Supporting Informality: Team Working and Integrated Care Records

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ABSTRACT
This paper reports findings from an ethnographic study of the work of Adult and Care of the Elderly Community Mental Health Teams in the context of the deployment of an Electronic Medical Record. Our findings highlight the importance of informal discussions and provisional judgments as part of the process by which teams achieve consensual clinical management decisions over time. We show how paper-based documentation supports this collaborative work by affording both the revision of preliminary clinical management options and the accretion of contributions by team members with different clinical perspectives and expertise. Finally, we consider the implications both for teamwork and the Integrated Care Record (ICR) as clinical documentation becomes increasingly held and distributed electronically.

Categories and Subject Descriptors
K.4.3 [**Computers and society**]: Organizational Issues – *Computer-Supported Collaborative Work*. J.3 [**Life and behavioral sciences**]: *Medical Information Systems*. J.4 [**Social and behavioral sciences**]: *Sociology*.

General Terms
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1. INTRODUCTION
Individuals with mental health problems have complex needs that require coordinated care from a number of health and social care agencies. Following the Mental Health Act (1983), a number of policy initiatives in the UK have highlighted the need for collaborative working in mental health in order to achieve this coordination (e.g., [1,2,3]). The National Service Framework for Mental Health [3] and Scottish Framework for Mental Health Services [2] make explicit the need for joint assessment and care planning by health and social care agencies. In addition, these documents also specify that coordinated care should encompasses multi-agency discharge and after care arrangements as well as out of hours care and crisis services. The perceived advantages of this integrated approach to service provision includes efficient use of staff, effective service provision and improved quality of care.

In the UK the response has been the creation of Community Mental Health Teams (CMHTs), bringing together psychiatric nurses, social workers and allied healthcare professionals (e.g., occupational therapists) to provide mental health services in the community. Although CMHTs are seen as the cornerstone of interdisciplinary and community based mental healthcare, there is growing concern regarding the variability in quality of inter-professional working within these teams [4]. Deficiencies identified with inter-professional care delivered by CMHTs include a lack of clarity of line management, a lack of distinction between clinical and administrative decision making, problems of accountability within the team and professional, and hierarchical differences between team members and consultants [5]. These deficiencies are seen to stem from different professional cultures, power, values, language and models of mental illness [6,7,8] as well as a lack of joint management [9,10], and as leading to inter-professional conflict, confusion and role ambiguity and the maintenance of professional boundaries as a protective mechanism [11,10,12]. The UK National Health Service (NHS) focus on organizational integration has, however, not been matched with attention to inter-professional relationships [13]. There is growing recognition that merely calling groups of professionals teams is not, by itself, sufficient to address issues of professional identity and team development [13,14,10].

The service fragmentation that has long been a feature of healthcare in the UK and elsewhere has been blamed to an extent on the inability to share information and so the development of shared infrastructures and IT systems are seen as a means of achieving service integration [15,16]. In mental health, computer-based patient records are thought to provide clarity about patients' progress in the service and the care received from various staff as well as rapid access to information needed in a crisis or emergency [17,18]. There are many authors who advocate the benefits of IT in solving problems of interdisciplinary teamwork

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[19,20,21]. Meadows and Chaiken [21], for example, advocate 'the use of technology to improve clinical teamwork and workflow, thereby improving patient safety'. In contrast, a Sainsbury Centre report highlights a number of difficulties in creating shared information systems between social and health services, including: the need for substantial investment from a number of partners, problems with networks and data links, control of access to data and confidentiality [17].

Aside from these developments in the area of mental health, in the UK information sharing has become a central theme in medical and social care policy more generally. It is argued that a single Integrated Care Record (ICR) detailing all interactions between patient and care providers will enable access to more and better quality data, leading to better treatment and the realization of 'seamless' healthcare [22]. The current NHS Care Records programme seeks to develop a technical infrastructure for delivery of shared records through a central records 'spine' and local service provider contracts in England and Wales. Paper-based records are seen to have a number of significant shortcomings [24] which the ICR is expected to remedy [25]. The perceived ease of access, consistency, and completeness of the ICR will afford audit of clinical governance programmes and healthcare cost control by providing access to information on clinical decision-making and outcomes [26]

To date, progress towards shared records has fallen short of expectations [27] and studies cast doubt on whether the ICR [28,29], can actually deliver the anticipated improvement in information collation, distribution and use, and promote service integration. Though electronic patient records are now common in UK primary and secondary care sectors, records are still largely local and departmentally oriented [30,27]. Our own studies [29] reveal important discrepancies between the presumptions of the role of the ICR and the ways in which healthcare professionals actually use and communicate information. They indicate that much of the 'organizational knowledge' regularly utilized in coordinating work is not of a kind that is transparently visible in procedures or simply facilitated by reference to the patient record. This holds true for all kinds of knowledge centric activities [31,32]. Providing computer support for such knowledge work, in all its contingent aspects, requires that systems necessarily pay attention to the occasioned character of activities. Knowledge is a matter of organizational relevance; of understanding the context in which things are known. If the aim is to embed knowledge properties in systems then it needs to be captured and managed not only in a way that will make it accurate, available, accessible and effective but, most importantly, usable. Such a task is hardly a matter of simply computerising existing records, but raises complex conceptual and empirical issues that need to be understood [33].

In the specific case of CMHT teams, while the literature spells out the professional and organizational problems faced in the move to the provision of integrated care, there is little understanding of the mundane, routine day-to-day actions and interactions that interdisciplinary teamwork actually turns upon. Nor is it shown how the 'problems' outlined manifest themselves in the routine, day-to-day practices of CMHT members. We argue that when equipped with such an understanding we are better able to determine the ways that the deployment of ICTs might impinge upon or afford the sorts of interdisciplinary work envisaged by policy.

In this paper we describe the formal and informal character of information sharing practice within CMHTs, based upon an ethnographic study of three such teams conducted over the period of a year. The CMHT workplaces are 'information rich' and, like Reddy and Dourish [34], we can see that there is an ecology of information sharing within the worksite. Reddy and Dourish highlight how the 'rhythms' of medical work are linked to the sharing of information where the routine patterns of work provide both the opportunities and means for making relevant information available, and indeed, for giving information its relevance. Likewise we identify similar patterns in the work of the CMHT teams, but note that these are not only linked to how information is shared, but also when it may be *withheld*, for reasons including incompleteness, provisionality and confidentiality. It is a commonplace that 'there is a time and place for everything' and our study shows how appropriate information exchange (or withholding) is a profoundly situated matter tied up within a nexus of time, place and collegiality. We explore how teamwork within the CMHT, in part, turns upon sharing locally provisional formulations of both patients' illnesses and of possible management decisions, which are collaboratively 'worked up' over time, prior to being 'published' in the patient's medical record. This affords a consensual decision-making process whereby team members with differing experience and expertise can contribute. We also show how paper-based documents afford provisionality, and examine the implications of and for ICRs that might support inter-disciplinary working. Finally, we unpack the some of the implications of our findings for CSCW, and argue that a shift of emphasis is needed within the CSCW community if collaborative practices are to be effectively supported by large-scale, organizationally embedded IT systems.

2. METHODOLOGY

Ethnomethodologically-informed ethnography [35], observes in detail everyday working practices and seeks to explicate the numerous, situated ways in which those practices are actually achieved, and the things that such an achievement turns upon. The data comprised copious notes and transcriptions of talk of CMHT members as they went about their everyday work. Such an approach is attentive to the ways in which the work actually 'gets done'; the recognition of the skills and cooperative activities through which work is accomplished as an everyday, mundane, practical activity and in making these processes and practices 'visible'. The method seeks to explicate the situated character of work, as a practical production by members performing their activities within all the contingencies of local circumstances, to portray the variety of activities and interactions that comprise working life and the ways in which work is understood and accomplished by those who do that work.

Longitudinal fieldwork enabled the researchers to observe a range of work activities as undertaken by various members of the setting. The aim, then, was to become sufficiently familiar with the setting and its contingencies so as to provide detailed explications of the constituent features of members' work. It merits mention that not all members carried out their work in the same way, and that the researchers' familiarity with the setting and members afforded possible points of comparison. This was

not to play one member off against another or to evaluate but to explicate the 'how' of work practice. The researchers (GH and MH) spent a total of 31 days in the research setting over a period of a year, and took detailed handwritten notes describing the work of the CMHT. Observations were made of the team's record keeping, meetings, face-to-face discussions and phone calls, but not of their interviews with patients.

3. THE CASE STUDY

Our study was conducted in the context of three interrelated organizational developments aimed at enhancing the integration of care delivery.

The first development was the creation of multi-disciplinary CMHTs comprising Community Psychiatric Nurses (CPNs), support workers, social workers, occupational therapists and psychologists. Team members were co-located in the same premises, contributed to shared clinical notes, shared the same line management, attended team meetings jointly, and collaborated in providing care for patients.

The second development was the introduction of an Integrated Care Planning Pathway (ICPP) that specified procedures for the delivery of care. The principal concept of the ICPP is that of the 'key worker', who has the "primary coordinating role in individual cases" including "being the central point of contact for everyone involved … Facilitating effective inter-agency communication … Continuing to hold a liaison role where the person is admitted to hospital" (Local ICPP Documentation). The key worker also has responsibility for care planning and monitoring and reviewing care plans.

The third development was the introduction of a shared electronic database to support use of the ICPP (referred to hereafter as the ICPP Database). The ICPP Database supported the recording of referral details, who had what responsibilities with respect to the patient, the recording of the patient's assessment, recording of the care plan and of progress notes. The ICPP Database provides a replacement for the paper pro-formas that were part of the ICPP documentation, as well as embedding some of the procedural aspects of the ICPP. During the course of the study, the ICPP Database was in the process of being rolled-out, and take-up was as yet uneven. At the outset of the study, some members of the Care of the Elderly CMHT were using the system, but it was not being used by the adult CMHT.

The work of the CMHT was intertwined with that of other 'service providers' including inpatient psychiatric services, general practitioners, social work departments, statutory, voluntary and private agencies providing care. This entailed working with these organizations and agencies in more or less formal ways. To illustrate: a patient might be referred to the team from (amongst others) general practice, a psychiatric ward, or a health visitor. Care might be provided by the CMHT itself, but also by social services (day care), inpatient services, GPs and others. The funding for respite, homecare and day care was obtained by application to social services. Other sources of finance (typically benefits) might be sought from government agencies. Information might be shared between these different agencies informally – thus a home help or health visitor might alert members of the CMHT that a patient was experiencing difficulties or they might request advice. There were also more routine and formalized means of information sharing – CMHT members attended the ward round at the psychiatric hospital, and also GP practice meetings. There could be considerable formality involved in transactions between services, for example, obtaining funding for a care package involved completing a complex series of forms and returning these to social services for panel adjudication.

One notable feature of CMHT work was an almost constant informal exchange of information and experiences by team members in the CMHT office. Conversations about patients predominated, but there was also talk about different sorts of medications, the healthcare trust and local team's administrative systems and management, and the availability and quality of services for patients. Topics for discussion typically arose in and as part of the work underway within the office, for example, where there was a specific difficulty with a service or patient.

In contrast, discussions in team meetings were more structured and systematic in character. Team members worked through various lists of patients drawn up prior to the meeting, including: lists of current inpatients, those for whom an assessment had recently been conducted, and lists of new referrals. These mechanisms ensured that the team discussed each patient's case thus maximizing the input from the different team members, who brought to bear their different disciplinary or experiential perspectives, whilst minimizing the risk of a patient or referral being 'overlooked'. The following fieldwork extract (taken from handwritten notes) summarizes a discussion between Jane, the team leader (who is also a CPN); Marjory and Avril who are CPNs and Derek, a social worker (all names are pseudonyms):

Marjory: [The patient] "got himself into [name of hospital]" said that he had cut himself in front of his parents. Marjory wants to get the [hospital doctor] to keep him in for a bit longer to "take the heat out of the situation a bit", but has the concern that the patient might become dependent.

Jane: Says that there is an "increase in people like this". Says that the mother of the client was on the phone to her this morning - that the client has "not got a mental illness, but probably got asperger's, but no-one's bright enough to say that". She goes on to say that "now everyone's so black and white" indicating that existing services are not flexible enough to accommodate the patient.

Avril: "I can work systematically with families"

Jane: "Not this one you can't"

Marjory: "If anyone has any ideas about this…"

Derek: "This might be a retrograde step but what about the [service name] adolescent adoptive strategy" (He goes on to say what they do, and gives reasons why it might be appropriate.)

Marjory: "They would have to be very caring" She said that they had attempted to engage the patient with another organization providing social activities – but that it fell through because [persons name] was off sick and there was no one to introduce him.

Jane asks Avril whether she would be able to do anything.

Avril says that she could provide support for his family and look at what triggers his behavior. Says that she would like to go along when Marjory next sees him.

The exchanges outlined above are triggered when Marjory brings to the team's attention that one of her patients has been admitted to psychiatric hospital. Marjory and Jane know the patient and their family well, but Avril is new to the team. Marjory is asking for help with how to manage her client: Avril suggests that she can "work systematically with families", drawing attention to expertise she has acquired in her previous post. Derek, the Social Worker, offers another candidate approach, namely engaging the patient with a 'befriending' service. Both suggestions are initially treated with a degree of skepticism ("not this one you can't", and "they would have to be vary caring"), giving a sense of the sorts of problems and difficulties that Jane and Marjory anticipate in engaging with the client in ways suggested. Having exhausted the team's candidate approaches, Jane orients to Avril's expertise in working with families again, and asks what she might be able to contribute.

Jane, the new Community Psychiatric Nurse who had joined one of the teams in the study, began to take her own caseload of patients, with whom many of the other members of the teams had previously worked. This lead to discussions similar to the one above addressing team members' previous experiences of working with those patients, what the patients were 'like', how they responded to CPN or support worker involvement. In this way the new CPN was 'primed' for her involvement with the patients, and while there was an expectation that she might be able to bring a new or fresh perspective, members also conveyed the limits of what might expectably be achieved by CPN involvement.

Team members shared accounts of previous involvements with patients, and also of involvements with the patient's relatives, and in this way could 'fill in' various details about the patient's family and history. Team members sometimes talked about this process as 'building a picture' of a patient's circumstances or illness. Sometimes in these discussions team members covered 'old ground', describing circumstances that were already well known, thus reasserting jointly shared views about their orientation to a client's illness and its management. Also, within the team the 'naïve questioner' played a role of asking 'why can't we….?', where it was good for the reasons 'why not' to be restated, not only because everyone was reminded of them, but also as an opportunity to question taken for granted procedure. In significant ways this process resembles Wieder's discussion of the 'telling' of the convict code: Wieder points out that 'the code was self – and setting-elaborative' [36] – it could be used to understand utterances, and these examples in turn served to elaborate the code itself. Utterance and code stand in a reflexive, mutually elaborative relationship. When patients were allocated for assessment in the meetings, particular disciplines and skills were oriented to (as in the above example), thus one team member might suggest that another 'take on' a particular case, because they were recognized as being skilled at dealing with, for example, postnatal depression, or working with families. This served to remind team members about individual competences, and to demonstrate that members were valued for those competences. Team members took turns in chairing the meeting and taking minutes, signaling their involvement as being on an equal footing to other members. In one team, a rota detailing responsibilities for chairing and minute taking for team meetings was drawn up several meetings in advance and displayed on a notice board. The importance of this can be seen in the response of one team member, who was employed by a charity and not included on the rota. She felt that this omission indicated that she was in some way not fully recognized as being a team member.

From the above, we can see how teamwork turns on membership. Membership is continually re-established through routine everyday activities and it is these activities that are constitutive of membership. A sense of 'how we do things around here' is central to the recognizably adequate completion of tasks and in turn is elaborated by this sense. In what follows we will explore further team members' communication and documentary practices, showing how management decisions and clinical judgments are collaboratively 'worked up' by the team over time.

4. COMMUNICATION AND DOCUMENTATION

4.1 Record keeping

The use of paper-based records (i.e. the reading and writing of records) was seen as a critical activity to ensure consistency of care, the accurate following of Care Plans and the proper application and monitoring of treatments. Case notes were seen as charting the unfolding trajectory of the patient's illness – comparisons were significant – whether there had been improvement or deterioration over time, what might be regarded as 'normal' for this patient and so on. Some of these aspects had been formalized, for example, one CPN had developed a pro forma to monitor side effects and effectiveness of anticholinesterase drugs. Paper-based notes included several sections for use by different healthcare professionals (e.g., CPNs, social workers, support workers and occupational therapists) to record details of their assessments and input, as well as sections for discharge, referral and benefits agency letters, assessment sheets, the care plan and progress notes.

In addition to the formal documentation of patients' care in the clinical record, various additional documentary practices were also in evidence. Diaries were used to schedule appointments, accumulating in the process brief details or 'aides memoire' concerning clients – that is, details relevant to a particular visit (such as medication or geographic directions) or notes made as a consequence of the visit. All team members used notepads for, *inter alia*, making 'to do' lists, taking notes during visits, assessments and telephone calls and writing letters and assessments in longhand to be typed by secretaries. As well as documentary practices being more or less formal in character, there was also variation in the degree to which the resulting documents were made available to other team members. Notepads and diaries were the 'property' of individual team members, who would typically keep them about their person much of the time, take them home, and be the sole person to access them. On the other hand, the patient's clinical record had a more 'public' character, in that there were a number of people (through convention or legal privilege) who were potential readers. One might consider the placing of material into a record as an act of publication, albeit to a restricted audience, undertaken in the light of whom that audience might consist of, and what their purposes in accessing the record might be.

Writing, and typing in particular, was used for formal information passing in the form of referral letters, various reports and assessment forms, with the information therein becoming authoritative and accountable statements of the patient's illness

and the CMHT members' activities. In contrast, discussions concerning the possible nature of a patient's illness and management often had an interim or provisional character that was fluid and subject to change. The provisional character of discussions allowed questioning to take place and uncertainty to be expressed as well as new information to be added. The upshot of discussions illustrates the eminently revisable nature of prior understandings and concomitant actions: that is to say, what became available in discussion could and did impact on the professional judgments of the staff. Furthermore, issues might be discussed and information shared that could not be documented in the clinical record corpus because of the various ways members could be held accountable for its contents as a consequence of its 'public' and 'formal' character. An example of this occurred in a team meeting when a team member, whilst stating: "I shouldn't know this", informed the rest of the team that she has learned of a patient's pregnancy.

One can view verbal communication, handwritten records and electronic records existing in a rough kind of hierarchical order, whereby what is communicated or documented has an increasingly 'permanent' character, becomes more authoritative, accountable, and potentially available to a wider audience. Communicating verbally allows some of the strictures obtaining to written communication to be relaxed, enabling risks to be taken, expressions of uncertainty, and so on. Reflected in this hierarchy is the team's approach to decision-making. A typical pattern was for an assessment to be conducted, notes taken, informal discussions held between co-assessors and other team members, for the case to be more 'formally' discussed during a team meeting, and some final outcome or action decided which was then documented in the notes. This ongoing discussion accretes contributions from different team members, enabling the sharing of information, skills and professional perspectives, whereby a number of possibilities may be considered and discarded as provisional understandings and positions shift towards a concrete, agreed upon, documentable and accountable course of action.

4.2 Affordances of paper-based documentation

The reification over time of management decisions and 'clinical opinions' was supported by the affordances of paper documents. One example of this was the completion of assessment forms. On one occasion, a team member was observed to erase text written in pencil from the 'Outcomes' section of the form (other sections of the form were completed in pen). She stated that her reason for this was that she had written down her ideas about how the patient should be managed – but that she anticipated that following discussion with the rest of the team, and the consultant psychiatrist, that some of her "ideas" would be taken up, some would not, and others might emerge during the course of the meeting. She then proceeded to complete the form in pen. Similarly, when assessments were jointly conducted, the form might be passed to the co-assessor and their opinion asked as to whether this was a fair assessment, or whether anything had been omitted, following which the form might be amended. What is also notable about this way of working is that assessments were usually 'jointly produced'.

The 'component' nature of the patient record allowed for individual parts to be provisionally completed, but not 'published' as part of the record corpus, until a finalized version of their content was agreed upon by the relevant team members. Thus the 'publication' of a provisionally completed part of the record could be limited initially to those who were party to the activities documented – until a consensus with respect to its contents was established – prior to making it available to a wider audience. In this we can again see these activities as part of the 'grammar' of teamwork – the way that various rights, obligations and expectations are enacted in the management of the circulation of information as part of how the team 'works up' clinical opinions, decisions and assessments.

Paper records also allow provisional and finalized documents to be interleaved. For example, one of the team's occupational therapists (OT) hole punched her assessment notes (written on the pages of a reporter's notepad) and placed them in the record folder in lieu of the properly completed assessment form. The assessment notes acted as a promissory for the formally and properly documented assessment. Placing the notes in a 'public' space – the clinical record – signaled ('publicly') both that an assessment had been done, and that the notes pertaining to that assessment might legitimately be read (despite their provisional character) by others authorized to examine the record. At the same time, that the notes could obviously be seen to be handwritten indicated that they were provisional – that they should be read (in various sorts of ways) as being partial, incomplete, subject to revision and so on. The seemingly straightforward act of making assessment notes available also provided a means for the OT to manage her workload (by deferring, on some occasions, the completion of her assessment) whilst making some details of that assessment available to others but in a way that signaled their provisional character.

4.3 Provisionality and Electronic Records

In contrast, computer medical record systems generally, and the ICPP Database in particular, rarely support provisionality and the sorts of fine grained management of the circulation of provisional documents. Information entered onto a computer system is viewed as an accountably authoritative and finalized account. Typically, such electronic documents are non-editable, and where they are an audit trail is available, solidifying the process of revision, perhaps in unwanted ways. Furthermore, the content of the computer system is more readily available to a wider audience (in this case, for example, to medical secretaries and clinical staff in the inpatient wards), making it more difficult for the team or team members to maintain authorial control over the distribution of various documents. This led some users of the ICPP Database to delay entry of collaboratively produced data into the computer system until the account had been jointly agreed and finalised as the following extract from fieldnotes illustrates:

A CPN logs onto the ICPP database. The fieldworker asks if this is about the assessment that she did yesterday – she says yes – but that she is only entering the patient's telephone number, which is ex-directory, so that the [consultant psychiatrist's] secretary will have access to it. But that she is not entering details about the assessment as this was done in two parts – that [consultant psychiatrist] did a long interview with the patient, then spent a long time talking to the client's daughter while the CPN spent more time with the patient. I ask if she was not party to the discussion with the daughter. The CPN said that she had briefed [consultant psychiatrist] about the issues there because she had

spoken with the daughter on the telephone yesterday – but wasn't there for the interview. The CPN said that it was a long assessment – about two hours – that she would wait for the [consultant psychiatrist's] letter – that otherwise she "might be wasting her time and make a mistake".

In this example, the CPN explicitly used the database to share information (the patient's telephone number with the consultant psychiatrist's secretary). She was, however, more reticent about committing her assessment to the system, precisely because the assessment was one which was jointly conducted, requiring that she take account of the conclusions of the other party to the assessment. Rather than each of the co-assessors separately and individually documenting each assessment, a single assessment document was produced representing the jointly held and jointly accountable views of each co-assessor. Through a process of establishing consensus, potentially different versions of events or interpretations could be 'ironed out' and a single coherent, agreed by all, version produced that all were willing to be accountable for. An accountably authoritative assessment required that she draw both her own and the consultant psychiatrist's impressions together (particularly, in this case, because she was not party to the interview held with the patient's daughter). Thus she had to wait for the consultant psychiatrist's letter before she could put together a 'publishable', jointly ratified account of the assessment. Thus the ICPP Database supported the sharing of simple 'factual' pieces of information (like telephone numbers), but not the joint authorship of documents that might initially have an interim and provisional status.

5. Coupling of policy and documents

One of the differences between paper and computer-based documentation resides in the degree to which policy and documents can be coupled. Paper-based documents may signal policy by displaying written instructions that, for example, mandate certain fields, indicate confidentiality, set limits on circulation, or specify how the document should be completed and by whom. While policy might not always be signaled directly in this way, documents will often fall under the rubric of well understood organizational strictures concerning their appropriate handling and use. One example of a locally implemented policy in one of the teams studied was that patient records should not be left out on desks overnight (presumably to guard against opportunistic access by cleaning or other service staff). Although paper-based documents are subject to various policies in the ways outlined above, we might say that policy and document are 'loosely coupled' because adherence to policy depends on the compliance of those making use of the documents. Within an organization a number of methods for ensuring a degree of compliance are routinely applied, including: the imposition of sanctions for non-compliance, contractually specified obligations (particularly in respect of confidentiality), the publicizing of both policy and its justification on organizational grounds through the use of public notices, memos, training and so on. On the other hand, members of an organization develop a fine-grained understanding of what aspects of policy, for practical purposes, might be adhered to and when, in order to complete the work at hand. Thus, for example, an understanding that a record of a patient's assessment should not be subsequently amended does not preclude a CMHT member's use of assessment documents as templates for drafting and revising candidate versions of management decisions. Furthermore, while working broadly within organizational strictures, members of professions (particularly in medicine) often reserve the right to make judgments about policy depending on their professional reading of specific situations.

One episode that occurred during the course of the study illustrates some a number of the themes outlined above. During one team meeting, the team leader announced a 'tightening up' of policy with respect to the handling of patient case notes – that they should not be taken out of the office, nor should they be taken home overnight. The only exception was for the purpose of multidisciplinary review meetings held on different premises, in which case they should be 'signed out' of the office, but returned the same day and 'signed back in'. While this policy was broadly understood prior to the meeting (although interpreted in subtly different ways by different team members), informally a number of CPNs did take case folders out of the office, and home, as a means of effectively managing their workload. The area covered by the team was geographically large and predominantly rural, and so taking case notes out 'on visits' enabled visits to be scheduled more efficiently, and taking them home precluded an additional return trip to the office at the end of the day. The team leader provided an organizational justification for the policy, namely that it was in response to changes in UK legislation, specifically the data protection act, stating: "the UK data protection act did change to cover paper files". One team member was particularly dismayed, in part because his 'patch' was remote, and so the practical implications for him were greatest, but also because he saw it as undermining his professional autonomy: "I'm a professional – I've not lost a file in 26 years. If they take that away from you what have you got?" The practical implications were not so great for other team members, but the policy did problematise other (informal) aspects of their practice:

Barbara (a CPN) says that it is not so bad for herself [taking notes out of the office]. What she did previously was to read through the notes in the car prior to going in. The only change is that she looks at the file in the office prior to going on the visit. Says that this works for her, but not necessarily for other people, who cover areas away from [town name]. But her problem is her diary - she has names, sometimes addresses, and other notes to jog her memory. Looking through her diary she points out where she has written a depression score and dose of current medications. When bringing these issues to the attention of the team leader, he states that the diary is an "essential tool", and that some people go further and write notes in their diaries. Barbara says that she does this "on almost every page". The team leader indicates that he has nothing to say about it just now, that difficult issues are raised and that Barbara should note her concerns and bring them up at the meeting.

This brief sketch serves to illustrate the loose coupling between policy and paper-based documents, the sorts of organizational remedies that might be applied where informal practices are seen as too far removed from 'official policy'. It also shows something of the relationship between professional and organizational responsibilities, where for the first CPN, the proper care of records is incumbent on and constitutive of his professionalism, whereas the risk of losing a record is not one that the organization is willing to countenance. Something can also be seen of the limits to which an organization is willing to pursue compliance – the team leader is evidently more 'relaxed' about patient details that get recorded in ad-hoc ways in diaries. A further observation

is that different sorts of documents afford policing to a greater or lesser extent. So, for example, whilst it might be relatively straightforward to ensure case files are not removed from the office, it would be more difficult to ensure that staff members refrain from entering patient details in diaries.

Turning to computer-based record systems, we can observe that a closer coupling is afforded between policy and electronic documents. The mandating of fields in forms can be enforced, accesses restricted by a system of privileges and authentication, accesses audited and so forth. Thus organizational 'rules' can be more directly and tightly embedded, leaving fewer opportunities for profession discretion to be exercised. The 'elbow room' disappears as such affordances are closed off – the enforcement of a set of notables runs, in many ways, counter to the practical ways that the organizations' work gets done, especially in that it does not allow the working up of case notes and the like. Take, for example, the case of the mental welfare officer who is accorded access to records in order to decide if a patient should be sectioned under the mental health act: the welfare officer's access is negotiated situationally (there being discretion as to what can be accessed as a matter of getting the work of assessment done in a time and resource limited environment). Such access can be managed locally in the case of paper-based records but with electronic records the formality of access means that this ad hoc activity has to be formalized, to cease, or to be undertaken via another member of staffs' password. This turns the problem from one of reading to one of authorship and hence authorizing – that access is given through a colleague means that the colleague is marked as the author of the report and is accountable for its contents.

Looking at Bittner's 'gambit of compliance' [37], i.e., the practical, situated ways in which team members achieve their work while orienting to the procedural exigencies set out by the organization we can see that this persists in such situations, but the crucial difference is in the accountability. The surveillance of compliance inherent in audit trails and so on means that informal ways of working, the 'seen but unnoticed' organization's work, become readily apparent if and when required. Consequentially, what a person writes becomes the business of the organization well before it would have been so using paper-based records – persons become accountable for preliminary versions and revisions and as such may be reluctant to commit their comments to the system before undertaking the kinds of work they already do using paper based systems. We might question the impact of this duality of work on the organization itself.

6. DISCUSSION

The concept of organization and the sharing of knowledge within that organization are, of course, intimately tied to each other. What is known in common and what knowledge others have that they may wish to share with colleagues either formally or informally (and indeed knowing which of these to choose) is central to doing the organizations' work. Informal information sharing between colleagues within the organization (and indeed between organizations) gets the work of that organization done and informal information sharing exhibits Bittner's 'gambit of compliance'. We should stress that Bittner's analysis does not endorse an 'anything goes' approach to information sharing, but rather points to the ways that members of the organization make things work in practice. In orienting to some information as sharable through 'corridor talk' or through verbal as opposed to written communication, members of the organization comply with the formal rules vis-à-vis the confidentiality of information while making important items available to colleagues. As Barthes observed in another context 'what is noted is by definition notable' [38], and the informal sharing of information can be regarded as imparting notables without notes. Practically, different structures of accountability obtain where information is shared informally: when something is 'down in black and white' as it were this can be referred to later and the person making the statement held accountable – a different mode of accountability attaches where information is imparted via corridor talk, persons may be told that their information is wrong or may have subsequent information taken with a grain of salt, but these are informal remedies that exist in the main outwith the bounds of the formal structures of the organization.

Our findings reveal the importance of informal discussion and provisional clinical judgments for the effective operation of multi-disciplinary healthcare teams, and the need for computer systems to support or at least acknowledge these as significant. They also resonate strongly with findings from a parallel study of IT implementation in primary mental healthcare [39], which found that managers and clinicians engaged in lengthy discussions about who[1] (which consultant) should enter patient diagnoses in a new computer information management system; at what point[2] a diagnosis should be entered, and where[3] in the system this information should reside. All these questions related to their view of the diagnostic process as collaborative, provisional, incremental and potentially mutable, given that the IT system was felt to freeze data in unhelpful or restrictive ways. In this case the outcome was that the new system was not used to record diagnoses as it was unable to support the real-world diagnostic process.

It is worth bearing in mind that healthcare practitioners and managers often do not have a well-formulated understanding of how crucial provisionality and the artefacts that afford it are to multi-disciplinary professional teamwork. Hence they can find it problematic to articulate some of the difficulties they may experience with electronic record systems. They may apologize or be denigrated for having an 'outmoded' attachment to their paper records, when in the absence of any (effective, electronic) means to support this, their actions make practical sense. Doing work 'in rough' and then again 'in neat' may be taken by outsiders to

[1] For example, the consultant having initial out-of-hours emergency contact with the patient, or the consultant to whom the patient was eventually and more appropriately referred.

[2] For instance, some consultants considered that it could take several meetings with a patient to arrive at a stable diagnosis, especially where a specific crisis had led to the referral but there was also an underlying condition, and given that arriving at a diagnosis could sometimes be an ongoing, collaborative and contested process, as in the case of our three CMHTs.

[3] Whether with the permanent patient details, implying fixity, or with details of a contact occurring on a specific date to indicate either potential mutability of the diagnosis over time, or the identity of the practitioner making a diagnosis on that particular occasion.

indicate that practitioners are unsure of their work, or acting like learners, when this appears to be a characteristic part of the activities of a fully-fledged clinical professional working as part of a multi-disciplinary team. One useful starting point might therefore lie in making known to NHS practitioners, managers and system designers alike the value of the informal and provisional practices, including record-keeping, that underpin and enable everyday clinical teamwork.

7. CONCLUSIONS

Viewing clinical management decisions and judgments as collaborative productions that are both dependent upon and constitutive of teamwork has potentially a number of implications for the ICR. It would be a mistake to view the clinical decision-making and judgment as discrete events that can be pinned down in documentation as they happen. Instead it appears that partial, preliminary, speculative and incomplete documented versions can play a crucial role in the collaborative production of judgments and decisions over time. One might then see the Integrated Care Records as a repository of 'final' judgments, ones that have already been worked-up by the team, and are considered to represent (for all practical purposes) an agreed to, consensual and accountable version fit for 'publication' on the system. At the same time, the 'phasing out' of the paraphernalia associated with paper records – review pro-formas and the like – would deprive team members of the 'tools' they use to structure the formation of decisions and judgments. This would not necessarily mean that alternate and preliminary versions would never be produced, just that their production, circulation and revision would have to be improvised in different ways.

Alternatively, an argument might be made for supporting preliminary, revisable versions electronically, as part of the functionality of the ICR. This would recognize that collaboration between healthcare professionals in CMHTs does not only take place on the basis of sharing already accomplished judgments and decisions, but in the very formation of those judgments and decisions. Also that it is as part of these very processes that relations within the team are continually re-established. This prospect of supporting preliminary versions, however, raises a number of challenges, not least in terms of technical complications and additional resources. Perhaps the major challenges, however, would arise from concerns associated with 'publishing' 'works in progress' electronically, where traces can be left (perhaps in unanticipated ways), where it becomes more difficult to control circulation, and where there is a danger that a provisional formulation might be mistaken for a finalized version. Paper-based records are sometimes seen as being insecure precisely because they can be altered and amended [40], however, it is just this property that affords the 'elbow room' needed to allow a representation of initial, exploratory and provisional judgments. It is precisely this 'elbow room' that, for many good organizational reasons, electronic patient record systems seek to eliminate [40]. Part of the challenge then, would be to support informality in ways that are organizationally acceptable.

It would seem that integrated care records systems are, in the main, modelled along the same lines as airline reservation systems – always online, and always up to date. While this model may have its advantages in that it increases organisational control and enables strict auditing (what information was recorded in the system at a particular time and who had access to it), it fails to acknowledge and support the kinds of professional practices we have described. The consequence of this in practice may well be that the system fails to achieve one of its main aims, namely to make more information accessible on time, as people develop practices around the system, committing information to it only once it is 'publication ready'.

The CSCW community has developed a range of technologies that seem to us to be better positioned to support the accomplishment of teamwork and that affords informality and locally developed practices. While one may easily envisage how the CMHT in our study might make use of CSCW technologies to support their collaborative practices independently of the ICPP Database, it seems to us that the grand challenge for CSCW would be to find ways of integrating means to support informality into such systems.

In this regard, it would appear that lessons learned from CSCW studies have not, as yet, made a major impact on how large-scale IT systems are designed and implemented. Most work is collaborative, but large-scale IT systems are often poor at supporting the collaborative dimensions of work. Some of the issues raised in this paper could be addressed in relatively simple ways within a computer system, for example, by allowing provisionality to be signaled, and by supporting end user control of permissions for sharing of provisional documents. However, the implementation of such mechanisms would add to their complexity and would be costly. Perhaps more importantly, they would also compete for priority alongside what are often seen as more pressing technical and organizational requirements arising as part of any such large-scale development effort [41].

One way of lowering the costs of adding CSCW functionality would be to provide commodified groupware components (as opposed to applications) that can be used in the same way as SQL databases, web application containers or transaction managers in the development of enterprise-scale applications. We argue that instead of the CSCW community developing horizontal applications, which are not linked to specific working practices and sold as 'groupware', there should be a shift of focus to what might be seen as CSCW middleware. This would comprise flexible, customisable software components that aim to support informal and collaborative working practices, but that can be made part of large scale (inter-)organisational systems such as integrated care records or, to take an example from another domain, production management systems.

As we have argued elsewhere [42], an important benefit of a component-based approach is that it lends itself naturally to being user-led. It provides users with the opportunity to appropriate systems to their specific needs by controlling the selection and customisation of components deployed in the local context of use; that is, precisely where it can have the greatest impact on the usefulness and usability of organisational IT systems.

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