Research Council under a 'new methodologies' call which highlighted the limitations of experimental studies for certain research questions. Details of governance and ethical approval for the study have been published[35] and the methods used in this part of the HERO study have been described in detail elsewhere and summarised briefly here.[31]

DS (a general practitioner) conducted 8 months (187 hours) of ethnographic observation in two UK general practices, in clinical and administrative areas. The practices served mixed populations of approximately 11800 and 12600 patients respectively, both used the EMIS-LV clinical system (the most widely used system in the UK) and both practices scored highly in the Quality and Outcomes Framework.

Observations began in what the sociologist Erving Goffman's called the 'backstage'[36] regions of practice (that is, areas which are not usually 'patient facing' e.g. administrative offices), shadowing individuals as they worked. The researcher made detailed fieldnotes and elicited narratives from staff, seeking to identify "*What is being accomplished here?*" Documents (e.g. recall letters, patient leaflets) relevant to chronic disease management were collected. This naturalistic approach seeks to generate in-depth knowledge about how and why people behave as they do in particular settings, whilst minimising the impact of the researcher.[37] Observation then moved to the 'front stage' – that is, the main focus of clinician-patient communication – the clinical consultation.[36] 24 chronic disease management consultations were observed, then 12 were video-recorded, with parallel screen capture of the computer display. The two video streams were merged and synchronised using video editing software (Adobe® Premier Elements 4) allowing us to observe the 'electronic record-in-use'. Recording began when the record was accessed (often several minutes before the patient entered the room).

Our work is a contribution to an emerging field called 'linguistic ethnography' bringing together a focus on language – in this case a microanalysis of the unfolding consultation – with ethnographic appreciation of the wider institutional context.[38] It is underpinned by a social constructionist perspective, that is to say language (which incorporates actions as well as words) does not just reflect or express intentions or decisions (the *representational* role of

language) but *makes* them (the *constitutive* role of language) – talk *is* work.[39] Our frame of reference is interpretivist; we seek to explore the meaning-making of our research participants as they engage in the actual practices of chronic disease management.

Our iterative approach to data transcription, annotation and analysis is shown in Figure 1. Fieldnotes were annotated, and videos viewed multiple times. Transcription incorporated Jefferson conventions for the spoken word (as in conversation analysis – see Appendix),[40] to which we added a simple horizontal arrow (→ or ↔) to indicate direction of gaze, notes on bodily conduct, and notes on the electronic record, using time as an anchor.[41] We mapped consultations and conducted a detailed micro-analysis of the moment-by-moment unfolding of the interactions. This included paying attention to the *material* features of the EPR (e.g. screen, keyboard) and the *textual* features (displayed medical information, prompts, alerts, fields for completion). We identified *focal* themes relevant to the professional domain (such as agenda setting) and *analytic* themes (from linguistics and sociology) such as Goffman's notion of 'involvement'.[39] Goffman defines involvement as sustaining "*cognitive and affective engrossment*" in an activity, or the "*mobilization of one's psychobiolological resources*" (page 36).[23]

[FIGURE 1 ABOUT HERE]

Results

The dataset comprised over 400 pages of ethnographic fieldnotes (of which around 15% related directly to chronic disease management) and 12 video-recordings with screen capture (of a total of 54 recordings incorporating all aspects of general practice). Below, we illustrate our findings with selected data extracts and accompanying analysis, drawn from a variety of sources including ethnographic fieldnotes, transcripts and practice documents.

The electronic record shapes how disease is defined

In both practices, chronic disease management was organised so that each of a patient's chronic diseases resulted in a different occasion for care, often with a different nurse using a different template. This arrangement assumed that patients (and nurses) could distinguish features of one chronic disease from another in the face of multiple morbidities. A common way for the nurse to frame the purpose and scope of the consultation was to use statements such as "*how have things been from the diabetes point of view?*", or more simply "*so…asthma review*". To use Goodwin's terminology, these questions do the work of establishing what is 'figure' (relevant, salient) and what is 'ground' (less relevant to the

enquiry).[42] Only occasionally was this separation of the patient into different chronic diseases identified as potentially problematic. An example is shown in Box 1.

[INSERT BOX 1 ABOUT HERE]

The nurse's statement (Box 1) "*I know you have a lot of other things going on but we've called you in to look at your heart"* performs two contrasting functions. On the one hand she acknowledges the difficulty inherent in separating out his 'heart' problem from his other illnesses and wider experience, making it legitimate for the patient to frame his heart problems in a broader context. However, in the next part of her utterance "*but we've called you in to look at your heart"* she exhibits what discourse analysts call a 'scale jump'.[43] She shifts quickly from an individual, unique 'here and now' framing ("*I know you have…*") to a more general institutional framing ("*we've called you in…"*). This shift indexes what is most relevant and implies certain limits around what may happen in this consultation.

The patient responds by juxtaposing his prime concerns with the 'core' concerns of this clinic. First, he rarely uses his angina tablet – but only because his mobility problems outweigh his angina. Then his concern about simvastatin moves swiftly into a complaint about his hearing aids. Neither mobility nor deafness are pursued by the nurse (or recorded on the electronic record); they are 'unremarkable' problems in this (heart) clinic. It is not simply that these concerns remain unexplored *because* there is no field dedicated to them in the template. More subtly, the practice of using a template shapes how disease and illness experience are made sense of in this environment.

The template is not merely organised around a single disease entity, but around a particular *version* of this disease. For example, diabetes in all its complexity is rationalised in terms of a series of codes e.g. weight, units of alcohol, blood pressure, lower limb pulses (present or absent) – with minimal (if any) supporting free text. The primacy of the 'measurable' was often made explicit in the consultation. For example, three minutes into a diabetes consultation, one nurse faced the computer screen as she announced "*CAN WE DO a few measurements today then just to see (0.2) uhm where everything is*". Here, not only are "*measurements*" equated with what is to be recorded on the electronic record, but it is implied that they will reveal "*everything*". Another nurse – in an asthma clinic – remarked (as a patient moved to leave) "*Hang on a minute. I need to pop these in here* (turning to computer)*…this is a whole set of measurements which tells us where your lungs are now*".

Nurses frequently engaged in the kind of activities which characterise bureaucratic encounters.[44] For example, deviations from the institutional agenda were brief; patients' talk was interpreted in direct relation to the template (an example of an institutional script, or a particular way of accounting for practices);[45] and talk was steered in particular institutionally-relevant directions. For example, in Table 1, from a diabetic clinic, the nurse anticipates an upcoming field in the template ('Depression Screening'). At the time, the Quality and Outcomes Framework required case finding for depression amongst diabetic patients, using two standard questions (*During the last month have you often been bothered by feeling down, depressed or hopeless? During the last month, have you often been bothered by having little interest or pleasure in doing things?*) Although we observed no examples of this precise wording being used, nurses often incorporated their own versions, enquiring about the 'mood' or feeling 'down'. The transcript in Table 1 shows the nurse's handling of these questions. In this extract she refers back to a brief account of whiskey drinking, which the patient had offered about seven minutes earlier:

Patient: *"well I look a- I look after myself I drink whiskey to counteract the cigarettes y'know"*
Nurse: *"do you [laugh] a whiskey a day?"*
Patient: "yeh"

[INSERT TABLE 1 ABOUT HERE]

In Table 1, the question "*Does the diabetes get you down Mr C?*" is met by a relatively long pause (in conversational terms). The patient frowns and says he gets "*bored with life*" widening the perspective towards his broader life experience. The nurse responds with a question which invites elaboration, but simultaneously refocuses on a narrow diabetes-relevant cause (*the food*). This is an awkward moment and prompts the patient to withdraw his gaze, laugh ironically, lift his jumper and say, quietly "*ah well never mind*" – communicating disappointment. A brief but poignant narrative unfolds, painting a picture of a man who has reluctantly made lifestyle changes, restricting his enjoyment of life. Being a "*drinking man*" was part of his (male) identity and conjures up a social life around alcohol ("*when I had to give up the beer I had to give up an awful lot of other things:"*). At 19.11 the nurse slows and quietens her speech, perhaps encouraging elaboration, but the narrow biomedical focus of the template items is restored from 19.13 onwards, the patient justifying his whiskey by reference to its minimal 'sugar' content, which the nurse re-contextualises into even more 'scientific' terms – 'carbohydrates' and 'volumes'.

After the patient leaves, the nurse corrects the 'alcohol' record she had entered earlier. She replaces "14U" (copied from the previous year's entry in the template) with "7U". "*A whiskey a day*?" becomes 'one unit', in what is an uncritical shift from an *unquantified* volume of whiskey to an (apparently) *quantified* one. The complex interactions between the patient's diabetes, his identity as a "*drinking man*", his losses and his "*boredom with life*" are reduced to an institutional account which reads simply (and potentially misleadingly): "Depression screen – 'Y'; Alcohol – 7 units". The construction of particular versions of diabetes contributes to constructions of particular kinds of patient, discussed further below.

The electronic record shapes how care is delivered

The electronic record shapes care delivery in several ways. It is often the prompt to care, defined by 'overdue diary entries', overdue 'medication review' dates, and audits by a tool called 'Population Manager' identifying patients with missing QOF data ("*we've called you in*" – Box 1). Patients attend regularly, or may sign disclaimers, in a process which is institution-led, rather than patient-initiated. For example, in one practice letters of invitation to the 'cardiovascular check up' were signed off by '*Practice Administration*' (not a clinician) and couched in institutional terms ("*We are now regularly reviewing all patients who have angina or who have had a heart attack. As a result of this we would like you to attend a health check…*[further details]. *There is no need to be concerned about this appointment we are just striving to maintain the standards of care we provide for you.*") The potential benefit to the patient is implicit and abstract rather than explicit and specific. For example, the justification for the check is presented only in terms of '*maintaining the standards*' or '*regular*' procedure. Despite receiving written invitations, patients often remained confused about why they had been summoned ("*What do you want to see me about then?*").

The requirement for data was – occasionally – the primary reason for the consultation. In one cardiovascular clinic a patient began by apologising for telephoning three days earlier to check whether her review was necessary. She had been reviewed in the hospital cardiology clinic the same week. The nurse responded by explaining that the practice is not always sent the information by the hospital "*and we have to have our records up to date*" – an explicit and unapologetic bureaucratisation of care. The 'need' for data seemed to outweigh any need that this particular patient felt (or necessarily had) for care.

The electronic record also shapes and constrains how the consultation unfolds moment-by-moment. Chronic disease consultations often (though not always) took a linear and standardised format. Consultations tended to start and finish with the same questions, and focus on information gathering and documentation. One consultation was interrupted on two

occasions by the patient standing up to take his leave, the nurse advising "*You can't go yet (laughing) …we're not finished yet*". It was common for nurses to face the computer screen as they explained the reason for 'calling the patient in', and the 'orderliness' of the clinic was often made explicit (e.g. "*We'll start with your blood pressure*"). Table 2 shows a detailed transcript revealing this institutional ordering in an asthma clinic.

[INSERT TABLE 2 ABOUT HERE]

In this example (Table 2), the nurse frames the consultation as an *assessment*, firstly to see how "*your asthma's doing*" (an assessment of the asthma) which she then reformulates as "*what you're doing with it when it's good, what you do with it when it's bad*" (an assessment of the patient's practices). This metaphorical separation of disease from patient was common. The use of the word "*assessment*" sets an evaluative tone and anticipates an enquiry which incorporates smoking status, inhaler technique, concordance with medication and peak flow measurement. The nurse emphasises (1:08 and 1:19) that it is *really* or *very* straightforward, and at 1:13 she counts on her fingers a three-part list, flagging the linearity of what is to follow and setting out what she and the patient should achieve. It might be interpreted as reassurance, but this is a reassurance about what he may expect of the *structure* of the clinic, not that his specific concerns will be addressed. Following this data extract, the nurse gestures towards the computer as she explains "*What I've got here is some questions that I – I need to ask you…they're fairly straightforward ones but what they tend to do with is that they will flag up whether there >actually< we have got what w- what I would call breakthrough symptoms."* The institutional imperative is clear (*"I need to ask you"*) and again she highlights the *"straightforward"* nature of the task, as she identifies the template as the origin of the questions. As the patient begins to demonstrate his inhaler use, he coughs loudly five times, beats his chest demonstrably with his hand and announces:

> Patient*: "I do suffer very badly from phlegm in the mornings…which I presume is part and parcel of having asthma."*
>
> Nurse*: "It can be (.) yeah which (0.4) anyway I – we'll talk about that in a minute…we'll do the inhaler first."*

Despite weaving his own concerns into the assessment of 'inhaler technique' and using elaborate gestures for emphasis, the nurse steers the patient's activity back to the institutional script and does not revisit the issue of the morning phlegm. She later goes on to

enquire specifically about asthma symptoms, but not until almost 16 minutes into the 19 minute consultation…when prompted by a template field reading "night symptoms".

The electronic record shapes what it means to be a patient

The template contributes to the construction of 'institutional' versions of the patient and may make it difficult for professionals to retain a perspective on the unique individual. One nurse said that the structure can make it difficult to "*take a step back*" – that some patients return annually for asthma checks even though she wonders whether they are definitely asthmatic at all ("*once they have acquired a diagnosis they just keep coming back*"). Whilst the asthma clinic may seem a reasonable setting in which to review a patient whose diagnosis is provisional or uncertain, the template does not handle such ambiguity well, and the recall procedures behind it can lead to the 'production' of consultations and the production of patienthood (the 'asthma patient'). There is considerable scope for unhelpful, potentially incorrect labelling of patients. An example is shown in the ethnographic fieldnotes in Box 2.

[INSERT BOX 2 ABOUT HERE]

Putting aside the absurdity that a 2-year-old has a Read code for "Never smoked tobacco" in his record, the example in Box 2 shows the disparity between the individual narrative that was built in the clinic and the "minimum data set" in the institutional account.[46] It also shows how the expressed ambiguity about the asthma diagnosis is wiped out (and not alluded to) in the record – numerous asthma Read codes are entered. Whilst this is sure to result in regular invitations to the clinic, the institutional 'truth' bears little resemblance to the reality it seeks to record. The contrast between the mother's relief at the *uncertainty* of the diagnosis, and the *certainty* which was constructed in the record is striking. More subtle, transient moments of ambiguity, which required the shaping of patients' accounts into an inflexible (often binary) categorisation, were common (e.g. a patient's hesitant 'not really' becomes 'no').

The electronic record shapes what it means to be a clinician

The opportunity for nurses to develop new areas of expertise in chronic disease management is frequently described in terms of 'role-expansion', 'professional empowerment, or "*Liberating the Talents*".[47] As the disease areas covered by the Quality and Outcomes Framework have increased, so has the variety of nurse-led, disease-specific consultations on offer. In this study, nurses were often defined by chronic disease specialty. For example, in one practice, photographs of the nurses in the waiting room had their disease-specific expertise listed alongside (e.g. Christine - Asthma). One practice newsletter

read: "*Our practice nurses receive special training to monitor people with chronic diseases and to carry out many procedures independent of doctors*." This entry not only constructs chronic disease as 'nursing work' but describes a 'monitoring' role which sounds different to the 'care' we may traditionally associate with nurses looking after the chronically sick. With nurses thus defined, general practitioners took on the role of 'trouble-shooter' or consultant,[48] called upon when more complex problems arose. In one practice, healthcare assistants conducted cardiovascular and hypertension reviews. Although able to gather information needed to *inform* chronic disease management (e.g. blood pressure, details of smoking) healthcare assistants are not clinically qualified. This 'redistribution' of chronic disease management to the least qualified (and least costly) team member has been previously described and shifts the meaning of the term 'management' towards one of managing data rather than patients.[18;48]

The extensive use of templates as a way of delivering chronic disease managements was rarely questioned. The little that was said was broadly positive, and echoed the "monitoring" perspective conveyed in the newsletter ("*templates encourage us to get to grips with the management of microalbuminuria in diabetes and take a more aggressive stance towards blood pressure control*"). Several nurses suggested they relied on templates and might easily forget things without them. However, one nurse said she tried to avoid relying too heavily on the template, as doing so tended to result in her "*losing her train of thought*"; she preferred to jot notes on paper to add to the template later. Some specific difficulties were voiced, such as the perception that important things may not be documented "*because there is nowhere in the template to put it*", and "*you sometimes become so absorbed in the template that you can miss what is right in front of you in the patient."* On one occasion when the computer crashed midway through a cardiovascular check, the nurse apologised in advance ("*I'll have to do it a little out of order because I've no computer*") and again afterwards ("*I'm sorry it's been such a higgledy-piggledy consultation*"). This incident highlighted the extent to which her work had become interwoven with technology use. It seems unlikely that this senior, experienced nurse could not do a cardiovascular check without the prompts before her eyes. Rather it was because her embodied practices had become so finely tuned to incorporate the technology that to conduct a consultation without had become almost impossible.

In one practice, an information technology manager was responsible for developing and maintaining computer templates, and he identified templates as a fundamental characteristic of quality care. A private company who had recently taken over the management of a local 'underperforming' practice was employing one of his GP colleagues to improve practice

systems. He explained that *"they were very impressed with our templating";* the doctor had duly provided copies of their templates for the 'underperforming' practice. The integration of templates (and a new word – "*templating*") was presented not only as a *feature* of good practice, but as potentially constitutive of good practice in an organisation which was otherwise failing – a transferable 'good'.

The template contributed to redefining 'professional vision'[42] by encouraging particular ways of looking, categorising and sense-making, fostering a particular orientation to the world. For example areas of institutional relevance (such as those which attract points in the Quality and Outcomes Framework) were often privileged over patients' more immediate concerns. The template shaped not only *what* was relevant to record, but also *how* this was recorded. For example symptoms were recorded as either 'present' or 'absent' when patients described a much more complex reality. The clarification of a patient's experience 'in general' was sought more readily than 'particular' experiences. The template brought new definitions of nursing and GP work, new conceptualisations of practice and new appreciations of what constituted 'good' practice.

Using the template creatively

Some nurses displayed exceptional creativity in how they used the template. We illustrate this by reference to Tables 3 and 4 which show two extracts from a single consultation in the asthma clinic. In this consultation, the patient can see the screen if he turns his head slightly, but the nurse does not start to complete the template until ten minutes into the consultation. Until then, she faces him across the corner of the desk, occasionally jotting notes on a paper placed between them.

[INSERT TABLE 3 ABOUT HERE]

The nurse uses several strategies to elicit a narrative at the outset (Table 3) beginning with an open invitation "*tell me* …" The word "tell" invites a story, and she shifts into a posture displaying readiness to listen, moving her chair away from her desk (and the computer and her notes). The patient hesitates and there are some relatively long pauses in his telling, but she refrains from filling these with anything other than tokens of attentiveness. She mirrors the patient's laugh and shrug of the shoulders from 1:10 to 1:15 in a way which is effective in encouraging him to tell some more.

She goes on to encourage the patient to describe his inhaler use, and learns that he had recently woken up short of breath. His inhaler had not worked well and he could not get back

to sleep. She makes occasional notes, describes aloud what she is noting, then summarises the story which the patient confirms. Having established some confusion over when he should be using each of his two inhalers, she uses a picture of the respiratory tract as part of her explanation, saying "*I think if you know how the drug works on your body it makes sense how to use them*." She goes on to check his height and peak flow rate, then joins him ("*let's have a look*") as they cluster around the peak flow meter, each holding one end of it. The nurse says that it wasn't very good and that he can do better – which makes him laugh – then she demonstrates how to do it. After his second attempt they again cluster round the peak flow meter (N: "*tha::t was a bit bette::r …LOOK four hundred a::nd eighty*.") After a further attempt the nurse says "*Excellent. Well done. What we got? There we go. LOOK five hundred and thirty that time*."

The nurse and patient are fully involved in this activity, in Goffman's sense of being both cognitively and affectively engaged.[23] The nurse's talk is inclusive (*let's, we, what we got, there we go*) and her bodily conduct encourages a joint engagement in reading the peak flow meter. Having already created a collaborative environment, she turns to the computer for the first time almost ten minutes into the consultation (Table 4, 10.37).

[INSERT TABLE 4 ABOUT HERE]

Again the nurse uses inclusive language as she orients towards the screen, inviting the patient to look. Between 10:39 and 10:43 she makes a deliberate show of navigating towards the asthma template. She enters his height, points at the screen, makes a joke. By making the template deliberately visible and socialising around it she retains control over the progress of the consultation and legitimises her need to attend to some institutional work. But by involving the patient in the recording activity (not literally, but through making it a shared endeavour and using much inclusive language) she effectively maintains a patient-centred approach whilst briefly attending to institutional requirements.

She invites further collaboration in making the template entry at 11:14 onwards (*five thirty was your best wasn't it*). The patient does not initially respond although he continues watching the screen. The computer automatically displays his "predicted peak flow rate (PEFR)". The nurse evaluates the measurement as a "*little bit under...but not too bad*", minimising any sense of trouble. But the mismatch between his 'actual' and his 'predicted' result prompts the nurse to reformulate her question to one which is more demanding of an answer ("*was five thirty your best?*") When the patient hesitates and suggests it may have been higher, the nurse suggests a recheck. This confirms the measurement, but the act of

repeating it displays a collaborative approach. Neither nurse nor patient's account is taken as 'truth' – a re-measurement settles the matter. In summary, this nurse is successful in eliciting a narrative, whilst also making the bureaucratic requirements deliberately visible. She skilfully minimises the distance between 'individual' and 'institutional' framings of the patient. [31]

A different nurse described herself as a "*paper person*" and yet also used the words "*template driven*" to describe her work. She said she had found it impossible to combine "*getting through it all*" with what she regarded as a patient-centred approach. She had negotiated with her employing doctors that her diabetes appointments were 30 minutes long (instead of 15 minutes) "*otherwise I would have just been completing the boxes with no time for the patient*". In this statement she highlighted a perceived gap between the task of being "for" the patient and the demands of the template. This nurse went to great lengths to minimise her need to look at the computer during her consultations, seizing brief opportunities as they arose (e.g. as patients removed socks, for example). She often placed her left hand on the patient's arm as she rotated her chair to look at the screen, keeping it there as she typed with her right hand – an awkward posture, but one which allowed her to maintain a physical connection to the patient as she attended to the template. She always went into surgery thirty minutes before her clinic was due to start, to prepare a written page of notes for each patient in her notebook. She meticulously studied the record of each patient she was anticipating, and copied blood results and other information she thought she may need to refer to. She 'knew' the template, and would frequently anticipate the next field in the template before displaying it on the screen, weaving it into the consultation whilst keeping it relatively 'invisible' to patients.

In sociological terms, this particular nurse had internalised the template – working *with it* in a symbolic sense, but marginalising it from her embodied activity in the interaction. Her performed identity was as a 'paper person' who preferred to be "for" the patient in this new template-oriented 'field'[49;50] of practice, but the template was indeed central to her practice (she was "template driven"). She was 'driven' in the sense that she ensured that she completed it – as demanded by the institution – but also 'driven' to find creative ways of working around it. It had become part of a new professional habitus,[49;50] which helped to define her normative behaviours and expectations. She took the burden of managing the individual / institutional tension, but in this case it came at an opportunity cost to herself in terms of personal time, and a financial cost to her employer (since her consultations were now taking twice as long).

Discussion

Summary of findings

In this paper we have focussed on the detailed practices of using computer templates in chronic disease management in UK general practice. In particular, we have highlighted the tension between different ways of framing the patient, and the requirement on clinicians (nurses especially) to sustain a dual orientation to both individual patient and institutional imperatives. This pressure to 'fit' unique individuals into institutional 'boxes' or to weave a bureaucratic process through a personal encounter[18;51] is evident at the macro-level of clinic organisation and in the moment-by-moment detail of clinical interaction, even down to the small gestures and nuance of talk. We have argued that electronic templates make a significant contribution to four interrelated phenomena: how disease is defined; how care is delivered; what it means to be a patient; what it means to be a clinician. In other words, the use of templates changes the very nature of what it means to 'care' in the contemporary chronic disease clinic. As we have seen above, 'care' is often reformulated as 'carrying out procedures' and stripped of the relational aspects of the word 'care'. The template can be seen to do *definitional* work.

The template is not just a simple faithful record of what went on. Nor is it just an aide-mémoire – though it may ensure, for example, that foot pulses are palpated and blood pressures taken (important aspects of diabetes care) and it is quite likely that these will be done in the order set out in the template. The template does not simply identify things which must be done but comes to define what chronic diseases *are.* On the one hand, the template is an impoverished 'squeezed in'[52] record of the encounter. It is where patients' stories morph into bytes of data; the particular becomes generalised; the complex is made discrete, simple and manageable, and uncertainty becomes categorised and contained. On the other hand, the template is *integral* to the consultation, and actively shapes what goes on, sustaining normative standards which are realised through consensus and performed daily through social practices. The work of transforming stories into data – and erasing ambiguity – is in itself complex interactional work for both clinician and patient. However this does not necessarily constitute the 'complex' response to a 'complex' problem as envisaged by Nolte et al, nor does it sit comfortably alongside the political rhetoric of 'nurse empowerment'.[10 47] This 'new' skilled human work does not appear in the completed template, and seems to go unrecognised – even by those who are engaged daily in doing it.

At no point in our field work did we encounter any suggestion from participants that the care of patients with chronic diseases might be done otherwise. Arguably templates are taken-for-

granted as part of 'good' chronic disease management. Nurses vary in their approaches, and individual nurses used different strategies within and across consultations according to emergent local contingencies. This is unsurprising. The constraints imposed by the template, and the inherent 'rationality-reality' gap[29] can be overcome (and our data suggest that they sometimes are) but this demands exceptional creativity. We have described one nurse's collaboration with a patient around the template and another who succeeded in simultaneously *internalising and excluding* the template. However these examples were unusual, and draw attention to what Blommaert calls "*creativity within constraints*" (page 107),[53] a local form of creativity which is situated in what he calls "*the borderline zone of existing hegemonies…it becomes creative because it is measurable against normative hegemonic standards, because it creates understandable contrasts to such standards*" (page 106).

In the institutional account captured through the template, 'care' (specifically 'quality care' as currently incentivised in the Quality and Outcomes Framework) and patients with chronic diseases all start to look the same. Does this matter? One argument goes that as long as the interaction between clinician and patient facilitates the narrative, the particular, the complex and the ambiguous and this occurs within a therapeutic relationship which supports relational continuity, then it may not matter much. But close observation of actual practice suggests that, more often than not, nurses are constrained by the linear, instrumental logic of the template with its tendency to privilege biomedical, measurable concerns. The consultation can become a relatively bureaucratic transaction in which patients are shaped into an institutional framework[52] and meaningful involvement is difficult to sustain.[23] Both nurse and patient experience institutional constraints on what may be talked about and what the chronic disease review can 'be'. Practices become 'regimented'.[54;55]

Strengths and limitations of this study

A particular strength of this study rests with the sophisticated combination of qualitative ethnographic observation alongside video and screen capture, allowing us to open up the 'black box' of the electronic patient record to detailed scrutiny.[31] What emerges is a conceptualisation of the electronic record as *integral to* the social processes of consultation, not simply a peripheral 'add-on' to the consultation. Our approach has enabled us to study the subtle complexities of interaction between humans and technologies, whilst retaining a broad appreciation of the institutions within which these interactions take place.[56] We have been able to build what anthropologists call a "thick description"[57] of the electronic patient record in its social context – combining detailed observational description with analysis and

reflective interpretation. It has enabled us to explore working practices at a level of detail that more conventional qualitative methods (such as interviews or semi-structured questionnaires) cannot reach. For example, our focus has been on *actual* social practice rather than on participants' reports alone, and our enquiry has extended into the 'backstage' regions[36] of general practice as well as the consulting room. We have been able to highlight the profound influence of the template by drawing eclectically on a broad range of data sources, shifting constantly between 'zooming in' on the moment-by-moment detail of the consultation, and 'zooming out' to consider organisational practices (what Erickson has called the 'social microscope' and the 'social telescope').[58] This linguistic ethnographic approach offers great potential for the study of complex social practices in contemporary healthcare, including those which incorporate information technologies.

Our approach is time consuming and resource intensive, and our prioritisation of *depth* of analysis over breadth has meant that we have included only two general practices in this study and these may not be typical of all practices in how they approach either chronic disease management or the use of technologies. Furthermore, both practices used the same clinical system (EMIS-LV) and there may be important technical differences between systems. However as a principle we favoured what Stake has called 'opportunity to learn' over concerns about 'typicality' [59] and we hope that our work prompts new ways of thinking about the use of templates in chronic disease management. Templates are not unique to the EMIS-LV system, and we suspect that our findings may resonate with the experience of many clinicians who are using electronic checklists in the clinic. Although our methodological approach does not allow us to quantify the extent to which clinicians are able to combine a patient-centred approach whilst meeting the needs of the institution, we have been able to observe a range of practices which highlight the need to think more critically about what is being accomplished through the implementation and use of electronic templates in this context.

Recommendations for policy and practice

Although considerable care is invested in ensuring the diligent use of electronic templates in general practice, much less attention is paid to how these are actually used by clinicians, or to the possibility that incorporating a template might profoundly change the way in which care is 'enacted' by professionals, and experienced by patients.

Ostensibly the data recording necessary for institutional processes such as the Quality and Outcomes Framework emerges effortlessly from regular clinical care, and serves to improve

the quality of care. Our data show that paradoxically, the focus on what is measurable and recordable in templates, and designed to assure certain standards of 'quality' care (such as those identified in the QOF) can lead to a bureaucratisation of care and may serve to marginalise those aspects of 'quality' practice which lie beyond their focus, and which do not lend themselves to 'data capture'. These include – but are not limited to – the extent of the patient's opportunity to construct their narrative and the extent to which the clinician and patient are fully 'involved' in the interaction. Arguably these may well be aspects of care which mark out 'quality' care from 'minimum to be expected' care. Whilst incentivising clinicians may well result in better data quality it should not be assumed that the quality of care (in its most holistic sense) improves, although the care of the patient may be profoundly changed.

We suggest that in educating for chronic disease management, it is essential to incorporate greater recognition of the way in which clinicians integrate the electronic patient record and to regard this as an integral aspect of the consultation. In particular, that special effort is made to ensure that the patient's unique experience is not overshadowed by institutional imperatives. We would also urge a shift towards models of care delivery which embrace multimorbidity as the norm and which seek to embrace the complexity of this reality in primary care, while still allowing appropriate data capture to inform the evidence-based management of specific diseases.

Research ethics approval

Research ethics approval was granted by Thames Valley Multi-centre Research Ethics Committee (06/MRE12/81) in January 2007 and subsequent amendments.

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Data Sharing

No additional data available.

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Contributorship

The paper is based on a PhD thesis written by DS and supervised by TG and CR. DS and TG conceptualised the HERO study. DS completed all data collection. All authors contributed to interpretation of the data. The paper was drafted by DS and revised with input from TG and CR. All authors approve the final version. DS is the guarantor for the paper.

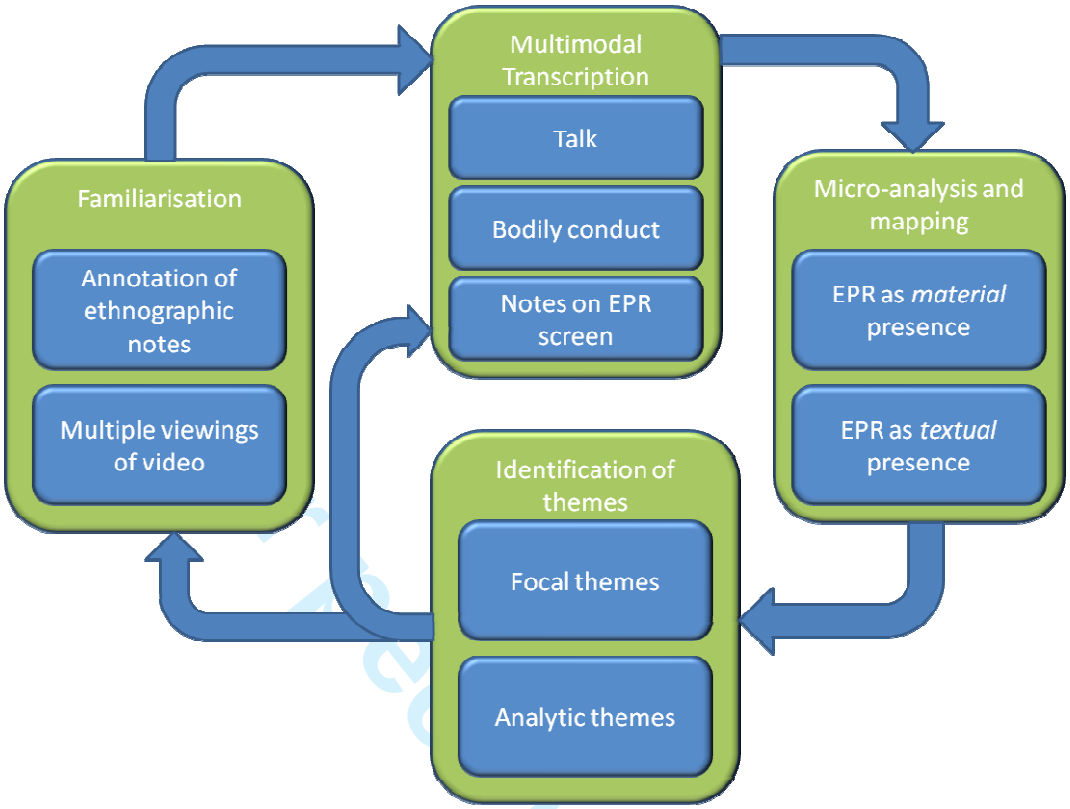

Figure 1. Approach to transcription and analysis

Box 1. Framing the purpose of the chronic disease management clinic (ethnographic fieldnotes)

A frail-looking 86 year old man struggled in to the clinic, barely able to walk. He was very deaf. He hung his walking stick over his chair and grimaced as he sat down, looking as if he was in pain.
The nurse said loudly "We've called you in to look at you from the heart point of view. I know you have a lot of other things going on but we've called you in to look at your heart." She then asked "How often do you use the angina tablet under your tongue?" The patient replied in a way which made his most pressing concern clear: "Not much...for the simple reason that I can only crawl like a tortoise"
Nurse: "and the simvastatin?"
Patient: "no...I stopped that. I think it's giving me diarrhoea. These hearing aids are not very good you know. I've had it adjusted several times but I'm really disappointed. I had hoped for better than this"

Box 2. Constructing patienthood in the asthma clinic (ethnographic fieldnotes)

Sam, a lively 2-year-old came with his mum. He ran excitedly around the clinic room investigating every corner. His mum seemed exasperated and said she was not getting far with his treatment, a plastic "spacer" device to which the "pumps" were attached. The boy's dad and grandparents were asthmatic, but Sam only saw his dad occasionally at weekends these days.

The nurse explained that the diagnosis of asthma cannot be certain in a 2-year-old. Things might be clearer by the time he was about 4. His mum was obviously relieved to know that it was not a definite thing. She was very anxious that her ex-partner wouldn't know how to look after her son when he goes to visit. She asked "*There's nothing I could have done to stop him getting it, is there?*" The nurse explained it was not her fault and did what she could to be reassuring. She explained what the different inhalers do…

The nurse pointed towards the computer, saying that she was going to make some notes. She completed the template line by line and there was no talking for several minutes. Sam ran towards the door and started rattling the door handle, but his mum said firmly "*NO…you've got to wait for the lady to finish her typing*".

The nurse handed over a prescription and they left.

The EPR consisted of a collection of Read coded entries with some limited free text alongside:

Never smoked tobacco
Inhaler technique moderate
Inhaler technique shown (needs to commence low dose ICS. I will monitor)
Symptoms occur at night (7/7)
Asthma limiting activities
Asthma management plan
Asthma compliance satisfactory (needs ICS)
Asthma daytime symptoms (consistent cough)
Asthma medication review
Asthma monitoring check done
Follow up asthma assessment (date)

Table 1. Extract from consultation in diabetic clinic

Time	N/P	Words spoken /sounds	Bodily conduct	Screen
18.54	N	Does the diabetes get you ↑ down Mr C?	N - > EPR; P looking down doing shoelaces N < - > P	Diabetes template, with fields completed relating to foot examination. Cursor highlights field "Eye Clinic" (Y or N)
		(1.0)	N < - >P. P puts hands on both knees.	
18.57	P	I get bored with life.	P frowns	
18.58	N	Bo::red? What bored with the f:ood o:r	P turns head to gaze at adjacent chair. N - > P P < - > N	
		(1.2)		
19.00	P	HA HA HA	P turns to adjacent chair and lifts jumper	
19.02	P	.hhh ah well °never mind°	P lifts jumper as turns toward N again	
		(0.2)		
19.04	P	I u::- used to be a drinking man	P <-> N P looks straight ahead. N remain looking at P	
		(0.8)		
19.06	N	[right		
19.07	P	[And when I had to give up the beer I had to give up an awful lot of other things: (.) surprising really.	P holds jumper up in front of him and arranges it, looking at it as he talks	
19.11	N	°<Yeah (.) yeah>°	N - > P	
	P	mm	P looks ahead, purses lips	
19.13	N	So you have a whiskey	P turns to N	
		(0.8)		
19.15	P	Yeah I have a whiskey at night	P < - > N	
19.16	N	°yeh°	N nods	
		(0.2)		
19.17	P	Cos ↑whiskey hasn't got much sugar in [surprising	P returns to rearranging jumper holding it up in front	
	N	[no:		
	P	its all been turned into alcohol a good whiskey maker so		
		(0.8)	P still holding jumper in front turns to N	
19.23	N	And beer has quite a lot of carbohydrate doesn't it	N - > P , N nodding slightly	
	P	[yeah	P returns gaze to jumper, nodding	
		[when you think of the volume		
		(0.6)	N turns gaze to her desk	
19.27	N	°okay°	N gazing at desk, P arranging jumper	
		(1.6)		
19.29	N	°All right then°		
		((N typing for 12 seconds))	P looking ahead putting jumper over head. N rotates to face EPR	Bypasses field "diet" Bypasses field "impotence" Next field is "depression screen" –enters 'Y'.

Table 2. Setting up the frame for the asthma consultation

Time	N/P	Spoken word	Bodily conduct / notes on EPR
01:08	N	So really straightforward.	N puts paper on desk
		(0.4)	N rotates body and gaze to face P, her hands on her lap. P looking at N
01:09	N	Asthma assessment	
		(0.4)	
	P	Okay	P nods
01.11	N	to see how your asthma's do:ing:	N raises both hands in front
01.13	N	what you're doing w- with it when it's good, what you do with it when it's ba:d, (0.2) have you any problems with your ↑inhalers (0.4) .hhh	N uses fingers to count (on "good", "bad", "problems")
		(0.5)	N hands open out in front of her
01.19	N	Very straightforward stuff	N hands to lap
	P	Oka[y	P nods
	N	[all right? .hhh	
01:21	N	U:::hm	N rotates body and gaze to EPR screen, hands on lap
01:23	N	What I've got here	N gestures her open hands towards the EPR screen (displaying the patients "summary" screen)
01:24	N	Is that you're on:: (0.4) a purple inhaler?	N rotates back towards P, bringing hands together
01:26	P	(0.2) Yeh (.) uhm (0.2) seretide.	P glances briefly towards the EPR screen

Table 3. Opening of asthma consultation

Time		Words spoken	Bodily conduct / EPR screen
00.57	N	..uh SO: (0.6) [tell me [C (0.3) what inhalers do you u:se (.) an:d when do you use them.	N writing Remains oriented to P as makes one keystroke to display prescriptions N rotates her chair, pulling it back away from desk & re-orientating so that posture and gaze are towards P. She gestures towards his inhalers on the desk with her L hand on "what inhalers"
		(0.4)	N draws chair closer to P, still oriented towards him
1:02	P	U:::hm (1.8) Well say like if I get >sort of< out of breath	 P rubs his nose P puts his hand on inhaler, looking at N
		(0.4)	
1:07	N	Uh uh	N nods
	P	then I'll take the brown one.	P points to brown inhaler on desk and looks at it
1:09	N	Uh uh	N nods, looking at P
		(1.2)	Mutual gaze
1:10	P	but uhm	P looks down at inhalers
		(2.7)	P <-> N. P shrugs his shoulders
1:14	P	He [he	P smiles, and slight laugh as looks at N
	N	[he he he	N joins P in smiling and a slight laugh. N shrugs her shoulders
1:15	P	I mean sometimes I'll use the blue one.	P lifts blue inhaler just off desk, looking at N
		(0.4)	
1:17	N	Right	N nods

Table 4. Creative use of template

Time	N/P	Words	Bodily conduct	Screen
10.37	N	Let's pop it in the screen and see what we've got.	N pulls her chair in to the desk, gazing at screen. P ->EPR	Consultation screen
10.39	N	[A::dd [C (C) [Templates [C (C) [Respiratory [C (C) [Asthma [C (C)	N types keystrokes with her R hand holding PEFR meter in her L hand. P looks at screen throughout	Consultation screen. Entry 2 months earlier by receptionist – *Asthma check due.* Navigates to "templates" List of templates presented Selects R – respiratory templates There are 4 respiratory templates from which she selects A asthma
10.43	N	So Monitoring check [DONE [C [Now [C your height was a hundred and seventy one point fi::::::ve .hhh look you've grown a centimetre	N looks down at piece of paper to L of her desk then types in his height into template N gazes at screen and points to the screen sweeping finger across to show him the previous height on the template	First line in template "monitoring done" – she adds Y (yes). Hits return so today's date is entered. Then skips a line called "except report" Field: O/E height,
10.49	P	Have I HE HE (laughs) [C C] (0.8) [Doesn't show it [C	[return]	Field: O/E weight, last recorded entry 16m ago
	N	he he (0.2)		Field: smoking status (7 options). Last recorded entry "Never" 30m ago
(Transcript not shown)…				
11.11	N	O:kay ↑SO::	N looks down at paper on her desk, pointing at it with R hand	Field: Peak Flow Rate
		(1.0)		
11:14	N	Five thirty was your best wasn't it	N->EPR; P ->EPR	
	N	((C C C C)) (3.7)	N -> keyboard as types. P->EPR	Enters 530, return displays today's date. EPR calculates predicted PEFR as 600
11:19	N	So: your predicted is 600 >so it's a little bit< under but that's not too bad	N and P looking at screen	
11:24	N	↑was five thirty your best?	N -> EPR; P-> EPR	
		(1.8)	N reaches for PEFR meter and looks at gauge. P - > N	
11.27	P	[°was it five eighty?°]	N tightens cap on PEFR, P looking at N	
	N	[Just do it once more for me		
11:29	N	DID YOU::?	N passes PEFR to P who stands up as receives it	

Appendix

Transcribing conventions, adapted from Atkinson and Heritage (1984)

[onset of overlapping speech	**.hhh** inbreath
] end of spate of overlapping talk	**Hhh** outbreath
[[speakers start a turn simultaneously	**=** no pause between speakers; contiguous utterances
: preceding sound is lengthened or drawn out (more : means greater prolongation)	**(( ))** a non verbal activity (e.g. **C** = keystroke in this work)
Underlining emphasis	**(text)** unclear fragment of text
(.) pause of less than 0.2 seconds	**.** falling tone (not necessarily end of sentence)
(0.4) pause, in tenths of a second	**?** rising inflection (not necessarily a question)
↑↓ marked rising / falling intonation	**CAPITALS** louder than surrounding talk
>text< the talk they surround is quicker than surrounding talk	**<text>** the talk they surround is slower than surrounding talk
°° the talk they surround is quieter than surrounding talk	

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Computer templates in chronic disease management: ethnographic case study in general practice

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Abstract

Objective

To investigate how electronic templates shape, enable and constrain consultations about chronic disease.

Design

Ethnographic case study, combining fieldnotes, video-recording, screen capture with micro-analysis of talk, body language and data entry – an approach called linguistic ethnography.

Setting

Two general practices in England.

Participants and methods

Ethnographic observation of administrative areas and 36 nurse-led consultations. 24 consultations directly observed; 12 consultations video-recorded, alongside computer screen capture. Consultations transcribed using conversation analysis conventions, with notes on body language and the electronic record. Analysis involved repeated rounds of viewing video, annotating fieldnotes, transcription, and micro-analysis, to identify themes. Data interpreted using discourse analysis, with attention to socio-technical theory.

Results

Consultations centred explicitly or implicitly on evidence-based protocols inscribed in templates. Templates did not simply identify tasks for completion, but contributed to defining what chronic diseases were, how care was delivered and what it meant to be a patient or professional in this context. Patients' stories morphed into data bytes; the particular became generalised; the complex was made discrete, simple and manageable; and uncertainty became categorised and contained. Many consultations resembled bureaucratic encounters, primarily oriented to completing data fields. We identified a tension, sharpened by the template, between different framings of the patient – as 'individual' or as 'one of a population'. Some clinicians overcame this tension, responding creatively to prompts within a dialogue constructed around the patient's narrative.

Conclusions

Despite their widespread implementation, little previous research has examined how templates are actually used in practice. Templates do not simply document the tasks of

chronic disease management but profoundly change the nature of this work. Designed to assure standards of 'quality' care they contribute to bureaucratisation of care and may marginalise aspects of quality care which lie beyond their focus. Creative work is required to avoid privileging 'institution-centred' care over patient-centred care.

Summary

Article Focus

- How do computer templates for chronic disease management shape, enable and constrain clinical consultations?
- How does the tension between different ways of framing the patient (patient as 'individual'; patient as 'one of a population') play out as clinicians use templates to support chronic disease management and meet institutional targets?

Key Messages

- Electronic templates introduced to assure quality of care in chronic disease management may privilege the needs of the institution for data over the particular needs of individual patients
- Some but not all clinicians sustain a patient-centred approach through creative and flexible use of the template, while maintaining attention to the patient's narrative
- Linguistic ethnography offers potential for studying complex socio-technical practices in healthcare

Strengths and limitations of this study

- Explores the *actual* social practices of working with templates at a level of detail which more conventional qualitative methods (e.g. interviews) cannot reach
- Adopts a novel methodological approach embracing the complexities of interaction between humans and technologies, whilst retaining a broad appreciation of institutional context
- Prompts new ways of conceptualising what is accomplished when templates are used
- We prioritised depth of analysis over breadth. The two general practices we studied may not be typical of all practices in how they approach chronic disease management or technology use.

Introduction

The electronic patient record underpins one of the cornerstones of chronic disease management, the "three Rs" of registration, recall and regular review.[1] Information technology is seen as key to a high-performing chronic care system.[2] It facilitates effective population management (e.g. disease registration and population risk stratification), supports communication between professionals, and provides data to inform the continuous quality improvement cycle.[2] Over 2000 primary studies, mostly randomised trials, have measured the impact of the electronic record on different aspects of care[3] but many had methodological flaws and questions remain about the circumstances in which the benefits of these technologies outweigh their limitations.[4] Nevertheless it is widely assumed that electronic records and related technologies will result in better care for patients and efficiency savings for clinicians.[5]

In many chronic diseases, clinical trials and cohort studies have produced robust evidence-based guidance on what works – and what may happen if particular conditions or risk factors go untreated.[6] In the UK, best practice in prevention, surveillance and therapy is summarised in patient pathways, guidelines and decision support algorithms which are routinely available on the clinician's desktop computer as pull-down menus, pop-up prompts and templates (electronic forms).[7] These tools support structured management of individual patients ('primary use' of data) and also produce aggregated data on costs and/or organisational performance ('secondary use').[8] The latter may be linked to incentives, for example the UK Quality and Outcomes Framework (QOF).[9]

In the UK, six out of ten adults report having an incurable long-term condition; it is not unusual for an 80-year old to have five or six such conditions.[7;10] Concerns are emerging about fragmentation of care,[11;12] and the dangers of the 'vertical' disease-specific focus implied in translational research and in clinical guidelines.[13] What constitutes 'best care' for patients with multimorbidity is poorly understood [14] and has been identified as a priority area for further research.[15]

It is often said that "chronic diseases require a complex response",[10] and that structured care, for example by using checklists or templates, is a mark of quality in chronic disease management. Templates have also been identified as a way of streamlining consultations and establishing routines.[16] Templates are formal tools which enable care to be undertaken systematically and which open up scope for manipulating, aggregating, transporting and sharing data. Although structured care and attempts to standardise clinical terminology pre-

dated the introduction of electronic records, these technologies introduce new possibilities for such care. For example, a quick search can identify not only the proportion of diabetic patients with an HbA1c below an institutionally defined target, but also which *particular* individuals have been given smoking advice (or not) within a defined time period (or at least the extent to which such activity has been documented). 'Off target' individuals can be identified quickly and in an automated way, triggering responses designed to 'chase' patients, and constructing a new category of 'patient' defined by the practice's procedures – that is, someone whose data fields are incomplete or whose values are out of range.[17;18]

From the patient's perspective, chronic illness is a unique personal experience which may involve pain, disability, loss of status, reduced income and a heroic struggle to retain dignity, rebuild identity and live a moral life in the face of adversity.[19-22] The consultation is an opportunity for the patient to tell their story to an involved listener[23] – who in turn shapes the telling and is witness to their suffering.[24;25] Constructing a narrative in the context of an ongoing therapeutic relationship is one way in which a patient makes sense of their illness.[26;27] Conceptualised this way, the consultation focuses on a patient's specific, particular experience – the 'here and now'. As Balint emphasised, continuity of care in the general practice relationship provides repeated opportunities for recounting the illness narrative, helping to build the therapeutic relationship.[28]

The rationalisation of chronic disease management, guided by a limited set of coded entries on the electronic record exposes what some authors have termed a rationality-reality gap[29] or fatal paradox[30] between the inherently messy and unique nature of healthcare work and the standardisation of this work. Central to this paradox is a tension between different ways of framing the patient – the patient as an individual whose illness narrative is unique, and the patient as one of a population, all of whom need standardised management of the 'same' disease.[31]

In this study, we sought to address two questions. First, how do computer templates for chronic disease management shape, enable and constrain clinical consultations? Second, how does the tension between different ways of framing the patient (patient as 'individual'; patient as 'one of a population') play out as clinicians draw on these templates to support such consultations and meet institutional targets? We adopted a socio-technical approach, meaning we focussed on the dynamic, contingent interaction between humans and technologies rather than assuming technology is itself 'causal' of specific effects.[32-34] From this perspective the electronic record is not simply a collection of hardware and software on the clinician's desk but is a complex "social substance" definable in terms of the properties of

a social world.[35] The template is itself a manifestation of complex socio-technical practices and relationships involving systems engineers, clinical software designers and others, whose assumptions about chronic disease management practices become inscribed (and reified) in the template. In this study we sought to illuminate how and to what extent templates – and the socio-technical practices of which they are a part – contribute to what is accomplished in the clinic.

Methods

The study was part of the Healthcare Electronic Records in Organisations (HERO) study, funded by the UK Medical Research Council under a 'new methodologies' call which highlighted the limitations of experimental studies for certain research questions. Details of governance and ethical approval for the study have been published[36] and the methods used in this part of the HERO study have been described in detail elsewhere and summarised briefly here.[31]

DS (a general practitioner) conducted 8 months (187 hours) of ethnographic observation in two UK general practices, in clinical and administrative areas. The practices served mixed populations of approximately 11800 and 12600 patients respectively, both used the EMIS-LV clinical system (the most widely used system in the UK) and both practices scored highly in the Quality and Outcomes Framework.

Observations began in what the sociologist Erving Goffman called the 'backstage'[37] regions of practice (that is, areas which are not usually 'patient facing' e.g. administrative offices), shadowing individuals as they worked. The researcher made detailed fieldnotes and elicited narratives from staff, seeking to identify "*What is being accomplished here?*" Documents (e.g. recall letters, patient leaflets) relevant to chronic disease management were collected. This naturalistic approach seeks to generate in-depth knowledge about how and why people behave as they do in particular settings, whilst minimising the impact of the researcher.[38] Observation then moved to the 'front stage' – that is, the main focus of clinician-patient communication – the clinical consultation.[37] 24 chronic disease management consultations were observed, then 12 were video-recorded, with parallel screen capture of the computer display. The two video streams were merged and synchronised using video editing software (Adobe® Premier Elements 4) allowing us to observe the 'electronic record-in-use'. Recording began when the record was accessed (often several minutes before the patient entered the room).

Our work is a contribution to an emerging field called 'linguistic ethnography' bringing together a focus on language – in this case a microanalysis of the unfolding consultation – with ethnographic appreciation of the wider institutional context.[39] It is underpinned by a social constructionist perspective, that is to say language (which incorporates actions as well as words) does not just reflect or express intentions or decisions (the *representational* role of language) but *makes* them (the *constitutive* role of language) – talk *is* work.[40] Our frame of reference is interpretivist; we seek to explore the meaning-making of our research participants as they engage in the actual practices of chronic disease management.

Our iterative approach to data transcription, annotation and analysis is shown in Figure 1. Fieldnotes were annotated, and videos viewed multiple times. Transcription incorporated Jefferson conventions for the spoken word (as in conversation analysis – see Appendix),[41] to which we added a simple horizontal arrow (→ or ↔) to indicate direction of gaze, notes on bodily conduct, and notes on the electronic record, using time as an anchor.[42] We mapped consultations and conducted a detailed micro-analysis of the moment-by-moment unfolding of the interactions. This included paying attention to the *material* features of the EPR (e.g. screen, keyboard) and the *textual* features (displayed medical information, prompts, alerts, fields for completion). We identified *focal* themes relevant to the professional domain (such as agenda setting) and *analytic* themes (from linguistics and sociology) such as Goffman's notion of 'involvement'.[40] Goffman defines involvement as sustaining "*cognitive and affective engrossment*" in an activity, or the "*mobilization of one's psychobiolological resources*" (page 36).[23]

[FIGURE 1 ABOUT HERE]

Results

The dataset comprised over 400 pages of ethnographic fieldnotes (of which around 15% related directly to chronic disease management) and 12 video-recordings with screen capture (of a total of 54 recordings incorporating all aspects of general practice). Below, we illustrate our findings with selected data extracts and accompanying analysis, drawn from a variety of sources including ethnographic fieldnotes, transcripts and practice documents.

The electronic record shapes how disease is defined

In both practices, chronic disease management was organised so that each of a patient's chronic diseases resulted in a different occasion for care, often with a different nurse using a

different template. This arrangement assumed that patients (and nurses) could distinguish features of one chronic disease from another in the face of multiple morbidities. A common way for the nurse to frame the purpose and scope of the consultation was to use statements such as "*how have things been from the diabetes point of view?*", or more simply "*so…asthma review*". To use Goodwin's terminology, these questions do the work of establishing what is 'figure' (relevant, salient) and what is 'ground' (less relevant to the enquiry).[43] Occasionally this separation of the patient into different chronic diseases was identified as potentially problematic. An example is shown in Box 1.

[INSERT BOX 1 ABOUT HERE]

The nurse's statement (Box 1) "*I know you have a lot of other things going on but we've called you in to look at your heart"* performs two contrasting functions. On the one hand she acknowledges the difficulty inherent in separating out his 'heart' problem from his other illnesses and wider experience, making it legitimate for the patient to frame his heart problems in a broader context. However, in the next part of her utterance "*but we've called you in to look at your heart"* she exhibits what discourse analysts call a 'scale jump'.[44] She shifts quickly from an individual, unique 'here and now' framing ("*I know you have…*") to a more general institutional framing ("*we've called you in…"*). This shift indexes what is most relevant and implies certain limits around what may happen in this consultation.

The patient responds by juxtaposing his prime concerns with the 'core' concerns of this clinic. First, he rarely uses his angina tablet – but only because his mobility problems outweigh his angina. Then his concern about simvastatin moves swiftly into a complaint about his hearing aids. Neither mobility nor deafness are pursued by the nurse (or recorded on the electronic record); they are 'unremarkable' problems in this (heart) clinic. It is not simply that these concerns remain unexplored *because* there is no field dedicated to them in the template. More subtly, the practice of using a template shapes how disease and illness experience are made sense of in this environment.

The template is not merely organised around a single disease entity, but around a particular *version* of this disease, reflecting the assumptions of those responsible for designing the template. For example, diabetes in all its complexity is rationalised in terms of a series of codes e.g. weight, units of alcohol, blood pressure, lower limb pulses (present or absent) – with minimal (if any) supporting free text. The primacy of the 'measurable' was often made explicit in the consultation. For example, three minutes into a diabetes consultation, one nurse faced the computer screen as she announced "*CAN WE DO a few measurements*

today then just to see (0.2) uhm where everything is". Here, not only are "*measurements*" equated with what is to be recorded on the electronic record, but it is implied that they will reveal "*everything*". Another nurse – in an asthma clinic – remarked (as a patient moved to leave) "*Hang on a minute. I need to pop these in here* (turning to computer)*…this is a whole set of measurements which tells us where your lungs are now*".

Nurses frequently engaged in the kind of activities which characterise bureaucratic encounters.[45] For example, deviations from the institutional agenda were brief; patients' talk was interpreted in direct relation to the template (an example of an institutional script, or a particular way of accounting for practices);[46] and talk was steered in particular institutionally-relevant directions. For example, in Table 1, from a diabetic clinic, the nurse anticipates an upcoming field in the template ('Depression Screening'). At the time, the Quality and Outcomes Framework required case finding for depression amongst diabetic patients, using two standard questions (*During the last month have you often been bothered by feeling down, depressed or hopeless? During the last month, have you often been bothered by having little interest or pleasure in doing things?*) Although we observed no examples of this precise wording being used, nurses often incorporated their own versions, enquiring about the 'mood' or feeling 'down'. The transcript in Table 1 shows the nurse's handling of these questions. In this extract she refers back to a brief account of whiskey drinking, which the patient had offered about seven minutes earlier:

Patient: *"well I look a- I look after myself I drink whiskey to counteract the cigarettes y'know"*
Nurse: *"do you [laugh] a whiskey a day?"*
Patient: "yeh"

[INSERT TABLE 1 ABOUT HERE]

In Table 1, the question "*Does the diabetes get you down Mr C?*" is met by a relatively long pause (in conversational terms). The patient frowns and says he gets "*bored with life*" widening the perspective towards his broader life experience. The nurse responds with a question which invites elaboration, but simultaneously refocuses on a narrow diabetes-relevant cause (*the food*). This is an awkward moment and prompts the patient to withdraw his gaze, laugh ironically, lift his jumper and say, quietly "*ah well °never mind°*" – communicating disappointment. A brief but poignant narrative unfolds, painting a picture of a man who has reluctantly made lifestyle changes, restricting his enjoyment of life. Being a "*drinking man*" was part of his (male) identity and conjures up a social life around alcohol ("*when I had to give up the beer I had to give up an awful lot of other things:"*). At 19.11 the

nurse slows and quietens her speech, perhaps encouraging elaboration, but the narrow biomedical focus of the template items is restored from 19.13 onwards, the patient justifying his whiskey by reference to its minimal 'sugar' content, which the nurse re-contextualises into even more 'scientific' terms – 'carbohydrates' and 'volumes'.

After the patient leaves, the nurse corrects the 'alcohol' record she had entered earlier. She replaces "14U" (copied from the previous year's entry in the template) with "7U". "*A whiskey a day*?" becomes 'one unit', in what is an uncritical shift from an *unquantified* volume of whiskey to an (apparently) *quantified* one. The complex interactions between the patient's diabetes, his identity as a "*drinking man*", his losses and his "*boredom with life*" are reduced to an institutional account which reads simply (and potentially misleadingly): "Depression screen – 'Y'; Alcohol – 7 units". The construction of particular versions of diabetes contributes to constructions of particular kinds of patient, discussed further below.

The electronic record shapes how care is delivered

The electronic record shapes care delivery in several ways. It is often the prompt to care, defined by 'overdue diary entries', overdue 'medication review' dates, and audits by a tool called 'Population Manager' identifying patients with missing QOF data ("*we've called you in*" – Box 1). Patients attend regularly, or may sign disclaimers, in a process which is institution-led, rather than patient-initiated. For example, in one practice letters of invitation to the 'cardiovascular check up' were signed off by '*Practice Administration*' (not a clinician) and couched in institutional terms ("*We are now regularly reviewing all patients who have angina or who have had a heart attack. As a result of this we would like you to attend a health check…*[further appointment details]. *There is no need to be concerned about this appointment we are just striving to maintain the standards of care we provide for you.*") The potential benefit to the patient is implicit and abstract rather than explicit and specific. For example, the justification for the check is presented only in terms of '*maintaining the standards*' or '*regular*' procedure. Despite receiving written invitations, patients often remained confused about why they had been summoned ("*What do you want to see me about then?*").

The requirement for data was – occasionally – the primary reason for the consultation. In one cardiovascular clinic a patient began by apologising for telephoning three days earlier to check whether her review was necessary. She had been reviewed in the hospital cardiology clinic the same week. The nurse responded by explaining that the practice is not always sent the information by the hospital "*and we have to have our records up to date.*" What is interesting here is not so much that the patient may well have had to attend two very similar

appointments in one week, but that the need to keep the record 'up to date' is presented as adequate and sufficient reason for the appointment. The 'need' for data seemed to outweigh any need that this particular patient felt (or necessarily had) for care.

These examples illustrate that whilst on the one hand the electronic patient record facilitates the regular recall and review which are critical to a high quality chronic disease programme[47] there are potential pitfalls to a highly automated recall system, especially if it is disconnected from the wider set of relationships within which care is delivered, or if the rationale behind it does not make sense to individual patients.

The electronic record also shapes and constrains how the consultation unfolds moment-by-moment. Chronic disease consultations often (though not always) took a linear and standardised format. Consultations tended to start and finish with the same questions, and focus on information gathering and documentation. One consultation was interrupted on two occasions by the patient standing up to take his leave, the nurse advising "*You can't go yet (laughing) …we're not finished yet*". It was common for nurses to face the computer screen as they explained the reason for 'calling the patient in', and the 'orderliness' of the clinic was often made explicit (e.g. "*We'll start with your blood pressure*"). Table 2 shows a detailed transcript revealing this institutional ordering in an asthma clinic.

[INSERT TABLE 2 ABOUT HERE]

In this example (Table 2), the nurse frames the consultation as an *assessment*, firstly to see how "*your asthma's doing*" (an assessment of the asthma) which she then reformulates as "*what you're doing with it when it's good, what you do with it when it's bad*" (an assessment of the patient's practices). This metaphorical separation of disease from patient was common. The use of the word "*assessment*" sets an evaluative tone and anticipates an enquiry which incorporates smoking status, inhaler technique, concordance with medication and peak flow measurement. The nurse emphasises (1:08 and 1:19) that it is *really* or *very* straightforward, and at 1:13 she counts on her fingers a three-part list, flagging the linearity of what is to follow and setting out what she and the patient should achieve. It might be interpreted as reassurance, but this is a reassurance about what he may expect of the *structure* of the clinic, not that his specific concerns will be addressed. Following this data extract, the nurse gestures towards the computer as she explains "*What I've got here is some questions that I – I need to ask you…they're fairly straightforward ones but what they tend to do with is that they will flag up whether there >actually< we have got what w- what I would call breakthrough symptoms."* The institutional imperative is clear (*"I need to ask you"*)

and again she highlights the *"straightforward"* nature of the task, as she identifies the template as the origin of the questions. As the patient begins to demonstrate his inhaler use, he coughs loudly five times, beats his chest demonstrably with his hand and announces:

> Patient*: "I do suffer very badly from phlegm in the mornings…which I presume is part and parcel of having asthma."*
>
> Nurse*: "It can be (.) yeah which (0.4) anyway I – we'll talk about that in a minute…we'll do the inhaler first."*

Despite weaving his own concerns into the assessment of 'inhaler technique' and using elaborate gestures for emphasis, the nurse steers the patient's activity back to the institutional script and does not revisit the issue of the morning phlegm. She later goes on to enquire specifically about asthma symptoms, but not until almost 16 minutes into the 19 minute consultation…when prompted by a template field reading "night symptoms".

The electronic record shapes what it means to be a patient

The template contributes to the construction of 'institutional' versions of the patient and may make it difficult for professionals to retain a perspective on the unique individual. One nurse said that the structure can make it difficult to "*take a step back*" – that some patients return annually for asthma checks even though she wonders whether they are definitely asthmatic at all ("*once they have acquired a diagnosis they just keep coming back*"). Whilst the asthma clinic may seem a reasonable setting in which to review a patient whose diagnosis is provisional or uncertain, the template does not handle such ambiguity well, and the recall procedures behind it can lead to the 'production' of consultations and the production of patienthood (the 'asthma patient'). There is considerable scope for unhelpful, potentially incorrect labelling of patients. An example is shown in the ethnographic fieldnotes in Box 2.

[INSERT BOX 2 ABOUT HERE]

Putting aside the absurdity that a 2-year-old has a Read code for "Never smoked tobacco" in his record, the example in Box 2 shows the disparity between the individual narrative that was built in the clinic and the "minimum data set" in the institutional account.[48] It also shows how the expressed ambiguity about the asthma diagnosis is wiped out (and not alluded to) in the record – numerous asthma Read codes are entered. Whilst this is sure to result in regular invitations to the clinic, the institutional 'truth' bears little resemblance to the reality it seeks to record. The contrast between the mother's relief at the *uncertainty* of the diagnosis,

and the *certainty* which was constructed in the record is striking. More subtle, transient moments of ambiguity, which required the shaping of patients' accounts into an inflexible (often binary) categorisation, were common (e.g. a patient's hesitant 'not really' becomes 'no').

The electronic record shapes what it means to be a clinician

The opportunity for nurses to develop new areas of expertise in chronic disease management is frequently described in terms of 'role-expansion', 'professional empowerment, or "*Liberating the Talents*".[49] As the disease areas covered by the Quality and Outcomes Framework have increased, so has the variety of nurse-led, disease-specific consultations on offer. In this study, nurses were often defined by chronic disease specialty. For example, in one practice, photographs of the nurses in the waiting room had their disease-specific expertise listed alongside (e.g. Christine - Asthma). One practice newsletter read: "*Our practice nurses receive special training to monitor people with chronic diseases and to carry out many procedures independent of doctors.*" This entry not only constructs chronic disease as 'nursing work' but describes a 'monitoring' role which sounds different to the 'care' we may traditionally associate with nurses looking after the chronically sick. With nurses thus defined, general practitioners took on the role of 'trouble-shooter' or consultant,[50] called upon when more complex problems arose. In one practice, healthcare assistants conducted cardiovascular and hypertension reviews. Although able to gather information needed to *inform* chronic disease management (e.g. blood pressure, details of smoking) healthcare assistants are not clinically qualified. This 'redistribution' of chronic disease management to the least qualified (and least costly) team member has been previously described and shifts the meaning of the term 'management' towards one of managing data rather than patients.[18;50]

The extensive use of templates as a way of delivering chronic disease managements was rarely questioned. The little that was said was broadly positive, and echoed the "monitoring" perspective conveyed in the newsletter ("*templates encourage us to get to grips with the management of microalbuminuria in diabetes and take a more aggressive stance towards blood pressure control*"). Several nurses suggested they relied on templates and might easily forget things without them. However, one nurse said she tried to avoid relying too heavily on the template, as doing so tended to result in her "*losing her train of thought*"; she preferred to jot notes on paper to add to the template later. Some specific difficulties were voiced, such as the perception that important things may not be documented "*because there is nowhere in the template to put it*", and "*you sometimes become so absorbed in the template that you can miss what is right in front of you in the patient."* On one occasion

when the computer crashed midway through a cardiovascular check, the nurse apologised in advance ("*I'll have to do it a little out of order because I've no computer*") and again afterwards ("*I'm sorry it's been such a higgledy-piggledy consultation*"). This incident highlighted the extent to which her work had become interwoven with technology use. It seems unlikely that this senior, experienced nurse could not do a cardiovascular check without the prompts before her eyes. Rather it was because her embodied practices had become so finely tuned to incorporate the technology that to conduct a consultation without had become almost impossible.

In one practice, an information technology manager was responsible for developing and maintaining computer templates, and he identified templates as a fundamental characteristic of quality care. A private company who had recently taken over the management of a local 'underperforming' practice was employing one of his GP colleagues to improve practice systems. He explained that *"they were very impressed with our templating";* the doctor had duly provided copies of their templates for the 'underperforming' practice. The integration of templates (and a new word – "*templating*") was presented not only as a *feature* of good practice, but as potentially constitutive of good practice in an organisation which was otherwise failing – a transferable 'good'.

The template contributed to redefining 'professional vision'[43] by encouraging particular ways of looking, categorising and sense-making, fostering a particular orientation to the world, captured in Goodwin's words: "*When disparate events are viewed through a single coding scheme, equivalent observations become possible*" (page 608).[43] For example areas of institutional relevance (such as those which attract points in the Quality and Outcomes Framework) were often privileged over patients' more immediate concerns. The template shaped not only *what* was relevant to record, but also *how* this was recorded. For example symptoms were recorded as either 'present' or 'absent' when patients described a much more complex reality. The clarification of a patient's experience 'in general' was sought more readily than 'particular' experiences. The template brought new definitions of nursing and GP work, new conceptualisations of practice and new appreciations of what constituted 'good' practice.

Using the template creatively

Some nurses displayed exceptional creativity in how they used the template. We illustrate this by reference to Tables 3 and 4 which show two extracts from a single consultation in the asthma clinic. In this consultation, the patient can see the screen if he turns his head slightly, but the nurse does not start to complete the template until ten minutes into the consultation.

Until then, she faces him across the corner of the desk, occasionally jotting notes on a paper placed between them.

[INSERT TABLE 3 ABOUT HERE]

The nurse uses several strategies to elicit a narrative at the outset (Table 3) beginning with an open invitation "*tell me* …" The word "tell" invites a story, and she shifts into a posture displaying readiness to listen, moving her chair away from her desk (and the computer and her notes). The patient hesitates and there are some relatively long pauses in his telling, but she refrains from filling these with anything other than tokens of attentiveness. She mirrors the patient's laugh and shrug of the shoulders from 1:10 to 1:15 in a way which is effective in encouraging him to tell some more.

She goes on to encourage the patient to describe his inhaler use, and learns that he had recently woken up short of breath. His inhaler had not worked well and he could not get back to sleep. She makes occasional notes, describes aloud what she is noting, then summarises the story which the patient confirms. Having established some confusion over when he should be using each of his two inhalers, she uses a picture of the respiratory tract as part of her explanation, saying "*I think if you know how the drug works on your body it makes sense how to use them*." She goes on to check his height and peak flow rate, then joins him ("*let's have a look*") as they cluster around the peak flow meter, each holding one end of it. The nurse says that it wasn't very good and that he can do better – which makes him laugh – then she demonstrates how to do it. After his second attempt they again cluster round the peak flow meter (N: "*tha::t was a bit bette::r …LOOK four hundred a::nd eighty.*") After a further attempt the nurse says "*Excellent. Well done. What we got? There we go. LOOK five hundred and thirty that time*."

The nurse and patient are fully involved in this activity, in Goffman's sense of being both cognitively and affectively engaged.[23] The nurse's talk is inclusive (*let's, we, what we got, there we go*) and her bodily conduct encourages a joint engagement in reading the peak flow meter. Having already created a collaborative environment, she turns to the computer for the first time almost ten minutes into the consultation (Table 4, 10.37).

[INSERT TABLE 4 ABOUT HERE]

Again the nurse uses inclusive language as she orients towards the screen, inviting the patient to look. Between 10:39 and 10:43 she makes a deliberate show of navigating

towards the asthma template. She enters his height, points at the screen, makes a joke. By making the template deliberately visible and socialising around it she retains control over the progress of the consultation and legitimises her need to attend to some institutional work. But by involving the patient in the recording activity (not literally, but through making it a shared endeavour and using much inclusive language) she effectively maintains a patient-centred approach whilst briefly attending to institutional requirements.

She invites further collaboration in making the template entry at 11:14 onwards (*five thirty was your best wasn't it*). The patient does not initially respond although he continues watching the screen. The computer automatically displays his "predicted peak flow rate (PEFR)". The nurse evaluates the measurement as a "*little bit under...but not too bad*", minimising any sense of trouble. But the mismatch between his 'actual' and his 'predicted' result prompts the nurse to reformulate her question to one which is more demanding of an answer ("*was five thirty your best?*") When the patient hesitates and suggests it may have been higher, the nurse suggests a recheck. This confirms the measurement, but the act of repeating it displays a collaborative approach. Neither nurse nor patient's account is taken as 'truth' – a re-measurement settles the matter. In summary, this nurse is successful in eliciting a narrative, whilst also making the bureaucratic requirements deliberately visible. She skilfully minimises the distance between 'individual' and 'institutional' framings of the patient. [31]

A different nurse described herself as a "*paper person*" and yet also used the words "*template driven*" to describe her work. She said she had found it impossible to combine "*getting through it all*" with what she regarded as a patient-centred approach. She had negotiated with her employing doctors that her diabetes appointments were 30 minutes long (instead of 15 minutes) "*otherwise I would have just been completing the boxes with no time for the patient*". In this statement she highlighted a perceived gap between the task of being "for" the patient and the demands of the template. This nurse went to great lengths to minimise her need to look at the computer during her consultations, seizing brief opportunities as they arose (e.g. as patients removed socks, for example). She often placed her left hand on the patient's arm as she rotated her chair to look at the screen, keeping it there as she typed with her right hand – an awkward posture, but one which allowed her to maintain a physical connection to the patient as she attended to the template. She always went into surgery thirty minutes before her clinic was due to start, to prepare a written page of notes for each patient in her notebook. She meticulously studied the record of each patient she was anticipating, and copied blood results and other information she thought she may need to refer to. She 'knew' the template, and would frequently anticipate the next field

in the template before displaying it on the screen, weaving it into the consultation whilst keeping it relatively 'invisible' to patients.

In sociological terms, this particular nurse had internalised the template – working *with it* in a symbolic sense, but marginalising it from her embodied activity in the interaction. Her performed identity was as a 'paper person' who preferred to be "for" the patient in this new template-oriented 'field'[51;52] of practice, but the template was indeed central to her practice (she was "template driven"). She was 'driven' in the sense that she ensured that she completed it – as demanded by the institution – but also 'driven' to find creative ways of working around it. It had become part of a new professional habitus,[51;52] which helped to define her normative behaviours and expectations. She took the burden of managing the individual / institutional tension, but in this case it came at an opportunity cost to herself in terms of personal time, and a financial cost to her employer (since her consultations were now taking twice as long).

These examples of exemplary practice are important evidence that the technology is by no means *deterministic* of practices, but that there is always scope for practitioners to work with technologies in ways which preserve the 'relational' aspects of care and maintain full involvement with the patient.[53] The electronic record *shapes* but doesn't *make;* it *constrains* but does not *prohibit*; it *makes possible* but does not necessarily *insist*.

Discussion

Summary of findings

In this paper we have focussed on the detailed practices of using computer templates in chronic disease management in UK general practice. In particular, we have highlighted the tension between different ways of framing the patient, and the requirement on clinicians (nurses especially) to sustain a dual orientation to both individual patient and institutional imperatives. This pressure to 'fit' unique individuals into institutional 'boxes' or to weave a bureaucratic process through a personal encounter[18;54] is evident at the macro-level of clinic organisation and in the moment-by-moment detail of clinical interaction, even down to the small gestures and nuance of talk. We have argued that electronic templates make a significant contribution to four interrelated phenomena: how disease is defined; how care is delivered; what it means to be a patient; what it means to be a clinician. In other words, the use of templates changes the very nature of what it means to 'care' in the contemporary chronic disease clinic. As we have seen above, 'care' is often reformulated as 'carrying out

procedures' and stripped of the relational aspects of the word 'care'. The template can be seen to do *definitional* work.

The template is not just a simple faithful record of what went on. Nor is it just an aide-mémoire – though it may ensure, for example, that foot pulses are palpated and blood pressures taken (important aspects of diabetes care) and it is quite likely that these will be done in the order set out in the template. The template does not simply identify things which must be done but comes to define what chronic diseases *are.* On the one hand, the template is an impoverished 'squeezed in'[55] record of the encounter. It is where patients' stories morph into bytes of data; the particular becomes generalised; the complex is made discrete, simple and manageable, and uncertainty becomes categorised and contained. On the other hand, the template is *integral* to the consultation, and actively shapes what goes on, sustaining normative standards which are realised through consensus and performed daily through social practices. The work of transforming stories into data – and erasing ambiguity – is in itself complex interactional work for both clinician and patient. However this does not necessarily constitute the 'complex' response to a 'complex' problem as envisaged by Nolte et al, nor does it sit comfortably alongside the political rhetoric of 'nurse empowerment'.[10 49] This 'new' skilled human work does not appear in the completed template, and seems to go unrecognised – even by those who are engaged daily in doing it.

At no point in our field work did we encounter any suggestion from participants that the care of patients with chronic diseases might be done otherwise. Arguably templates are taken-for-granted as part of 'good' chronic disease management. Nurses vary in their approaches, and individual nurses used different strategies within and across consultations according to emergent local contingencies. This is unsurprising. The constraints imposed by the template, and the inherent 'rationality-reality' gap[29] can be overcome (and our data suggest that they sometimes are) but this demands exceptional creativity. We have described one nurse's collaboration with a patient around the template and another who succeeded in simultaneously *internalising and excluding* the template. However these examples were unusual, and draw attention to what Blommaert calls "*creativity within constraints*" (page 107),[56] a local form of creativity which is situated in what he calls "*the borderline zone of existing hegemonies…it becomes creative because it is measurable against normative hegemonic standards, because it creates understandable contrasts to such standards*" (page 106). It is also important to acknowledge that templates are still a relatively recent introduction to clinical practice and that although they appear to be embedded as part of normative practice, it is possible that some clinicians are still on a learning trajectory with regard to modifying their practices to incorporate these new technologies.

In the institutional account captured through the template, 'care' (specifically 'quality care' as currently incentivised in the Quality and Outcomes Framework) and patients with chronic diseases all start to look the same. Does this matter? One argument goes that as long as the interaction between clinician and patient facilitates the narrative, the particular, the complex and the ambiguous and this occurs within a therapeutic relationship which supports relational continuity, then it may not matter much. But close observation of actual practice suggests that, more often than not, nurses are constrained by the linear, instrumental logic of the template with its tendency to privilege biomedical, measurable concerns. The consultation can become a relatively bureaucratic transaction in which patients are shaped into an institutional framework[55] and meaningful involvement is difficult to sustain.[23] Both nurse and patient experience institutional constraints on what may be talked about and what the chronic disease review can 'be'. Practices become 'regimented'.[57;58]

Strengths and limitations of this study

A particular strength of this study rests with the sophisticated combination of qualitative ethnographic observation alongside video and screen capture, allowing us to open up the 'black box' of the electronic patient record to detailed scrutiny.[31] What emerges is a conceptualisation of the electronic record as *integral to* the social processes of consultation, not simply a peripheral 'add-on' to the consultation. Our approach has enabled us to study the subtle complexities of interaction between humans and technologies, whilst retaining a broad appreciation of the institutions within which these interactions take place.[59] We have been able to build what anthropologists call a "thick description"[60] of the electronic patient record in its social context – combining detailed observational description with analysis and reflective interpretation. It has enabled us to explore working practices at a level of detail that more conventional qualitative methods (such as interviews or semi-structured questionnaires) cannot reach. For example, our focus has been on *actual* social practice rather than on participants' reports alone, and our enquiry has extended into the 'backstage' regions[37] of general practice as well as the consulting room. We have been able to highlight the profound influence of the template by drawing eclectically on a broad range of data sources, shifting constantly between 'zooming in' on the moment-by-moment detail of the consultation, and 'zooming out' to consider organisational practices (what Erickson has called the 'social microscope' and the 'social telescope').[61] This linguistic ethnographic approach offers great potential for the study of complex social practices in contemporary healthcare, including those which incorporate information technologies.

Our approach is time consuming and resource intensive, and our prioritisation of *depth* of analysis over breadth has meant that we have included only two general practices in this study and these may not be typical of all practices in how they approach either chronic disease management or the use of technologies. Furthermore, both practices used the same clinical system (EMIS-LV) and there may be important technical differences between systems. However as a principle we favoured what Stake has called 'opportunity to learn' over concerns about 'typicality' [62] and we hope that our work prompts new ways of thinking about the use of templates in chronic disease management. Templates are not unique to the EMIS-LV system, and we suspect that our findings may resonate with the experience of many clinicians who are using electronic checklists in the clinic. Although our methodological approach does not allow us to quantify the extent to which clinicians are able to combine a patient-centred approach whilst meeting the needs of the institution, we have been able to observe a range of practices which highlight the need to think more critically about what is being accomplished through the implementation and use of electronic templates in this context.

Recommendations for policy and practice

Although considerable care is invested in ensuring the diligent use of electronic templates in general practice, much less attention is paid to how these are actually used by clinicians, or to the possibility that incorporating a template might profoundly change the way in which care is 'enacted' by professionals, and experienced by patients.

Ostensibly the data recording necessary for institutional processes such as the Quality and Outcomes Framework emerges effortlessly from regular clinical care, and serves to improve the quality of care. Our data show that paradoxically, the focus on what is measurable and recordable in templates, and designed to assure certain standards of 'quality' care (such as those identified in the QOF) can lead to a bureaucratisation of care and may serve to marginalise those aspects of 'quality' practice which lie beyond their focus, and which do not lend themselves to 'data capture'. These include – but are not limited to – the extent of the patient's opportunity to construct their narrative and the extent to which the clinician and patient are fully 'involved' in the interaction. Arguably these may well be aspects of care which mark out 'quality' care from 'minimum to be expected' care. Whilst incentivising clinicians may well result in better data quality it should not be assumed that the quality of care (in its most holistic sense) improves, although the care of the patient may be profoundly changed.

We suggest that in educating for chronic disease management, it is essential to incorporate greater recognition of the way in which clinicians integrate the electronic patient record and to regard this as an integral aspect of the consultation. The rational institutional logic inherent in the template does not align easily with the complexity of emergent dialogue between clinician and patient and it seems unlikely that minor adjustments to the design of template fields would address the communication challenges that we have identified in our research. However, it is essential that clinicians grasp fully the importance of the dialogue and learn ways of responding dynamically, creatively and individually to particular patients' concerns so that the patient's unique experience is not overshadowed by institutional imperatives. Although we have identified examples of these practices as 'exceptional' (page 15) it is in these exceptional practices that we suggest there is considerable scope for optimism in the face of increasing technologisation of care. The challenge for clinicians and educators is to appreciate that the incorporation of templates and other technologies renders the consultation *more complex* rather than *less complex…*and hence this is worthy of explicit educational attention. We would also urge a shift towards models of care delivery which embrace multimorbidity as the norm and which seek to embrace the complexity of this reality in primary care, while still allowing appropriate data capture to inform the evidence-based management of specific diseases.

Research ethics approval

Research ethics approval was granted by Thames Valley Multi-centre Research Ethics Committee (06/MRE12/81) in January 2007 and subsequent amendments.

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Data Sharing

No additional data available.

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Contributorship

The paper is based on a PhD thesis written by DS and supervised by TG and CR. DS and TG conceptualised the HERO study. DS completed all data collection. All authors contributed to interpretation of the data. The paper was drafted by DS and revised with input from TG and CR. All authors approve the final version. DS is the guarantor for the paper.

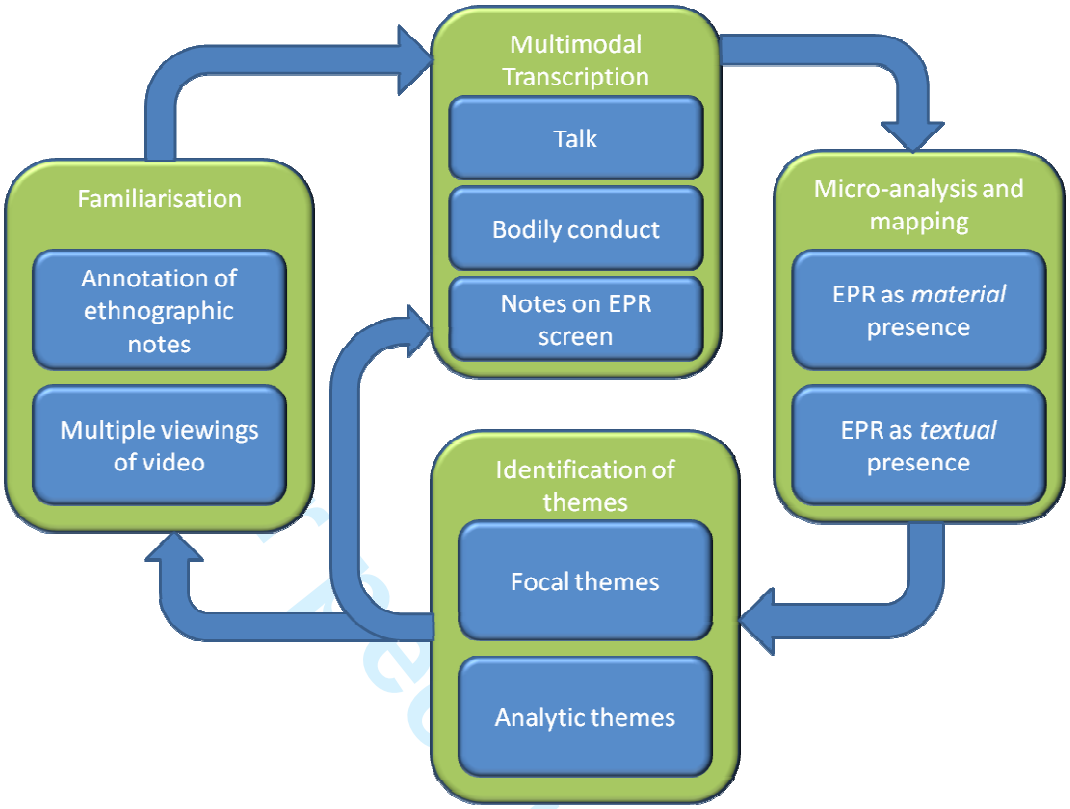

Figure 1. Approach to transcription and analysis

Box 1. Framing the purpose of the chronic disease management clinic (ethnographic fieldnotes)

A frail-looking 86 year old man struggled in to the clinic, barely able to walk. He was very deaf. He hung his walking stick over his chair and grimaced as he sat down, looking as if he was in pain.
The nurse said loudly "We've called you in to look at you from the heart point of view. I know you have a lot of other things going on but we've called you in to look at your heart." She then asked "How often do you use the angina tablet under your tongue?" The patient replied in a way which made his most pressing concern clear: "Not much...for the simple reason that I can only crawl like a tortoise"
Nurse: "and the simvastatin?"
Patient: "no...I stopped that. I think it's giving me diarrhoea. These hearing aids are not very good you know. I've had it adjusted several times but I'm really disappointed. I had hoped for better than this"

Box 2. Constructing patienthood in the asthma clinic (ethnographic fieldnotes)

Sam, a lively 2-year-old came with his mum. He ran excitedly around the clinic room investigating every corner. His mum seemed exasperated and said she was not getting far with his treatment, a plastic "spacer" device to which the "pumps" were attached. The boy's dad and grandparents were asthmatic, but Sam only saw his dad occasionally at weekends these days.

The nurse explained that the diagnosis of asthma cannot be certain in a 2-year-old. Things might be clearer by the time he was about 4. His mum was obviously relieved to know that it was not a definite thing. She was very anxious that her ex-partner wouldn't know how to look after her son when he goes to visit. She asked "*There's nothing I could have done to stop him getting it, is there?*" The nurse explained it was not her fault and did what she could to be reassuring. She explained what the different inhalers do…

The nurse pointed towards the computer, saying that she was going to make some notes. She completed the template line by line and there was no talking for several minutes. Sam ran towards the door and started rattling the door handle, but his mum said firmly "*NO…you've got to wait for the lady to finish her typing*".

The nurse handed over a prescription and they left.

The EPR consisted of a collection of Read coded entries with some limited free text alongside:

Never smoked tobacco
Inhaler technique moderate
Inhaler technique shown (needs to commence low dose ICS. I will monitor)
Symptoms occur at night (7/7)
Asthma limiting activities
Asthma management plan
Asthma compliance satisfactory (needs ICS)
Asthma daytime symptoms (consistent cough)
Asthma medication review
Asthma monitoring check done
Follow up asthma assessment (date)

Table 1. Extract from consultation in diabetic clinic

Time	N/P	Words spoken /sounds	Bodily conduct	Screen
18.54	N	Does the diabetes get you ↑ down Mr C?	N - > EPR; P looking down doing shoelaces N < - > P	Diabetes template, with fields completed relating to foot examination. Cursor highlights field "Eye Clinic" (Y or N)
		(1.0)	N < - >P. P puts hands on both knees.	
18.57	P	I get bored with life.	P frowns	
18.58	N	Bo::red? What bored with the f:ood o:r	P turns head to gaze at adjacent chair. N - > P P < - > N	
		(1.2)		
19.00	P	HA HA HA	P turns to adjacent chair and lifts jumper	
19.02	P	.hhh ah well °never mind°	P lifts jumper as turns toward N again	
		(0.2)		
19.04	P	I u::- used to be a drinking man	P <-> N P looks straight ahead. N remain looking at P	
		(0.8)		
19.06	N	[right		
19.07	P	[And when I had to give up the beer I had to give up an awful lot of other things: (.) surprising really.	P holds jumper up in front of him and arranges it, looking at it as he talks	
19.11	N	°<Yeah (.) yeah>°	N - > P	
	P	mm	P looks ahead, purses lips	
19.13	N	So you have a whiskey	P turns to N	
		(0.8)		
19.15	P	Yeah I have a whiskey at night	P < - > N	
19.16	N	°yeh°	N nods	
		(0.2)		
19.17	P	Cos ↑whiskey hasn't got much sugar in [surprising	P returns to rearranging jumper holding it up in front	
	N	[no:		
	P	its all been turned into alcohol a good whiskey maker so		
		(0.8)	P still holding jumper in front turns to N	
19.23	N	And beer has quite a lot of carbohydrate doesn't it	N - > P , N nodding slightly	
	P	[yeah	P returns gaze to jumper, nodding	
		[when you think of the volume		
		(0.6)	N turns gaze to her desk	
19.27	N	°okay°	N gazing at desk, P arranging jumper	
		(1.6)		
19.29	N	°All right then°		
		((N typing for 12 seconds))	P looking ahead putting jumper over head. N rotates to face EPR	Bypasses field "diet" Bypasses field "impotence" Next field is "depression screen" –enters 'Y'.

Table 2. Setting up the frame for the asthma consultation

Time	N/P	Spoken word	Bodily conduct / notes on EPR
01:08	N	So really straightforward.	N puts paper on desk
		(0.4)	N rotates body and gaze to face P, her hands on her lap. P looking at N
01:09	N	Asthma assessment	
		(0.4)	
	P	Okay	P nods
01.11	N	to see how your asthma's do:ing:	N raises both hands in front
01.13	N	what you're doing w- with it when it's good, what you do with it when it's ba:d, (0.2) have you any problems with your ↑inhalers (0.4) .hhh	N uses fingers to count (on "good", "bad", "problems")
		(0.5)	N hands open out in front of her
01.19	N	Very straightforward stuff	N hands to lap
	P	Oka[y	P nods
	N	[all right? .hhh	
01:21	N	U:::hm	N rotates body and gaze to EPR screen, hands on lap
01:23	N	What I've got here	N gestures her open hands towards the EPR screen (displaying the patients "summary" screen)
01:24	N	Is that you're on:: (0.4) a purple inhaler?	N rotates back towards P, bringing hands together
01:26	P	(0.2) Yeh (.) uhm (0.2) seretide.	P glances briefly towards the EPR screen

Table 3. Opening of asthma consultation

Time		Words spoken	Bodily conduct / EPR screen
00.57	N	..uh SO: (0.6) [tell me [C (0.3) what inhalers do you u:se (.) an:d when do you use them.	N writing Remains oriented to P as makes one keystroke to display prescriptions N rotates her chair, pulling it back away from desk & re-orientating so that posture and gaze are towards P. She gestures towards his inhalers on the desk with her L hand on "what inhalers"
		(0.4)	N draws chair closer to P, still oriented towards him
1:02	P	U:::hm (1.8) Well say like if I get >sort of< out of breath	 P rubs his nose P puts his hand on inhaler, looking at N
		(0.4)	
1:07	N	Uh uh	N nods
	P	then I'll take the brown one.	P points to brown inhaler on desk and looks at it
1:09	N	Uh uh	N nods, looking at P
		(1.2)	Mutual gaze
1:10	P	but uhm	P looks down at inhalers
		(2.7)	P <-> N. P shrugs his shoulders
1:14	P	He [he	P smiles, and slight laugh as looks at N
	N	[he he he	N joins P in smiling and a slight laugh. N shrugs her shoulders
1:15	P	I mean sometimes I'll use the blue one.	P lifts blue inhaler just off desk, looking at N
		(0.4)	
1:17	N	Right	N nods

Table 4. Creative use of template

Time	N/P	Words	Bodily conduct	Screen
10.37	N	Let's pop it in the screen and see what we've got.	N pulls her chair in to the desk, gazing at screen. P ->EPR	Consultation screen
10.39	N	[A::dd [C (C) [Templates [C (C) [Respiratory [C (C) [Asthma [C (C)	N types keystrokes with her R hand holding PEFR meter in her L hand. P looks at screen throughout	Consultation screen. Entry 2 months earlier by receptionist – *Asthma check due.* Navigates to "templates" List of templates presented Selects R – respiratory templates There are 4 respiratory templates from which she selects A asthma
10.43	N	So Monitoring check [DONE [C [Now [C your height was a hundred and seventy one point fi::::::ve .hhh look you've grown a centimetre	N looks down at piece of paper to L of her desk then types in his height into template N gazes at screen and points to the screen sweeping finger across to show him the previous height on the template	First line in template "monitoring done" – she adds Y (yes). Hits return so today's date is entered. Then skips a line called "except report" Field: O/E height,
10.49	P	Have I HE HE (laughs) [C C] (0.8) [Doesn't show it [C	[return]	Field: O/E weight, last recorded entry 16m ago
	N	he he (0.2)		Field: smoking status (7 options). Last recorded entry "Never" 30m ago
(Transcript not shown)…				
11.11	N	O:kay ↑SO::	N looks down at paper on her desk, pointing at it with R hand	Field: Peak Flow Rate
		(1.0)		
11:14	N	Five thirty was your best wasn't it	N->EPR; P ->EPR	
	N	((C C C C)) (3.7)	N -> keyboard as types. P->EPR	Enters 530, return displays today's date. EPR calculates predicted PEFR as 600
11:19	N	So: your predicted is 600 >so it's a little bit< under but that's not too bad	N and P looking at screen	
11:24	N	↑was five thirty your best?	N -> EPR; P-> EPR	
		(1.8)	N reaches for PEFR meter and looks at gauge. P - > N	
11.27	P	[°was it five eighty?°]	N tightens cap on PEFR, P looking at N	
	N	[Just do it once more for me		
11:29	N	DID YOU::?	N passes PEFR to P who stands up as receives it	

Appendix

Transcribing conventions, adapted from Atkinson and Heritage (1984)

[onset of overlapping speech	**.hhh** inbreath
] end of spate of overlapping talk	**Hhh** outbreath
[[speakers start a turn simultaneously	**=** no pause between speakers; contiguous utterances
: preceding sound is lengthened or drawn out (more : means greater prolongation)	**(( ))** a non verbal activity (e.g. **C** = keystroke in this work)
Underlining emphasis	**(text)** unclear fragment of text
(.) pause of less than 0.2 seconds	**.** falling tone (not necessarily end of sentence)
(0.4) pause, in tenths of a second	**?** rising inflection (not necessarily a question)
↑↓ marked rising / falling intonation	**CAPITALS** louder than surrounding talk
>text< the talk they surround is quicker than surrounding talk	**<text>** the talk they surround is slower than surrounding talk
°° the talk they surround is quieter than surrounding talk	

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Computer templates in chronic disease management: ethnographic case study in general practice

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Abstract

Objective

To investigate how electronic templates shape, enable and constrain consultations about chronic disease.

Design

Ethnographic case study, combining fieldnotes, video-recording, screen capture with micro-analysis of talk, body language and data entry – an approach called linguistic ethnography.

Setting

Two general practices in England.

Participants and methods

Ethnographic observation of administrative areas and 36 nurse-led consultations. 24 consultations directly observed; 12 consultations video-recorded, alongside computer screen capture. Consultations transcribed using conversation analysis conventions, with notes on body language and the electronic record. Analysis involved repeated rounds of viewing video, annotating fieldnotes, transcription, and micro-analysis, to identify themes. Data interpreted using discourse analysis, with attention to socio-technical theory.

Results

Consultations centred explicitly or implicitly on evidence-based protocols inscribed in templates. Templates did not simply identify tasks for completion, but contributed to defining what chronic diseases were, how care was delivered and what it meant to be a patient or professional in this context. Patients' stories morphed into data bytes; the particular became generalised; the complex was made discrete, simple and manageable; and uncertainty became categorised and contained. Many consultations resembled bureaucratic encounters, primarily oriented to completing data fields. We identified a tension, sharpened by the template, between different framings of the patient – as 'individual' or as 'one of a population'. Some clinicians overcame this tension, responding creatively to prompts within a dialogue constructed around the patient's narrative.

Conclusions

Despite their widespread implementation, little previous research has examined how templates are actually used in practice. Templates do not simply document the tasks of

chronic disease management but profoundly change the nature of this work. Designed to assure standards of 'quality' care they contribute to bureaucratisation of care and may marginalise aspects of quality care which lie beyond their focus. Creative work is required to avoid privileging 'institution-centred' care over patient-centred care.

Summary

Article Focus

- How do computer templates for chronic disease management shape, enable and constrain clinical consultations?
- How does the tension between different ways of framing the patient (patient as 'individual'; patient as 'one of a population') play out as clinicians use templates to support chronic disease management and meet institutional targets?

Key Messages

- Electronic templates introduced to assure quality of care in chronic disease management may privilege the needs of the institution for data over the particular needs of individual patients
- Some but not all clinicians sustain a patient-centred approach through creative and flexible use of the template, while maintaining attention to the patient's narrative
- Linguistic ethnography offers potential for studying complex socio-technical practices in healthcare

Strengths and limitations of this study

- Explores the *actual* social practices of working with templates at a level of detail which more conventional qualitative methods (e.g. interviews) cannot reach
- Adopts a novel methodological approach embracing the complexities of interaction between humans and technologies, whilst retaining a broad appreciation of institutional context
- Prompts new ways of conceptualising what is accomplished when templates are used
- We prioritised depth of analysis over breadth. ~~However t~~The two general practices we studied may not be typical of all practices in how they approach chronic disease management or technology use.

Introduction

The electronic patient record underpins one of the cornerstones of chronic disease management, the "three Rs" of registration, recall and regular review.[1] Information technology is seen as key to a high-performing chronic care system.[2] It facilitates effective population management (e.g. disease registration and population risk stratification), supports communication between professionals, and provides data to inform the continuous quality improvement cycle.[2] Over 2000 primary studies, mostly randomised trials, have measured the impact of the electronic record on different aspects of care[3] but many had methodological flaws and questions remain about the circumstances in which the benefits of these technologies outweigh their limitations.[4] Nevertheless it is widely assumed that electronic records and related technologies will result in better care for patients and efficiency savings for clinicians.[5]

In many chronic diseases, clinical trials and cohort studies have produced robust evidence-based guidance on what works – and what may happen if particular conditions or risk factors go untreated.[6] In the UK, best practice in prevention, surveillance and therapy is summarised in patient pathways, guidelines and decision support algorithms which are routinely available on the clinician's desktop computer as pull-down menus, pop-up prompts and templates (electronic forms).[7] These tools support structured management of individual patients ('primary use' of data) and also produce aggregated data on costs and/or organisational performance ('secondary use').[8] The latter may be linked to incentives, for example the UK Quality and Outcomes Framework (QOF).[9]

In the UK, six out of ten adults report having an incurable long-term condition; it is not unusual for an 80-year old to have five or six such conditions.[7;10] Concerns are emerging about fragmentation of care,[11;12] and the dangers of the 'vertical' disease-specific focus implied in translational research and in clinical guidelines.[13] What constitutes 'best care' for patients with multimorbidity is poorly understood [14] and has been identified as a priority area for further research.[15]

It is often said that "chronic diseases require a complex response",[10] and that structured care, for example by using checklists or templates, is a mark of quality in chronic disease management. Templates have also been identified as a way of streamlining consultations and establishing routines.[16] Templates are formal tools which enable care to be undertaken systematically and which open up scope for manipulating, aggregating, transporting and sharing data. Although structured care and attempts to standardise clinical terminology pre-

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dated the introduction of electronic records, these technologies introduce new possibilities for such care. For example, a quick search can identify not only the proportion of diabetic patients with an HbA1c below an institutionally defined target, but also which *particular* individuals have been given smoking advice (or not) within a defined time period (or at least the extent to which such activity has been documented). 'Off target' individuals can be identified quickly and in an automated way, triggering responses designed to 'chase' patients, and constructing a new category of 'patient' defined by the practice's procedures – that is, someone whose data fields are incomplete or whose values are out of range.[17;18]

From the patient's perspective, chronic illness is a unique personal experience which may involve pain, disability, loss of status, reduced income and a heroic struggle to retain dignity, rebuild identity and live a moral life in the face of adversity.[19-22] The consultation is an opportunity for the patient to tell their story to an involved listener[23] – who in turn shapes the telling and is witness to their suffering.[24;25] Constructing a narrative in the context of an ongoing therapeutic relationship is one way in which a patient makes sense of their illness.[26;27] Conceptualised this way, the consultation focuses on a patient's specific, particular experience – the 'here and now'. As Balint emphasised, continuity of care in the general practice relationship provides repeated opportunities for recounting the illness narrative, helping to build the therapeutic relationship.[28]

The rationalisation of chronic disease management, guided by a limited set of coded entries on the electronic record exposes what some authors have termed a rationality-reality gap[29] or fatal paradox[30] between the inherently messy and unique nature of healthcare work and the standardisation of this work. Central to this paradox is a tension between different ways of framing the patient – the patient as an individual whose illness narrative is unique, and the patient as one of a population, all of whom need standardised management of the 'same' disease.[31]

In this study, we sought to address two questions. First, how do computer templates for chronic disease management shape, enable and constrain clinical consultations? Second, how does the tension between different ways of framing the patient (patient as 'individual'; patient as 'one of a population') play out as clinicians draw on these templates to support such consultations and meet institutional targets? We adopted a socio-technical approach, meaning we focussed on the dynamic, contingent interaction between humans and technologies rather than assuming ~~technologies~~ technology is itself~~are~~ 'causal' of specific effects.[32-34] From this perspective t~~T~~he electronic record is not simply a collection of hardware and software on the clinician's desk but is a complex "social substance" definable

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in terms of the properties of a social world.[35] The template is itself a manifestation of complex socio-technical practices and relationships involving systems engineers, clinical software designers and others, whose assumptions about chronic disease management practices become inscribed (and reified) in the template. In this study we sought to illuminate how and to what extent templates – and the socio-technical practices of which they are a part – contribute to what is accomplished in the clinic.

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Methods

The study was part of the Healthcare Electronic Records in Organisations (HERO) study, funded by the UK Medical Research Council under a 'new methodologies' call which highlighted the limitations of experimental studies for certain research questions. Details of governance and ethical approval for the study have been published[36~~35~~] and the methods used in this part of the HERO study have been described in detail elsewhere and summarised briefly here.[31]

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DS (a general practitioner) conducted 8 months (187 hours) of ethnographic observation in two UK general practices, in clinical and administrative areas. The practices served mixed populations of approximately 11800 and 12600 patients respectively, both used the EMIS-LV clinical system (the most widely used system in the UK) and both practices scored highly in the Quality and Outcomes Framework.

Observations began in what the sociologist Erving Goffman~~'s~~ called the 'backstage'[37~~36~~] regions of practice (that is, areas which are not usually 'patient facing' e.g. administrative offices), shadowing individuals as they worked. The researcher made detailed fieldnotes and elicited narratives from staff, seeking to identify "*What is being accomplished here?*" Documents (e.g. recall letters, patient leaflets) relevant to chronic disease management were collected. This naturalistic approach seeks to generate in-depth knowledge about how and why people behave as they do in particular settings, whilst minimising the impact of the researcher.[38~~37~~] Observation then moved to the 'front stage' – that is, the main focus of clinician-patient communication – the clinical consultation.[37~~36~~] 24 chronic disease management consultations were observed, then 12 were video-recorded, with parallel screen capture of the computer display. The two video streams were merged and synchronised using video editing software (Adobe® Premier Elements 4) allowing us to observe the 'electronic record-in-use'. Recording began when the record was accessed (often several minutes before the patient entered the room).

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Our work is a contribution to an emerging field called 'linguistic ethnography' bringing together a focus on language – in this case a microanalysis of the unfolding consultation – with ethnographic appreciation of the wider institutional context.[39 38] It is underpinned by a social constructionist perspective, that is to say language (which incorporates actions as well as words) does not just reflect or express intentions or decisions (the *representational* role of language) but *makes* them (the *constitutive* role of language) – talk *is* work.[40 39] Our frame of reference is interpretivist; we seek to explore the meaning-making of our research participants as they engage in the actual practices of chronic disease management.

Our iterative approach to data transcription, annotation and analysis is shown in Figure 1. Fieldnotes were annotated, and videos viewed multiple times. Transcription incorporated Jefferson conventions for the spoken word (as in conversation analysis – see Appendix),[41 40] to which we added a simple horizontal arrow (→ or ↔) to indicate direction of gaze, notes on bodily conduct, and notes on the electronic record, using time as an anchor.[42 41] We mapped consultations and conducted a detailed micro-analysis of the moment-by-moment unfolding of the interactions. This included paying attention to the *material* features of the EPR (e.g. screen, keyboard) and the *textual* features (displayed medical information, prompts, alerts, fields for completion). We identified *focal* themes relevant to the professional domain (such as agenda setting) and *analytic* themes (from linguistics and sociology) such as Goffman's notion of 'involvement'.[40 39] Goffman defines involvement as sustaining "*cognitive and affective engrossment*" in an activity, or the "*mobilization of one's psychobiolological resources*" (page 36).[23]

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[FIGURE 1 ABOUT HERE]

Results

The dataset comprised over 400 pages of ethnographic fieldnotes (of which around 15% related directly to chronic disease management) and 12 video-recordings with screen capture (of a total of 54 recordings incorporating all aspects of general practice). Below, we illustrate our findings with selected data extracts and accompanying analysis, drawn from a variety of sources including ethnographic fieldnotes, transcripts and practice documents.

The electronic record shapes how disease is defined

In both practices, chronic disease management was organised so that each of a patient's chronic diseases resulted in a different occasion for care, often with a different nurse using a

different template. This arrangement assumed that patients (and nurses) could distinguish features of one chronic disease from another in the face of multiple morbidities. A common way for the nurse to frame the purpose and scope of the consultation was to use statements such as "*how have things been from the diabetes point of view?*", or more simply "*so…asthma review*". To use Goodwin's terminology, these questions do the work of establishing what is 'figure' (relevant, salient) and what is 'ground' (less relevant to the enquiry),[4342] ~~Only O~~occasionally ~~was~~ this separation of the patient into different chronic diseases was identified as potentially problematic. An example is shown in Box 1.

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[INSERT BOX 1 ABOUT HERE]

The nurse's statement (Box 1) "*I know you have a lot of other things going on but we've called you in to look at your heart"* performs two contrasting functions. On the one hand she acknowledges the difficulty inherent in separating out his 'heart' problem from his other illnesses and wider experience, making it legitimate for the patient to frame his heart problems in a broader context. However, in the next part of her utterance "*but we've called you in to look at your heart"* she exhibits what discourse analysts call a 'scale jump'.[4443] She shifts quickly from an individual, unique 'here and now' framing ("*I know you have…*") to a more general institutional framing ("*we've called you in…"*). This shift indexes what is most relevant and implies certain limits around what may happen in this consultation.

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The patient responds by juxtaposing his prime concerns with the 'core' concerns of this clinic. First, he rarely uses his angina tablet – but only because his mobility problems outweigh his angina. Then his concern about simvastatin moves swiftly into a complaint about his hearing aids. Neither mobility nor deafness are pursued by the nurse (or recorded on the electronic record); they are 'unremarkable' problems in this (heart) clinic. It is not simply that these concerns remain unexplored *because* there is no field dedicated to them in the template. More subtly, the practice of using a template shapes how disease and illness experience are made sense of in this environment.

The template is not merely organised around a single disease entity, but around a particular *version* of this disease, reflecting the assumptions of those responsible for designing the template. For example, diabetes in all its complexity is rationalised in terms of a series of codes e.g. weight, units of alcohol, blood pressure, lower limb pulses (present or absent) – with minimal (if any) supporting free text. The primacy of the 'measurable' was often made explicit in the consultation. For example, three minutes into a diabetes consultation, one nurse faced the computer screen as she announced "*CAN WE DO a few measurements*

today then just to see (0.2) uhm where everything is". Here, not only are "*measurements*" equated with what is to be recorded on the electronic record, but it is implied that they will reveal "*everything*". Another nurse – in an asthma clinic – remarked (as a patient moved to leave) "*Hang on a minute. I need to pop these in here* (turning to computer)*…this is a whole set of measurements which tells us where your lungs are now*".

Nurses frequently engaged in the kind of activities which characterise bureaucratic encounters.[4544] For example, deviations from the institutional agenda were brief; patients' talk was interpreted in direct relation to the template (an example of an institutional script, or a particular way of accounting for practices);[4546] and talk was steered in particular institutionally-relevant directions. For example, in Table 1, from a diabetic clinic, the nurse anticipates an upcoming field in the template ('Depression Screening'). At the time, the Quality and Outcomes Framework required case finding for depression amongst diabetic patients, using two standard questions (*During the last month have you often been bothered by feeling down, depressed or hopeless? During the last month, have you often been bothered by having little interest or pleasure in doing things?*) Although we observed no examples of this precise wording being used, nurses often incorporated their own versions, enquiring about the 'mood' or feeling 'down'. The transcript in Table 1 shows the nurse's handling of these questions. In this extract she refers back to a brief account of whiskey drinking, which the patient had offered about seven minutes earlier:

Patient: *"well I look a- I look after myself I drink whiskey to counteract the cigarettes y'know"*
Nurse: *"do you [laugh] a whiskey a day?"*
Patient: "yeh"

[INSERT TABLE 1 ABOUT HERE]

In Table 1, the question "*Does the diabetes get you down Mr C?*" is met by a relatively long pause (in conversational terms). The patient frowns and says he gets "*bored with life*" widening the perspective towards his broader life experience. The nurse responds with a question which invites elaboration, but simultaneously refocuses on a narrow diabetes-relevant cause (*the food*). This is an awkward moment and prompts the patient to withdraw his gaze, laugh ironically, lift his jumper and say, quietly "*ah well °never mind°*" – communicating disappointment. A brief but poignant narrative unfolds, painting a picture of a man who has reluctantly made lifestyle changes, restricting his enjoyment of life. Being a "*drinking man*" was part of his (male) identity and conjures up a social life around alcohol ("*when I had to give up the beer I had to give up an awful lot of other things:"*). At 19.11 the

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nurse slows and quietens her speech, perhaps encouraging elaboration, but the narrow biomedical focus of the template items is restored from 19.13 onwards, the patient justifying his whiskey by reference to its minimal 'sugar' content, which the nurse re-contextualises into even more 'scientific' terms – 'carbohydrates' and 'volumes'.

After the patient leaves, the nurse corrects the 'alcohol' record she had entered earlier. She replaces "14U" (copied from the previous year's entry in the template) with "7U". "*A whiskey a day*?" becomes 'one unit', in what is an uncritical shift from an *unquantified* volume of whiskey to an (apparently) *quantified* one. The complex interactions between the patient's diabetes, his identity as a "*drinking man*", his losses and his "*boredom with life*" are reduced to an institutional account which reads simply (and potentially misleadingly): "Depression screen – 'Y'; Alcohol – 7 units". The construction of particular versions of diabetes contributes to constructions of particular kinds of patient, discussed further below.

The electronic record shapes how care is delivered

The electronic record shapes care delivery in several ways. It is often the prompt to care, defined by 'overdue diary entries', overdue 'medication review' dates, and audits by a tool called 'Population Manager' identifying patients with missing QOF data ("*we've called you in*" – Box 1). Patients attend regularly, or may sign disclaimers, in a process which is institution-led, rather than patient-initiated. For example, in one practice letters of invitation to the 'cardiovascular check up' were signed off by '*Practice Administration*' (not a clinician) and couched in institutional terms ("*We are now regularly reviewing all patients who have angina or who have had a heart attack. As a result of this we would like you to attend a health check*…[further appointment details]. *There is no need to be concerned about this appointment we are just striving to maintain the standards of care we provide for you.*") The potential benefit to the patient is implicit and abstract rather than explicit and specific. For example, the justification for the check is presented only in terms of '*maintaining the standards*' or '*regular*' procedure. Despite receiving written invitations, patients often remained confused about why they had been summoned ("*What do you want to see me about then?*").

The requirement for data was – occasionally – the primary reason for the consultation. In one cardiovascular clinic a patient began by apologising for telephoning three days earlier to check whether her review was necessary. She had been reviewed in the hospital cardiology clinic the same week. The nurse responded by explaining that the practice is not always sent the information by the hospital "*and we have to have our records up to date*." ~~– an explicit and unapologetic bureaucratisation of care.~~What is interesting here is not so much that the

patient may well have had to attend two very similar appointments in one week, but that the need to keep the record 'up to date' is presented as adequate and sufficient reason for the appointment. The 'need' for data seemed to outweigh any need that this particular patient felt (or necessarily had) for care.

These examples illustrate that whilst on the one hand the electronic patient record facilitates the regular recall and review which are critical to a high quality chronic disease programme[47,47] ~~{Wagner, 1996 6188 /id}~~ there are potential pitfalls to a highly automated recall system, especially if it is disconnected from the wider set of relationships within which care is delivered, or if the rationale behind it does not make sense to individual patients.

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The electronic record also shapes and constrains how the consultation unfolds moment-by-moment. Chronic disease consultations often (though not always) took a linear and standardised format. Consultations tended to start and finish with the same questions, and focus on information gathering and documentation. One consultation was interrupted on two occasions by the patient standing up to take his leave, the nurse advising "*You can't go yet (laughing) …we're not finished yet*". It was common for nurses to face the computer screen as they explained the reason for 'calling the patient in', and the 'orderliness' of the clinic was often made explicit (e.g. "*We'll start with your blood pressure*"). Table 2 shows a detailed transcript revealing this institutional ordering in an asthma clinic.

[INSERT TABLE 2 ABOUT HERE]

In this example (Table 2), the nurse frames the consultation as an *assessment*, firstly to see how "*your asthma's doing*" (an assessment of the asthma) which she then reformulates as "*what you're doing with it when it's good, what you do with it when it's bad*" (an assessment of the patient's practices). This metaphorical separation of disease from patient was common. The use of the word "*assessment*" sets an evaluative tone and anticipates an enquiry which incorporates smoking status, inhaler technique, concordance with medication and peak flow measurement. The nurse emphasises (1:08 and 1:19) that it is *really* or *very* straightforward, and at 1:13 she counts on her fingers a three-part list, flagging the linearity of what is to follow and setting out what she and the patient should achieve. It might be interpreted as reassurance, but this is a reassurance about what he may expect of the *structure* of the clinic, not that his specific concerns will be addressed. Following this data extract, the nurse gestures towards the computer as she explains "*What I've got here is some questions that I – I need to ask you…they're fairly straightforward ones but what they tend to do with is that they will flag up whether there >actually< we have got what w- what I*

would call breakthrough symptoms." The institutional imperative is clear (*"I need to ask you"*) and again she highlights the *"straightforward"* nature of the task, as she identifies the template as the origin of the questions. As the patient begins to demonstrate his inhaler use, he coughs loudly five times, beats his chest demonstrably with his hand and announces:

> Patient*: "I do suffer very badly from phlegm in the mornings…which I presume is part and parcel of having asthma."*
>
> Nurse*: "It can be (.) yeah which (0.4) anyway I – we'll talk about that in a minute…we'll do the inhaler first."*

Despite weaving his own concerns into the assessment of 'inhaler technique' and using elaborate gestures for emphasis, the nurse steers the patient's activity back to the institutional script and does not revisit the issue of the morning phlegm. She later goes on to enquire specifically about asthma symptoms, but not until almost 16 minutes into the 19 minute consultation…when prompted by a template field reading "night symptoms".

The electronic record shapes what it means to be a patient

The template contributes to the construction of 'institutional' versions of the patient and may make it difficult for professionals to retain a perspective on the unique individual. One nurse said that the structure can make it difficult to "*take a step back*" – that some patients return annually for asthma checks even though she wonders whether they are definitely asthmatic at all ("*once they have acquired a diagnosis they just keep coming back*"). Whilst the asthma clinic may seem a reasonable setting in which to review a patient whose diagnosis is provisional or uncertain, the template does not handle such ambiguity well, and the recall procedures behind it can lead to the 'production' of consultations and the production of patienthood (the 'asthma patient'). There is considerable scope for unhelpful, potentially incorrect labelling of patients. An example is shown in the ethnographic fieldnotes in Box 2.

[INSERT BOX 2 ABOUT HERE]

Putting aside the absurdity that a 2-year-old has a Read code for "Never smoked tobacco" in his record, the example in Box 2 shows the disparity between the individual narrative that was built in the clinic and the "minimum data set" in the institutional account.[48][48][46] It also shows how the expressed ambiguity about the asthma diagnosis is wiped out (and not alluded to) in the record – numerous asthma Read codes are entered. Whilst this is sure to result in regular invitations to the clinic, the institutional 'truth' bears little resemblance to the

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reality it seeks to record. The contrast between the mother's relief at the *uncertainty* of the diagnosis, and the *certainty* which was constructed in the record is striking. More subtle, transient moments of ambiguity, which required the shaping of patients' accounts into an inflexible (often binary) categorisation, were common (e.g. a patient's hesitant 'not really' becomes 'no').

The electronic record shapes what it means to be a clinician

The opportunity for nurses to develop new areas of expertise in chronic disease management is frequently described in terms of 'role-expansion', 'professional empowerment, or "*Liberating the Talents*".[49~~49~~47] As the disease areas covered by the Quality and Outcomes Framework have increased, so has the variety of nurse-led, disease-specific consultations on offer. In this study, nurses were often defined by chronic disease specialty. For example, in one practice, photographs of the nurses in the waiting room had their disease-specific expertise listed alongside (e.g. Christine - Asthma). One practice newsletter read: "*Our practice nurses receive special training to monitor people with chronic diseases and to carry out many procedures independent of doctors.*" This entry not only constructs chronic disease as 'nursing work' but describes a 'monitoring' role which sounds different to the 'care' we may traditionally associate with nurses looking after the chronically sick. With nurses thus defined, general practitioners took on the role of 'trouble-shooter' or consultant,[50~~50~~48] called upon when more complex problems arose. In one practice, healthcare assistants conducted cardiovascular and hypertension reviews. Although able to gather information needed to *inform* chronic disease management (e.g. blood pressure, details of smoking) healthcare assistants are not clinically qualified. This 'redistribution' of chronic disease management to the least qualified (and least costly) team member has been previously described and shifts the meaning of the term 'management' towards one of managing data rather than patients.[18;50~~18;50~~18;48]

The extensive use of templates as a way of delivering chronic disease managements was rarely questioned. The little that was said was broadly positive, and echoed the "monitoring" perspective conveyed in the newsletter ("*templates encourage us to get to grips with the management of microalbuminuria in diabetes and take a more aggressive stance towards blood pressure control*"). Several nurses suggested they relied on templates and might easily forget things without them. However, one nurse said she tried to avoid relying too heavily on the template, as doing so tended to result in her "*losing her train of thought*"; she preferred to jot notes on paper to add to the template later. Some specific difficulties were voiced, such as the perception that important things may not be documented "*because there is nowhere in the template to put it*", and "*you sometimes become so absorbed in the*

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template that you can miss what is right in front of you in the patient." On one occasion when the computer crashed midway through a cardiovascular check, the nurse apologised in advance ("*I'll have to do it a little out of order because I've no computer*") and again afterwards ("*I'm sorry it's been such a higgledy-piggledy consultation*"). This incident highlighted the extent to which her work had become interwoven with technology use. It seems unlikely that this senior, experienced nurse could not do a cardiovascular check without the prompts before her eyes. Rather it was because her embodied practices had become so finely tuned to incorporate the technology that to conduct a consultation without had become almost impossible.

In one practice, an information technology manager was responsible for developing and maintaining computer templates, and he identified templates as a fundamental characteristic of quality care. A private company who had recently taken over the management of a local 'underperforming' practice was employing one of his GP colleagues to improve practice systems. He explained that *"they were very impressed with our templating";* the doctor had duly provided copies of their templates for the 'underperforming' practice. The integration of templates (and a new word – "*templating*") was presented not only as a *feature* of good practice, but as potentially constitutive of good practice in an organisation which was otherwise failing – a transferable 'good'.

The template contributed to redefining 'professional vision'[43~~42~~] by encouraging particular ways of looking, categorising and sense-making, fostering a particular orientation to the world, captured in Goodwin~~man~~'s words: "*When disparate events are viewed through a single coding scheme, equivalent observations become possible*" (page 608).[43] For example areas of institutional relevance (such as those which attract points in the Quality and Outcomes Framework) were often privileged over patients' more immediate concerns. The template shaped not only *what* was relevant to record, but also *how* this was recorded. For example symptoms were recorded as either 'present' or 'absent' when patients described a much more complex reality. The clarification of a patient's experience 'in general' was sought more readily than 'particular' experiences. The template brought new definitions of nursing and GP work, new conceptualisations of practice and new appreciations of what constituted 'good' practice.

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Using the template creatively

Some nurses displayed exceptional creativity in how they used the template. We illustrate this by reference to Tables 3 and 4 which show two extracts from a single consultation in the asthma clinic. In this consultation, the patient can see the screen if he turns his head slightly,

but the nurse does not start to complete the template until ten minutes into the consultation. Until then, she faces him across the corner of the desk, occasionally jotting notes on a paper placed between them.

[INSERT TABLE 3 ABOUT HERE]

The nurse uses several strategies to elicit a narrative at the outset (Table 3) beginning with an open invitation "*tell me* …" The word "tell" invites a story, and she shifts into a posture displaying readiness to listen, moving her chair away from her desk (and the computer and her notes). The patient hesitates and there are some relatively long pauses in his telling, but she refrains from filling these with anything other than tokens of attentiveness. She mirrors the patient's laugh and shrug of the shoulders from 1:10 to 1:15 in a way which is effective in encouraging him to tell some more.

She goes on to encourage the patient to describe his inhaler use, and learns that he had recently woken up short of breath. His inhaler had not worked well and he could not get back to sleep. She makes occasional notes, describes aloud what she is noting, then summarises the story which the patient confirms. Having established some confusion over when he should be using each of his two inhalers, she uses a picture of the respiratory tract as part of her explanation, saying "*I think if you know how the drug works on your body it makes sense how to use them*." She goes on to check his height and peak flow rate, then joins him ("*let's have a look*") as they cluster around the peak flow meter, each holding one end of it. The nurse says that it wasn't very good and that he can do better – which makes him laugh – then she demonstrates how to do it. After his second attempt they again cluster round the peak flow meter (N: "*tha::t was a bit bette::r …LOOK four hundred a::nd eighty*.") After a further attempt the nurse says "*Excellent. Well done. What we got? There we go. LOOK five hundred and thirty that time*."

The nurse and patient are fully involved in this activity, in Goffman's sense of being both cognitively and affectively engaged.[23] The nurse's talk is inclusive (*let's, we, what we got, there we go*) and her bodily conduct encourages a joint engagement in reading the peak flow meter. Having already created a collaborative environment, she turns to the computer for the first time almost ten minutes into the consultation (Table 4, 10.37).

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[INSERT TABLE 4 ABOUT HERE]

Again the nurse uses inclusive language as she orients towards the screen, inviting the patient to look. Between 10:39 and 10:43 she makes a deliberate show of navigating towards the asthma template. She enters his height, points at the screen, makes a joke. By making the template deliberately visible and socialising around it she retains control over the progress of the consultation and legitimises her need to attend to some institutional work. But by involving the patient in the recording activity (not literally, but through making it a shared endeavour and using much inclusive language) she effectively maintains a patient-centred approach whilst briefly attending to institutional requirements.

She invites further collaboration in making the template entry at 11:14 onwards (*five thirty was your best wasn't it*). The patient does not initially respond although he continues watching the screen. The computer automatically displays his "predicted peak flow rate (PEFR)". The nurse evaluates the measurement as a "*little bit under...but not too bad*", minimising any sense of trouble. But the mismatch between his 'actual' and his 'predicted' result prompts the nurse to reformulate her question to one which is more demanding of an answer ("*was five thirty your best?*") When the patient hesitates and suggests it may have been higher, the nurse suggests a recheck. This confirms the measurement, but the act of repeating it displays a collaborative approach. Neither nurse nor patient's account is taken as 'truth' – a re-measurement settles the matter. In summary, this nurse is successful in eliciting a narrative, whilst also making the bureaucratic requirements deliberately visible. She skilfully minimises the distance between 'individual' and 'institutional' framings of the patient.[31]

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A different nurse described herself as a "*paper person*" and yet also used the words "*template driven*" to describe her work. She said she had found it impossible to combine "*getting through it all*" with what she regarded as a patient-centred approach. She had negotiated with her employing doctors that her diabetes appointments were 30 minutes long (instead of 15 minutes) "*otherwise I would have just been completing the boxes with no time for the patient*". In this statement she highlighted a perceived gap between the task of being "for" the patient and the demands of the template. This nurse went to great lengths to minimise her need to look at the computer during her consultations, seizing brief opportunities as they arose (e.g. as patients removed socks, for example). She often placed her left hand on the patient's arm as she rotated her chair to look at the screen, keeping it there as she typed with her right hand – an awkward posture, but one which allowed her to maintain a physical connection to the patient as she attended to the template. She always went into surgery thirty minutes before her clinic was due to start, to prepare a written page of notes for each patient in her notebook. She meticulously studied the record of each

patient she was anticipating, and copied blood results and other information she thought she may need to refer to. She 'knew' the template, and would frequently anticipate the next field in the template before displaying it on the screen, weaving it into the consultation whilst keeping it relatively 'invisible' to patients.

In sociological terms, this particular nurse had internalised the template – working *with it* in a symbolic sense, but marginalising it from her embodied activity in the interaction. Her performed identity was as a 'paper person' who preferred to be "for" the patient in this new template-oriented 'field'[51;52~~51;52~~~~49;50~~] of practice, but the template was indeed central to her practice (she was "template driven"). She was 'driven' in the sense that she ensured that she completed it – as demanded by the institution – but also 'driven' to find creative ways of working around it. It had become part of a new professional habitus,[51;52~~51;52~~~~49;50~~] which helped to define her normative behaviours and expectations. She took the burden of managing the individual / institutional tension, but in this case it came at an opportunity cost to herself in terms of personal time, and a financial cost to her employer (since her consultations were now taking twice as long).

These examples of exemplary practice are important evidence that the technology is by no means *deterministic* of practices, but that there is always scope for practitioners to work with technologies in ways which preserve the 'relational' aspects of care and maintain full involvement with the patient.[53~~53~~] The electronic record *shapes* but doesn't *make; it constrains* but does not *prohibit*; it *makes possible* but does not necessarily *insist*.

Discussion

Summary of findings

In this paper we have focussed on the detailed practices of using computer templates in chronic disease management in UK general practice. In particular, we have highlighted the tension between different ways of framing the patient, and the requirement on clinicians (nurses especially) to sustain a dual orientation to both individual patient and institutional imperatives. This pressure to 'fit' unique individuals into institutional 'boxes' or to weave a bureaucratic process through a personal encounter[18;54~~18;54~~~~18;51~~] is evident at the macro-level of clinic organisation and in the moment-by-moment detail of clinical interaction, even down to the small gestures and nuance of talk. We have argued that electronic templates make a significant contribution to four interrelated phenomena: how disease is defined; how care is delivered; what it means to be a patient; what it means to be a clinician. In other words, the

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use of templates changes the very nature of what it means to 'care' in the contemporary chronic disease clinic. As we have seen above, 'care' is often reformulated as 'carrying out procedures' and stripped of the relational aspects of the word 'care'. The template can be seen to do *definitional* work.

The template is not just a simple faithful record of what went on. Nor is it just an aide-mémoire – though it may ensure, for example, that foot pulses are palpated and blood pressures taken (important aspects of diabetes care) and it is quite likely that these will be done in the order set out in the template. The template does not simply identify things which must be done but comes to define what chronic diseases *are*. On the one hand, the template is an impoverished 'squeezed in'[5555~~52~~] record of the encounter. It is where patients' stories morph into bytes of data; the particular becomes generalised; the complex is made discrete, simple and manageable, and uncertainty becomes categorised and contained. On the other hand, the template is *integral* to the consultation, and actively shapes what goes on, sustaining normative standards which are realised through consensus and performed daily through social practices. The work of transforming stories into data – and erasing ambiguity – is in itself complex interactional work for both clinician and patient. However this does not necessarily constitute the 'complex' response to a 'complex' problem as envisaged by Nolte et al, nor does it sit comfortably alongside the political rhetoric of 'nurse empowerment'.[10] [4949~~47~~] This 'new' skilled human work does not appear in the completed template, and seems to go unrecognised – even by those who are engaged daily in doing it.

At no point in our field work did we encounter any suggestion from participants that the care of patients with chronic diseases might be done otherwise. Arguably templates are taken-for-granted as part of 'good' chronic disease management. Nurses vary in their approaches, and individual nurses used different strategies within and across consultations according to emergent local contingencies. This is unsurprising. The constraints imposed by the template, and the inherent 'rationality-reality' gap[29] can be overcome (and our data suggest that they sometimes are) but this demands exceptional creativity. We have described one nurse's collaboration with a patient around the template and another who succeeded in simultaneously *internalising and excluding* the template. However these examples were unusual, and draw attention to what Blommaert calls "*creativity within constraints*" (page 107),[5656~~53~~] a local form of creativity which is situated in what he calls "*the borderline zone of existing hegemonies…it becomes creative because it is measurable against normative hegemonic standards, because it creates understandable contrasts to such standards*" (page 106). It is also important to acknowledge that templates are still a relatively recent introduction to clinical practice and that although they appear to be embedded as part of

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normative practice, it is possible that some clinicians are still on a learning trajectory with regard to modifying their practices to incorporate these new technologies.

In the institutional account captured through the template, 'care' (specifically 'quality care' as currently incentivised in the Quality and Outcomes Framework) and patients with chronic diseases all start to look the same. Does this matter? One argument goes that as long as the interaction between clinician and patient facilitates the narrative, the particular, the complex and the ambiguous and this occurs within a therapeutic relationship which supports relational continuity, then it may not matter much. But close observation of actual practice suggests that, more often than not, nurses are constrained by the linear, instrumental logic of the template with its tendency to privilege biomedical, measurable concerns. The consultation can become a relatively bureaucratic transaction in which patients are shaped into an institutional framework[5555~~52~~] and meaningful involvement is difficult to sustain.[23] Both nurse and patient experience institutional constraints on what may be talked about and what the chronic disease review can 'be'. Practices become 'regimented'.[57;5857;58~~54;55~~]

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Strengths and limitations of this study

A particular strength of this study rests with the sophisticated combination of qualitative ethnographic observation alongside video and screen capture, allowing us to open up the 'black box' of the electronic patient record to detailed scrutiny.[31] What emerges is a conceptualisation of the electronic record as *integral to* the social processes of consultation, not simply a peripheral 'add-on' to the consultation. Our approach has enabled us to study the subtle complexities of interaction between humans and technologies, whilst retaining a broad appreciation of the institutions within which these interactions take place.[595~~956~~] We have been able to build what anthropologists call a "thick description"[6060~~57~~] of the electronic patient record in its social context – combining detailed observational description with analysis and reflective interpretation. It has enabled us to explore working practices at a level of detail that more conventional qualitative methods (such as interviews or semi-structured questionnaires) cannot reach. For example, our focus has been on *actual* social practice rather than on participants' reports alone, and our enquiry has extended into the 'backstage' regions[37~~36~~] of general practice as well as the consulting room. We have been able to highlight the profound influence of the template by drawing eclectically on a broad range of data sources, shifting constantly between 'zooming in' on the moment-by-moment detail of the consultation, and 'zooming out' to consider organisational practices (what Erickson has called the 'social microscope' and the 'social telescope').[61~~6158~~] This linguistic

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ethnographic approach offers great potential for the study of complex social practices in contemporary healthcare, including those which incorporate information technologies.

Our approach is time consuming and resource intensive, and our prioritisation of *depth* of analysis over breadth has meant that we have included only two general practices in this study and these may not be typical of all practices in how they approach either chronic disease management or the use of technologies. Furthermore, both practices used the same clinical system (EMIS-LV) and there may be important technical differences between systems. However as a principle we favoured what Stake has called 'opportunity to learn' over concerns about 'typicality' [626259] and we hope that our work prompts new ways of thinking about the use of templates in chronic disease management. Templates are not unique to the EMIS-LV system, and we suspect that our findings may resonate with the experience of many clinicians who are using electronic checklists in the clinic. Although our methodological approach does not allow us to quantify the extent to which clinicians are able to combine a patient-centred approach whilst meeting the needs of the institution, we have been able to observe a range of practices which highlight the need to think more critically about what is being accomplished through the implementation and use of electronic templates in this context.

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Recommendations for policy and practice

Although considerable care is invested in ensuring the diligent use of electronic templates in general practice, much less attention is paid to how these are actually used by clinicians, or to the possibility that incorporating a template might profoundly change the way in which care is 'enacted' by professionals, and experienced by patients.

Ostensibly the data recording necessary for institutional processes such as the Quality and Outcomes Framework emerges effortlessly from regular clinical care, and serves to improve the quality of care. Our data show that paradoxically, the focus on what is measurable and recordable in templates, and designed to assure certain standards of 'quality' care (such as those identified in the QOF) can lead to a bureaucratisation of care and may serve to marginalise those aspects of 'quality' practice which lie beyond their focus, and which do not lend themselves to 'data capture'. These include – but are not limited to – the extent of the patient's opportunity to construct their narrative and the extent to which the clinician and patient are fully 'involved' in the interaction. Arguably these may well be aspects of care which mark out 'quality' care from 'minimum to be expected' care. Whilst incentivising clinicians may well result in better data quality it should not be assumed that the quality of

care (in its most holistic sense) improves, although the care of the patient may be profoundly changed.

We suggest that in educating for chronic disease management, it is essential to incorporate greater recognition of the way in which clinicians integrate the electronic patient record and to regard this as an integral aspect of the consultation. The rational institutional logic inherent in the template does not align easily with the complexity of emergent dialogue between clinician and patient and it seems unlikely that minor adjustments to the design of template fields would address the communication challenges that we have identified in our research. However, it is essential that clinicians grasp fully the importance of the dialogue and learn ways of responding dynamically, creatively and individually to particular patients' concerns so that ~~In particular, that special effort is made to ensure that~~ the patient's unique experience is not overshadowed by institutional imperatives. Although we have identified examples of these practices as 'exceptional' (page 15) it is in these exceptional practices that we suggest there is considerable scope for optimism in the face of increasing technologisation of care. The challenge for clinicians and educators is to appreciate that the incorporation of templates and other technologies renders the consultation *more complex* rather than *less complex*…and hence this is worthy of explicit educational attention. –We would also urge a shift towards models of care delivery which embrace multimorbidity as the norm and which seek to embrace the complexity of this reality in primary care, while still allowing appropriate data capture to inform the evidence-based management of specific diseases.

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Research ethics approval

Research ethics approval was granted by Thames Valley Multi-centre Research Ethics Committee (06/MRE12/81) in January 2007 and subsequent amendments.

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Data Sharing

No additional data available.

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Contributorship

The paper is based on a PhD thesis written by DS and supervised by TG and CR. DS and TG conceptualised the HERO study. DS completed all data collection. All authors contributed to interpretation of the data. The paper was drafted by DS and revised with input from TG and CR. All authors approve the final version. DS is the guarantor for the paper.

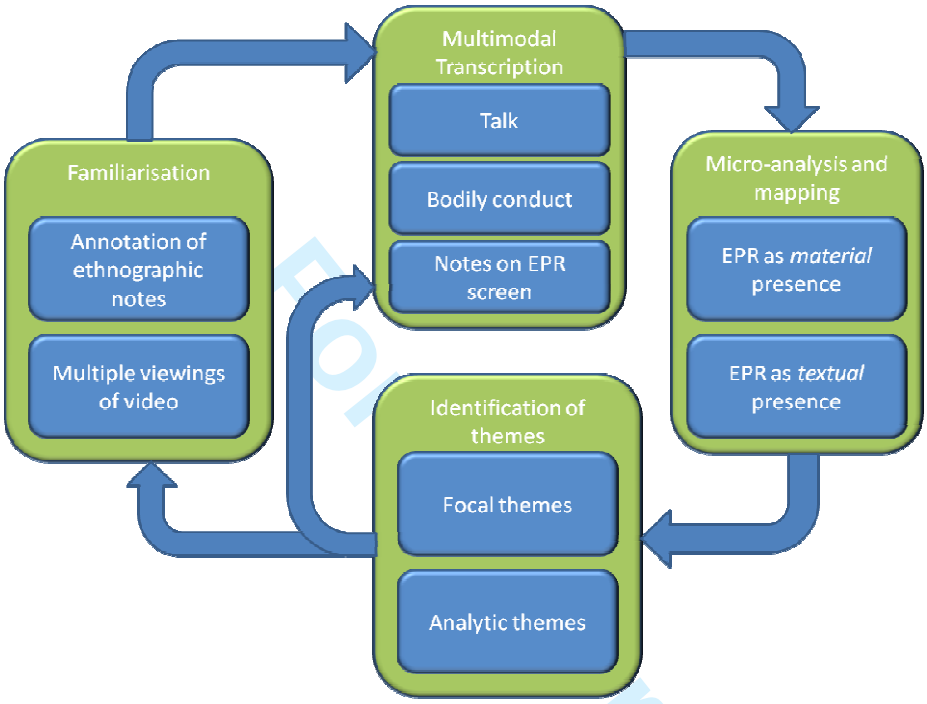

Figure 1. Approach to transcription and analysis

Box 1. Framing the purpose of the chronic disease management clinic (ethnographic fieldnotes)

A frail-looking 86 year old man struggled in to the clinic, barely able to walk. He was very deaf. He hung his walking stick over his chair and grimaced as he sat down, looking as if he was in pain.
The nurse said loudly "We've called you in to look at you from the heart point of view. I know you have a lot of other things going on but we've called you in to look at your heart." She then asked "How often do you use the angina tablet under your tongue?" The patient replied in a way which made his most pressing concern clear: "Not much...for the simple reason that I can only crawl like a tortoise"
Nurse: "and the simvastatin?"
Patient: "no...I stopped that. I think it's giving me diarrhoea. These hearing aids are not very good you know. I've had it adjusted several times but I'm really disappointed. I had hoped for better than this"

Box 2. Constructing patienthood in the asthma clinic (ethnographic fieldnotes)

Sam, a lively 2-year-old came with his mum. He ran excitedly around the clinic room investigating every corner. His mum seemed exasperated and said she was not getting far with his treatment, a plastic "spacer" device to which the "pumps" were attached. The boy's dad and grandparents were asthmatic, but Sam only saw his dad occasionally at weekends these days.

The nurse explained that the diagnosis of asthma cannot be certain in a 2-year-old. Things might be clearer by the time he was about 4. His mum was obviously relieved to know that it was not a definite thing. She was very anxious that her ex-partner wouldn't know how to look after her son when he goes to visit. She asked "*There's nothing I could have done to stop him getting it, is there?*" The nurse explained it was not her fault and did what she could to be reassuring. She explained what the different inhalers do…

The nurse pointed towards the computer, saying that she was going to make some notes. She completed the template line by line and there was no talking for several minutes. Sam ran towards the door and started rattling the door handle, but his mum said firmly "*NO…you've got to wait for the lady to finish her typing*".

The nurse handed over a prescription and they left.

The EPR consisted of a collection of Read coded entries with some limited free text alongside:

Never smoked tobacco
Inhaler technique moderate
Inhaler technique shown (needs to commence low dose ICS. I will monitor)
Symptoms occur at night (7/7)
Asthma limiting activities
Asthma management plan
Asthma compliance satisfactory (needs ICS)
Asthma daytime symptoms (consistent cough)
Asthma medication review
Asthma monitoring check done
Follow up asthma assessment (date)

Table 1. Extract from consultation in diabetic clinic

Time	N/P	Words spoken /sounds	Bodily conduct	Screen
18.54	N	Does the diabetes get you ↑ down Mr C?	N - > EPR; P looking down doing shoelaces N < - > P	Diabetes template, with fields completed relating to foot examination. Cursor highlights field "Eye Clinic" (Y or N)
		(1.0)	N < - >P. P puts hands on both knees.	
18.57	P	I get bored with life.	P frowns	
18.58	N	Bo::red? What bored with the f:ood o:r	P turns head to gaze at adjacent chair. N - > P P < - > N	
		(1.2)		
19.00	P	HA HA HA	P turns to adjacent chair and lifts jumper	
19.02	P	.hhh ah well °never mind°	P lifts jumper as turns toward N again	
		(0.2)		
19.04	P	I u::- used to be a drinking man	P <-> N P looks straight ahead. N remain looking at P	
		(0.8)		
19.06	N	[right		
19.07	P	[And when I had to give up the beer I had to give up an awful lot of other things: (.) surprising really.	P holds jumper up in front of him and arranges it, looking at it as he talks	
19.11	N	°<Yeah (.) yeah>°	N - > P	
	P	mm	P looks ahead, purses lips	
19.13	N	So you have a whiskey	P turns to N	
		(0.8)		
19.15	P	Yeah I have a whiskey at night	P < - > N	
19.16	N	°yeh°	N nods	
		(0.2)		
19.17	P	Cos ↑whiskey hasn't got much sugar in [surprising	P returns to rearranging jumper holding it up in front	
	N	[no:		
	P	its all been turned into alcohol a good whiskey maker so		
		(0.8)	P still holding jumper in front turns to N	
19.23	N	And beer has quite a lot of carbohydrate doesn't it	N - > P , N nodding slightly	
	P	[yeah	P returns gaze to jumper, nodding	
		[when you think of the volume		
		(0.6)	N turns gaze to her desk	
19.27	N	°okay°	N gazing at desk, P arranging jumper	
		(1.6)		
19.29	N	°All right then°		
		((N typing for 12 seconds))	P looking ahead putting jumper over head. N rotates to face EPR	Bypasses field "diet" Bypasses field "impotence" Next field is "depression screen" –enters 'Y'.

Table 2. Setting up the frame for the asthma consultation

Time	N/P	Spoken word	Bodily conduct / notes on EPR
01:08	N	So really straightforward.	N puts paper on desk
		(0.4)	N rotates body and gaze to face P, her hands on her lap. P looking at N
01:09	N	Asthma assessment	
		(0.4)	
	P	Okay	P nods
01.11	N	to see how your asthma's do:ing:	N raises both hands in front
01.13	N	what you're doing w- with it when it's good, what you do with it when it's ba:d, (0.2) have you any problems with your ↑inhalers (0.4) .hhh	N uses fingers to count (on "good", "bad", "problems")
		(0.5)	N hands open out in front of her
01.19	N	Very straightforward stuff	N hands to lap
	P	Oka[y	P nods
	N	[all right? .hhh	
01:21	N	U:::hm	N rotates body and gaze to EPR screen, hands on lap
01:23	N	What I've got here	N gestures her open hands towards the EPR screen (displaying the patients "summary" screen)
01:24	N	Is that you're on:: (0.4) a purple inhaler?	N rotates back towards P, bringing hands together
01:26	P	(0.2) Yeh (.) uhm (0.2) seretide.	P glances briefly towards the EPR screen

Table 3. Opening of asthma consultation

Time		Words spoken	Bodily conduct / EPR screen
00.57	N	..uh SO: (0.6) [tell me [C (0.3) what inhalers do you u:se (.) an:d when do you use them.	N writing Remains oriented to P as makes one keystroke to display prescriptions N rotates her chair, pulling it back away from desk & re-orientating so that posture and gaze are towards P. She gestures towards his inhalers on the desk with her L hand on "what inhalers"
		(0.4)	N draws chair closer to P, still oriented towards him
1:02	P	U:::hm (1.8) Well say like if I get >sort of< out of breath	 P rubs his nose P puts his hand on inhaler, looking at N
		(0.4)	
1:07	N	Uh uh	N nods
	P	then I'll take the brown one.	P points to brown inhaler on desk and looks at it
1:09	N	Uh uh	N nods, looking at P
		(1.2)	Mutual gaze
1:10	P	but uhm	P looks down at inhalers
		(2.7)	P <-> N. P shrugs his shoulders
1:14	P	He [he	P smiles, and slight laugh as looks at N
	N	[he he he	N joins P in smiling and a slight laugh. N shrugs her shoulders
1:15	P	I mean sometimes I'll use the blue one.	P lifts blue inhaler just off desk, looking at N
		(0.4)	
1:17	N	Right	N nods

Table 4. Creative use of template

Time	N/P	Words	Bodily conduct	Screen
10.37	N	Let's pop it in the screen and see what we've got.	N pulls her chair in to the desk, gazing at screen. P ->EPR	Consultation screen
10.39	N	[A::dd [C (C) [Templates [C (C) [Respiratory [C (C) [Asthma [C (C)	N types keystrokes with her R hand holding PEFR meter in her L hand. P looks at screen throughout	Consultation screen. Entry 2 months earlier by receptionist – *Asthma check due.* Navigates to "templates" List of templates presented Selects R – respiratory templates There are 4 respiratory templates from which she selects A asthma
10.43	N	So Monitoring check [DONE [C [Now [C your height was a hundred and seventy one point fi::::::ve .hhh look you've grown a centimetre	 N looks down at piece of paper to L of her desk then types in his height into template N gazes at screen and points to the screen sweeping finger across to show him the previous height on the template	First line in template "monitoring done" – she adds Y (yes). Hits return so today's date is entered. Then skips a line called "except report" Field: O/E height,
10.49	P	Have I HE HE (laughs) [C C] (0.8) [Doesn't show it [C	 [return]	Field: O/E weight, last recorded entry 16m ago
	N	he he (0.2)		Field: smoking status (7 options). Last recorded entry "Never" 30m ago
(Transcript not shown)…				
11.11	N	O:kay ↑SO::	N looks down at paper on her desk, pointing at it with R hand	Field: Peak Flow Rate
		(1.0)		
11:14	N	Five thirty was your best wasn't it	N->EPR; P ->EPR	
	N	((C C C C)) (3.7)	N -> keyboard as types. P->EPR	Enters 530, return displays today's date. EPR calculates predicted PEFR as 600
11:19	N	So: your predicted is 600 >so it's a little bit< under but that's not too bad	N and P looking at screen	
11:24	N	↑was five thirty your best?	N -> EPR; P-> EPR	
		(1.8)	N reaches for PEFR meter and looks at gauge. P - > N	
11.27	P	[°was it five eighty?°]	N tightens cap on PEFR, P looking at N	
	N	[Just do it once more for me		
11:29	N	DID YOU::?	N passes PEFR to P who stands up as receives it	

Appendix

Transcribing conventions, adapted from Atkinson and Heritage (1984)

[onset of overlapping speech	**.hhh** inbreath
] end of spate of overlapping talk	**Hhh** outbreath
[[speakers start a turn simultaneously	**=** no pause between speakers; contiguous utterances
: preceding sound is lengthened or drawn out (more : means greater prolongation)	**(( ))** a non verbal activity (e.g. **C** = keystroke in this work)
Underlining emphasis	**(text)** unclear fragment of text
(.) pause of less than 0.2 seconds	**.** falling tone (not necessarily end of sentence)
(0.4) pause, in tenths of a second	**?** rising inflection (not necessarily a question)
↑↓ marked rising / falling intonation	**CAPITALS** louder than surrounding talk
>text< the talk they surround is quicker than surrounding talk	**<text>** the talk they surround is slower than surrounding talk
°° the talk they surround is quieter than surrounding talk	

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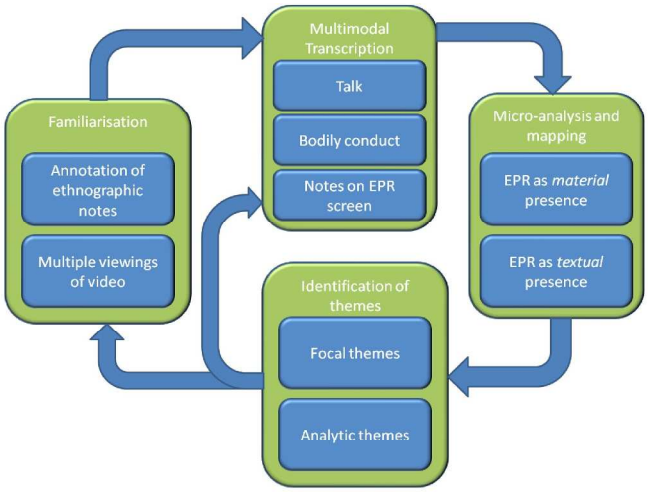

Figure 1. Approach to transcription and analysis

215x279mm (300 x 300 DPI)

Box 1. Framing the purpose of the chronic disease management clinic (ethnographic fieldnotes)

A frail-looking 86 year old man struggled in to the clinic, barely able to walk. He was very deaf. He hung his walking stick over his chair and grimaced as he sat down, looking as if he was in pain.
The nurse said loudly "We've called you in to look at you from the heart point of view. I know you have a lot of other things going on but we've called you in to look at your heart." She then asked "How often do you use the angina tablet under your tongue?" The patient replied in a way which made his most pressing concern clear: "Not much...for the simple reason that I can only crawl like a tortoise"
Nurse: "and the simvastatin?"
Patient: "no...I stopped that. I think it's giving me diarrhoea. These hearing aids are not very good you know. I've had it adjusted several times but I'm really disappointed. I had hoped for better than this"

Box 2. Constructing patienthood in the asthma clinic (ethnographic fieldnotes)

Sam, a lively 2-year-old came with his mum. He ran excitedly around the clinic room investigating every corner. His mum seemed exasperated and said she was not getting far with his treatment, a plastic "spacer" device to which the "pumps" were attached. The boy's dad and grandparents were asthmatic, but Sam only saw his dad occasionally at weekends these days.

The nurse explained that the diagnosis of asthma cannot be certain in a 2-year-old. Things might be clearer by the time he was about 4. His mum was obviously relieved to know that it was not a definite thing. She was very anxious that her ex-partner wouldn't know how to look after her son when he goes to visit. She asked "*There's nothing I could have done to stop him getting it, is there?*" The nurse explained it was not her fault and did what she could to be reassuring. She explained what the different inhalers do…

The nurse pointed towards the computer, saying that she was going to make some notes. She completed the template line by line and there was no talking for several minutes. Sam ran towards the door and started rattling the door handle, but his mum said firmly "*NO…you've got to wait for the lady to finish her typing*".

The nurse handed over a prescription and they left.

The EPR consisted of a collection of Read coded entries with some limited free text alongside:

Never smoked tobacco
Inhaler technique moderate
Inhaler technique shown (needs to commence low dose ICS. I will monitor)
Symptoms occur at night (7/7)
Asthma limiting activities
Asthma management plan
Asthma compliance satisfactory (needs ICS)
Asthma daytime symptoms (consistent cough)
Asthma medication review
Asthma monitoring check done
Follow up asthma assessment (date)