Embedding hospital-based medication review: The conflictual and developmental potential of a practice

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Embedding hospital-based medication review

The conflictual and developmental potential of a practice

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Abstract

Purpose– The purpose of this article is to explore the embedding of hospital-based medication review attending to the conflictual and developmental nature of practice. Specifically, this article examines manifestations of contradictions and how they play out in professional practices and local embedding processes.

Design/methodology/approach– Using ethnographic methods, this article employs the activity-theoretic notion of contradictions for analysing the embedding of medication review. Data from participant observation (in total 290 hours over 48 different workdays) and 31 semi-structured interviews with different healthcare professionals in two Swedish hospital-based settings (emergency department, department of surgery) are utilized.

Findings– The conflictual and developmental potential related to three interrelated characteristics (contested, fragmented, and distributed) of the activity object is shown. The contested nature is illustrated showing different conceptualizations, interests and positions both within and across different professional groups. The fragmented character of medication review is shown by tensions related to the appraisal of the utility of the newly introduced practice. Finally, the distributed character is exemplified through tensions between individual and collective responsibility when engaging in multi-site work. Overall, the need for ongoing ‘repair’ work is demonstrated.

Originality/value– By using a practice-theoretical approach and ethnographic methods, this article presents a novel perspective for studying local embedding processes. Following the day-to-day work of frontline clinicians captures the ongoing processes of embedding medication review and highlights the opportunities to learn from contradictions inherent in routine work practices.

Keywords Patient safety, Qualitative research, Implementation, Medical professions, Ethnographic methods, Medical practice

Introduction

The role of objects in everyday work practices has received growing attention as work in today’s organizations has become more and more collaborative, knowledge-driven and object-centred (Nicolini et al., 2012). Objects, both material and intangible, mediate how practitioners work across boundaries thereby acting as motivators for collaboration, but also as sources of tensions and conflict within organizations. According to activity theory, all practices are object-oriented where activity objects provide directionality for participants’ actions and activities (Engeström, 1995).

Contemporary work is increasingly carried out in purposive organizations that are 'built and maintained around partially shared, partially fragmented and partially disputed objects' (Engeström and Blackler, 2005, p. 310). Healthcare work in particular is characterized by its complex, distributed and highly interdependent nature with multiple actors collaborating in patient care (Dixon-Woods and Pronovost, 2016). Further, clinical practice at the micro-level is shaped by managerial techniques such as auditing, clinical guidelines, standards or protocols implemented at the organizational level (Numerato et al., 2012). These management systems have been commonly portrayed as organizational measures of *control* which threaten professional autonomy and professionalism (Hoggett, 1996), thus framing professional and managerial or organizational logics as conflicting with each other (Waring and Currie, 2009). However, it has been argued that current clinical work is confronted with organizational demands beyond these managerial systems, such as providing evidence-based high quality and safe healthcare services in multi-professional and multi-agency work contexts (Noordegraaf, 2011). Therefore, a new understanding of organizing professional work in organizations is called for (Evetts, 2011). Organizations have become more relevant for professional development (Muzio and Kirkpatrick, 2011) as they are central sites for translating rules and standards into practice and for the formation and transformation of professional identities (Cooper and Robson, 2006). Thus, there is a need to explore organizations as sites where professional practices are being formed and reworked and which in turn maintain and change professions and organizations (Faulconbridge and Muzio, 2008).

This article draws on a case example of embedding a new practice, medication review, in routine care in two hospital departments. Medication review, the structured assessment of a patient's medicines with the aim of optimizing medication therapy and minimizing medication-related problems, has been advocated as a patient safety strategy in various countries (Bulajeva et al., 2014). Its implementation has encountered considerable difficulties, including due to the intervention's complex and time-consuming nature (Willeboordse et al., 2014). After a national introduction as a mandatory service for all healthcare settings in Sweden in 2012, medication review was to be implemented at the local level based on national guidelines (Socialstyrelsen, 2012). Here, we refer to the work of local implementation and integration as the process of embedding, that is, the ways of 'making practices routine elements of everyday life' (May and Finch, 2009, p. 538).

We chose to use the case of embedding medication review at the organizational level because it exemplifies some of the current transformations of the organization of professional (healthcare) work; its conduct often presupposes interprofessional

collaboration (Rathbone et al., 2016) as well as altered professional-user relationships in order to actively involve patients or their carers (Willeboordse et al., 2014). Further, medication review is an interesting case as it is positioned within the field of patient safety, a policy agenda employed for managing and regulating medical practice (Waring, 2005). Also, embedding a new practice (a new way of thinking, doing or organizing practice) provides the opportunity to study a 'practice coming-into-being' (Björkeng et al., 2009, p. 156), where relations between actors unfold, identities are not yet fixed, rules are negotiated and, thus, organizing emerges (Blackler and McDonald, 2000). Studying a practice not sufficiently established can provide insights into how practitioners engage with multiple objects of practice and with each other; when a new way of doing things is implemented, then, we need to attend to how practitioners collectively engage in social and material practices, build shared understandings of the purpose of the practice, define and recognize appropriate conduct, and distribute work (May and Finch, 2009). Therefore, how practitioners' work practices are organized can be understood by examining the directedness and normative value system of work practices.

In this article we focus on professionals' 'common ways of perceiving problems and their possible solutions' (Evetts, 2014, p. 32), their shared views of how to interact with patients and other professionals, and their 'sense of what needs to be done' (Nicolini, 2012, p. 225). This includes not only technical and knowledge-based aspects, but also ethical and moral conceptions of 'good practice'. By the same token, establishing authority and values in and around work practices is central to structuring work and professionalism in organizations (Noordegraaf, 2015). A better understanding of these dynamics is important since it is through practitioners' object-oriented practices, the directedness of their doings and sayings, that this normative value system of practices and organizations is reproduced. Ultimately, an understanding of how professional practices and organizing hang together is highly relevant as this can affect the service quality of organizations (Bevan and Hood, 2006) and make it possible to learn from implementation processes (Sausman et al., 2016).

This article contributes to the professional practice and implementation research literature by considering the interplay between the directedness of professionals' medication-related practices and the local organizing practices of embedding medication review practice in routine work. How these two align or conflict with each other when embedding a 'new' way of doing healthcare can be analysed with a focus on the organizing capacity of objects of work (Engeström and Sannino, 2011). Specifically, this article will explore the embedding of hospital-based medication review attending to the conflictual and developmental nature of practice. We will examine the object of

work in relation to how manifestations of these contradictions play out in professional practice and local embedding processes. Insights into these dynamics have implications for the formation and transformation of professional practices, the design of implementation processes and the organizing of healthcare work.

Theoretical framework: activity theory

Activity theory highlights the historical, culturally mediated and transformative character of collective activity. Rooted in Russian cultural-historical child development psychology (Vygotskij and Cole, 1978), the approach was further expanded for studying learning, organization and work practices (Engeström, 1995; 2000; Miettinen and Virkkunen, 2005). According to activity theory, human and organizational phenomena can be understood by examining an activity system of actors as they work towards a common object. Central to this is the object of activity shared by practitioners which provides meaning and orientation to – and determines the values of – collective practices (Kaptelinin, 2005). This object is considered partly given and partly actively constructed by actors, and is constantly evolving and reproduced through ongoing practice (Engeström and Blackler, 2005). Actors are connected with the activity object through a collective intentional relationship in the sense of purposive action, closely related to a profession's purpose, its normative features and, thus, concepts of professional responsibility (Fenwick and Nerland, 2014). Professional agency, then, emerges in 'value-laden practices' (Edwards and Daniels, 2012, p. 41) where professionals recognize and respond differently to a practice's motives and negotiate activities and outcomes with other practitioners.

Importantly, all activity is mediated through tools, rules and a particular division of labour, the latter with respect to horizontal task assignment and vertical hierarchy. All elements composing an activity system – that is, the object, the subjects, the community forming around the object and the mediators – are co-constituted and constantly reconfigured in the evolving activity system (Engeström, 2000). Given the heterogeneous and dynamic nature of activity systems, contradictions are inherent to activity systems. Contradictions are understood as embedded in sociohistorical contexts and cannot be observed directly but manifest themselves as disturbances, disruptions or breaks in activities, or as conflicts and dilemmas. Recognizing and discussing these disturbances is seen as a prerequisite for the ongoing transformation of an activity (Engeström, 2000). Contradictions in relation to the object of an activity system can arise when new elements are introduced into the activity system. Contradictions, then, can surface within elements of an activity system (such as the division of labour), across elements of an activity system (such as between the methods used and the object of activity), between a newly established mode of activity and remainders of the previous

mode of activity, or between interconnected activity systems (Engeström and Sannino, 2010). According to activity theory, these contradictions can trigger generative and expansive processes in terms of organizational development and learning (Engeström, 2001), and are thus seen as drivers of transformation and change. Here, we do not employ the notion of contradictions utilized in an activity-theoretical interventionist approach where identified contradictions are fed back to practitioners who then contribute to redesigning activity systems (Sannino and Sutter, 2011). In contrast, we use the notion of contradictions in a broad sense and as an analytical tool to interrogate practices. As we were interested in the day-to-day work practices during a period of organizational change (that is, the ongoing embedding of a new practice), we particularly focused on manifestations of contradictions in relation to the consequences they had.

Two empirical case studies

This work is part of a larger ethnographic study exploring practitioners' practice understandings and everyday enactments of medication review in a hospital context (Reichenpfader et al., 2018a; Reichenpfader et al., 2018b). This article draws on two cases of different organizational clinical units at two teaching hospitals in southern Sweden (a department of surgery and an emergency department, ED). National regulations on medication review prescribe the provision of medication review within 24 hours of admission (or at every outpatient care visit). Formal rules effective in the study region, such as the national and regional guidelines as well as local directives, require that medication review be conducted with every patient irrespective of age and number of medications. Dissemination meetings and discussions with clinicians focusing on regional implementation goals and medical documentation had been conducted at both sites prior to conducting this study (Region Östergötland, 2015). Ethical approval was granted by the Regional Ethics Board (Dnr 2015/194-31).

Care at the surgery department was provided by surgical ward teams (surgeons, residents, interns, nurse practitioners and nurses), where three clinical pharmacists have been contracted to perform basic medication review at admission. 'New' tools and 'products', such as a discharge medication list and the discharge summary with follow-up plans and explanations of potential medication changes during hospitalization, were put into practice. Pharmacists recorded specific medication recommendation as the outcome of basic medication review but did not participate in ward rounds. Discharge medication information was mostly provided by junior physicians and nurse practitioners. Care at the ED was organized through small teams composed of an ED physician, a nurse, and usually two or three nursing assistants; further, a senior ED physician and a charge nurse on the ED floor were present during all shifts. 'New' tools,

such as a checklist to determine task distribution within teams at shift start, and a note for physician dictation with a reminder of medications, had been created. Admission medication lists, in use prior to medication review implementation, were utilized with some discretion by ED physicians; discharge medication lists, a service not prescribed in the ED, were only provided occasionally. At both units, clinical work was organized in small teams with fluctuating membership.

Data collection

A case study approach was employed, utilizing ethnographic methods with participant observation and semi-structured interviews. Fieldwork was started first at the ED with a presence of 160 hours on 21 different workdays between October 2015 and May 2016 and where the first author was allocated to a particular ED team. This involved shadowing ED teams over the course of an entire (morning or afternoon) shift and participating in department-wide brief educational and morning meetings. While observing ED work practices and team interactions concerned the whole team, shadowing concentrated on physicians when team members engaged in work concurrently. In a later phase, observations focused on physicians' documentation practices and consultations with other healthcare professionals, but also on handovers between practitioners, team members' encounters with patients and practitioners' medication-related communication.

Fieldwork at the surgical department began in February 2016 and concluded in January 2017, involving 130 hours of direct observation of everyday work practices at the two main surgical wards of the department. Fieldwork was done on 27 different weekdays and also included participation in department-wide educational meetings. Observations started with the morning meeting, after which the ward team to be observed was selected. Following ward teams involved activities for half days or up until afternoon ward rounds, while observations at a later stage focused on pre-ward round briefings, handovers, ward rounds, documentation and dictating, as well as discharge discussions with patients. Specifically, physicians, nurse practitioners and pharmacists were shadowed with respect to medication-related activities, such as obtaining a medication history after admission, revising medications, and discussing discharge information with patients. Ethnographic work at both study sites was supplemented by informal conversations with professionals during fieldwork episodes. Additionally, a total of 31 semi-structured interviews with a range of different healthcare professionals were conducted between April 2016 and January 2017. This included 14 interviews with ED physicians conducted directly after the fieldwork phase at the ED, and 17 interviews with staff at the surgical department (physicians across different professional stages ranging from residents to specialists in training and senior

consultants, nurse practitioners, nurses and hospital pharmacists), both concurrent with and after the fieldwork period.

Fieldwork observations and interviews were conducted by the first author. Based on handwritten notes taken directly on-site, more detailed field notes were developed on the same day and the day after. Concurrently, the first author also kept a journal for reflecting on fieldwork experiences. The interview guide was developed building on insights gained through participant observation and informal conversations, and focused on patient and medication safety, everyday medication problems, making sense of medication review (purpose and expected benefits), (inter)professional collaboration, use of routines and the patient's role related to medications. All interviews were conducted face-to-face and on-site, at a location convenient to the interviewee, digitally recorded, and then transcribed by the first author.

Data analysis

Throughout the data collection and analysis phase, the first author regularly met with co-authors (one of them a social anthropologist with about 15 years of ethnographic research experience) to discuss field notes, interview excerpts, conceptual maps and interim analytic themes. For this article, data were analysed using thematic analysis (Braun and Clarke, 2006). After initial coding, emergent themes (such as constructing medication risk, setting priorities, enacting accountability, taking responsibility and appraising a practice's value) were further explored using the concept of contradictions based on activity theory as an analytical tool. We were interested in examining contradictions within and between the elements of an activity system (manifested, for instance, as tensions between instruments, rules, participants and the object of activity), as well as contradictions between activity systems (for example manifested as tensions or misalignments between the system organized around ward activities and the system surrounding surgical operations). We used data from observations and interviews to examine objects as triggers or sources of contradictions which were manifested in talk or action and where practitioners tried to make sense of, dealt with or tried to resolve these contradictions. Here, we looked at (1) discursive manifestations of contradictions (such as expressions of incompatible evaluations, irreconcilable issues, conflicts, emotionally and morally charged accounts, as well as arguing or criticizing comments) (Engeström and Sannino, 2011), and (2) temporary breakdowns and disruptions when engaging in actions or activities. Temporary breakdowns refer to instances where practices deviate from an expected course of action so that practitioners engage in a more deliberate mode of reasoning about their actions; this can occur, for example, when actions do not conform to standards shared by a community of practitioners or have unintended consequences (Sandberg and Tsoukas, 2011). We examined

manifestations of possible contradictions in relation to activity objects; both material objects (such as medical record entries, electronic and paper-based medication lists, discharge summaries, prompts as reminders and checklists artefacts created by professionals) and intangible objects (such as practitioners' conceptualizations of the purpose and value of their work) were considered.

Findings

Based on our analysis centring on manifestations of contradictions in discourse and situated actions related to medication review, in this section we provide accounts of tensions embedded in activity systems. The accounts show the conflictual and developmental potential related to three characteristics of the object of activity; these interrelated characteristics can be described as *contested*, *fragmented*, and *distributed*. We illustrate how practitioners construct these objects which, rather than being purely 'given', are the result of their negotiations of differing interests and conceptualizations connected to the object, originating from and further triggering contradictions. In this section we focused on object-related contradictions and show how tensions and disruptions were attended to by practitioners' embedding medication review, struggling with, but also continually adapting and transforming the object of activity.

Tensions related to the motives of work: medication review as a contested object

Surgeons met the requirement to regularly provide medication review with resistance as checking medication lists and potentially adapting medication therapy was mainly considered the responsibility of primary care clinicians. While acknowledging that 'regulations simply require medication review to be done', tensions between different professional groups emerged with respect to how 'medication problems that matter' were constructed by clinicians at the surgical department. These tensions were less manifest in terms of discussions of relevant medication problems or abstract understandings of such problems; instead, tensions were manifest *in practice*, that is, when setting up a routine for checking patients' medications. Over time it became apparent to surgeons that pharmacists' identifying medication problems was consequential for surgeons' wider work routines as pharmacists' practices affected discharge processes and follow-up or referral routines, thus, 'adding to the workload' of surgeons. Tensions, then, played out in how surgeons were dealing with pharmacists' recommendations, written after reviewing a patient's medicines on admission. This meant that initially differences in understandings between these professional groups, and, importantly, surgeons' reasons for not agreeing with pharmacists' understandings of medication problems expressed in their recommendations, were not shared in a

collective way; the routine of discussing these recommendations during briefings prior to ward rounds occurred at the discretion of the surgeon leading the ward round. Here, some of the identified medication-related problems were not considered 'really important' as surgeons viewed them as 'reflecting a too broad understanding of medication problems'; not regularly taking up medication problems in ward round discussions, though, left junior physicians wondering whether a patient's medications were okay or 'just not worth talking about [here]'. However, pharmacists came to modify their practice and began to specifically follow-up on their written recommendations directly after morning rounds; for this purpose, pharmacists directly met with the surgeon in charge of the ward or contacted junior physicians responsible for the care of specific patients. Also, ward nurses came to appreciate pharmacists' specialist knowledge on practical matters of medicine use and sought their advice more often. In doing so, a situated interprofessional practice evolved where pharmacists came to learn about (and suggested solutions to) specific medication-related problems. Interestingly, all the above small modifications of work routines in order to deal with medication-related problems emerged in absence of specific implementation-related meetings or structures; rather, they occurred in the midst of practicing which might have contributed to the integration or stabilisation of the new practice.

When attempting to reconcile these tensions and uphold professional standards of acceptable practice, surgeons focused primarily on their *own* prescribing as 'relevant to the patient'. However, they acknowledged a grey zone considering potential interactions with a patient's other medications. This then played out with respect to local routines, since mainly 'surgical' medicines were considered worth discussing during ward rounds or at discharge with the patient. However, surgeons' conceptualizations of medication problems also affected *wider* activity systems as they constructed accountability as primarily being owed to their own community. Thus, as the following accounts illustrate, documentation to justify medication orders, as required by the guidelines, was considered redundant work as certain problems were self-evident for those familiar with the (same) work context.

'Often our patients have electrolyte imbalances and sometimes we order a drug anyway; there are a lot of [drug interaction] computer alerts, too many, so you ignore them... you don't have such imbalances in orthopaedic surgery, but these are normal to us... so I don't see why I should mention this in the patient record.'
(surgical specialist_06)

As the brief interview extract above shows, surgeons mobilized discretionary power to reconcile the tensions when confronted with the requirement of medication documentation. Here, surgeons framed medication documentation as a managerial and

technical regime for making their actions and reasoning auditable; not complying with this requirement was not problematized in terms of professional responsibility, although ongoing medication communication and documentation is considered a critical element of hospital-based medication review and important for safeguarding patient safety (Poldervaart et al., 2017). Contesting the systematic medication-related documentation was linked to surgeons' broader and long-standing stance of contesting medical (including surgical) documentation, seen as a requirement that kept them from doing 'necessary' professional work. Thus, tensions between these external demands for accountability connecting professionals to other professionals and 'outside worlds' (Noordegraaf, 2016, p. 802) and surgeons' own valued practices were not always resolved.

Tensions related to the appraisal of work: medication review as a fragmented object

When defining their problem space, ED physicians saw themselves as first-line generalists and worked with a contextualized approach when dealing with medications. What counted as a potential medication problem was viewed as a function of a patient's clinical condition at a specific point in time; thus, a medication problem was only one of many features, signs or symptoms of the problem at hand, often not having specific salience per se. Considering a particular medicine as a potential source of a patient's problem was simply seen as an everyday ED activity. What the new regulation on medication review added for ED physicians, though, was the requirement to document specific medication-related actions, something 'easy to forget' in fast-paced situations.

Yet, more importantly, engaging in medication review at the ED for physicians was also an issue of *purposeful* work; while a medication problem might be the source of a patient's problem visiting the ED, there was no obvious link between the immediate practices, practices in neighbouring activity systems (such as receiving hospital wards) and the more distant outcome (improved medication therapy and patient health). Thus, in order to attribute worth to carrying out medication review, ongoing conceptual reconstructions on the part of ED physicians were necessary. As expressed by a senior ED specialist in the following interview account, tensions were articulated and somewhat resolved by framing the outcome of medication review as a 'preventive cautionary' admission.

'It's maybe easier to be satisfied in primary care since there you've got *time*... a more thorough review... I'm not sure; see, I've just been to this patient, he's quite old, has a lot of medicines he doesn't take; for example, these insulin doses seem too high... but he doesn't want help. Can I be satisfied with this medication review today? Should we admit him? Because here we can't accomplish much today...

admitting him as a precautionary measure? This is what one can get out of this... but then you are never able to follow-up on what has become of your patient.' (ED specialist_07)

Thus, purposeful action related to the object had to be actively constructed in light of the work context constraining longitudinal relations. As the object of work is always inherently fragmented (Engeström and Blackler, 2005), the object is not entirely visible to participants. Similarly, and further contributing to contradictions when conducting medication review, the outcomes of the activity cannot always be determined by any one single participant. The acceptable conduct of medication review, then, as in the case above, was to identify a (medication) problem but only do the preparatory work for further follow-up. More senior physicians with work experience in primary care emphasized that some of the required tasks, such as routinely checking a patient's medications irrespective of the reason for an ED visit, had to be 'actively brought in' as they still were misaligned with core functions (and the professional identity) of an ED physician. Efforts to embed medication review into routine ED work, then, were evident in instances of clinical supervision where more experienced ED specialists highlighted the relevance of medication-related concerns in ED contacts. Also, written prompts on dictation sheets were introduced to remind physicians to systematically document medication activities. However, the conflictual tension between the requirement of providing (as it was felt) a 'standardized approach' in a work environment characterized by many 'non-routine' problems proved difficult to dissolve.

Similarly, meaningful work was difficult to accomplish for surgeons, not only because of the fragmented nature of the object of activity. Engaging with the patient's health condition in surgical care (as their object of work) appeared as a 'moving target' (Engeström, 2001, p. 136) with surgeons being wary of 'the many ways things can go wrong' with multiple medication therapy given the clinically complex nature of many of their patients. Accomplishing meaningful work, however, was also thwarted by distant organizing practices. Surgeons questioned the appropriateness of medication therapies based on clinical guidelines prescribed by other disciplinary specialists and expressed doubts about the therapeutic benefit of certain medications, especially in older patients. These clinical guidelines not only formalized and standardized the practice of the prescribing physician (not present in the encounters on the surgical ward), they also organized the interdependencies between other healthcare practitioners at a distance (Adler and Kwon, 2013). Thus, surgeons articulated a limited professional responsibility for a patient's entire medication therapy where they felt overruled by guidelines as control systems distant from work.

As the object of activity and the outcome were fragmented and embedded in heterogeneous practices, this resulted in a 'community without unity' (Nicolini, 2012, p. 112) where, for example, pharmacists' and surgeons' understandings of 'what outcomes really matter' in relation to medication review never became fully integrated. Still, this did not prevent practitioners in the activity from working on a 'common object'. However, physicians at the ED and the surgical department had difficulties appraising their own work when conducting medication review and were uncertain whether its conduct resulted in 'truly relevant effects'. Recognition of the utility of medication review at the organizational level was only slowly developing and was mainly reserved for practitioners at the surgical department; there, it was possible for healthcare professionals to appreciate the value of their own work in cases where patients readmitted to the ward had previously undergone medication review. While still struggling with recognizing an overall utility of medication review, these tensions were addressed at both sites; professionals could acknowledge certain aspects of medication review as having 'some benefit for the patient', thus re-constructing the object of work as meeting a 'collective need' (Engeström, 1999, p. 65).

Tensions related to the division of work: medication review as a distributed object

For medication review to be worked on as a common object, it has to be shared and this involves a specific division of labour. Senior surgeons legitimated the way work should be divided as self-evident in terms of 'who was best suited for a task', where some participants, surgeons but also junior physicians, had unique competences. Surgeons, thus, emphasized pharmacists' skills to 'thoroughly check medications', but also stressed the limited capacity of these professionals to deal with complex medication concerns. The division of work among practitioners in the surgery department emerged as 'given' by surgeon seniority and the contractual arrangement with clinical pharmacists. A certain task distribution between pharmacists and the surgical ward staff evolved after several months after introduction of the new practice and became evident each time 'new' junior physicians started their internship at the department. Interns not yet familiar with ward routines had questions about 'who was doing what', often when discussing discharges after the ward round was finished. Surgeons always referred to pharmacists as mainly responsible for checking medication lists at admission, but also that junior physicians (and nurse practitioners) should take care of ongoing medication documentation. However, as the following account shows, how tasks were divided up in practice was not always aligned with what professionals felt responsible for, indicating tensions between formal rules, local conventions and what professionals sensed 'needed to be done'.

'It's special because there are the pharmacists; they review medications and check drug interactions; the good thing is that they are really good at it; but then it's also tricky... medication review ultimately is a physician's responsibility... they only make recommendations, they're not allowed to change medicines; the problem is that you somehow become slack because they take care of it; but some days they're not here... then we get an email message; but if you miss those messages you miss things, that's not good at all.' (intern_02 surgical department)

'Who is doing what', then, was left somewhat unsettled and required interactional sensibility for filling in when the 'usual task distribution' was paused. What is more, junior doctors were uncertain about actively contributing with questions or comments during ward rounds, particularly with respect to questioning medication orders. They saw their role more as 'double-checking' medication therapy, but ultimately executed senior physicians' decisions; due to the continuous rotations between and within ward teams, it took a while for them to 'settle in' until they felt confident enough to ask questions. However, junior physicians made it a point to properly document their actions and referred to the responsible senior specialist when they did not fully agree with a medication order. Work distribution with respect to medications was also shaped by contributions from more experienced nurses who took up medication orders during ward round briefings when they had found that 'something was not right' while administering medicines; they, too, saw their 'double-checking' as important input, complementing pharmacists' efforts of 'cleaning up' medication lists, as doctors 'often [were] poor with documentation'.

Pharmacists on the surgical ward, though, envisioned a more integrated way of working and a division of labour where they engaged in more complex medication tasks beyond their current activities 'just covering the basic needs'; they emphasized the importance of mutual learning through interprofessional practice, for instance through participating in ward rounds, an arrangement viewed as 'unwieldy' and 'too complicated' by the surgeons. Surgeons, while valuing pharmacists' function could still struggle with their input; pharmacists, then, engaged in relational work, including carefully adapting the written recommendations and making explicit their professional reasoning, thereby steering clear of challenging medical authority. A transformation of the object was only accomplished over time as surgeons slowly came to accept an expanded responsibility for medications and as pharmacists focused more on problems that were practically actionable within the constraints of a surgical department.

Dividing up medication review work among ED team members, at first view, appeared straightforward and physicians were keen to emphasize the shared character of distributing tasks among team members. Dividing up work, then, for some ED physicians meant having nurses check a patient's medication list, while it was up to

them to decide ‘whether these medicines [were] good or bad for the patient’. Still other teams preferred a more situated approach of dividing work between nurses and physicians, making task division related to the medication list dependent on the actual workload of the respective health professional. However, such micro-level organizing proved vulnerable to ‘normal ED disturbances’ when initially shared agreements of ‘who is doing what’ were suspended and a collectively shared understanding of the situation was required.

‘I want it to be clear... because it’s so hard if it doesn’t work, so much duplication of work... so if it’s me who is the bottleneck I just ask a nurse to check the medication lists; but if they’re busy... say with a septic patient, doing blood cultures and lab work, then I take care of list... but then I let them know.’ (ED resident_02)

Further disturbances emerged in how labour was divided up among ED team members. Here, a routine to remind physicians to conduct medication review was agreed upon between the ED physician and nurse managers; nurses were expected to print the medication list once a patient was assigned to a team. In practice, this new ‘printing’ routine was met with silent resistance where nurses pointed towards ‘technical issues’ impeding the routine’s implementation. Thus, technical tools, the identity key for accessing the electronic record system, were ‘successfully’ enrolled into the activity system to avoid open conflict on the ED floor. A remedial strategy was devised where medical secretaries should take on this task. However, ED secretaries, although highly motivated, were only available during regular workday hours. The proposed plan was further complicated as regulations prevented secretaries from accessing patient data. The above dynamics not only illustrate the quality of activity systems as ‘conflict-producing machines’ (Nicolini, 2012, p. 118) but also show how an activity system underwent constant reworking as participants adapted the object to make the local routine work.

Discussion

In this article, we have used the notion of contradictions in activity systems to show how hospital practitioners engage with and respond to tensions and disruptions when embedding hospital-based medication review. In further examining these object-related contradictions we showed the directedness and normative value system expressed in practitioners’ work practices and how these interacted with organizing practices.

We exemplified the conflictual and contested character of the object of activity, manifested as tensions between divergent understandings of the object and the outcome of work primarily across, but also within, professional groups. Despite the differences in how practitioners made sense of, struggled with or resolved tensions,

organizational routines to collectively accomplish medication review were established at both sites. However, these routines emerged as situated and fragile actions, undergoing re-construction when confronting existing institutionalized practices, rules, traditions and norms. Embedding medication review proved difficult, also because of the fragmented and distributed character of the object at hand. Medication review, essentially, means tracing back and following up on 'runaway objects' (Engeström, 2006, p. 7) as patients and their medicines move freely between systems. Here, 'the problem of many hands' (Thompson, 1980) was ever-present in carrying out medication review; embedding medication review, at both sites, foregrounded tensions between individual responsibility when engaging in collective but essentially multi-site work on a fragmented object of activity. Despite the clear 'given' legal responsibility for medication review at the level of an individual physician, the professional responsibility for carrying out medication review was rather embedded in practice. Thus, much of the challenge of embedding medication review as a collective practice lies in the distributed and relational character of professional responsibility, as it 'has to be recognised in the moment' (Kilminster and Zukas, 2013, p. 391) and cannot simply be regulated by directives.

Examining the practices at both sites revealed the social dynamics of the day-to-day work involved in embedding medication review. Local strategies for implementing medication review, rather than being guided by 'detailed blueprints for action' (Blackler, 1993, p. 880), were products of emerging improvisations when addressing the conflicts, disruptions and uncertainties inherent in the activity system. Embedding medication review at both sites, thus, not only meant introducing a 'new' way of providing care, it also triggered renegotiations of rules, tacit codes of conduct, expectations and roles within the community working on the 'common object'. Tensions and disruptions when embedding medication review required repair work in order to adapt plans and routines, sometimes entailing further disruptions. Yet, strategic and organizing work emerged rather in and through practitioners' everyday actions, indicating a blending of managerial and frontline work practices. Embedding medication review took place despite unresolved tensions and unsettled conflicts, and was sustained by organizational routines that functioned as 'effective vehicles for truce' (Blackler, 1993, p. 877) between groups with varied conceptions of the activity. Disunity and negotiations of the division of labour and object boundaries, however, were manifest along the lines of professional groups and hierarchies. Here, we found that senior physicians as the dominant profession were in the best position to selectively mobilize specific interests. Thus, in contradictions that emerged in professional actions, these physicians, based on their ability to exert authority and to

apply expert knowledge in practice, employed strategies of professionalism to control and 'regulate' local conduct (Noordegraaf, 2015).

Using the notion of contradictions shed light on the tensions and disruptions evolving when embedding a new practice. Rather than viewing conflictual conceptions, perspectives and traditions in multiprofessional organizations as barriers to implementing new practices (Ferlie et al., 2005), contradictions, inherent in an organization's multiple activity systems, can be utilized as opportunities for transforming practices in organizations. From a practice-based perspective it is argued that knowing, learning, working and organizing are conceptualized as activities integrated in practices (Gherardi and Nicolini, 2001). Embedding and participating in medication review practices, thus, includes contesting, struggling with, but also re-negotiating and adapting the new practice. Grounded in such an understanding, efforts to embed a new and potentially disputed practice should then make use of contradictions as opportunities for change and collective learning (Blackler, 1993).

To conclude, organizing the embedding of a new practice should be informed by insights into the conflictual nature of the object of work. Rather than pursuing compliance with policies and transferring pre-given knowledge, approaches to embedding a new practice should attend to practitioners' day-to-day practical actions when they organize and regulate work in order to make use of opportunities for collective learning.

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