Institutional Ethnography (IE), Texts and the Materiality of the Social

Marie L. Campbell
University of Victoria, Victoria, BC, Canada mariecam@uvic.ca

Abstract

Institutional ethnography (IE) explicates puzzles that people confront in their everyday experiences. In this approach, the social is understood to be always brought into being by people's actions that are socially and purposefully organized. Texts are analysed as material components of social organization with the capacity to replicate in different settings concepts and language that shape local actions, coordinating people in local sites with others located elsewhere. There is ruling power in such social organization that as Dorothy Smith, IE's originator, says is put together by relations that extend vastly beyond the everyday. IE is a method of inquiry that discovers how ruling works, and texts are methodologically crucial for an institutional ethnographer's tracking and mapping of the institutionally designed social relations that rule social settings. This paper illustrates doing IE with an analytic sketch of nurses using hospital information systems.

Keywords: institutional ethnography, texts, experience, ruling relations, hospital information systems, nurses

1. Introduction

My contribution to this Mini-track topic is an account of how, in institutional ethnography (IE), documents (or, as institutional ethnographers say, texts) are understood to be trans-local components of the social organization of everyday life. Texts "are forms of writing, speaking or imaging that are replicable and hence can be read, heard and watched by more than one individual, in different places and at different times" having the capacity to "suture modes of social action organized extra-locally to the local actualities of our necessarily embodied lives."[1] I draw on a program of research I have conducted on electronic health care information systems used in nurses' work (in Canada: [2] [3] [4] [5] [6] [7] and in the USA:

[8]). My research has important convergences with that of Berg and Bowker [9] and Berg [10]. Berg and Bowker insist that the (paper) medical record that they examine is constitutive of the patient's body, or, at least, of how the body is represented for medical work, arguing however, that the medical record's relation to bodies is complicated, "not merely mirror[ing] the bodies it maps" (…nor) "determin[ing] them" [11]. In addition, Berg and Bowker see the medical record at work in the "constitution of the hospital worker" [12] leading them to attend, as I do here, to the record's political relevance, the power exercised though the record's mediation of the hospital work. Berg's [10] single authored article pursues this question of power, querying how we should comprehend what he calls the "generative power" [13] of the electronic medical record. Both these analyses treat medical records as material elements of the work of medicine that they explore sociologically.

I make use of their research on medical records here, as I contrast their sociological analysis with my institutional ethnography[1]. In studying

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[1] Using Marx's "new materialism" (The German Ideology and The Poverty of Philosophy) that focuses social analysis on the language in which experience is expressed and thus brought to a knower's consciousness, Smith [1] has devised institutional ethnography as an alternative sociology. Marx's key insight (as sociologist) is that people's actions constitute "the social" and that theoretical concepts and explanations obscure the connections between people and the social relations of a definitely organized means of production, substituting what he called "ideology". He used the example of "commodity" that as concept obscures the relations of those involved in its production, making the relations of exploitation invisible. Because the social is always enacted as relations among people, a materialist not a theoretical analysis is needed to adequately understand people's lives. Smith [16] reinterprets this insight for sociology: institutional

nurses' use of a contemporary version of Berg's 1990s electronic medical record, I recognize the importance of what Berg and Bowker have shown us, and the elegance of their analyses. Yet I am not entirely satisfied with their conclusions. It is the activation of texts constituting "the social" that interests me, and in my research I attempt to learn how people using texts and undertaking text- mediated action constitute what actually happens in their settings. IE helps focus my inquiry into how a setting is brought into being as its participants know and experience it. This paper describes how I track nurses' activation of health information texts in the settings under study, drawing those texts from their dormant (but also material) state into the realization of definite institutional practices and institutionally preferred outcomes. It is my goal to demonstrate how in just such text-mediated and institutionally organized work processes, nurses actualize plans, policy, finance-oriented calculations, professional commitments, and institutional purposes. The electronic texts "instruct" nurses how to do their work (although as Berg and Bowker would say, the instructions do not determine the exact limits of the work). Even so, I argue, power is exercised through definite, materially present, forms of text-mediated social organization.

2. Berg's conceptualization: Medical work (terrain), its representation (map)

Berg [10] addresses empirically a problem that itself is theoretical: competing sociological theories explain the power of technology by treating it either as intrinsic to the so-called formal tool (here, the electronic medical record) or attributing it to human agency. The framework within which Berg [14] addresses this theorized question of power proposes

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ethnography analyses what actually happens, explicating the language used in theoretical or abstract explanations, and identifying the actualities that particular social relations coordinate.

Institutional ethnographers seek out the connections – often textual – materializing the social relations that rule what people do and how they experience their everyday lives. If, as institutional ethnography claims, social life is purposively organized and ruled, its actualities - that change as technology advances - can be tracked and mapped to show precisely how a social setting works.

that power can be understood by looking at the "interlocking of formal tools with human work". He [15] conceptualizes and diagrams the interlocking relationship as the "terrain" of medical action at one pole, separated from the "map" provided by the medical record, at the other. Between them is a "gap" that must be crossed and Berg explores how the medical record plays its part in making this crossing. His analysis of vignettes from the working site shows both the map and human workers, as well as the artifacts employed, being active – neither one nor the other is "in charge"; the actions, he declares, become a hybrid phenomenon – a network of actants being balanced internally and against other intersecting networks in the site. Notwithstanding my truncated characterization of Berg's complex analysis, I find his argument *about balance achieved* unconvincing. For me, his notion of balance must be seen as an issue of power. I recognize that my interest in the power of information systems in health care extends far beyond Berg's analytic interest and his admirable, empirically-grounded, solution to the problem of power and technology posed within sociological theory. Berg's framing of his investigation, his formulation of a "gap" between the theorized poles – one standing for the ground of medical work and the other for its textual representation – allows him to refute both contending theories of the power of technology. Yet I propose that using that sociological framing also means that he misses seeing the power that information technology carries into health care settings, when he describes various kinds of interaction as "balancing" its effects among the actors involved.

3. Textualization of work as ruling practices

In contrast to Berg's conceptualization of terrain and map being "interlocked" by human work with the addition of special artifacts (treated as actants) in the research setting, I draw on Dorothy E. Smith's [16] "reinterpretation" of Marx's materialist method, and her "alternative sociology". Both the ontology and the politics of knowing are re-interpreted by Smith for institutional ethnography. People are understood to enact what actually happens – that is the ontology of the social; ethnographically-described "actualities" are analysed to recover from them the traces of their actual, material, social organization. In research that Janet Rankin and I [7] recently conducted, our ethnographic data offer instances of texts (in this

case, computer screens of the electronic information system) informing and instructing nurses to undertake particular activities; our data also show how those nursing activities play out in the experiences of patients and families, as well as of the nurses and nursing care involved. Here, my analysis is of what actually happens as nurses work with the texts of the computerized system to bring into being the purposively organized hospital (unit) that the texts "represent", and that particular people enact and/or experience as nurses' work. I see, not balance, but ruling relations and disjunctures that people experience – and that must be analysed to track them backwards or forward in the institution. My materialist framework tells me to look for socially organized connections between local happenings and the ruling discourses and practices that are being played out by actual people. That kind of analysis makes visible the social organization that participants normally can and do take for granted, for instance, the social processes through which decisions get made, priorities are set, and resources are made available. Discovering the use of particular texts in a setting opens up their place among other artifacts that are activated, becoming integral and authorized features of the work and of the actualities that the work produces.

Reading Berg and Berg/Bowker offers some clues as to how their analyses focus on empirical data differently than I do, and why our studies yield different findings about the power associated with information technology. Let's consider the way Berg formulates the adequacy of the medical record's categories that guide practice. The categories are seen to be expressing how the work was done in the past, and not establishing an entirely new version of the work. The naturalness of the past being expressed in the medical record's new categories is integral to Berg's argument about balance. Medical actors are assumed to make sense of the categories and take up the work that the record stands for – bringing their present work into alignment with the text's expression of it. For Berg, both past and present are phenomena where "power" is *not* to be made an issue. Things just happen, people know how to adjust, and balance occurs. My analytic framework requires me, as an institutional ethnographer to pay methodological attention to the subject of any such action. Looking for the subject of the aligning of medical work, I notice that neither the medical actors nor the patient whose body is acted on are present in

Berg's analysis of "alignment" and "balance". The patient has been objectified in the process of being textualized and the textual version of the patient is substituted for the experiencing subject - who subsequently disappears from Berg's analysis. In this, Berg proceeds as if the electronic medical record can reliably and ethically stand in for knowing a person. The text and its interpretation in medical work is also naturalized, not a struggle for those who activate it. Yet, Berg also wants to understand what happens in what he calls "real time" [17]; and he takes into consideration what is done (by nurses) identifying them as actors in the stories being told about the aligning of work and the tool: but it remains a researcher's account of how doctors and nurses act that somehow, over time, brings their therapeutic actions into contemporary articulation with the record. The point that Berg makes is important and compelling– health care work comes to reflect the record's version of it. My concern is that he loses the subjects from this account. In my view, to comprehend how this articulation happens, an analysis must be conducted of *the actual use of* the electronic tool by the actors who use the text and do the work on specific patients. When we don't see how the tool works, including what action is taken by whom, we miss its local effects. Who experiences the relevant (changed or changing/ that is, articulating) actions? To whom does it matter that local practices change to reflect their textual representation?

I draw on data that Janet Rankin collected to show that it matters that nurses bring their work into line with its textualized version. The data suggest how it makes a difference to the patient in terms of comfort, safety or wellbeing, and to the nurse and his or her judgement about the use of their scarce time. These data can't be interpreted to coincide with Berg's assumption of a naturally smooth articulation of work to its textual representation. Berg was aware, as is now standard implementation practice, that people from across the institution review the electronic medical record at every stage from its design through implementation and operation stages, and identify glitches and repair its working. But to adequately understand what happens to fit and re-fit an electronic information system into a complex institutional setting, that work must be studied empirically. The workable balance that Berg insists is reached must be examined as materially and socially organized ruling practices. Their traces are there to be

followed. It is not good enough to imagine what happens as a network of heterogeneous actants and artifacts intersect with other networks in a hospital site [18]. The data I analyse show the institutional use of this tool in people's hands coordinating their actions, and their decisions about what to do and what must be done. (This coordinating power is intrinsic to the technology's purpose, of course, being a trusted feature in the setting I study of institutional efficiency and effectiveness.) In contrast, Berg's focus on sorting out a theorized problem of power bypasses any particular people involved and their concerns; to get at my interests in power as ruling relations, I formulate my inquiry around questions of knowing – and of standpoint.

4. The social world enacted: institutional ethnography's theory of knowing

Institutional ethnographers bring to their inquiries a theorized interested in how the social world is constituted as people know, enact and experience it [19, 20, 21]. We aim at "knowing the social as people actually bring it into being" (through) "the actual ongoing ways in which people's activities are coordinated (…) that connect up multiple and various sites of experience, … ordinarily inaccessible to people" [22]. Our research designs direct analytic attention to puzzles arising in the actualities of people's everyday lives that researchers can access, for instance, through ethnographic fieldwork. A key assumption in IE is that what can be known depends upon where the knower stands: institutional ethnographers therefore address in special analytic ways people's everyday accounts of their experiences. We assume that people are expert knowers of their everyday lives, but that everybody's knowing is bounded by the experiential horizons of the locations that they occupy. Institutional ethnographers assume that this expertise, like all knowledge, is socially organized and has a standpoint. It is crucial to any analysis being made that the standpoint is not left implicit and unexamined. Institutional ethnographers' analytic goal in explicating the social organization of

people's everyday life is to discover how different standpoints are constituted and how some of them are authorized institutionally. Institutional ethnographers assume that the social is not a separate sphere isolated from the economic world, and our analysis of the social relations of knowing has this same integrated

character. Assumptions provide cues for what can be tracked empirically. For instance, analysing institutional health care records as socially enacted (knowledge) can bring into view the workings of the ruling relations.

Institutional ethnographers, learning from their informants' experiences, and from analysing the texts that are integral to nurses' work, choose whose standpoint to take in inquiries we conduct (that is, whose lives and experiences we decide to problematize). Our inquiries explicate the particular social organization of *those* experiences; we make explicit the standpoint being explicated in the knowledge we produce. Our analysis goes beyond the experiential account of the actualities that our informants have given us. We must cross analytically, not a "gap" as Berg conceptualized it between terrain and map, but rather the boundaries of people's experiential knowing. After all, for everyday explanations, people rely on their own and their friends' ideas, academic and professional theories, and conventional beliefs - discourses that circulate in various ways. Institutional ethnographic analysis relies on the social organization of the settings we explore that appear as textually mediated processes moving across experiential boundaries of space and time; we exploit that conception of social organization, methodologically, to track the (often textual) features of the enacted social world. Ethnographic data provide (material) traces of the social relations connecting local and extra-local sites, and texts of all kinds become relevant to such investigations. Texts are important elements in accomplishing the everyday working connections among sites, and these texts are also crucial for research purposes. Institutional ethnographers look for how people, engaging with texts, take action within the ordinary constraints, expectations and opportunities they meet, how they make the choices and take the actions that they do. Institutional informants (such as the nurses introduced in the next section) act as they know how or as they learn how to do their work - bringing in their prior knowledge and training as they decode and respond to textual rules and inducements, enacting institutional routines and procedures, "tweaking" them as they find necessary and possible. This is what I mean when I say that social life is socially and increasingly,

since the mid-20 century, textually organized. The texts are always enacted by real (embodied) people in actual sites.

All contemporary institutions operate on the compilation and processing of information – information technologies are so widely dispersed as to be routinely, even globally, required for today's commercial, cultural and social intercourse. Institutions (government, academia, the law, management, education, healthcare, and so on) supply the ruling apparatuses that generate, sponsor and proliferate social organization, the means of which are textual, discursive and increasingly electronic. Information technology is a powerful tool, and whom it benefits continues to be a contested notion that has many practical implications. Ruling is the term that arises within IE's social ontology in which the social is not separate from the economic, the political and the cultural. Institutional ethnography makes claims to discover the workings of ruling relations from inquiry that makes ruling visible as material organization, not theoretical explanation. As an illustration of this kind of inquiry, I discuss in the next section how I am learning to see nurses as engaging with and activating institutional texts including electronic ones, and advancing their institution's ruling objectives. Researchers, learning how people do their work, make analytic use of this local enactment of coordinating texts. In this everyday text-mediated work, ruling takes place. This is the notion of power that I bring to my consideration of texts and technology --- power understood as it operates in actual sites through what actual people do, enacting the coordination of their lives with the institution's ruling purposes.

5. Doing institutional ethnography

Institutional workplaces are the settings *sine qua non* for textually mediated work processes (whose "formality" or "informality" is argued over by sociologists, an argument that Berg, 1997 [10] refutes, while his inquiry remains within this frame). Alternatively, IE's framing of an inquiry begins with collection of ethnographic data from sites in which people are active; they speak about their involvement in ordinary ways and can be observed in the course of carrying out the ordinary work of the setting. Institutional ethnographers, attuned to the political relevance of their inquiries, ask "what is happening that is of issue to people there?" The inquiry I use to illustrate the conduct of IE found nurses in a Canadian hospital interacting with the electronic texts of two health-related information systems that hold

information related to the work of physicians, nurses and other therapeutic as well as managerial personnel. The two systems are proprietary products and not integrated electronically with each other as yet - nurses physically move information from one to the other. One is a Clinical Information Management System[2] (CIMS), a set of computerized texts that hold and continually update a description of individual patients, their treatments, and their progress – data that can be read by professionals as changes in patients' bodies, whether progress or decline. As part of their work, nurses access and record information in the various CIMS screens: the vital signs flow sheet, the activities of daily living record, the pain assessment record, the wound care record, the orthovascular record, the neurovital signs record, the medication administration form, and the many other screens. The knowledge framework of the CIMS originates in texts called clinical pathways and/or order-sets[3] that provide a diagnosis-specific medical treatment regimen for each patient. Each pathway expresses in detail the compilation of diagnostic efforts, therapeutic interventions and measurements that evidence-based research claims to be associated with the best patient outcomes. Constructed from authorized medical knowledge, CIMS screens provide what is considered to be the most up-to-date medical treatment and relevant nursing activities for each assigned patient, whether as scheduled treatments, medications, monitoring and recording of measurements or other interventions.

The second major information system that the nurses use we call Bedworks. Nurses input clinical information into its fields and categories allowing for its processing with financial information or information that has specific financial implications. For instance, once a day nurses enter their prospective knowledge of the nursing activities that their assigned patients will need for the next 24 hours. Bedworks' processing automatically calculates workload figures that feed into institutional decisions about the appropriate level of nurse staffing and scheduling [5]. Bedworks also calculates prospectively the bed availability for just- in-time

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[2] Proprietary names have been changed as per the research access agreements however the quotes from proprietary documents are reproduced verbatim.

[3] These texts are constructed in work processes that also must be traced to their discursive, scientific and institutional origins.

admissions from waiting lists, by associating a patient's predicted discharge date with nurses' judgement about this patient's actual readiness for discharge. Clinical information about the patient's progress is carried over from the CIMS into Bedworks by nurses as they fill in categories for administration/finance relevant calculations. For example, the information about a patient's care that nurses put into tick-boxes "adds up to" an automated determination of whether their patient meets eligibility requirements for continued hospitalization and/or for a specified level of nursing associated with patient acuity.

Computerized processing of all such (nursing) information for decision making remains an off-stage and mysterious technological activity until the relevant decision-tools and actions are analysed. Hamilton and Campbell [8] found decision making about nurse staffing in a Texas hospital to be a linked set of text-mediated actions, that inscribe into texts what people, variously positioned, know about nursing work and its staffing needs, and turn those texts into figures that a computer runs calculative operations on, comparing the figures to hospital policy expressed in algorithms. The texts, figures and calculations circulate through departments of a hospital where they become part of the recruiting, orienting, deploying, compensating, etc., of nurses. Importantly, these calculations also feed into budgeting, managing, financial and managerial monitoring, as well as evaluating the performance of managers and executives. Eventually, in the US hospital where the Hamilton/Campbell study was done, the calculations inform corporate decisions about profit, which become the basis for forward planning and decisions about dividends to investors.

The scope of the present paper permits only a sketch of the research that will track the kinds of decision trails into which the two information systems (described above) feed. The point being made here is that the connection between electronic data collection and nurses' work is socially organized and in institutional ethnography's terms, it is a ruling relation. Ruling relations differentially affect the people whose lives they organize. Explicating these relations by tracking them as materially existing and enacted in definite sites and for ruling purposes will show how they play out powerfully in the lives of nurses and their patients. To further illustrate how I go about such an analysis I problematize a scenario in my research site that relates to Berg's conclusion

about the reconciliation of apparent differences occurring as paper records are replaced by electronic "maps" of medical and nursing work. As noted above, Berg argues [23] that people bring their work into line with its "map", a process of articulation of medical action with its representation in the electronic record that, he implies, seems to just "work out" over time. A different perspective appears in my earlier research with Janet Rankin. Rankin and Campbell [5] reported on nurses' serious worries about having to ignore what, in their professional judgement, were important needs of individual patients. We learned how the scheduling of care programmed by electronic information systems did not accommodate some individual professional responses. It occurs to me that our data complicate Berg's conclusions about "power" and "balance" and "articulation of work with its representation" as somehow natural.

Rankin and I had been curious to learn more about the actual connections between electronic texts, nurses' judgements and actions, and particular outcomes. Rankin had collected ethnographic data on nurses interacting with patients (and families) and here I insert some of our data, and then discuss how we analyse it. A problematic arising in the setting draws our attention to tracking the coordination being enacted. Rankin had conducted ongoing blocks of observation of nurses working in several hospital units, capturing in notes her observations of what the nurses did, and of her quick on-the spot conversations with them and also with family members. She also noted talk between nurses and families, or nurses with their patients or among themselves and other staff. These data offer insights into what we came to understand as nurses' text-action-text engagement with computers. The data show nurses' attention focused on computer screens from the moment they arrive to begin a new shift, accessing computer screens at the nursing station. After getting their patient assignment from a computer-generated list, the nurses immediately construct their work plans from quickly scrolling through the relevant computer screens and making notes about the tasks "called for"[4] regarding each patient.

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[4] There is much more to be said about such nursing activities: some are named in the computer screens, others require nurses' use of their specific and general nursing knowledge and experience.

6. Some Ethnographic Observations

Beginning her morning "rounds", a nurse meets and performs an assessment of Margaret, an 87 year old woman, who has just been moved from the Intensive Care Unit, to the nursing unit. It is Margaret's second post-operative day after surgery for oral cancer entailing the mouth and neck dissection of a tumour. Malignant bone was removed from Margaret's jaw, and rebuilt with bone grafted from her leg. She now has a breathing tube (tracheostomy). Margaret is very attentive to all that is going on around her, sitting with a pencil and paper in her hand. Margaret's daughter, Laura, is in the room with her and when the nurse finishes the assessment, Laura explains to her that her mother has a serious familial tremor and, at home, she takes medication to control it. Laura is worried that her mother has not been getting this medication either in ICU for 24 hours after the surgery or since being transferred to this ward. Laura says that the tremor impedes Margaret's capacity to write the notes that are her only way of communicating now that she has the tracheostomy and can't speak. A message written by Laura is pinned to the corkboard above Margaret's bed with the same message about the tremor, suggesting that Laura has been trying to get other nurses' attention to this problem.

Rankin follows what seems to be a definite scheduling of the nurse's attention as she leaves Margaret's room, finishes her rounds and assessments, and administers the 0800 medications. After that, she approaches the charge nurse about Margaret's missing medication and the charge nurse says that she will "inform the team when they come around". The rest of the nurse's morning is taken up with patient monitoring activities and scheduled treatments, each of which is preceded and followed by a computer engagement as the nurse inputs her data and regularly checks for new doctors' orders that might necessitate updating her work plan. The nurse also talked to a nursing care aide who is assisting her by doing some of the "basic care" including Margaret's bed bath and linen change.

As the shift progressed Rankin became aware that Margaret was trying unsuccessfully, and with increasing agitation, to express something. In the afternoon, when her nurse finally turned her attention to Margaret's problem, she secured a "bliss board", a laminated card with the alphabet and key words and Margaret began painstakingly to spell each

word to say that her bottom was sore. Margaret had been sitting upright most of the time, night and day, to accommodate her breathlessness, and her sacrum was constantly pressured. On "hearing" this, the nurse secured three pillows and, with help from the care aide and Laura, tilted Margaret onto her side.

Rankin continued episodically to visit the unit for periods of observational work and she learned that Margaret and her family were complaining of lapses in nursing care. On Post-operative Day 11, Laura told Rankin that Margaret had developed a bedsore. Rankin recorded Laura's words:

"It's crazy. Nobody noticed a big deep red gash on her buttock. Eventually they came in and put a bandage on. I'm so afraid it will get infected. I can't believe no one was looking. She'd been in bed eight days or in that big reclining chair – not up to the toilet.... The nurses had decided to leave the catheter in. They explained that the bedpan would be messy and difficult**....** When she eventually got up to the bathroom – then they noticed the bedsore…**.** And they keep talking about sending her home. There she is with the catheter, IV, feeding tube and trach and they want to send her home. I keep telling them that she lives alone. I wrote it really big on the form: LIVES ALONE and they say "well, won't you be staying with her?" and I say "I have a job in another city, and (a family there)". I want to say "What part of this don't you get? MY MOTHER LIVES ALONE. I want to write it on my back!"

On Margaret's post-operative day 28, a litany of troubles comes to light as Rankin follows Kay, newly assigned as Margaret's day-time nurse. From the computerized information that Kay accessed to generate her work plan at shift handover, Kay learns that Margaret is now on isolation precautions, having contracted C-difficile. The charge nurse and Kay discuss Margaret's care, and the charge nurse says that "the daughter is pretty upset and hard to deal with". Rankin hears that Margaret has a great-niece, Courtney, who is a nurse working in the ICU of this hospital and she has also become very involved in Margaret's care. The charge nurse said "they're all pretty upset about the bedsore and now the C-diff". Kay picked up on the bedsore, saying with surprise, "That's not in the [computerized text]." (Rankin notes that it is now 17 days after Laura had told *her* about the bedsore). Many things seem to have gone wrong, including nurses' failure to note some lab work the results of which should have

informed her nursing care. Telling Kay that Margaret is booked to go to a "transition bed" in a rehabilitation hospital, the charge nurse explains: "We need to get her out of here. She will need radiation and they can't do that at (rehabilitation hospital), but at least if we can get her there for a couple of weeks she can be readmitted to general medicine". (adapted from [7])

7. Work Textually-mediated, Enacted and Experienced

Institutional ethnographers use such data to track how events they have problematized for inquiry happen as they do. We look for what establishes the relevant activities in a research setting. Now, I begin to piece together how particular nurses' time, attention, decisions and efforts are related to certain institutional technologies. The story I will tell from observational data contains experiences that must be explored as socially organized. I begin to find connections between nurses' routine attention to computer screens that not just inform the content of their work but schedule it. T he eventual effect of the nurses' work of information gathering and inputting of their nursing knowledge for its processing with hospital financial and benchmarking information is to establish the hours of paid work assigned to each nursing unit. This organization requires the nurses being observed to fit several kinds and amounts of work into an invariable amount of time. The computerized system instructs the *required* work as per research-based treatment regimens and the authorized administrative regime. As the data indicate, nurses' work that would be responsive to interactions with patients must be squeezed into the interstices. My selection of data makes obvious how this organization of nurses' time allows things to go wrong. Rankin noticed various strategies nurses use to insulate themselves from patients' and families' requests even as hospitals demand and structure more and more patient and families involvement in the care work. Patients' and families' own knowledge become a distraction for the scheduled work, something that our analysis of the ruling effect of information systems helps to explain. Our data offer instances of a patient and her family members working to draw nurses' attention to particular issues– while nurses prioritize the accomplishment of the scheduled and monitored computerized instructions. From the ruling standpoint of the technology, such institutional effort is rational enough, as it guides them in getting through their assigned work efficiently. That textual

organization is counted on to deliver good outcomes.

In some ways, however , their success in addressing the formally structured work means that not just the timing of nurses' attention to the patient, but its quality too, is eroded. Rankin saw nurses being carefully attentive to the text-mediated work flow, even being called from other therapeutic activities by the charge nurse to do scheduled inputting of data; she saw nurses taking time to smooth over family members' concerns that might disrupt the electronically scheduled work. Yet in spite of its carefully text-mediated focus, Margaret's nurses missed important aspects of her physical care that were called for in the texts they were following. Work not accounted for in texts and their monitoring was needed, too. Among other things, the data show that the integrity of Margaret's skin was overlooked resulting in a bedsore, and insufficient attention to adequate isolation procedures resulted in an infection.

While nurses may exercise professional discretion (and their doing so may be expected), it doesn't enter calculations and it is not adequately resourced. This may be because, in the research hospital, trust in the formal plans of the information system is absolutely unquestioned. Precise compliance with its instructions is confidently expected to bring good results. Evidence-based research findings designed into the texts supply the "guarantee" that rationalizes for nurses' their compliance in the text-action-text sequencing of their work. Nurses receive careful and persuasive orientation to this scientific/textual structuring of their activities. At great cost to the institution, the information systems undergo meticulous monitoring and revision from their implementation throughout their ongoing operation. The evidence-based knowledge that structures plans of therapeutic action establishes, as reliably as possible given differences in individual bodies and situations, each patient's progress toward the predicted outcomes. (The research on some diagnoses is more systematically developed and so are the care pathways, and thus are more accurately predictive than others of the course of treatment and its outcome.) The promise of the formal plan giving the information system its unquestioned cachet is

the routine, effective and efficient accomplishment of its programmed outcomes.

Health care institutions have many serious problems to solve including the obvious one - managing successfully the care and treatment of sick people. Hints of other goals toward which the work is being organized appear in the ethnographic data; analysis of the data reveals how institutional effort is actually being coordinated. Institutional ethnography's technique makes use of the clues in the data to locate the material traces of the social relations that organize the setting. An example: Margaret's daughter says "They keep talking about sending her home. There she is with the catheter, IV, feeding tube and trach and they want to send her home. I keep telling them that she lives alone". Besides being a daughter's expression of exasperation, this is a clue about an organized work process and its institutional basis. What is being coordinated here and how? Being made visible are the ruling effects of the institutional technology. One text nurses complete on a daily basis requires them to address their patient's progress toward the system's prediction of an evidence-based discharge date. This projection has institutional meaning and force. Margaret's post-surgical trajectory failing to match its projected progress becomes a problem not just for her and her family, but for the institution. Margaret, her daughter, the nurses and institutional managers are part of a social relation that the analyst must track and make visible to properly understand it. The system that has correlated Margaret's diagnosis with an (albeit less than completely defined) clinical care pathway designates the targeted discharge date and recalculates the patient's progress toward it; the text and the daily recording of their patients' "readiness for discharge" also reminds nurses of this target. But the charge nurse is institutionally responsible for achieving the unit's expected bed occupancy (another piece of the text-based system) by managing each patient's targeted discharge. Her job description and performance evaluation are likely to express this expectation, enforcing her attention and her staff's attention to it. Families are routinely drawn into these calculations for targeted discharges in pre-admission planning that designates the role of the responsible family member. (Note that Laura mentions "the form" on which she wrote "lives alone".) Being unable to meet the institutional expectations that she will take up the slack between the discharge plans and the actuality of Margaret's condition, Laura is characterized by the charge nurse as "hard to deal with". Both Laura's and the charge nurse's frustrations arose in these organizational

circumstances. Issues of patients' unreliable progress, families' diverse commitments to institutional plans and nurses' incomplete adoption of institutionally organized relevancies are all features affecting the success of the ruling schema that the technologies coordinate. An institutional ethnographer's tracking of the relations that rule this moment – this actuality - can eventually connect these institutional arrangements not just with people's healthcare experiences, but also with administrative concerns, e.g., the pressure on Canadian hospitals to reduce wait-times for admission. All are elements of the ruling relations that can be made visible.

8. Conclusions

IE works with ethnographic data that has captured the experiences of people located in particular sites in the everyday world. I have illustrated the analytic importance of seeing texts in action and tracking their appearance as social organization. I have provided and discussed examples of the discovery that nurses' enactment of text-mediated practices carries a ruling institutional standpoint. The point I have wanted to make is that nurses, actual identifiable actors, read the computer screens, think about them as they meet their a c t u a l patients and conduct specific therapeutic interventions, and as they write in specific computer fields and so on; in these actions nurses accomplish the patient's electronic record as pre-planned coordination, not just of apparently excellent patient care, but of nurses' knowledge, purpose, judgement and effort. This is social organization that coordinates ruling relations. It enters local sites, carried across extra-local institutional boundaries through, among other things, the computerized texts. Operating behind the scenes, so to speak, are many textual/technological features of the setting's social coordination, all being activated by differently located actors. A conclusion that can be drawn from analysis of data demonstrating the material features of "how things work" is that nurses are coordinated to enact an institution's preferred outcomes as they have been purposively designed into the system. Institutional purposes must be discovered as enacted, not taken for granted, nor read from a mission statement. Looking into one actuality arising from the coordinated effort in this setting, we see varying outcomes for the patient, family, and nurses of the efforts made to achieve institutional purposes.

The ontology on which IE is based allows the analysis of texts in action to take an analytic step that Berg and Berg/Bowker didn't take. For them, the

medical record was itself material and "active" - and a proper focus of sociological analysis. My analysis discovers in this newer version of the electronic medical record, not the balance that Berg concludes will emerge, but a text-mediated social organization coordinating nurses' efforts towards a set of institutional goals. Institutional ethnography maps the social processes that the institution establishes, funds, oversees and that, activated by people, rules the setting, achieving its actual outcomes. The institution's ruling purposes dominate what happens

– not least the efforts of nurses whose standpoint my inquiry explicates. My sketch of the system's design for an on-target patient discharge demonstrates something of its coordinating effect and what I want to argue is "collateral damage". How collateral damage is organized along with system designed outcomes deserves much more analytic and institutional attention. To identify how the power of this textually-mediated social coordination is exercised and for what purposes, the material traces of the ruling relations that nurses enact must be made visible. The ruling relations that are intrinsic to the systems operating as designed, implemented, and periodically revised or replaced, can be tracked and mapped. On this basis of knowing, institutional ethnography's approach can contribute useful criticism.

9.   References

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