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Special Issue: Complexity, Routines, and Reflexivity in Professional Work

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Editorial: Complexity, Routines, and Reflexivity in Professional Work

In many activities, professionals are sometimes confronted with a level of complexity that brings some irreducible uncertainty in their work. It is impossible to know with scientific certainty what should be done and what exactly would result from any action once completed. Working with people (e.g., in medical practice, social work, teaching) is emblematic of this type of difficulty. In medical practice, each patient is both biologically and psychically unique and in a specific socioeconomic situation, making it difficult for doctors to apply a comprehensive approach to each case. When faced with a given set of symptoms, they cannot always make a precise and definitive diagnosis. Two sets of symptoms may be difficult to distinguish although they correspond to different diseases. Even when a precise diagnosis has been reached, different people may still need varying treatments because of their other diseases, allergies, diverse tolerance levels or overall fitness. Thus, substantial uncertainty about the care process remains, and doctors may have to adjust treatments for many reasons. This singularity and complexity of patients call for particular vigilance.

The interactionist sociologist Anselm Strauss clearly understands that difficulty. In a collective work, he insists that "contingencies" vastly differ according to professions; in medical practice, they reach a much higher level than in other fields (Strauss, Fagerhaug, Suczek, & Wiener, 1985). This distinction among activities by level of complexity could have led to an original line of research of the sociology of professions. However, complexity has never been given a significant place in this field. One reason may be fidelity to the concept of professions that is dominant in the Chicago School (Becker, 1962; Hughes, 1971). Contrary to functionalists, the Chicago sociologists have tried to avoid rebuilding research programmes that would be adapted only to certain activities. Following Hughes' work, they have continued to study all activities in the same way. Of course, complexity is mentioned when empirical work reveals its importance. Nonetheless, in the absence of an explicit break from the interactionist tradition, theorizing complexity and its effects on professional work has never been a priority for the sociology of professions.

Over time, sociology has moved away from the interactionist view of professions by focusing more on changes in work contexts, considered on different scales, than on the precise contents of work. This approach has resulted in research programmes on globalization, new public management and more generally, cultural or organizational changes, bringing new constraints for professionals. In comparison, sociologists have paid little attention to the evolutions at the core of work itself, that is, to the way that professionals manage to accomplish their work, the concrete difficulties they encounter or their dissatisfaction concerning the outcome of their work.

This special issue first aims at defending the idea that complexity should be placed at the heart of the study of professional work. It also intends to open new avenues for examining the issue. What then are the reasons for studying complexity?

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Complexity: An underestimated issue

The first reason for focusing on complexity comes from changes in work contexts. Sociologists have been studying them for several decades, but they still pose a challenge for the social theory of professional work. Let us find out how the sociological discourse on professional autonomy is questioned by these evolutions. The interactionist tradition used to criticize how professionals used their autonomy (Freidson, 1970, 1986), and this criticism was part of the general break from the functionalist perspective on professions (Parsons, 1951). For that reason, it used to be so central to the interactionist concept of professions.

Nevertheless, the evolutions of work contexts have increasingly threatened professional autonomy. Thus, sociologists have more often focused on the factors that challenge the discretionary power of professionals, that is, new public management, bureaucratization or public distrust in professions and increasing demand for respect, rather than on autonomy itself. As far as new public management is concerned, many sociologists (who are also professionals and may feel personally threatened) seem to regret those evolutions. Most sociologists have adopted a critical view of new public management. Additionally, they often point out the threat to professional autonomy as one of its most serious consequences. However, their criticism of new public management cannot be based on an explicit defence of professional autonomy as they have never abandoned Freidson's (1970, 1986) idea that autonomy could be misused. Actually, they could agree with managers that autonomy should be limited.

According to whether a sociologist considers professional autonomy as necessary or misused, its limitations may prove positive or negative for the users of professional services. It also definitely depends on both the circumstances and the type of limitations imposed. A lack of autonomy may prevent professionals from working properly in their clients' interest, yet imposing a new rule may enable them to take into account their clients' demands in a better way (e.g., when informed consent is required or when a rule aims to prevent discrimination against clients). It is thus obvious that despite the central role played by the theme of autonomy in the sociology of professions, it is not a clear issue for the users of professional services. A new way of dealing with the evolutions of work contexts and their possible impact on the quality of services, consistent with the interactionist tradition's key findings on autonomy, is yet to be found.

Here, I argue that autonomy is an unambiguous issue only for professionals and that considering the complexity of professional work is necessary to understand what is at stake for users of professional services in the current evolutions of work contexts. The reason is that occupational activities are affected unevenly by these developments, depending on the complexity of the cases and the situations that professionals deal with. The more complex the cases or the situations are, the more likely the professionals will be affected and unable to carry out their tasks properly. What is at stake for users is the professionals' ability to adapt their work precisely to the concrete cases they handle. When a case or a situation is quite complex, rules, effectiveness indicators and any other abstract devices aiming at controlling the work from a distance (Evetts, 2003; Fournier, 1999) are more likely to be inadequate for the concrete case or situation, to miss the mark and to cause difficulties and damages than when easy work is concerned. For instance, a rule may have been established to bring about an intended effect and may be efficient in many cases. Nonetheless, the more complex the cases are, the more likely will the rule come across some of them that it has not anticipated. Similarly, the more complex the cases are, the more likely will the indicators provide a misleading assessment of the results of a task, as this will require a more detailed evaluation. Actually, tensions often arise between, on one hand, what should be decided and done in view of the concrete case when considered in its complexity, and on the other hand, what abstract devices, rules and indicators urge or allow professionals to do.

Additionally, in complex situations, pressures concerning productivity, performance and the precise anticipation of the work outcome are often impossible to handle. These demands from the management and the service users show that the complexity of professional work and its implications are unrecognized. Professionals are expected to work as they would if they dealt with more simple cases and situations. If they argue that the demands imposed on them are unrealistic, their argument will probably be understood as an opportunistic defence of their autonomy. For this reason, professionals are caught in the tension between the inner difficulty of complex work and the external demands from the management and sometimes the service users. These demands are often too abstract to address the diversity of complex cases that professionals have to deal with.

Among classical sociologists, Abbott (1988) comes closest to these themes of both complexity and tension between abstraction and concreteness. This fact is shown by how he defines the field of validity of his theory in The System of Professions. His theory focuses on activities that apply "abstract knowledge to concrete cases" (Abbott, 1988, p. 8). Studying this kind of activities, Abbott pays particular attention to the function performed by inference in professional work. The underlying idea is that in these activities, a professional cannot mechanically deduce what Abbott calls "treatment" from a "diagnosis." A special consideration is needed to adapt work properly to the concrete cases that professionals have to handle. Here, concrete means both singular and complex. If the cases were simple, the proper treatment would be much easier to determine. If they were not singular, the same treatment would apply to several cases without a special examination. Inference is this extremely thoughtful process required to adapt abstract knowledge to each new case, grasped in its singularity and complexity. As Abbott shows, inference lends the activity its non-routine nature and unpredictability. For this reason, professional work cannot always fit in with the expectations of the public, the administration and more generally, all the parties that professionals are involved with because these groups neither understand such complexity nor to what extent it makes the work process unpredictable. This is why professionals often find it so difficult to come to terms with and meet those expectations. Furthermore, the difficulties that they encounter are unclear to them and all the more unsettling since they think that the demands for objectivity, predictability and performance do make sense[1]. Thus, it is difficult for them to identify precisely the problem that they face at work.

Abbott (1988) recognizes that the relationship between abstraction and concreteness is a key issue in professional work. His emphasis on inference also helps sociologists perceive how crucial reflexivity is in professional work. Abbott's theory of professional work (independent of his theory of the competition for the control of jurisdictions, both being linked but analytically distinct) could have enriched the sociology of professions with new avenues of research. It could have inspired work about the social conditions required for facilitating this reflexivity to adapt work to concrete cases, considered in their uniqueness and complexity. Those avenues have not been opened, probably for two reasons. Abbott himself does not emphasize this point. He considers inference as a key point to explain the strength of jurisdictions, as if inference was mainly part of the professionals' strategy in the competition. However, he pays no real attention to another aspect of inference; it is also crucial to perform the kind of work he studies. Additionally, Abbott's theory of the competition for jurisdictions is popular in the current sociology of professions, but his theory of work has received far less attention. Similar to Strauss and colleagues' (1985) work, Abbott's is imbued with the idea of complexity; as shown earlier, his theory would not be the same if complexity was absent. Although Abbott is one of the most cited authors in the sociology of professions, the way that his ideas are interpreted

[1] Regarding the strength of trusting in numbers and objectivity even when they are unreliable, see Porter (1995).

leads readers to forget about complexity. This situation is an indication of the work that still needs to be done to understand this issue of complexity.

Why has this theme not become more central in the sociology of professions? The classic philosophical concept of practical wisdom sheds more light on what is fundamentally at stake in the difficulty of conceptualizing the role of complexity in professional work, as well as on the current challenges to deal properly with complex cases or situations.

Complexity and practical wisdom

In this section, I introduce the concept of practical wisdom. I explain how it allows the identification of an original ideal-type of professions and how it sheds light on the issues at stake in the current evolutions of the work conditions of practitioners.

According to the Aristotelian tradition (Aubenque, 1963; Broadie, 1991; Ricœur, 2007), practical wisdom (or prudentiality, another translation for the Greek concept "phronesis") is precisely the way of thinking required to handle the kind of situations or cases described in the preceding section, that is, where complexity and uniqueness bring irreducible uncertainty. This irreducible uncertainty defeats the mechanical use of any abstract scientific knowledge, rules, protocols, and so on. This does not mean that these knowledge, rules and protocols are useless. Arguing so would be absurd. It does signify that in the face of irreducible uncertainty, a professional cannot solely rely on them to deduce what to do in concrete individual cases without risking severe damage, as previously highlighted in medical practice.

Let us find out why this concept can be useful for sociological research on a number of professions[2]. Which professions are particularly concerned? Providing an exhaustive list of the most prudential[3] activities is not the point, as large variations can exist within a given profession. Nonetheless, activities where practitioners work with people (e.g., doctors, social workers, teachers), deal with highly uncertain situations (e.g., police officers, researchers) or manage complex projects (e.g., architects, industrial project managers) are those where practical wisdom is usually required. They are also those for which impediments to practical wisdom are the most likely to cause damage. Examples include maladjustment in treatments for patients or in teaching pupils, misunderstanding of tricky situations that may lead police officers to make the wrong decisions, researchers' inadequate evaluation of the significance of a line of research compared with another, or buildings ill-adapted to their uses. As mentioned, although it would be difficult to provide an exhaustive list of prudential professions, as those issues are not so salient in all occupations, the concept is useful in illuminating the difficulties encountered in these activities and in asking research questions about them. One of the major benefits of using the concept of practical wisdom for sociological work is that it helps sociologists understand why complexity has not become a key theme of sociological research and more generally, why some issues associated with complexity are usually misunderstood and underestimated, not only by sociologists but also by other actors.

Few people understand that practical wisdom is required when complexity and singularity bring an irreducible uncertainty. First, the concept of practical wisdom has been absent from the common culture, even of highly educated people, for at least two centuries. Earlier, the concept used to be understandable by any educated person. For instance, it is present in the 17th-century French general literature in its

[2] I have presented this philosophical concept in more depth in several other publications in French, English, and German (Champy, 2012, 2018 in press-a, 2018 in press-b).

[3] Let us recall that practical wisdom and prudentiality are equivalent as both are translations of the Greek phronesis.

Aristotelian meaning[4]. It has disappeared in the 19th-century literature. The idea itself has also become increasingly difficult to understand because of the dominant conception of rationality based on the benefits of science. Even in situations where practical wisdom is strongly needed (i.e., where uncertainty cannot be avoided), science and measurement are perceived as the dominant bases of rationality. This narrow conception of rationality recommends applying rules, knowledge or protocols as rigorously as possible to attain objectivity and make the work process and its outcomes foreseeable. It also leads actors to place significant weight on indicators that offer a hint of objectivity, even if they are too simple and provide a biased view of what they measure—either the situation or the results of the work.

The philosophical tradition about practical wisdom helps provide an understanding of the limits of this conception of rationality, which is highly ambitious but also naïve because of its unrealistic aspiration. What is expected of it is out of reach. For instance, this philosophical tradition shows that irreducible uncertainty makes bets often unavoidable. Thus, objectivity is impossible. Actually, objectivity is dependent on certainty. Where irreducible uncertainty remains, objectivity is out of reach. The claim for objectivity in an uncertain world is an illusion that prevents handling problems properly. Of course, this does not mean that anything is equally relevant, as I shall discuss further.

Nevertheless, many people can no longer understand that practical wisdom is a crucial issue in some situations, and they ignore what conditions are necessary to allow a prudential approach so as to act accordingly. Consequently, requirements are quite likely to be brought in that cannot be satisfied. In other words, prudential work on complex cases is being jeopardized by the epistemic gap between two conceptions of rationality. For people who believe that objectivity and measurement are central components of rationality, objectivity and foreseeability are normal requirements. As this narrow conception of rationality is now increasingly prevailing, notably in the management of organizations, the conditions for practical wisdom are often missing.

Having identified this epistemic gap, a sociologist understands better why the evolutions of professional organizations are likely to place their practitioners working there in difficult situations. The concept of practical wisdom makes it easier to grasp why new public management is thwarting professional thinking and to study precisely to what extent it is doing so. A sociologist also more clearly comprehends why some activities are more vulnerable to the demands of managers than others. The more complex the work is, the more practical wisdom is needed, and the more abstract control from a distance is likely to make proper work (i.e., prudential work) difficult. Because practical wisdom requires flexibility, it poses a major challenge in the current evolutions of professionals' work conditions. Organizations, rules and managers' rigid approach to work are liable to hinder the prudential adaptation of work to unique cases or situations. For this reason, these rigidities appear as serious impediments to practical wisdom.

However, the issue is not that simple. It would be so only if professionals always used their autonomy to act prudentially and in their clients' interest. As such is not always the case, or at least, not as much as professionals could or should, rules and control from a distance may also be beneficial for the quality of work. Likewise, abstract indicators are often overly simple and encourage professionals to pursue certain aims at the expense of others. On the other hand, indicators may also be useful in helping assess the work and improving it. Obviously, sociologists should avoid jumping to conclusions about the relationships between organizations and rules, on one hand, and practical wisdom, on the other hand. Such relationships depend on specific contexts that ought to be further investigated.

[4] This is shown in the French theatre with the examples of Molière or Corneille.

The concept of practical wisdom: Observing situations at work from a different angle

Philosophers have already described the prudential way of thinking and the social conditions required to make it possible (Aubenque, 1963; Broadie, 1991). This description is useful in guiding empirical research on professional work, as it enables researchers to study whether these required conditions are met (Champy, 2012). The key social conditions for allowing practical wisdom are as follows:

1) an overall view of a case (versus an oversimplification of it, considered in one dimension only or in a small number of its dimensions);
2) sufficient attention paid to evidence (even minor details) showing that the case may be more complex and difficult than it appears at first sight;
3) enough time to deliberate on the case as required;
4) the ability to deliberate, not only on the suitable means to achieve the goals of professional work, but also about the way that these goals should be prioritized, as complexity often prevents professionals from fully meeting them all; and
5) the ability to criticize, avoid and replace the usual solutions when there are justifiable reasons to believe that they are ill-adapted (i.e., freedom from automatism, whether arising from routines, bureaucratic rules or scientific knowledge).

This list of conditions does not claim to be comprehensive. On the contrary, it is only a quick presentation of the rich philosophical work describing how prudential people deal with situations of irreducible uncertainty. Nonetheless, using this list as a starting point definitely helps in formulating specific research questions on the numerous social objects that will likely either foster or hinder practical wisdom, such as cultures, rules, division of labour, professional training, technical devices, and so on. The description of the conditions that are conducive to practical wisdom is useful in guiding investigations on any of these social objects. Let us take the example of rules. Understanding the relationship between rules and practical wisdom implies avoiding two opposite traps, as discussed regarding the use of the concept of autonomy. The first one would involve defending autonomy and as a result, would systematically criticize rules for their limitation of autonomy. As explained, this view is irrelevant since Freidson (1970, 1986) has shown that autonomy is often misused. The opposite position would entail approving rules because they limit autonomy and its misuses. The latter perspective is also unsatisfactory because rules imposed from above may prove ill-adapted to concrete work. Some rules are highly suitable for prudential work, while others may bring difficulties, all the more so as they are established from a distance. Fieldwork is needed, and the description of the conditions that are conducive to practical wisdom provides an adequate basis for guiding investigations on precise rules, avoiding both these traps.

The research questions to be addressed concern both the formulation and the use of rules. Do the people who have formulated the rules know the concrete cases that these will apply to and the kind of difficulties that professionals have to deal with? Are new rules experimented on or imposed from above? Rules are general, but cases are singular. Thus, even a well-articulated rule may sometimes be ill-suited to a given case. If so, is it possible for a professional to deviate from the rule in order to adapt his or her work to the case? Provided that the rule is useful in most cases, deviations should remain the exceptions. Consequently, how is work organized to check whether deviations are defensible? Are professionals asked to provide justifications? Who decides whether these justifications are sufficient?

Likewise, the concept of practical wisdom could help sociologists address specific questions concerning the division of labour. The first series of questions comes from the need for an overall view of the cases that professionals handle. Does the

division of labour allow this overall view? When professionals from various specialties are involved, is interprofessional collaboration adequate to arrive at a decision that would be respectful of all points of view? Other questions arise from the need to pay attention to the evidence that a case may be more complex than it appears at first sight. When a junior employee has justifiable reasons for anticipating a problem, do reporting lines allow him or her to express them without fear of punishment or disapproval (even if he or she is mistaken)?

Some of those issues have already been addressed in research, notably in management and organizational sciences (Hufty, 1998). However, the concept of practical wisdom makes it possible to draw up a systematic research programme that can be broken down into complementary subquestions about rules, division of labour, training, and so on. Additionally, the systematic approach sheds light on the reasons why these conditions are not always met by making it clear that what is at stake is the tension between two ideas of rationality. While practical wisdom should be a major social issue, managers and sometimes professionals conceive of an organization with reference to a conception of rationality that is irrelevant to situations of irreducible uncertainty. Finally, as illustrated with the example of rules, the concept of practical wisdom permits a fresh look at the classic sociological question of autonomy. It helps provide an understanding of the limits that should be set for professional autonomy, in the sense that some autonomy is necessary to adapt to singular cases and situations, but its possible misuses ought to be prevented by the establishment of appropriate social settings.

Far from dictating general conclusions, the concept of practical wisdom is an invitation to continue empirical work on the way that professionals deal with uncertainty and complexity. The papers in this issue present studies that provide stimulating thoughts and findings about developing this line of research. Studying general practitioners dealing with antimicrobial treatments in Denmark, Inge Kryger Pedersen and Kim Sune Jepsen show that no jurisdiction has been properly defined to deal with the increasingly important issue of antimicrobial resistance. This brings difficulties in taking all the dimensions of the work into account while using antibiotics. Patrick Brown and Nicola Gale's paper on the theorizations of risk work shows how a narrow conception of rationality based on formalization takes a strong hold and impacts the way that people deal with risk work. Katarzyna Wolankik-Boström and Magnus Öhlander's research on Swedish physicians working for aid organizations in the global South and returning to Sweden shows the kind of practical wisdom required to work in situations of strong economic constraints, as well as the difficulty in using this acquired experience to question routines once the physicians are back to a rich country. Finally, Marlot Kuiper examines the use of standardized work processes in critical care in the Netherlands. Her ethnographic study shows that this standardization aims at organizing "collective professionalism"; it also underlines how difficult it is to integrate it into actual practice.

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Prescribing Antibiotics: General Practitioners Dealing with "Non-Medical Issues"?

Abstract: The medical professions will lose an indispensable tool in clinical practice if even simple infections cannot be cured because antibiotics have lost effectiveness. This article presents results from an exploratory enquiry into "good doctoring" in the case of antibiotic prescribing at a time when the knowledge base in the healthcare field is shifting. Drawing on in-depth interviews about diagnosing and prescribing, the article demonstrates how the problem of antimicrobial resistance is understood and engaged with by Danish general practitioners. When general practitioners speak of managing "non-medical issues," they refer to routines, clinical expertise, experiences with their patients, and decision-making based more on contextual circumstances than molecular conditions—and on the fact that such conditions can be hard to assess. This article's contribution to knowledge about how new and global health problems challenge professional actors affirms the importance of such a research agenda and the need for further exploration of the core problems posed by transnational sociology of professions.

Keywords: Transnational jurisdiction, Abbott, antibiotic resistance, clinical practice, Danish GPs, non-pharmacological basis of therapeutics

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Antimicrobial resistance (AMR) has become an urgent public health concern, sometimes represented as marking the end of a "golden age of medicine" (Washer & Joffe, 2006, p. 2141). The AMR problem is one of very few exceptions where the global as well as the national public—such as the World Health Organization (WHO), the European Commission (EC) and national health authorities—is questioning the authority of professional to monopolize treatment decisions when excessive use of antibiotics is considered to be the most important driver in the development of AMR. However, the phenomenon of antibiotic overprescription and resulting resistance cannot be grasped on its own. To explore what happens when medical doctors encounter political claims in their clinical work—such as claims from transnational as well as national organizations, which might impinge on professional tasks and practice—is the key objective of this article.

The sociology of professions is opening up to the topic of how global transformations have an impact on the professions—and vice versa (Brante, 2011, Evetts, 2011, Faulconbridge & Muzio, 2011). However, while important work is being done, for example, on transnational professional networks (Seabrooke & Tsingou, 2015), an urgent question has yet to be systematically explored: that is, how actual professionals have an impact on and are themselves influenced by, the changing local as well as global contexts of professional work. Professional relations, and not least

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work, are organized via jurisdictions that are, according to Abbott, defined as problem-spaces linking professional groups to particular work tasks over which they claim expert authority (1988, p. 20). The jurisdictional core task for the medical profession is to cure. As Abbott has noted, a profession like medicine, which already is compact with a formally rich body of knowledge, will "lose strength in its current jurisdictions if it claims yet another one, forcing its justifying abstractions to the limits of vagueness" (Abbott, 1988, p. 104). If the knowledge system is relatively logical, rigorous and scientific, the jurisdiction is more prestigious and untouchable (Abbott, 1988, pp. 104-108). So what happens when a problem-space, in this case, prevention of antimicrobial resistance, is "vacant" (Abbott, 1988, pp. 88-91)?

This article contributes insights into how locally situated medical professional work, in this case, general practice in Denmark, is interrelated—or not—to large-scale problems such as AMR. Following significant strands within the sociology of professions, the article focuses on the manner in which the problem of antibiotic use is understood and engaged with by general practitioners (GPs). This should be seen against the background of how the total consumption of antibiotics in primary care, even within the past decade, has increased considerably in Denmark (DANMAP, 2013). Our empirical material addresses knowledge garnered from individual doctors' professional experience more than it does science-based knowledge. In demonstrating how the problem of AMR is understood and engaged with by Danish GPs, this article suggests that what GPs consider as "non-medical issues" are linked to important sociological areas of study about new health problems challenging professional actors, sometimes in indirect ways. Such a contribution to knowledge about GPs' practices and reflections affirms the importance of a research agenda grounded in the jurisdiction as a dynamic view of the dominance over areas of work. Drawing on Abbott's (1988; 2005) vocabulary allows us to discuss dynamic processes in the workplace, as his view of jurisdiction links not only to "closure" but also, indeed, to jurisdictional activities. Insofar as our analysis approaches the work task, prevention of antimicrobial resistance, from a "linked ecology" perspective (Abbott, 2005), yet concentrates on a microsociological and mainly mono-professional empirical field, it points to the need for further exploration of the core problems posed by transnational sociology of professions.

Regulatory boundaries of general practitioners' work

In Europe, an estimated 25,000 people die each year from multidrug-resistant bacteria, and the loss of productivity incurred by resistant bacteria is estimated at more than 1.5 billion euro per year (EC, 2015, p. 4). However, AMR poses considerable dangers to public health all over the world, and a key objective of current policy interventions revolves around "prudent use" and control of existing antibiotic agents as stated by the WHO (2014, pp. xiii & 1). Subsequently, there has been a strong emphasis on the need to implement national guidelines grounded in evidence-based science and best practice in medical treatment (EC, 2012, p. 2).

Denmark was among the first countries to develop comprehensive surveillance and control by creating the institution of the Danish Integrated Antimicrobial Resistance Monitoring and Research Program (DANMAP) in 1995. Although international European surveillance suggests that the Nordic countries are among the least infected (ECDC, 2013), recent surveillance by DANMAP also indicates that the public health problem of AMR is accelerating:

> The consumption in primary healthcare accounts for 90% of the total antimicrobial consumption. The proportion of broad-spectrum agents was 5% higher in 2013 compared with 2012. Since 2004, the overall consumption of antimicrobial agents in humans has increased by 20%. For broad-spectrum agents, the increase has been 72%. (DANMAP, 2013, p. 15)

In response, guidelines have been issued by the Danish Health Authority (SST) to ensure a more "rational" use based on clear indications before treatment and use of antibiotics less susceptible to encouraging resistance (SST, 2012, p. 5). Recently, the Danish Medical Society for General Practice (DSAM), the society representing GPs, complemented this recommendation with comprehensive clinical guidelines that also emphasize rational use and target the treatment measures necessary. However, these guidelines further emphasize that diagnoses grounded in evidence-based science might not be feasible in clinical situations (DSAM, 2014, pp. 6–7).

The ambiguity of guidelines

Empirical studies within organizations and indeed science studies on medical standards and guidelines have indicated that guidelines do not necessarily reduce variations in local practices and institutionalized patterns (e.g., Timmermans & Kolker, 2004; Zuiderent-Jerak, 2009). Standardizations and guidelines may sometimes transform practices but do not prevent diversity and local specificities (Castel, 2009, p. 745). Castel has shown that they may even enhance variations since guidelines are used strategically by individual and groups of physicians (2009, p. 745).

It is well recognized, for example, within the literature on deprofessionalization and proletarianization (e.g., Britten, 2001; Weiss & Fitzpatrick, 1997), that there are extraneous pressures on clinical behaviour (Larsen, 2016), and literature on doctor-patient encounters has shown that patient pressure can act as an incentive to influence doctors' behaviour (Stivers, 2007). However, as the sociology of the medical profession, in general, has stated, the cornerstone of professional identity remains predicated on clinical autonomy, and practitioners claim discretionary power to handle various practices (e.g., Armstrong & Ogden, 2006; Larsen, 2016). Drawing on our empirical findings, we will use the discussion section to link how GPs defend clinical autonomy, for example, when describing how guidelines are not able to cover clinical complexity, with a discussion of how prevention of AMR is considered—or not—by GPs as a task area.

In Hemminki's "Review of literature on the factors affecting drug prescribing", which appeared in *Social Science and Medicine* more than four decades ago, he wrote:

> If only medical factors influence prescribing, the variation in prescribing practices might be explained by differing patient populations but many other factors … have been found to affect prescribing. (Hemminki, 1975, p. 111)

Armstrong and Ogden have cited this and noted that several researchers have since tried to identify what has been described as, for example, "the non-pharmacological basis of therapeutics," "extraneous influences," "the idiosyncrasies of individual practitioner judgement" or, as they themselves sum up such factors, "the alternative sources of influence," to offer a more rational basis for prescribing (2006, pp. 951–952). More literature has dealt with strategies to help disseminate more appropriate treatment advice (e.g., Lugtenberg, Zegers-van Schaick, Westert, & Burgers, 2009) than to identify *why* many of those strategies, for example, dissemination of information, did not seem to change professional practice (Bero et al., 1998). There appeared to be "no magic bullets," as Oxman et al. (1995) have put it. A need for multifaceted solutions (Haines & Jones, 1994) remains the only solution to bringing about a policy of rational treatment. Armstrong and Ogden (2006, p. 953) sum up that "multiple source" models have been identified, but that these are generalized accumulation models.

This article will focus on which "alternative sources of influence" GPs acknowledge in their reflections and descriptions of experiences with issues of anti-

biotic prescribing. That is, the article will look at how—and why—antibiotic prescribing sometimes is linked to a dilemma; for example, should a GP's decision to prescribe antibiotics be based on a patient's risky although not molecular conditions or strictly follow guideline recommendations in order to reduce antibiotic usage? How does a GP handle an individual patient's health challenges while at the same time considering the global AMR problem? The particular jurisdictional task, prevention of AMR, can be conceptualized by what Abbott terms "external forces" (2005, p. 246), rather than by professions seeking new ground. However, as the analysis and discussion will show, not only external but also internal forces are at play when the GPs' own scientific society, DSAM, in light of the AMR problem has developed comprehensive clinical guidelines for antibiotic prescriptions (DSAM, 2014). Guidelines embody the extent of medicine's jurisdiction (Timmermans & Kolker, 2004, p. 178), and we consider antibiotic usage a matter of how jurisdictions work, that is, usage is subject to the regulatory boundaries of professional work (Abbott, 1988; 2005). Abbott approaches jurisdictions as dynamic "problem-spaces" and interprofessional competitions as open-ended (Abbott, 2005). Our empirical findings will hint at jurisdictional activities at the workplace level when clinical complexity interferes with guidelines' knowledge base.

Methods: Casing the professional practices of "prudent use"

This article is based on a study in which we collaborated with a large group of researchers from four faculties on the project *UC Care—University of Copenhagen Research Centre for Control of Antibiotic Resistance*. Our sociological subproject "What is good doctoring when antibiotic resistance is a global threat?" is based on empirical materials such as documents (standard procedures, guidelines, registration forms), qualitative in-depth interviews with GPs, and notes based on meetings with microbiologists and medical scholars about clinical practice, all collected in 2015–16. The decision to interview provided access to agendas, as well as to understandings and opinions held by GPs, about the global health issue of AMR. The interviews concentrated on the following: (i) in which activities are the GPs' called upon to exercise their judgements, and (ii) how do the GPs know whether they have made the right decision in prescribing antibiotics in a variety of specific situations. Drawing on abductive analysis (Tavory & Timmermans, 2014) of the empirical material, we explored how a range of dilemmas and problems preoccupy the general practice field.

Access to the field was acquired with the help of a medical scholar via open invitations in an online forum for GPs. This access allowed for contact with GPs all over the country, representing urban as well as rural populations. We contacted a limited number of the interviewees by the snowball method to cover almost all regions of Denmark. The in-depth individual interviews were conducted by the authors, together or singly, and 21 GPs were interviewed for between 60 and 80 minutes. Most interviews were conducted in the GPs' offices; three preferred to be interviewed in a meeting room at The University of Copenhagen. The interviewees were selected with a view to ensuring as broad a range as possible in terms of gender, age, geographical location and occupational experience. As an extension of this sampling strategy, we pursued, in particular, an interest in different occupational experiences arising from forms of practice, solo as well as group practices. We aimed to explore when, where, and why (or why not), as well as how, the AMR problem was reflected by a range of GPs in different situations and locations.

The interviews followed a semi-structured interview guide formalized around the following themes: (a) daily treatments of patients; (b) guidelines and recommendations; (c) respiratory tract infections (RTIs); (d) attitudes towards professional engagement with antibiotic usage considered as a global issue. RTIs were taken as an example of diagnoses owing to recent evaluations of general practice, which have

shown that such infections remain a leading reason for prescribing when in fact only 20 % of the prescriptions are medically necessary (Llor & Bjerrum, 2014, p. 8). The guide included questions and presentation of statistics that were meant to invoke engagement, evaluation and judgement of unresolved issues of antibiotic usage. To this end, we based our interviews on descriptive questions concerning the concrete experience of handling antibiotic treatments, and from these questions, we sought to gain a dense array of examples (Spradley, 1979, pp. 78–91). Questions such as "Can you describe the situation when you most recently prescribed antibiotics?"; "Could you tell me of a situation…?" or "Can you provide an example of…?" were significant in helping us to learn more about how GPs engage with antibiotic treatments.

This method opened the way for so-called "in-vivo" terms (Spradley, 1979, pp. 78–91), which are words and concepts used by the GPs themselves. We included important in-vivo terms in the interviews that followed to obtain a deeper understanding of the terms, or maybe to set them aside if other interviewees did not recognize the terms. For example, some of the first interviewees referred to so-called "non-medical issues" concerning specific patients or situations they as GPs had to or wanted to be aware of when deciding whether or not they should prescribe antibiotics. Thus, in the interviewing process, we created a second set of questions that called for free reflections on and evaluations of certain terms or framing. It means we came close to a conceptual interview (Kvale & Brinkman, 2009, pp. 151–153) that explored the meaning and understandings attached to certain notions.

The interviews were taped, transcribed and analysed by examining uncertainties, ambiguities or controversies between what was valued and how things were done, just as we allowed the GPs to delineate and position themselves in the social landscape of other professionals and pressing concerns in the antibiotic field. That is, in view of the themes mentioned previously, we have sought to acquire knowledge of different valuations that sustain professional jurisdictions and make it possible to look more closely at this open question: What is good doctoring when AMR is a global threat? (see Pedersen & Jepsen, 2018). In line with our methodological concern, the study did not attempt to provide a representative picture of how GPs as a whole understand and engage with antibiotic usage. Adopting a qualitative approach, we took as our directive to explore how a range of dilemmas and problems characterize the field of general practice and to address issues of good doctoring within the article's theoretical position.

The elements of informal knowledge and practical tasks identified in this article have emerged mainly from what GPs reported in the interviews. The findings are based on the explanations and understandings that GPs themselves used to account for their actions. We wanted to gain insights into clinical practice and how GPs conceived of their handling of antibiotics and sought to cope with AMR. Of course, we have been careful and systematic in how we gained our insights and wrote about them, but we assume significant variation among GPs' practice and experiences, an element our research material as designed might not be able to show, as we did not observe GPs performing clinical work, for example. Yet our sampling strategy presented above was developed to acquire insights into variations. After we had conducted just a few interviews, we noticed that clinical conditions such as having a solo or group practice, a long or short work experience, and a heterogeneous or relatively homogeneous group of patients—for example, relatively old or young, many or few immigrants, long or short distances travelled by patients to attend the clinical practice—were aspects that the GPs themselves mentioned as important to the kinds of challenges they experienced.

From the perspective of our concern with professional practice and owing to the current lack of knowledge about the character of the jurisdictional task—how prevention of AMR works—the themes we have focused on are based on existing literature and studies; they rely, as well, on what discussions with key persons have revealed to be significant to exploring situations of antibiotic usage in the clinical setting. In order to protect the privacy of the interviewees, they have been assigned

numbers. The analysis as follows focuses on the resources, understandings and capacities used by the interviewees to handle diagnosing and antibiotic prescribing in light of the AMR problem.

Global disturbances in local general practice?

Patients are not alone in being expected to demonstrate adherence, in their case, to doctors' advice. In recent decades, as the development of clinical practice guidelines has boomed, doctors have been expected to demonstrate adherence to such guidelines that create challenges in clinical practice (e.g., Timmermans & Kolker, 2004). Closer examinations of how medical professionals engage with infections, in particular, RTIs, have shown in a range of contexts that the social dimension of how a disease is understood and engaged with in a clinical context is significant for GPs' work (e.g., Kumar et al., 2003; Lugtenberg et al., 2009). Such studies have found that the culture of prescribing is influenced by the nature of daily practice, which is shaped by various non-pharmacological factors such as a good doctor-patient relationship, pressures of time, lack of energy to resist demands, and uncertainty in diagnosis. The studies indicate that "conflictual situations" are integral to the orderly routine that GPs are faced with in the case of diagnosing and antibiotic prescribing (Stivers, 2007).

In this analysis, we concentrate on the theme of "non-medical issues" that appeared as an in-vivo term in our meetings with doctors about the AMR problem, as well as in the interviews with GPs. It refers to the GPs' routines, clinical expertise and experiences with their patients, and is a term used to explain dilemmas and decisions based on more contextual circumstances than molecular conditions—as well as on the fact that such conditions can be hard to assess. Current daily practice for Danish GPs is likely far from the scenario outlined by the WHO, in which the medical profession will lose one of its most important tools in clinical practice if even simple infections cannot be cured. However, almost all of the interviewees said that they regularly had experienced patients with resistant bacteria. Thus, some of their judgements in daily practice acknowledge elements of such a scenario. In what follows, we demonstrate how such issues appear within "the informal arena" of jurisdictional claims, namely the workplace.

Making a diagnosis

For the purpose of analysing the significant activities included in judgements by GPs, we asked how they knew whether it was the right decision to prescribe antibiotics in a range of specific situations. Focusing on the manner in which a diagnosis was made, the GPs engaged in different practices to arrive at a final decision. Physical observations and listening to the patient's illness narrative seemed to be part and parcel of all consultations: practices that are evident and necessary, but not always sufficient. Observations included considering symptoms and warning signs, in particular, high fever, and also sometimes examining the throat and, with a stereoscope, the lungs. Most of the GPs told us that they regularly use or previously have used or intend to use so-called rapid tests, in particular, urine tests and CRP (C-Reactive Protein, a blood test marker for inflammation), to indicate whether a patient is suffering from a virus or a bacterial infection. In general, only the latter should imply antibiotic prescribing. All the GPs also regularly used laboratory tests to inform themselves more specifically about which bacteria are present. However, as some of them said, lab tests take more time, often at least 24 hours, and the results might not indicate whether the bacteria present are the reason for the patient's feeling bad.

Moreover, grey zones often feature where a diagnosis is not easily affirmed, and it is difficult to acquire knowledge about what is at issue, a bacterial infection or a virus, or maybe "something in-between." Most of the GPs noted that timing can play

a role if the consultation takes place on a Friday, just before the weekend, or before holidays. Many doctors expressed worries about leaving their patients to out-of-hours services, not only because some GPs find these services less safe, but also because the treatments become more expensive, not for patients themselves but rather from the perspective of overall health economics. From all accounts, it appeared that the nature of the GPs' advice indeed depended on for whom they were considering prescribing antibiotics. In particular, the interviewees were less reluctant to prescribe antibiotics when confronted with patients experiencing complex issues such as comorbidity and those with specific weaknesses, for example, elderly people, babies, formerly hospitalized patients, or patients who have problems caring for themselves, perhaps because of certain types of disabilities. Some of the GPs mentioned that COPD (Chronic Obstructive Pulmonary Disease) patients were more likely to get a prescription if there was the slightest indication of bacterial infection. Likewise, the worry expressed by parents of small children could influence some GPs' decisions. Sometimes it is hard to determine where a baby feels pain, and a thorough examination might be difficult and time-consuming to conduct.

One experienced GP said that if he had taken the decision to prescribe antibiotics and was relatively sure it was the right decision, then he would never use tests: "These will only add doubts to your decision" (GP1). Many GPs mentioned that the tests can be used as indicators but will not always yield a precise measure, and often they indicate a grey zone. Sometimes a rapid test can be used as a "pedagogical tool," a term suggested by GP3 to cover activities useful for convincing a patient. Some of the GPs, in particular, those dealing with quite a few highly educated patients, found that more and more patients had themselves become sceptical about antibiotic treatments and preferred to find other solutions or just to wait and see.

"Wait-and-see-prescriptions," suggested in DSAM's newest guidelines (2014), were used by several of the interviewees to give to patients or parents they considered capable of monitoring their own or their kids' health condition. That way the recipients could get antibiotics without consulting the GP again if the condition worsened. Such prescriptions were used when it was hard to make a clear diagnosis, when GPs were busy in their practice, when a prescription seemed to calm down patients who were worried or sceptical, or when a weekend or holiday was approaching. Some of the GPs were not willing to suggest possible treatments about which the patients themselves had to decide; others were not familiar with this concept of "wait-and-see" or termed it otherwise, in particular, if they had used this strategy for years. The interviewees with experience of wait-and-see-prescriptions said that they only used them for certain kinds of patients. They had to know the patients very well, and some GPs underlined or indicated that often there is a social issue at play in such a decision. One of them said that she would never give a wait-and-see-prescription to certain patients, for example, to a worried mother from an ethnic minority that typically has experienced fever as harmful (because of greater mortality risk in less affluent countries):

> No, I won't ever do that because for sure the mother will use it immediately, so no, I won't ever do that again. I can do it for Danish parents, who often don't use the prescription anyway. In such cases, it's definitely a good idea. (GP2)

Although the "wait-and-see" concept is mentioned in the DSAM guidelines, only a few interviewees, when asked, said that they had noticed it. This brings us to the next theme, which will focus on issues other than those recommended by guidelines.

Beyond guidelines

The accounts demonstrated significant differences between everyday general practice with its random human problems and the specialists' and guidelines' more nar-

row focus on specific disease types. The issue of grey zones has illustrated this already. As in Armstrong and Ogden's study (2006, p. 958), many of the GPs in our study complained about "the sheer volume of guidelines that were sent to GPs making it difficult to separate the wheat from the chaff." Whereas only a very few had noticed the recent guidelines about antibiotic prescribing that were developed and forwarded by their own scientific society, DSAM, all were aware of the guidelines distributed by the Danish Health Authority (SST). However, in general, they considered them literally as guidelines, that is, they felt free to disregard them without finding reasons necessarily to change their usual practices.

One of the GPs who knew of the version by DSAM referred to discussions among peers and noted that the two respective guideline recommendations "clash." She explained that the SST's guidelines require measurement of the fluid pressure in children with otitis—a requirement that she found impossible to meet in daily general practice. The SST's guidelines are notable for being developed by experts other than GPs, she said.

> [o]ur guidelines are more and more created by people who aren't familiar with our daily situations … for example, by ear-nose-throat specialists who have a professional focus on a selected subpopulation of children with ear disorders. (GP5)

Another interviewee (GP3) who also had read the guidelines from DSAM noted that they are all too long and complicated and not very "pedagogical" if they are designed to reach GPs with busy everyday practice. Informal meetings and talks with GP scholars have confirmed this impression. Some of the GPs emphasized that they preferred the SST's short editions of guidelines. Also, posters and brochures distributed by the SST to hand out to patients or hang up in practices were appreciated by several interviewees.

Although it might not concern guidelines in general, a prevalent attitude among the interviewees was that updated versions of guidelines for antibiotic prescriptions were treated with a fair degree of scepticism. Their experience has demonstrated that there is rarely just one way of handling the same diagnosis. Clinical treatment may involve many special situations. Guidelines for a specific diagnosis or for the use of a certain treatment might not help patients with comorbidity who need special attention, several interviewees emphasized. Many situations giving rise to doubt were described when doctors handle patients with viruses or bacterial infections; for example, when the test results were ambiguous or incongruent with the GP's physical observations and assessment, which also was based on the patient's illness narrative and career of diseases. GP3 said that she usually did not want to override standardized treatments but told us anyway about several incidents where she did. One of the incidents involved a family with a father who had received a negative test result and did not seem to be suffering from bacteria that antibiotics could help. He got them anyway:

> [t]hey were on their way to spend their holiday in Turkey. First and foremost, it's hard to have half your holiday ruined if you suddenly develop a fever and need to find out how to get to a doctor in Turkey. And the risk was high that he would get five different kinds of broad-spectrum antibiotics if he consulted a Turkish doctor. So I believed it was better for me to prescribe some narrow-spectrum agents than what he would get down there.

In this case, the dilemma was explained by considerations about the availability and proper use of antibiotics. Other dilemmas were concentrated on using antibiotics for prevention of serious illnesses. Some of the GPs told us about bad experiences they had endured as an explanation for prescribing antibiotics for safety reasons:

> The first patient I saw today got antibiotics…. He wasn't terribly sick ... that is, he wasn't suffering from a high fever and wasn't that bad. When I take such a decision and choose to prescribe antibiotics, I do it in light of what's happened before…. Last time that he was sick, he was hospitalized, so therefore I didn't have the courage not to prescribe antibiotics. I could have performed a blood test to support my decision, but I don't think I would have changed my mind because he isn't very resilient and he's 78 years old. (GP1)

GP1 added: "you lower the bar when you have had bad experiences." Another GP put it like this:

> You develop your own kind of safety net when you've had a bad experience. A bad experience is of higher importance than what ten randomized studies say. (GP3)

Low socioeconomic status of patients has been suggested as a cause of overprescription when GPs suspect poor health conditions and react with a concern for safety first (Kumar et al., 2003). The issue of antibiotic usage in clinical settings is about safety on various levels. GPs' experiences and dilemmas tell us that the reality of their practices is not simply a matter of making judgements and decisions. There are tensions between guidelines and clinical reality, and all the GPs interviewed said more or less explicitly that clinical autonomy is valued. In the section that follows, inspired by Armstrong and Ogden's work on the role of etiquette (2006), we will explore how clinical autonomy is shaped by specific "tacit measures" for maintaining autonomy.

Professional etiquette

By addressing different kinds of decisions, challenges, and dilemmas, all the interviewees gave the impression that they were protecting their own as well as their peers' clinical autonomy. Professional etiquette is understood as a constrained behaviour, wherein doctors respect clinical autonomy by not interfering with the clinical judgement of another. "Criticism of or comment on the practice of one doctor by another is proscribed by professional etiquette," as Armstrong and Ogden have noted (2006, p. 962). In a more formal understanding, professional etiquette concerns issues that are not included in guidelines and evidence-based medicine and are beyond medical knowledge. However, it ensures learning by one doctor from another without compromising the professional ideals of clinical autonomy (Armstrong & Ogden, 2006, p. 963). Nonetheless, we will demonstrate how some of the interviewees in our study, in line with Armstrong and Ogden's findings (2006, p. 963), expressed a "tension between valuing the collegiality of shared decision-making and the imperative of maintaining the proper place of clinical autonomy in spirit if not in word."

GPs in solo as well as in group practices acquire a partial knowledge of peers' treatment decisions, not only when doctors meet in peer groups, but also when selected GPs take over their peers' patients or when peers have treated some of theirs. This happens for one reason or another, for example, during holiday periods when the patient's regular GP is not available. Some of the GPs found that certain of their peers were too generous in prescribing antibiotics:

> Sometimes I think: "Why don't we … contact some of those [who prescribe too much]?" I don't think we're good at discussing things.… It's taboo to contact your colleagues about their prescribing habits.… It's simply too difficult for us to deal with … to criticize colleagues we don't know. (GP11)

Another GP found it difficult as well to criticize colleagues in the group practice:

> With one of my colleagues, I have a continuous dialogue about what to do in specific situations and, I think, congruent ways of assessing infections and prescribing antibiotics.… However, I could never comment on [another colleague's] practice [concerning overprescription]. (GP20)

Some GPs underlined that they themselves had learnt through this more indirect route of professional etiquette from seeing the outcomes of other doctors' clinical practice. Professional etiquette means that in a situation like that mentioned above, where one of GP1's patients was hospitalized, GP1 was not told by the hospital doctors that he should have prescribed antibiotics to treat the patient as safely as possible. GP1 told us how he had acquired some practical knowledge from situations handled by other doctors and had reflected deeply on this experience, resulting in the readjustment of his prescribing practice in such cases. The value of the etiquette is, as Armstrong and Ogden (2006, p. 964) have put it, that "new ways of treatment could be 'learnt' without jeopardizing the autonomy of individual doctors."

Three of the interviewees (GP1, GP11, GP20) also mentioned a more direct route for learning from other doctors when the regional health consultants presented them with some statistics on their prescribing practice compared with those for other practices. Clinical autonomy was for most of the GPs less about never revising their own practices than about avoiding peers and third parties controlling and directing what to do in specific situations. More tacit measures like clinical etiquette were acknowledged as important components of GPs' daily work.

AMR as an environment for general practice

As the findings have demonstrated, guidelines can be controversial among GPs because they purport to tell them how to conduct their work. This is also an issue about fearing that third parties will interfere and use guidelines to undermine long-standing professional autonomy and interests (Larsen, 2016). Guidelines are purposed to provide the scientific optimum backed up by the best available evidence, and they offer instructions on which diagnostic tests to order, as well as when to provide medical and other services of clinical practice. However, guidelines also set an agenda for jurisdictional activities (Abbott, 1988, p. 83; Timmermans & Kolker, 2004, p. 178). GPs' experiences with antibiotic prescribing in their daily practice indicate that the problem of AMR is translated into consultation and clinical practice. Almost all of the interviewees had experienced patients with resistant bacteria, and some of their judgements in daily practice included elements of a scenario in which they could lose one of their most important tools, namely the usage of antibiotics.

The dilemmas described by the GPs when they were in doubt about whether or not to prescribe antibiotics in a specific case were in many cases based on specific patients' individual conditions or previous negative clinical experiences of one kind or another. They talked about safety reasons on the level of the doctor-patient encounter rather than the global level of the AMR problem. However, it is striking that they described many of their experiences as dilemmas and not, for example, matters of discretion concentrated on the individual patient; the perception of dilemmas might indicate the influence of external forces, such as regulatory boundary activities involving national and international surveillances.

Some GPs found guidelines too long and complex and preferred shorter and easier ones, as well as fewer editions in a year, and by the same token explained how they sometimes encounter very complex situations and patients when assessing whether or not to prescribe antibiotics. Such reflections may indicate a defence of clinical autonomy. In any case, the GPs believed and argued that guidelines cannot cover all the complexities encountered in practice. What is important here is the

range of management choices and practices. In a sociological processual and ecological view, it could be added that "all the complexities" should not be analysed as an entity (see Abbott's reflections on the debate of realism and nominalism, 2005, p. 271), but as an ecology linked to other ecologies, for example, scientific, medical industrial, and political, all of which, like the clinical work with different patients, represent changing ecologies.

GPs often need to adopt a pragmatic form of rationality in which they demonstrate a flexible negotiation between many different situations and normative ends that remain clearly distinct from the measurement and rationality invoked in evidence-based medicine and laboratory studies. Such managing also interferes with and is interfered with by external forces, as most scholars within the sociology of professions would probably agree. However, there is a need for a theoretical apparatus to approach this problem. Abbott has contributed heuristic tools with his reconceptualization of the social world in terms of "linked ecologies" (2005), but how to expand this to transnational "worlds" remains to be further developed. In our empirical analysis, it did not become evident that "doctoring" involves also handling tasks related to global problems, which might imply modes of knowing and acting outside the doctor-patient encounter and clinical sphere. This could have something to do with the research design, but it might also indicate that "prevention of AMR" is not (yet) a jurisdictional claim at the level of the GPs' workplace.

Prevention of AMR as a work task is created by internal forces, for example, handling of resistant bacteria, as well as external forces, including political ecologies. Currently, it is being debated, in this study's material as well as elsewhere, which professions play the most important in claiming prevention of AMR as their work task, therein assuming blame and responsibility. Apparently, there is no rigorous interprofessional competition for undertaking the task of AMR prevention. The fact that the GPs' own society has developed guidelines to prevent AMR (DSAM, 2014) is, following Abbott (1988, p. 83), an important condition for achieving success in legal or public claims of jurisdiction. When our findings indicate that prevention of AMR is not fully integrated into GPs' turf as a contested work task, they might illustrate that "jurisdictional claims entail only secondarily an obligation to in fact accomplish the work claimed" (Abbott, 1988, p. 60). Nevertheless, the dilemmas experienced by GPs in clinical practice seem to become dilemmas exactly because prevention of AMR *is* considered by GPs as a work task and possibly is recognized not only as a political and public agenda but also as a professional one.

Conclusion and perspectives

Danish general practitioners have explained how daily work in their practice is far from simple and how all clinical incidences cannot be included in readable guidelines for usage of antibiotics. By describing a range of dilemmas they encountered when deciding to prescribe antibiotics—or not—the interviewees demonstrated through their experiences how different patients, situations, and guideline recommendations are negotiated in clinical practice by managing "non-medical issues." In their descriptions of daily work, GPs used the term "non-medical issues" to refer to routines, clinical expertise and experiences with their patients, and to explain dilemmas and decisions based more on contextual and social circumstances than molecular conditions—as well as on the fact that such conditions can be hard to assess. How professional areas of work are maintained in a manner that protects professional identity, linking professional etiquette with questions of autonomy and "tacit ways" of learning or confirming knowledge, is one way this article has addressed some of the social issues at stake for GPs as they handle the prescribing of antibiotics.

Findings from this study are helpful in pointing out how and why adhering to guideline recommendations in practice should not be studied as an isolated entity. Lack of adherence to certain recommendations might in some ways be related to

barriers that can be overcome or tailored interventions that can be developed as, for example, Lugtenberg et al. (2009) have suggested. However, what might appear as lack of adherence is within the workplace arena also about how jurisdiction works. This applies not least to daily practice, in which this article has demonstrated important components such as the following: shortage of time, bad and good experiences, heterogeneity of patient population, including weak patients with chronic and comorbid diseases, challenge of too many (new) guidelines, insufficient tests, professional discretion, professional identity, autonomy, and etiquette. First and foremost, daily practice and professional jurisdiction are considered according to the work task of handling antibiotics linked to "ecologies" such as other professions and scientific and political ecologies (Abbott, 2005).

When it comes to the prescription of antibiotics, standardized clinical practice is not only for the sake of the doctor or the patient but also for the sake of others—with respect to the global world and in the future. The statistics showing increasing numbers of antibiotic prescriptions and constantly increasing deaths owing to resistant bacteria tell us that we need further insights into what is happening within the informal arena: the workplace. Public health concerns about AMR have led to practices for reducing the growth of resistance by ending "inappropriate use." Nonetheless, GPs struggle with the possible contradictions contained in encouragement to value antibiotics yet also to avoid them. Indeed, AMR represents an issue of scientific complexity and conflicting interests. It is also an issue of uncertainty, in which risk perceptions of various actors are affected by different truth claims of what accounts for AMR. As sociologists and scholars within cognate social sciences, we should be careful not to focus blindly on the informal arena or the organizational level to the exclusion of other reasons. This is where Abbott's approach of linking ecologies is relevant and should be developed.

Our sampling strategy, although developed to collect varied interview material, does not ensure that our study has shown a significant range of variation. This study has been more concerned with obtaining reasonable grounds for the relevance of essential issues to the sociology of professions in order to discuss how prevention of AMR, addressed as a jurisdictional task, can contribute with insights into complexities, constraints and controversies in everyday general practice. It is hoped that the article has cast light on how a sociological focus on (barriers to) GPs' adherence to guideline recommendations in practice—that is, in their professional work—should be linked to other ecologies in a theoretically fruitful way. If so, further work towards contributing to the transnational sociology of profession will require capturing the dynamic interplay between local and transnational arenas of professional work and organization in relation to challenges of workforce boundaries such as the problem of antimicrobial resistance.

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Patrick Brown and Nicola Gale

Theorising Risk Work: Analysing Professionals' Lifeworlds and Practices

Abstract: The proliferation of risk logics within public and private sector organisational contexts where many professionals work has been studied as a phenomenon itself, as governance and in its impact on clients. The everyday experiences and practices of (para)professionals where risk has become a key and in some cases (re)defining feature or logic of everyday work—in assessing, intervening, advising and/or communicating—has received much less attention. We develop a theoretical framework for analysing this risk work, identifying three core and interwoven features—risk knowledge, interventions, and social relations. Central to our argument is that these features often stand in tension with one another, as intrinsic and implicit features of risk knowledge—probabilities, categories and values—become explicit and awkward in everyday practices and interactions. We explore key analytical trajectories suggested by our theoretical framework—in particular the ways in which tensions emerge, remain (partially) hidden or are reconciled in practice.

Keywords: Experience, lifeworld, professions, risk, risk work, uncertainty

In this article, we theorize the impact of risk logics on professional work and workers, developing an analytical framework, which we illuminate with examples from health and social care. The development of such analyses of experiences and practices is important given the proliferation of risk logics within organisations where many profession(al)s work.

Studies in the sociology of professions have long emphasised the centrality of uncertainty to the emergence and maintenance of professional and occupational groups, and particularly the constraints and benefits of uncertainty, or "indeterminacy," for gaining cultural authority and exclusive access to labour markets (Fox, 1980; Freidson, 1974; Jamous & Peloille, 1970; Nilson, 1979). These broader power dynamics shape how individual professionals go about their work. Parsons (1951) drew attention to the role of emotion-based practices as a means of handling uncertainty (at the micro-level) which, in turn, lead to orientations towards uncertain futures which are implicitly "magical" and enhance the functioning, authority and power of professions (Good et al. 1990; Fox, 2000, p. 410). Fox extended these Parsonian interests in her work assessing the "social, cultural, emotional, and moral and spiritual meaning[s]" of uncertainty for professionals (Fox, 2000, p. 410), as these both shape and emerge out of micro-level practices, experiences, and interactions.

Recent studies in the sociology of risk and uncertainty, meanwhile, have specified different ways of handling uncertainty, and their related meanings: Zinn (2008) and

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Alaszewski (2015) contrast hope and magic-oriented approaches to managing uncertainty with the more rational-calculative (often probabilistic) approach of risk, noting that most experts combine both rational *and* non-rational bases of going forward amid uncertainty, as well as "in-between" strategies such as trust, emotions, and intuition (Zinn, 2008). While trust and hope are prominent within classic accounts of professional power and work (Parsons, 1951), it is risk which is increasingly (re)defining the logics of the organisations within which many professions now work (Power, 2004; Rothstein, 2006).

Where evidence-based practice is characteristic of a shift in what it means for professionals to know and act (Fox, 2000), then risk management represents the archetype of this refashioning of decision-making—drawing upon the pooling of population-level data on factors, peoples, and outcomes in terms of probabilities and related causal understandings. Shaping and governing professional work in line with risk logics involves reconfiguring hierarchy and accountability (Noordegraaf, 2011), where Fordist standardisations of professional work (Harrison, 2002), reconfigurations of blame (Douglas, 1992; Warner, 2006) and a related intensification of (self-)surveillance (Deetz, 1997; Fournier, 1999) have become common responses to risk. These trends are also related to "contemporary pressures towards greater coherence, transparency and accountability" (Rothstein, 2006, p. 215), following politicisation of professional fallibility (Alaszewski, 2002; Power, 2004).

Once it has been introduced within commercial or new public management settings, risk has a tendency to proliferate (Power, 2004). Risk governance is attractive through its ostensible efficiency (Garland, 1997), its redistributing of blame and rationalising of failures as a defensive form of governance (Rothstein, 2006), and its ostensibly technical nature which belies political machinations (O'Malley, 1992). All of these assist the successful managing of reputational risks faced by organisations (Rothstein, 2006). Yet the development of risk management gives rise to further risks, whereby an "increasing emphasis on scrutiny and accountability has amplified and routinized the management of institutional risks, as failures have to be recorded, potential failures have to be anticipated and new categories of failure are defined. From this perspective, 'good governance' gives rise to risk itself" (Rothstein, 2006, p. 217).

In this context, risk is an increasingly common and central basis of both decision-making and communicating within many kinds of professional practice, and in the evaluation of professionals' work (i.e., the extent to which they minimize risk). For instance, there has been a shift in accountants' and auditors' practices towards the identification, assessment, and detailed reporting of risks (Power, 2000, p. 117), the reshaping of policing and logics of stop-and-search through statistical crime mapping and other factor-based strategies (Chainey & Ratcliffe, 2013, p. 174; van Eijk, 2017), the assessment of potentially dangerous patients by psychiatrists in terms of risk factors (Castel, 1991; Szmukler, 2003), and the use of face-to-face communication interventions of public health professionals targeting "at risk" groups and individuals (Bunton, Burrows, & Nettleton, 2003).

Given the reconfiguring of professional power and work within various private and public organisations (Noordegraaf, 2011), the proliferation of risk within these organisations recasts professionals' handling of uncertainty. This has implications for the nature and experience of work, which, as noted above in relation to Fox and Parsons, is important in that a) practices and experiences of professional work are important objects of study in and of themselves; and b) practices and experiences in relation to uncertainty both reflect and feed back into the broader dynamics of professional authority and organisational governance.

The aim of this article is to outline a theoretical framework for analysing risk work. By "risk work" we refer to the practices of professionals (and those assisting professional work) dealing directly with clients, where the management of risk—through assessing, intervening, advising and/or communicating—has become a key and (in some cases) (re)defining logic of everyday work. Our approach to risk work

is especially focused upon the material and embodied practices which enable this work to "get done" (see Horlick-Jones, 2005), and what this means to lived experiences of work and (para)professionals' identities (cf. Power, 2016).

First, we explore how—amid a range of research on risk across sociologies of professions, work, risk, and health and social care—these latter concerns with pragmatic practices and negotiated identities remain relatively neglected. We then introduce a model of three key features of risk work and the tensions which emerge as they are combined in practice (see Figure 1), alongside an understanding of processes by which these tensions may become more explicit or remain latent within everyday working experiences and practices. Our arguments are grounded in an extensive review of related literatures (Gale, Thomas, Thwaites, Greenfield, & Brown, 2016), our own recent empirical studies (see, for example, chapter 5 of Brown & Calnan, 2012; Gale, Dowswell, Greenfield, & Marshall, 2017; Gale, Kenyon, MacArthur, Jolly, & Hope, 2018, Veltkamp & Brown, 2017) and pilot work to test our emerging theory, and are presented alongside a reworking of key features of post-phenomenological social theory. The final section points to some further possibilities for extending this model and lines of research in relation to two fundamental questions: first, how is risk work practically and pragmatically accomplished amid the residual uncertainties, which emerge when handling risk? And second, what is the lived experience of client-facing (para)professionals as they handle risk as part of their everyday practices? The model and research possibilities are salient to a range of professions and professional work that operate within a risk society but, by way of exposition, we focus below on professionals oriented towards health and social care.

Existing research on the wider context of risk and organisations

Within health and social care contexts, risk is frequently invoked by practitioners and researchers as they seek to better understand and intervene in probabilistic relationships between an array of ostensible "causal" factors and manifestations of morbidity, mortality or harm (outcomes in other professional domains would include criminal activity, financial losses, young people's radicalisation, and so on). Moreover policy-makers and managers are increasingly prone to couching the logic and legitimacy of their (re)organising of various healthcare contexts in terms of the management and reduction of risks (Rothstein, 2006). Sociologists of health and medicine have responded to these tendencies with an expansive body of research which critically considers and illuminates the development of risk knowledge and its application within healthcare organisations. These studies, as with sociological studies of risk and uncertainty more generally, have tended to focus on the production of risk knowledge (Jasanoff, 2004; Møller & Harrits, 2013), its expansion and implementation across healthcare and wider public sector organisations through governance systems (Flynn, 2002; Power, 2004, 2016; Rothstein, 2006), the ways in which risk is understood and communicated (Engdahl & Lidskog, 2014; Scamel, 2011), and (perhaps above all) the various ways in which risk "makes" or recasts the patient *subject* (Castel, 1991; Novas & Rose, 2000; Peterson, 1997).

The experiences of client-facing practitioners—who, with varying degrees of autonomy, apply risk knowledge and risk-framed policies, within and between health and social care organisations (Lipsky, 1980; Gale et al., 2017), and in interactions and relations with these patient subjects—have remained rather neglected however. Few studies have peered into the messy world of how such risk work actually "gets done" (Harrits, 2016; Horlick-Jones, 2005) and still fewer have considered the lived, embodied *experiences* of what it means to accomplish everyday risk work (Gale et al. [2016] and Harrits and Møller [2014] analyse decision-making and identity among front-line prevention workers but not in relation to risk).

In sociological approaches to work, concepts of risk and uncertainty have been

applied to describe the location and experiences of employees within the wider labour market, and how those might be stratified (Beck, 2009), rather than how workers embody and deploy risk knowledge itself, or their experiences of doing so. Literature on the professions has similarly paid little attention to the recasting of occupational or professional identities and values (Evetts, 2009; Nancarrow & Borthwick, 2005) produced by the growing dominance of risk logics in organisations across many sectors.

Where workers have been the focus, attention has been placed on practices of working within risk governance frameworks, especially in terms of accountability pressures and so forth (Warner & Gabe, 2004). This research has tended to focus on the formats and logics of such governance and accountability frameworks or upon workers' experiences of reporting on and accounting for their work, rather than the practicalities, experiences and (potential) tensions in the handling of uncertainty via risk within everyday work practices (for exceptions, see Fischer & McGivern, 2016; Horlick-Jones, 2005; Nading, 2013; Warner, 2006; two chapters within Power, 2016 though the book overall focuses on organizational contexts away from the frontline).

A small literature, alongside our own research, has, however, enabled us to identify various practices which we see as distinctive to risk work in health and social care contexts. These studies consider how risk gets translated into different contexts (see Arribas-Ayllon & Sarangi, 2014; Burton-Jeangros, Cavalli, Gouilhers, & Hammer, 2013), how practitioners intervene to minimise risks in practice (see Cabral, Lucas, Ingram, Hay, & Horwood, 2015; Cricco-Lizza, 2010), and/or how caring is carried out amid (or in spite of) contexts characterised in terms of risk (see Broom, Broom, & Kirby, 2014; Iversen, Broström, & Ulander, 2017). These three features of risk work—interpreting risk knowledge, intervening to minimize risk, and handling social relations and interactions—are illuminated in these studies alongside some connections between them (Gale et al., 2016). In the following section we go further to conceptualise these three features before arguing that we must consider the interconnectedness of these features of risk work in a systematic manner and, moreover, to address how they often stand in tension with one another.

Core features of risk work

In its narrowest sense, risk can be defined as "the probability that a particular adverse event occurs during a stated period of time, or results from a particular challenge" (Royal Society, 1992, p. 2) and is applied straightforwardly to calculate the likelihood of health, illness or intervention outcomes. Yet there remains a range of factors, which render this risk knowledge less than straightforward and, indeed, rife with tensions. These factors can help us to understand the intractability of enduring uncertainties and the subsequent limits of expertise. Interrogating this Royal Society definition, Heyman, Alaszewski, and Brown (2013, p. 1) deconstruct risk to acknowledge: the range of *values* present when deciding what is "adverse"; the *categorising* which is always implicit when grouping ostensibly similar "events" together and linking these to homogenised groups of risk factors (people, places, and so forth); the *time frames* employed which (contrary to the definition) are rarely explicitly "stated"; not to mention various ways in which statistical *probabilities* are invoked. So, while evidenced-based medicine and epidemiological studies have amassed a vast array of understandings of probabilistic relations between factors and outcomes, these four fault-lines—values, categories, time frames and interpreted probabilities (Heyman et al., 2013)—inherent to risk are always lurking beneath the surface and may emerge uncomfortably within specific settings.

In thinking analytically about how the management of uncertainty through risk may lead to further ambiguity, it is useful to return to various research studies on how professionals deal with uncertainty (as introduced above). The strength of these

approaches has been their ability to connect phenomenological accounts with organisational analyses (Brint, 1993); their acknowledgement of the extent of discretionary ("street-level," Lipsky, 1980) decision making (Fox, 1980; Nilson, 1979); and their sensitivity to the manner by which experiences of, and rewards for, the instrumental handling of uncertainty vary greatly depending on a worker's position within the broader occupational hierarchy (Nilson, 1979).

Renée Fox has developed a significant body of work which explores in detail how practitioners *learn* to handle uncertainty, for example with regard to the limits of scientific knowledge more broadly, the limits of the individual worker's understanding, as well as the ambiguity in distinguishing between the two (Fox, 1980, p. 5). More recently, Fox has argued that changes in medicine over recent decades have reconfigured the uncertainties and risks that professionals and the public face. Perhaps most saliently to the present concern with risk work, Fox explores the growing commitment to evidence-based medicine (EBM). She argues that it produces "epistemological uncertainty," that is to say, uncertainty about the "nature of good clinical research, good clinical practice and the relationship between them" (Fox, 2002, p. 245). At a clinical level, evidence-based medicine seems to provide clinicians with a level of certainty—with the notion of "best evidence" available—from which to act. However, Armstrong (2007) has argued that, while EBM claims to have reduced indeterminacy, it is better understood as merely shifting the "problem" of uncertainty to a wider policy arena that involves interpreting evidence. Fox (1980, p.1) explains that medical progress has also "helped to reveal how ignorant, bewildered, and mistaken we still are in many ways about health and illness, life and death." This paradox is echoed in later sociological narratives of a late-modernity (Giddens, 1990; Beck, 2009), where an increased propensity for experts and others to handle the uncertain through probabilistic inferences has emerged alongside an intensification of doubt in expertise and elites (Jasanoff & Simmet, 2017). We now move to trace the sources of these underlying tensions in risk knowledge back to three underlying features of risk work (see Figure 1).

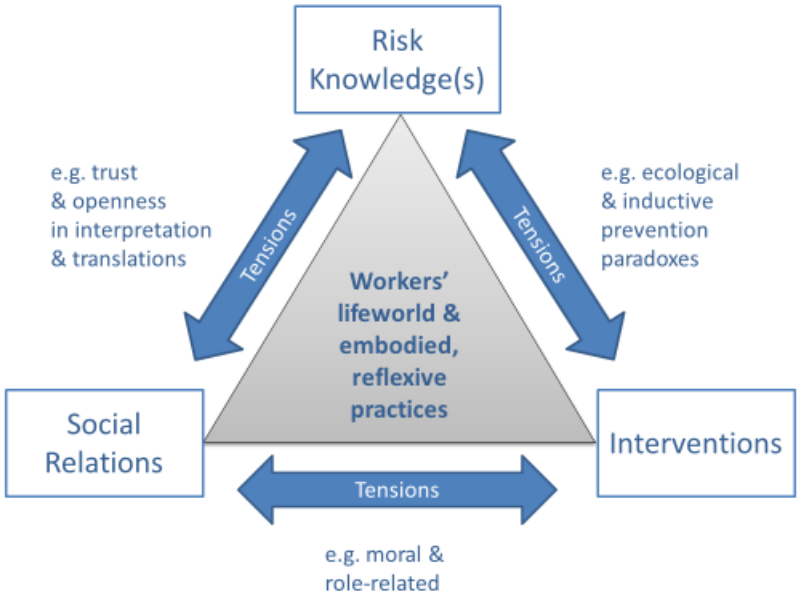

Figure 1. *Core concepts and tensions in risk work*

Risk knowledge(s)

In order to build or amass risk knowledge in the first place, researchers must pool together large numbers of cases and outcomes. This involves the "disembedding" of these observations from space and time (Giddens, 1990) and has become integral to the creation of new scientific knowledge. However, it creates a wholly different form of medical knowledge (Carter, 1995) from the in-depth case studies and experiences which remain to a large extent a common basis of medical decision-making and knowing (Eraut, 2000; Lave & Wenger, 1991).

This different type of technology or knowledge, through which medical practice is increasingly framed, leads to new forms of social relations for those applying it (Beck, 2009; Will, 2005). Castel (1991) exposes some of the formats of these new relations in the context of mental health social work and psychiatry, where the patient is known and assessed differently—as a collection of abstract risk factors—thus shifting the locus of understanding away from the individual *person*. Moreover the nature of organisation and intervention is also reconfigured by this new technology of risk:

> The presence of some, or of a certain number, of these factors of risk sets off an automatic alert. That is to say, a specialist, a social worker for example, will be sent to visit the family to confirm or disconfirm the real presence of a danger, on the basis of the probabilistic and abstract existence of risks. One does not start from a conflictual situation observable in experience, rather one deduces it from a general definition of the dangers one wishes to prevent. (Castel, 1991, pp. 287–288)

This is just one of several ways in which new forms of risk knowledge may lead to changing dynamics within the interactions and relationships between professionals and patients. Nevertheless, other non-probabilistic forms of knowledge continue to inform practitioners' understandings of risk and negotiation of uncertainty – such as tacit, embodied and intuitive forms of knowledge and these different ways of knowing can sit alongside or in tension with each other (see MacLeod & Stadnyk, 2015).

Interventions

The generation of new forms of risk knowledge may also lead to wholly new interventions and relations, whereby new "at risk" publics become the focus of public health interventions (Armstrong, 2012), following the publication of research studies or policy guidance categorising them both as a meaningful "group"—due to their locality, age, gender, ethnicity, culture, educational level, health status, or other characteristics—and "at-risk." Not only may these interventions require different logics of action, in terms of knowledge and decision-making, but these interventions may extend professionals remit into new domains—for example where health professionals are required to assess risk of radicalisation (Chivers, 2018)—or where paraprofessional or lay workers are brought in to deliver interventions based on emerging understandings of what works, what can be afforded, or a combination of the two (Hartley, 2002; Singh & Chokshi, 2013).

We use intervention here in a broad sense as, while this may involve concrete actions such as undertaking emergency pre-emptive surgery or sectioning a service-user amid a psychotic episode, intervening may alternatively involve communicating, advising and educating about (probabilistic) links between behaviours and outcomes, or a (para)professional may merely be assessing risk (collecting and interpreting information) as the potential basis of future intervention (for example, as a health visitor or paediatrician meeting a vulnerable family, Veltkamp & Brown, 2017).

Intervening in these different ways usually involves the reworking or translation of abstracted risk knowledge and/or related guidelines *back* into a concrete social

context; which can have unintended consequences (Heyman et al., 2013) and even devastating effects (for example, in child-safeguarding—Munro, 2010). It is at such moments of embodied interaction, amid material settings and relations, that the categories (for example, understandings of "at risk" groups), values (for example, notions of what is a good outcome) and moralities (what is considered *responsible* action) which are intrinsic but often implicit within abstract risk knowledge may become explicit and awkward (Cricco-Lizza, 2010; Mishra & Graham, 2012).

Social relations

The challenges of knowledge interpretation in the context of specific interventions may also create conflicts of role and tensions in practitioner-service user relationships (Fox 2002; Currie, Finn, & Martin, 2010). Intervening on the basis of risk knowledge—whether it be through communicating the risks associated with continuing particular "lifestyle" practices, acting to remove a child from a family, or organising the hospitalisation of a person experiencing severe mental health problems—is always a moral act (Douglas, 1992), with often profound consequences for the interaction at that moment as well as for the relationship with that person, group and/or patient in the longer-term. These consequences will play out in opening up or limiting the possibilities for working and interacting with these individuals or groups in the future, particularly regarding the quality of communication which will be possible. Child health care professionals, for example, are aware that their intervention (communicating/advising) at a particular moment may have implications for whether a family remains "in view" or breaks off contact from the service (Veltkamp & Brown, 2017). The style and content of communication will, therefore, have important consequences for practitioners' ability to grasp the complex dynamics of risk factors facing a particular family in the future.

Paradox and fallacy in risk work

The tensions we have explored when intervening to minimise risk based on current risk knowledge—which in turn impacts on the nature of professional relationships with clients and (full circle) on the understanding and knowledge of risk—helps make apparent how the values and morality bound up with risk framing and categories are deeply interwoven within probabilistic knowledge and inference. Heyman's "inductive prevention paradox," whereby the practice of intervening to reduce risk gradually comes to warp or undermine the quality of knowledge (either probabilistic or tacit) on which interpretations are made (see Heyman et al., 2013), neatly captures the tensions in knowledge brought about by intervening.

Meanwhile, the problems of intervening brought about by knowing through a lens of risk are partly captured within an "ecological fallacy" of risk (Heyman et al., 2013), whereby risk knowledge about probabilistic tendencies across populations is much less useful in predicting outcomes for any specific individual. This means that while, from a population-level perspective, there is a case for prescribing statins (to reduce levels of coronary heart disease), GPs' considerations of the relative individual benefit (and costs) for the person in front of them renders decision-making less clear cut (Will, 2005). Intervening (prescribing) or not, and how this is then explained amid interactions with the patient, raises a range of practical and moral questions. This is apparent where GPs acknowledge that they would not be prescribed statins themselves, preferring to make lifestyle changes (Gale, Greenfield, Gill, Gutridge, & Marshall, 2011), or where patients resist the discourses of "patient choice" and "risk" because they are unwilling to be cast as "pill-takers," unless they can construct an "idea one can live with" about "needing" medication now (Polak, 2016).

These two more specific problems are a useful means of starting to "unpack" the more general paradox noted by Fox (1980, noted earlier) whereby the refining of

technologies for handling uncertainty results in an ever more intense experience of awkward residual uncertainty (see also Beck, 2009, p. 18; van Asselt & Renn, 2011). These and other paradoxes—as with the wider tensions sketched in this section—may emerge within, and trouble, the decision-making practices and experiences of professionals in various ways.

In this section we have sketched three core features of risk work—risk knowledge(s), interventions and social relations—their connectedness, and some potential tensions (the tensions referred to here are not intended as an exhaustive list) existing between them. In particular, we assert that the new technologies of risk have important consequences for the social and moral relations involved in health and social care work. In the midst of these knowledges, practices, relations and tensions are the workers themselves—their lived experiences, lifeworlds, and identities (see Figure 1). In this sense, following one of the basic schemes of risk theory (see Beck, 2009), we can consider that new technologies lead to new social relations which in turn lead to new experiences of self. While processes around the patient- or public-self have been considered in quite some detail, the experiences and identities of those handling risk in their work have remained largely and, we argue, problematically neglected.

Uncovering and (partially) resolving tensions within risk work

Having sketched the three basic features of risk work and introduced the phenomenon of tensions inherent to these practices, we now move to consider more closely the nature of these tensions. We are interested in both how the experiences of tensions relate to (changes in) the practices of how risk work is accomplished, and how these tensions may remain partially veiled; never being fully exposed or confronted and thus remaining awkward in experiences of everyday work (see, for example, Thomas, 2016). Or indeed there are other instances where one might expect a controversial or apparently incongruous risk management policy—such as requiring health professionals to screen for risk of radicalisation—to create all kinds of tensions for professionals, but where this policy can be experienced relatively unproblematically through its incorporation into familiar professional discourses (Chivers, 2018).

Recent work in medical sociology, the sociology of risk and uncertainty and related disciplines such as anthropology have produced quite some evidence that workers within client-facing occupations in health and social care continue to face an array of tensions in their everyday work (see Nading, 2013, Warner & Gabe, 2004), even if this is often not the central focus of the research.

In handling risk knowledge within contexts of childbirth, for example, Scamell (2011) refers to the tensions experienced by midwives who she describes as treading a difficult line between facilitating a "normal" process of childbirth while simultaneously handling a situation saturated in "latent risk." In another study, Scamell and Stewart (2014, p. 97) explore tensions involving probabilities and the difficulties inherent in interpreting "low-probability but high consequence" risks within specific birthing situations. In these two studies, the intervention and interactional aspects of this risk work, where an appearance of normalcy and calm are understood as vital for interactions with labouring women, is described as involving tensions around the categorisation of situations (in terms of "risky" or "normal"), the organisational and professional valuing of risk-aversion *and* normal birth, and the handling of the various time-frames imposed via a safe birthing schedule.

While there are of course aspects of midwifery work which are highly specific to this profession, we argue that quite diverse forms of risk work may share an array of similar conundrums, which we can consider in terms of our three key features of risk work, the tensions which emerge around these, and the questioning of the key fea-

tures (see Figure 2). More specifically the three features of risk work can be considered as configuring professionals' lifeworlds, involving processes of meaning-making and knowledge construction (culture), professionals location amid social relations (society) and selfhood (identity) (Habermas, 1987). These three layers of workers' lifeworlds may, respectively, involve the questioning of risk work in terms of

a) the *truth* of risk knowledge—in light of shared cultural understandings of risk workers' meaning frameworks;
b) the *legitimacy* of interventions—as configured by risk workers' membership of multiple social networks (professional teams, for example) and their position within these;
c) the *authenticity* of experiences within relations and interactional practices—in light of the socialised individual identity of workers themselves (see Habermas, 1987, pp. 138–148; Brown, 2016).

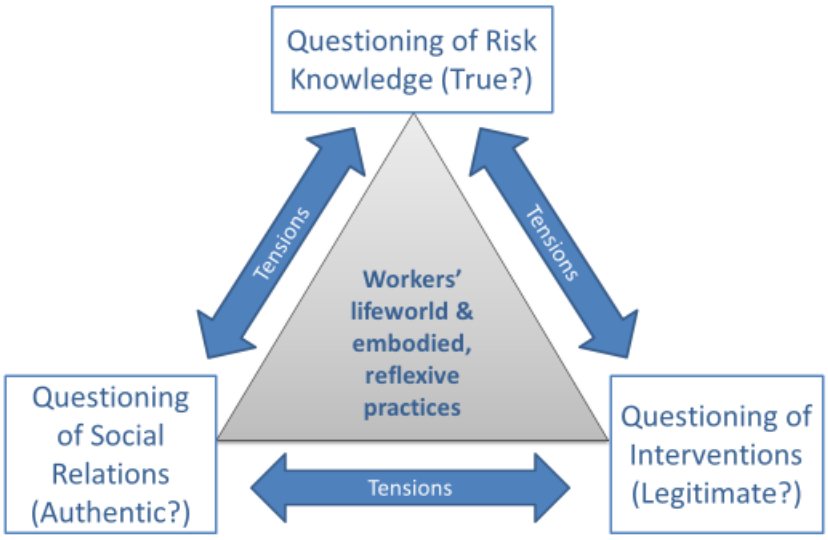

Figure 2. *Tensions amid risk work may lead to workers questioning key features*

The interwoven nature of the three core features of risk work can mean that tensions around legitimacy of intervening (for example) may spark further questioning and tensions regarding truth and authenticity. Yet alternatively these interwoven features may also form the basis of the (more or less temporary) rationalisation, resolving or "bracketing off" (Brown, 2016; Chivers, 2018; Habermas, 1987) these tensions—where tensions involving the authenticity of social relations, for example, are accepted due to more positive considerations of truth and legitimacy. This framework helps us to organise, understand and connect an array of processes by which the various fault lines inherent to risk (noted above) may be uncovered and (partially) re-covered amid everyday practices; within and outside of the work place.

In various forms of screening, for example, conflict and doubt may emerge over the evidence, ontological foci and thus *truths* behind risk work at the *population level* (Timmermans & Buchbinder, 2012; Solbjør, Skolbekken, Saetnan, Hagen, & Forsmo, 2012). Despite these conflicts, the interventions may still be experienced as

highly authentic due to *individual level* success stories (detection of cancer, for example), alongside a worker's identity and history of training as a public health specialist, and the enduring legitimacy of the value of intervention among professionals.

There may be other contexts, meanwhile, where guidelines ring true in terms of evidence of reducing mortality or morbidity at the population level but which seem less legitimate and authentic when invoked within individual cases and interactions. Examples here include children who have experienced vaccine damage or adults who experience side-effects when using statins designed to reduce their "cardiovascular risk" when they previously felt "well." How these types of individual-level tensions are experienced and negotiated by practitioners has not, to our knowledge, been considered in the literature. However, relevant empirical findings include those healthcare practitioners who do not follow the same advice they give patients (Gale et al., 2011; Raude, Fischler, Lukasiewicz, Setbon, & Flahault, 2004), or who do follow it but with ambivalent feelings (Armstrong-Hough, 2015, Thomas 2016).

Such problems of legitimacy and authenticity may be voiced and challenged among colleagues and management, or alternatively may be avoided through the informal reinterpretation and reconfiguring of risk in ways which help maintain or protect its apparent truth basis, legitimacy and/or authenticity. As Timmermans and Buchbinder (2012, p. 210) found in their research on screening for genetic birth "disorders," even when doubts are cast about the value (cost-benefit) of screening, "it is difficult to turn back the screening momentum precisely because the [hands-on] work in the clinic buffers ontological incompatibilities." There is, therefore, also much to gain from looking beyond lifeworld dynamics towards questions of everyday embodied and reflexive practices among professionals, where the reproductive tendencies of the (professional) habitus (Bourdieu, 1977, Broom et al. 2014) may be an alternative or complementary means of explaining the "momentum" behind the unquestioned continuation of interventions and practices—regardless of tensions of truth, legitimacy and authenticity—and the relative lack of tensions amid seemingly contrary practices (see Chivers, 2018).

Two overarching questions emerge from our framework that may serve to orientate future research. They relate to embodied professional practices, and especially how the tensions inherent in risk work are handled while still getting the job done: first, how is risk work materially and practically accomplished amid the residual uncertainties which emerge when handling risk? And second, what is the lived experience of client-facing (para)professionals as they handle risk as part of their everyday practices?

Analysing risk work and its tensions

In this third and final part of our argument within the scope of this article, we sketch a range of analytical trajectories which develop out of our theorisation of risk work introduced above. The most obvious line of investigation is into the various processes by which tensions emerge, remain (partially) hidden or are reconciled. Despite the tensions and anomalies which begin to surface amid risk work, the habits and learned practices of workers, and various lifeworld processes may prevent these tensions from being fully exposed and subjected to rational scrutiny. Those carrying out risk work continue, more or less informally, to pragmatically muddle through and adjust their practices in relation to risk knowledge, the interventions they are part of and their social relations with clients, but with these tensions continuing to bear on their everyday experiences (Thomas, 2016).

These pragmatic practices may involve awkward experiences of tensions—daily or occasionally—however it may be the case that processes occurring amid and in relation to the lifeworlds of these professionals resolve or veil these tensions. We saw in the previous section how (in)authenticity, (il)legitimacy and the affirming or

problematisation of "truth" about risk can feed back into one another, either amplifying or defusing tensions. These lifeworld dynamics of risk work will be shaped by public sphere debates, interactions with colleagues and clients, and/or individual reflection where tensions may be pragmatically and more or less deliberatively "bracketed off" (Brown, 2016). Embedded within wider institutional norms and pressures, these dynamics may be oriented towards further and deepening understanding, and/or more "strategically" to meeting targets and getting the job done (Habermas, 1987). An exhaustive list of possible empirical manifestations of these dynamics is not possible here. Instead, we use three brief concept-based examples to show how tensions remain veiled as mere tensions, instead of resulting in more explicit contestations:

x) *Practitioners' deference to expert knowledge*: Although experiences within and outside work contexts may lead to a questioning of the truth of risk knowledge, frontline practitioners may assume or argue that scientists, their managers and/or more senior clinicians "know what they are talking about" (see Fairhurst & Huby, 1998). In this way power/knowledge as hierarchy, and the practical logic (Bourdieu, 1977) of deferring to higher status professionals leads to a more or less resigned acceptance (despite niggling questions), with tensions being either explained away or remaining unvoiced and so the truth of risk knowledge remains relatively uncontested at the local level. Of course, the relative hierarchy or flatness of the organisation and a practitioner's position within this, alongside aspects of the worker's identity and presentation of self, will also bear upon the level of deference or open questioning.

y) *Practical obligation amid organisational logics*: Questions may well exist about the truth of knowledge and/or the legitimacy of interpretations of risk but pressures of time—amid an underlying organisational logic embedded within economic imperatives—may make a more thorough critical reflection and questioning impossible. Practitioners have case-loads to get through or workshops to deliver. They may feel that they are not paid to question but to deliver (Thomas, 2016). Where risk knowledge is experienced as problematic in terms of truth and/or legitimacy then, rather than being challenged, other informal ways of handling uncertainty are drawn upon—such as alternative heuristics and/or trust (Zinn, 2008). These types of approaches mean that the knowledge-related tensions remain unresolved, as well as leading to further potential tensions between formal compliance and informal logics (Brown, 2011; Horlick-Jones, 2005).

z) *Patients' and publics' deference to the expertise and role of practitioners*: The client-facing nature of risk work requires us go beyond analyses of working practices themselves and to consider the interactive and communicative dynamics, which also play an important part in keeping tensions concealed. Kihlström & Israel (2002, p. 212; see also Scambler & Britten, 2001) explore various ways by which welfare state professionals may handle interactions—either deliberately or unwittingly—in ways which can either enhance open exchange and mutual understanding (communicative action), or which inhibit openness due to a professional's focus on getting things finished or getting their way (strategic action). Unwitting strategic action and/or implicit forms of power (deference to experts, for example) may lead to professionals experiencing interactions as authentic and legitimate when the experience of the client is very different. While trust may in some cases enhance open frank communication, when trust is more instrumental and deferential (Brown & Calnan, 2012), patients may assume that professionals are acting in their interests and/or feel obliged not to question. Even when abstract others such as researchers or pharmaceutical companies are distrusted (Brown & Calnan, 2012), forms of trust in known experts, such as family doctors, may still

impede the communication of doubts and questions while obliging awkward "co-operation" (Ward, Coffey, & Meyer, 2015).

Risk work can thus be further explored by engaging in more detailed considerations of lifeworld processes (than is possible in this article—see Brown, 2016; Chivers, 2018), alongside the interactions between lifeworlds and instrumental actions and structures oriented towards success (the "system"—see Chivers, 2018; Habermas, 1987; Scambler & Britten, 2001) and the practical logics and habitual actions that guide professional work (Brown, Crawford, Gilbert, Gilbert, & Gale, 2014; Bourdieu, 1977) and the response of clients to it. These conceptual frameworks may thus afford a useful set of analytical and conceptual tools, though critical handling of these frameworks is also necessary, for example to emphasise the importance of interactions (Brown 2011) or the multiple identities which bear upon work (Chivers, 2018; cf. Habermas, 1987).

Conclusion

We began this article by suggesting that, amid a wider sociological literature around professions and work, and risk and uncertainty, the specific practices and experiences of those handling uncertainty through risk in their everyday work have remained neglected, despite the proliferation of risk management and related work forms across a wide range of organisations within which various (para) professionals are employed.

In developing a conceptualisation of this risk work, we have identified its three core features—risk knowledge, interventions, and social relations. It is the interaction between these three features, which is central to understanding the dynamics of practices and experiences of risk work, whereby important tensions may be generated. This may lead to various fault lines underpinning risk (values, categories, probabilities, timeframes) becoming uncovered; potentially with awkward consequences. We have explored how such tensions may or may not become explicit, partly as a result of pragmatic everyday working practices by which the difficulties of handling uncertainty through risk are "resolved" and normalised.

Tensions emerge *between* the key features of risk work, for example as risk knowledge is shaped into an intervention, or as workers seek to maintain (good) relationships when intervening (see Figure 1). These tensions may, in turn, result in workers questioning one or more features of risk work—risk knowledge (in terms of truth), interventions (in terms of their legitimacy), and/or social relations (in terms of authenticity) (Figure 2). Where the experience of tensions leads to questioning, then this is likely to have an impact on everyday practices in terms of how risk knowledge, interventions and social relations are handled. This will in turn (re)shape experiences. The relationship between practices and experiences is further complicated by the potential veiling of tensions through a range of processes related to professionals' lifeworlds and embodied experiences of work. Veiled tensions also impact on everyday experiences of work.

Our theorisation of risk work is intended as a foundational framework for research into the embodied and reflexive practices of "client-facing" professionals and paraprofessionals charged with identifying, handling and minimizing risks in their everyday work. Professional practices are important in their own right, as features of professional work, but they also can teach us about professional power dynamics at organisational and societal levels. In this article, we have illustrated our theorization with examples from health and social care, although the range of professionals and others undertaking risk work in their everyday employment is, of course (and as noted in the introduction), much broader.

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Complex Professional Learning: Physicians Working for Aid Organizations

Abstract: This article addresses the issue of professional learning of Swedish physicians returning from their work for international aid organisations in the global South. It is a qualitative case study based on 16 in-depth interviews, which uses a thematic narrative analysis, a typology of knowledge, and the concept of symbolic capital. The doctors' assignments in settings radically different from the welfare state context meant professional challenges, including an initial feeling of de-skilling, but also enhanced reflexivity and intensive and complex learning. The doctors acquired new medical and organisational knowledge, improved diagnostic skills, new perspectives on different health care systems, cultural contexts, global power relations, and postcolonial hierarchies. Since their return to Sweden, they have encountered a friendly but rather shallow interest in their experiences. Their new insights and ideas for change have not been easy to validate as symbolic capital, and their intensive individual learning is seldom utilised for organisational learning.

Keywords: Physicians, health care, Sweden, mobility, aid organisations, global South, professional learning, reflexivity

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The global imbalance in the geographical distribution of health care resources and trained personnel—for example, physicians—is visible not only in times of armed conflicts and disasters but even in everyday life of many communities and societies in the global South. International aid organisations like Médecins Sans Frontières (MSF/Doctors Without Borders), the Red Cross, Operation Smile, Rotary International, or UNICEF mobilise physicians from the global North for assignments in the global South. The doctors are supposed to apply and share their medical and organisational knowledge in co-operation with local staff and other "expatriates." What do they experience and *learn* on such an assignment? What skills and perspectives do they acquire, and how do these affect their work and professional status upon their return? The aim of this article, based on a qualitative case study[1], is to discuss these questions with the narratives of 16 Swedish doctors as a point of departure.

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Research overview

This article addresses professional learning in the medical field in relation to international mobility of health professionals and thus spans over several fields. Physicians, just like other professionals in the knowledge society, are supposed to participate in a life-long learning process and to engage in activities "related to exploring, testing, validating, archiving and sharing knowledge" (Jensen, Lahn, & Nerland, 2012, p. 4) and to investigate opportunities for improvement (see also Fenwick & Nerland, 2014; Smeby, 2012). The knowledge required of doctors is not only medical, but also technical, managerial, and cultural (Williams & Baláz, 2008, p. 1924). With physicians' increasing international mobility, mainly from the global South and former Eastern Europe to the West (see, for example, Connell, 2008, 2014; Bradby, 2014), sharing professional knowledge demands translation between different settings and cultural contexts (see, for example, Ackers & Gill, 2008; Czarniawska & Sevòn, 2005; Öhlander, Wolanik Boström & Pettersson, 2016; Williams, 2006; Wolanik Boström & Öhlander, 2015b). The notion of medical universalism also hides the social labour involved in moving between different contexts of practice (Harris, 2014; Wolanik Boström & Öhlander, 2015a).

Because professional mobility from the West to other parts of the globe is at the heart of this article, of relevance are studies about (self-initiated) "expatriates" going on international assignments for firms, companies, the United Nations, or other organizations. An assignment might be a challenging and sometimes stressful experience, but also an opportunity for intensive learning, self-reflection, and identity work. The expatriates are said to gain broader perspectives, cognitive complexity, social competence, and intercultural skills (see Berthoin Antal, 2000; Fee, Gray, & Lu, 2013; Jansson, 2016; Kohonen, 2008; Lazarowa & Tarique, 2005; Lisaité, 2012; Nowicka & Kaweh, 2009; Oddou, Osland, & Blakeney, 2009; Osland, 2000). Research also shows that the new knowledge and identity work is not always recognised and utilised in organisational learning upon their return.

Of importance to my article are also studies of international humanitarian work (see, for example, Fee & Gray, 2011), and in particular of medical professionals engaged in this work, as for example Hunt (2010) on Canadian health professionals; Redfield (2013) on Doctors Without Borders; Bjerneld, Lindmark, Diskett, and Garreth (2004) on returning Swedish professionals' perception of work in humanitarian assistance; and Bjerneld, Lindmark, McSpadden, and Garreth (2006) on motivations, concerns and expectations of Scandinavian health professionals volunteering for humanitarian assignments (see also Bjerneld, 2009). These studies do not, however, have a focus on learning and knowledge sharing, which is the scope of this article. A major inspiration in this respect has been a case study by Williams and Baláz (2008) that combines doctors' international mobility, learning, and knowledge sharing. It discusses how Slovakian doctors, returning from their stays in Western countries, reflected on their learning process and on how their new knowledge is valued and validated upon returning to their workplace (see also Pettersson, Wolanik Boström, & Öhlander, 2015; Wolanik Boström & Öhlander, 2015a, 2015b). My article undertakes an implicit dialogue with Williams and Baláz's work, though with a focus on Western physicians returning from the global South, with postcolonial implications to this direction of mobility.

Theoretical perspectives

For professionals, legitimacy and trust "rest on the capacity to apply professional judgement in ways that are informed, guided by, and validated against a shared knowledge base," even if expert knowledge is generally contested in the knowledge society and professionals are exposed to multiple and contradictory demands (Jensen et al., 2012, p. 2). In clinical practice, a doctor's theoretical (codified) and practical

(tacit, "silent") sets of knowledge are often intertwined, context-dependent, and embodied (see Bolin, 2009; Harris, 2014; Pettersson et al., 2015; Zukas & Kilminster, 2014). There are several thought-provoking typologies of knowledge and learning processes in relation to mobile expatriates (e.g., Berthoin Antal, 2000; Fee et al., 2013). In this article, I apply Williams (2006) and Williams and Baláz's (2008) development of Blackler's (2002) typology of knowledge.

According to Williams (2006) and Williams & Baláz (2008), the most mobile form of knowledge is the *encoded* knowledge of the medical profession (e.g., that found in books, manuals, and so on). They focus, however, on four types of tacit knowledge from Blackler's (2002) typology, which is more related to the particular specialist. *Embrained* knowledge (which is dependent on cognitive and conceptual abilities, for example, to recognize and reflect on patterns) and *embodied* knowledge (practical thinking that results, for example, from participation in clinical work and "learning by doing") are indivisible from the individual and thus are definitely transferable via mobility—although the valorisation of these types of knowledge is dependent on where the individual works. Applied in my study, embrained knowledge might mean that a mobile doctor chooses a number of tests to make a diagnosis, and embodied knowledge might mean that they use their sensory and physical skills for performing surgery (although the surgical procedure obviously relies on encoded and embrained knowledge as well). These types of knowledge and skills may, theoretically, be applied and performed anywhere—but in different medical contexts, they might be valued differently. For a doctor employed by the MFS in a catastrophe area, meticulous documentation of every patient's condition through running many lab tests might be regarded as too time-consuming and as wearing on the inadequate medical resources, and thus a more tacit and quick "professional intuition" will be favoured in diagnosis and treatment.

Encultured knowledge (which involves shared understandings, for example, on health care or life-long learning, transferred via stories, sociality, and so on) and *embedded* knowledge (which is context specific, for example, on management or organisation and is generated in different workplace cultures) represent relational knowledge based on institutionally specific relationships and are only partly transferrable or replicable through mobility between different settings (Williams, 2006). Because these kinds of knowledge are more time and place specific, they easily become "devalorized" by moving, for example, between country-specific practices (Williams, 2006, p. 591). Yet, and here Williams makes an important point—the migrants (in my case, mobile doctors) also have a capacity for *reflexivity* and take with them the *knowledge of* encultured and embedded knowledge. "In part, they carry such knowledge with them, but in part, they carry the means to access such knowledge" (Williams, 2006, p. 592). They might try—more or less successfully—to transfer ideas that "require modification to fit culturally and organizationally different settings" (Williams, 2006, p. 592; see also Blackler, 2002). As Smeby (2012, p. 54) argues, reflexivity "is particularly important in professional work because it is a way of opening up established ways of thinking, not just for improvement, but also for fundamental objections."

In my case study, some of a doctor's knowledge had to be "translated" from a welfare-state clinic to a field hospital in a war zone and back, in other words, recreated in order to adjust to the local context and to be recognized as valid *in situ* (see, for example, Czarniawska & Sevòn, 2005; Harris, 2014; Lazarova & Tarique, 2005; Williams, 2006). Some "recontextualising" (van Oers, 1998; Smeby, 2012, p. 59) of medical, social, and cultural knowledge was needed—both horizontal (such as performing familiar tasks in a different setting and with different equipment) and vertical (such as developing new patterns of activity). As Nowicka (2014) states, skills should be regarded not as fixed personal attributes but as geographically and historically specific. The process of translation, negotiation, and finally validation of skills is affected not only by migration regimes and national policies, but also by

cultural and social factors such as organisational norms, routines, styles of communication, material and embodied practices—even in the seemingly "transnational" profession of physicians (see Harris, 2014; Nowicka 2014; Pettersson et al., 2015; Wolanik Boström & Öhlander, 2015b). In this process, professional status and hierarchies are also negotiated. Some types of knowledge, skills, and insights are easy to translate and share in another context, while others might be difficult, for example, they might be deemed as irrelevant or even problematic if they challenge the status of other professionals or organisational routines.

I consider an assignment as a means to acquire and negotiate different forms of *capital* in a specific context, using Bourdieu's (1988) concepts as appropriated by Erel (2010) and Wolanik Boström and Öhlander (2015b) for migration and mobility studies. Also, the notion of "white capital" (Lundström, 2014; Lundström & Twine, 2011) is relevant in this study. Upon their return, the doctors tried to convert some of their experience and knowledge into the symbolic capital in the Swedish medical field. However, the newly acquired competences or social networks must be validated and recognised as valuable in a particular Swedish setting in order to become symbolic capital in accordance with established cultural norms.

Method

This study is mainly based on individual narrative interviews with 16 doctors[2] who had been trained and who worked mainly in Sweden but had participated in at least one medical assignment in the global South. The informants were strategically sampled (see Kvale & Brinkman, 2014; Thörne, Hult, Andersson Gäre, & Abrandt Dahlgren, 2014) in order to achieve variation in a medical specialty, age, and gender, as well as current workplaces in different clinics and towns. All of them received information about the study and gave their consent to the author, who also performed the interviews. The interviews took between 1.5 and 3.5 hours and were guided by open-ended questions, organised in clusters, eliciting responses about biographical and professional background, work experience in Sweden, family circumstances in relation to international mobility, the assignment(s) abroad (motivations to go, experience of work, the workplace, and the country), coming back to the Swedish workplace and society, and the possibility to share the gained knowledge and insights. The open-ended questions were followed by follow-up questions to get more detailed responses. The doctors were also free to elaborate on any themes they found relevant for the topic in question (for example, some reflected on postcolonial power relations and the sustainability of welfare-state healthcare). The interviews were digitally recorded and transcribed verbatim in Swedish, with small edits for better readability. To ensure anonymity, the personal names were changed, and no names of the current workplaces and towns are given.

Thematic narrative analysis of the material (see Czarniawska, 2004; Riessman, 2008) followed on two levels. On the level of the individual interview as a whole, the important themes, topics, and arguments the interviewee was trying to make were identified and interpreted in the context of his or her narrative. On the aggregated level of the 16 cases, important themes, topics, and arguments were identified across the cases and were compared to gain an understanding of both similarities and discrepancies in the empirical material, and these were interpreted in developing a more complex and theory-driven understanding. The study followed ethical recommendations from the Swedish Research Council. All quotations were translated from Swedish to English by the author.

In the following, I present and discuss the empirical findings from the study in themes about challenges of working in the global South; gaining new perspectives

[2] I use the terms "physician" and "doctor" interchangeably.

on medical care, culture, and global power relations; and the ambivalent experiences of returning to Sweden. Finally, I discuss these findings in relation to the concepts of knowledge and symbolic capital.

Challenges of working and learning in the global South

The interviewed doctors told about a dream or a moral obligation to be of real use with their skills and knowledge along with a wish to see the world, to experience an adventure, or to learn about other cultures. The assignments had meant temporarily giving up the security of their Swedish job and working in much harsher, sometimes even dangerous, conditions (see also Bjerneld, 2009; Bjerneld, et al., 2004). Some of the doctors had worked in disaster areas, facing extreme stress and medically and ethically complex issues when personnel, equipment, or medicines had been inadequate. Much of this they had anticipated, but still, some of the encountered injuries and diseases (malaria, HIV, multiresistant tuberculosis, and Ebola) and the very advanced stages of many of the common diseases or malnutrition had not been part of their everyday practice in Sweden. They said that they had been used to sophisticated technology, lab tests, and apparatuses monitoring the patients' condition and well-ventilated operating rooms and meticulous hygiene procedures. For some, the new work situation had felt overwhelming in the beginning. As I interpret it, even though the encoded knowledge could be quickly assembled, it took some time to adjust the embrained and embodied kinds of knowledge to the new cases, routines, and material restrictions.

Jonathan, who had worked as a jeep doctor in an African country, said promptly, "Well, I have learned what really ill people look like." He said that in Sweden, most diseases are controlled at an early stage, but in that locale, they could progress extremely far before any attendance; for example, severe pneumonia, meningitis, badly infected wounds, swollen bellies, and children with seizures. He concluded, "So I have learned that people in the world have inferior conditions; I knew that before, but it became very *palpable.*" The medical experience thus gave him a deeper comprehension of the uneven distribution of health care and living conditions, which he seemed to regard as the most important insight.

Some doctors remembered their terror of having too little competence for the medical or administrative challenges that they had faced, which can be conceptualized as an initial "deskilling" (which, interestingly enough, is a phenomenon mostly described among highly skilled non-Western migrants moving to the West, see, for example, Connell 2008; McNeil-Walsh, 2008, Nowicka, 2014; Wolanik Boström & Öhlander, 2015b). However, this initial confusion was soon followed by a period of intensive learning and "reskilling." An example here is the narrative of Kajsa, who told me that at the beginning of her first assignment in the Congo, she had felt totally "wrong," "stupid," and "incapable." So much had been unfamiliar—the routines, the available lab tests and treatments, and the range of cases that could or could not be handled according to the organisation's directives. There had also been some initial tensions with the very experienced and very competent local doctors who had not been thrilled with her supervising role as a representative of the aid organisation. They had particularly resented the often-changing guidelines for pharmaceutical products; their own view on knowledge had been more static, and a doctor's status in the local hierarchy relied heavily on never making—or at least never admitting—any mistakes. However, the cooperation had worked well eventually. The team of "expats" from different Western countries cooperated very well, helping each other with information on relevant treatments and on the local context. "It was incredibly valuable, true *learning*," she said. As I understood it, the local and the expatriate doctors formed two "communities of collaboration" (Thörne et al., 2014) that did not seem to engage in much formal learning exchange. Kajsa had found a way to learn by imitation of the local doctors, following them on rounds and engaging in an

intensive and exciting "learning by doing." The learning curve had been extremely steep, she said, and soon she had mastered the local medical procedures, tried to communicate a little in the local language, and even proposed some solutions for the long-term treatment of diabetes patients, which was outside the little hospital's area of responsibility.

Several of the doctors in the study had tried to diminish the hierarchies among the staff in order to learn better. Diego said that he had held some workshops for the local nurses on proper medicine dosage, which they graciously accepted. He said that they had known that he himself "had been there to learn," so implicit and reciprocal learning made things easier and made personal relations less hierarchical.

Edgar had applied for an MSF contract in Zimbabwe—the job description had mentioned malnourished children, violence and rape victims, and HIV patients with all of their associated diseases. In his application, Edgar had written that he had never encountered most of these health problems, but was willing to come and learn. He had received a kind answer from the aid organisation saying that "nobody else from Sweden" had usually been any better equipped, and he got the job. In the beginning, Edgar had been panicking that he knew so little, but he had been assigned to follow a Zimbabwean doctor who had been very understanding about the Western novices and had given him all kinds of useful medical tips, with the addition of the societal and cultural background of the diseases.

> I learned incredibly much, medically speaking, then. And what you can do medically also depends on the *context*, on the kinds of possibilities you have, the space you are allowed, and on the resources, so I learned a lot about *that*. It is really context-dependent, and you have to know your context in order to be most useful. So, I learned a lot about the context.

A huge help in this contextual education had also been an experienced Zimbabwean nurse, who had explained to Edgar why some patients seemed to resist undertaking the recommended treatment for a life-threatening disease, or why a mother of a very sick child would not follow the child to the hospital (she had eight more children at home, and they would starve without her). This help in "translating" the local context had saved both Edgar and the patients a lot of misunderstanding and frustration.

Edgar had also improved his administrative skills, which had been part of the job and at times incredibly demanding because he had received no prior education in this area. In Sweden, many things just worked out smoothly in the background, without the doctor's assistance—the administrative procedures, the technical aspects, the medication supply—while there, on assignment, he had had to assess how much medication they would need 6 months in advance. On the other hand, they also got a new cutting-edge apparatus in the lab for tuberculosis diagnosis because the local ministry was very interested in the progress of treatment.

> It was so great to see how quickly things can develop and get better. All my assignments were actually so positive, even the Ebola, which sounds like the worst thing imaginable of course, but you see how much you can actually *help* people who otherwise would die unnecessarily, and to do so with relatively small means. This is still mighty cool, in spite of all the frustration. (Edgar)

Some interviewed physicians emphasised that working without the usual technical support had improved their diagnostic capabilities. Pia said that her work in a hospital in Africa and then on assignment in Haiti, after the terrible earthquake of 2010, definitely improved her "clinical seeing." In Sweden, she said, medicine was very technical; the doctors learned to rely heavily on devices and apparatuses to understand the patients' health condition, whereas, in the resource-scarce settings, one had to rely more on "seeing" and "feeling" a patient's state. "So, in this way I think that

I have learned a lot, to see a sick person without a pile of machines and devices."

Joel, who had worked in a hospital in an Asian country with hardly any opportunity to run tests in a lab, said that he had learned to rely on the clinical assessment of asking, "What does the patient *look* like?" One would become more "laid back," adopting a "wait and see" attitude towards smaller problems. "One's threshold for what is considered *really* sick has been raised."

Gaining new perspectives on medical care, culture, and global power relations

Even though the human body's anatomy and physiology is universal, treatment and health care vary in different societies, material conditions notwithstanding, and the cultural characteristics and traditions of society are visible in beliefs, preferences, and professional know-how. Encountering new medical, organisational, and local subcultures was for several of the interviewed doctors demanding, but very educational. It was often an informal, experiential, and pragmatic learning process as they tried to comprehend and adjust to new political, economic, cultural, and occupational contexts. The process had put not only their well-known, taken-for-granted Western medical education and clinical practice into perspective, but had been an eye-opener for how global economic and power relations (especially in post-colonial contexts) also operated in the particular local context. There were examples in the doctors' narratives of gaining encultured, embedded, and reflexive types of knowledge.

The importance of learning about the local economic, cultural, and social patterns features in Diego's narrative. He had worked in Indonesia and Colombia, and he said that understanding the language is far from enough; you must get an insight into the economic and social aspects that unfold in the medical work in very poor settings. In the case of long-term treatments for diseases such as tuberculosis, he had been forced to learn how to give up on cases that would otherwise be far from hopeless in the West. If a little child from a deprived Indian village got tuberculosis, there was no way to accommodate them for 6 months, let alone in a hospital. If you did not have some realistic goals, he said, you would toss and turn and fret all night long. "You learned that you can do *something*, but you cannot do *everything*."

Edgar said that his work in Uzbekistan and Zimbabwe had given him insights into the importance of changing behavioural patterns. In the Ebola assignment, they actually had a medical anthropologist on the team. Edgar said that the assignments widened his perspective on "structures and flows and organisation." He mused as he compared the economic problems of medical care in those countries to his previous discussions with his Swedish colleagues on coffee breaks with the usual complaining about declining welfare politics, the municipality's inefficient structure, or the hospital's "poor" economy.

Several of the interviewed doctors pointed out that Swedish healthcare was admittedly of very high quality, but extremely resource consuming. While none of the doctors directly advocated reduced standards for patient care, they wanted to test new ideas about effective care with much simpler means. They wished for Swedish society to be more prepared if the day came when the economy could no longer bear the huge costs, for example, of keeping very old, senile people clinging to life through costly technical equipment and interventions. They said they wished to simplify the administrative procedures and to consider priorities and alternatives.

In several interviews, it was also implicated that the assignments gave the doctors new insights into how the healthcare organisation in Sweden was showing rather a lot of self-centeredness in relation to global issues and resources, as well as a sense of self-satisfaction bordering on smugness. The assignments seemed for them to be a wake-up call, offering a kind of serum for this kind of Western smugness.

> When you come from Sweden, it is easy to think that that there is only one way to run the medical care, but that is not the case at all. You can run it in many different ways. This is something I really have given a lot of thought to. (Edgar)

Anna emphasised that she had realized the privileged conditions of living in Sweden and the West, and she had learned some humility:

> *Humility* in front of different living conditions and how *well off* we actually are [in Sweden]! It is incredible. This is one of the most important things for one to realise…. It is so easy to go around whining about things at home, but you don't do that when you have come back after an assignment. (Anna)

Another thing Anna learned was to accept different people's ways of working and opinions and to cooperate with them for the greater good of the well-functioning team.

> [I learned] how to be humble, to be able to work on a team and to make a try in spite of our differences. Because in Africa, we are a *team*, we are forced to work together 24 hours a day, and it has to work out. I don't know how to explain this, but maybe I try not to get irritated quite as much. I have become better at team-work, at understanding, at working together. To try to *teach* others to be better, to be able to *accept* each other because we have to make it through the day, so it will be all right. (Anna)

In a similar way, Edgar said that he had started to appreciate his own characteristics as cautious and diplomatic and that he had re-evaluated the neo-liberal "personality development courses" he had been sent to earlier in Sweden. "In the end, everybody is supposed to be *the same*, to be forward and to be leaders and to decide and to take over and to control everything." After working with both local doctors and expatriate teams on his assignments, he started to think that it is not so simple; it might instead be a strength to be careful and diplomatic in order to cooperate successfully.

While the satisfaction of saving lives was an often-expressed emotion, there were also narratives about personal failures and disillusionment, for example, realising that they were all caught in global power relations where even the doctors' best efforts could not bring any long-lasting relief if there was no functioning infrastructure for proper housing, latrines, and hygiene. Several doctors said that they learned to appreciate the importance of literacy and education if their work was to have more than just a momentary benefit. For example, Fabian said:

> I think I got a little disillusioned when I was there, or at least reappraised things. I think what truly can lift people's standards of living is not the medical aspect.… I realise that it is important, but it cannot be measured against literacy or basic knowledge. (Fabian)

Edgar said that the situation in the country was politically very unstable and that people lived in uncertain and dangerous circumstances, but as a Western humanitarian worker he had totally different possibilities: "Here I come from my kind of context, with my Swedish passport and citizenship, and as soon as everything goes to hell I can just run away and go back home."

For some doctors working in post-colonial contexts, there were situations that made them more aware of their bodies and their ascribed "whiteness." Peter worked in a region of India where foreigners were scarce, and in the countryside, it was considered much "finer" to be examined and treated by a European doctor than a local one, despite the local doctors being much more experienced with the patients'

specific conditions. Several other doctors told me they had been embarrassed by being put higher in the professional hierarchy than the local doctors, just because they were white or European.

> Sometimes you are treated with what for me is a totally absurd reverence, for example, in Sri Lanka where everyone stood up and curtseyed "Good day, Doctor", and so on, and I just get embarrassed by such things.… But it probably reflects on the culture of a previous colony, where the local people learned how to treat the colonisers, to keep them in a good mood. Ethiopia has never been colonised, which makes it easier. Every other country I have been to was a colony at some point, and then you get to be a part of the colonial powers, actually…. It does not really help whatever you do. (Monika)

Several doctors told me about such sometimes painful insights into the implications of being white Europeans and thus more protected, revered, cherished, and mobile. They were involuntarily attributed "white capital" (Lundström, 2014; Lundström & Twine, 2011), an embodied and institutionalized form of cultural capital, which had given them privileges in professional contexts.

Return to Sweden: A clash of realities

Some doctors said that upon their return they started to regard the previously well-known Swedish reality with a sense of estrangement and bewilderment. Suddenly they found themselves disagreeing with medical priorities or judging the small talk during coffee breaks as pointless and trivial. Feelings of estrangement in the wake of international professional mobility are not uncommon (see Nowicka & Kaweh, 2009; Wolanik Boström & Öhlander, 2015a), but a detachment from coffee-break discussions might actually pose a problem because much of the negotiations around knowledge, status, and "normality" take place during such informal talks.

Kajsa said she had felt like a UFO coming home after her assignment in a rural area of the Congo to the everyday routines at her research centre and the banal discussions during coffee breaks. MSF had held a seminar for medical staff coming home after assignments, and there she had a feeling of community and mutual understanding; all the doctors she had talked to had had their "parallel reality tracks"—one for the assignment experiences, and the "usual" track for Sweden.

Pia had worked for an aid organisation in Haiti just after the disastrous earthquake in 2010. When she had returned, she found the Swedish reality bizarre; her newly decorated house felt unnecessarily spacious, and at the hospital, she had to walk out of the first meeting about wages and working schedules. In the intensive care unit, she felt the need to double-check with her colleagues about whether her decisions on patient care were reasonable and not influenced by the assignment.

> [In Haiti] we could leave young people to die because it was impossible to take care of them, and here we might be taking care of 90–95-year-olds, with dialysis and respirators…. So it was tough, really tough to come back. Not so much being there [in Haiti] as coming *back.* This was much, much worse. (Pia)

In a similar way, Viktor said that after working in war- and poverty-stricken regions, he has trouble taking some of the petty health problems of his Swedish patients seriously.

> The difficulty of coming back is that you come to a Swedish population. It is a good population in many respects, but you also come back to people who have

> problems of lesser medical significance, but they regard those little problems as *very* big. And I have a hard time enduring that sometimes. (Viktor)

On the other hand, in Diego's account, some patients' problems did not seem to get attention in Swedish health care. Diego had become skilled at assessing how astonishingly little that illiterate and poorly educated people understood about their own bodies. Back in Sweden, he sometimes encountered illiterate refugees from poor areas of the globe. They often became very bewildered and overwhelmed by the standard talks that the patients were given, for example, about the function of steroid hormones or the proper dosage and mechanisms of medication. Thanks to his experiences of treating illiterate or uneducated populations in South America, he said he was quite skilled at explaining things to such patients; he did it in a simple but adequate way. However, he said, the Swedish health care system was fashioned after an educated, or at least *literate*, patient. His colleagues seemed to regard language skills as the only problem in communication; they got an interpreter, who translated the medical instructions verbatim and without putting them into a cultural context. People who could not read and understand instructions were left on their own, but Diego found it hard to create awareness about this problem.

Encountering a friendly but shallow interest: Weak organisational learning

When the doctors in my study described their return to their Swedish workplaces, they said that their experiences were met with a positive, but rather shallow, interest among their colleagues. Kajsa had given some lectures in different contexts about her assignment in the Congo, and her colleagues were friendly and positive, but mostly their attention span lasted "two minutes." She also felt utterly upset in the Swedish workplace when diagnostics or treatments were performed "in absurdum" just to play it safe, wasting so many resources, and she tried to "merge the two worlds" and suggest possible changes, but nobody seemed to understand her. "Then I realized that this world is *here* and the other world is *there,* and those two shall never meet. I have to keep them separated even in my head because they are *so* different."

Neither for Pia was there any self-evident forum to talk about her experiences in Africa and Haiti, apart from MSF. Pia's colleagues commented that it was "fantastic" that she went, but because they seldom asked any further questions, she did not elaborate; she got the feeling that it might make her be seen as wanting to appear extraordinary and a little self-righteous. The nurses at her hospital were much more interested, however, and used to invite her to talk about the assignments.

In her work for Operation Smile, Anna experienced that everything was "so easy" and everyone so positive—if you had an idea how to make things simpler, you were encouraged to try it out. Back in Sweden, she went around telling everybody how they had developed things on the assignments and had suggested improvements, "I had so many ideas!" However, in the Swedish clinic, there was little enthusiasm for simpler solutions with less administration and a tighter schedule. A colleague from another clinic, who also used to go on assignments, told her that trying new ideas had never worked for him either. "People just get annoyed, you shall not have too many ideas," Anna concluded.

A conclusion from the doctors' stories can be that apart from some lectures, there was no systematic arrangement for knowledge sharing or for utilising their experiences in the Swedish context. This might to some degree depend on the fact that tropical diseases, tuberculosis, and HIV were still of rare occurrence among the doctors' patients, and thus the newly gained knowledge was simply not applicable.

> I have never met anyone with malaria, and I have never found anyone with HIV

> or tuberculosis in Sweden. It exists, but it is unusual. So, I have little use of those skills. But on the other hand, it was a very good experience and a fun thing for my ego, and it was nice to do something good, to help people. (Jonathan)

At the time of the interview, Jonathan was working in a health care centre in a rather well-off part of the city, and there were no such diseases to treat. He never put the assignment on his CV or used it as an argument, for example, when discussing salary—he would perhaps do it if he ever applied for work in a district with lots of immigrants from Africa, he said, but it would still not be the most decisive argument.

Not only the medical communities but also media and society at large showed too little interest in global health problems, according to the doctors. Edgar experienced two very different reactions to his two assignments, even though both were about treating life-threatening, infectious diseases—resistant tuberculosis and Ebola. While the former was met with total disinterest, in spite of outrageous political assaults and human catastrophes, said Edgar, the Ebola assignment was met with almost too much attention by the media because there was the concern that Ebola could be spread to Europe via, for example, air travel. His clinic received a lot of questions, and the media was chasing him for interviews and asking for opinions on mistaken cases. Edgar said that he was very sceptical toward the media coverage based on panic and sensation, but the advantage of it was that the work of MSF/Doctors Without Borders received much attention and they could spread their message, which hopefully would make the world a better place.

> I think it is so exciting how things *work*, like the big structures and why things happen and why.… And what can be done differently? Can one influence it in some way, make it different so it will be better next time? This is the most exciting thing after I have travelled to these countries—a better understanding for things like that. (Edgar)

Monika, who used to go on frequent assignments with different organisations, said that this fact was rather a "negative merit" in her career. She held some lectures through the years, and her colleagues were either not very interested, or they thought that she was "nuts." "Many of them say that they would like to do it themselves, but nothing happens later." She was not expected to learn something that might enhance her career, either. She went to countries that were behind Sweden in terms of medical development, and she could only use rather basic skills because the equipment did not allow for more complicated interventions. Thus, she had gained a very *broad* knowledge, which was "a negative merit," because a narrower in-depth specialty was prioritised in Sweden. "You do not learn the *right* things; you have not considered your *career* hard enough."

Conclusion

These assignments might be regarded as an opportunity for life-long learning, and by encountering different workplaces and national and local cultures knowledge is explored, evaluated, and recontextualized (see Jensen et al., 2012; Smeby, 2012). Also, the return to the previously well-known workplace results in seeing it from a new perspective. Knowledge translation and re-creation are socially situated and relational processes (Czarniawska & Sevòn, 2005; Williams 2006) that also involve negotiation of professional status.

The doctors expressed regret about the friendly, but rather superficial, interest from their colleagues. In organisational terms, there seemed to be little encouragement or substantial esteem for these kinds of assignments as a means for professional

development or as a basis for reviewing the weak points of Swedish/Western medical care. The doctors pictured Swedish medical care as self-satisfied and rather conservative in its orientation towards the status quo or, paradoxically, progress—understood as adopting the latest technology, more and more tests and costly procedures, and a growing administration—as if the welfare state economy would be eternally good, and no backlashes or no catastrophes would ever happen (apparently apart from the Ebola threat, which was taken seriously). The perceived organizational smugness left the doctors' insights about the possibility of effective work with fewer resources and tougher priorities as fascinating, but not really relevant—thus generating little symbolic capital (Bourdieu, 1988; Erel, 2010; Nowicka, 2014; Wolanik Boström & Öhlander, 2015b). The doctors' intensive learning in the global South, their critical insights, and the mental "serum" for smugness that they acquired through the experience seldom seemed valued or appreciated.

In spite of some critical reflections about the long-term benefits of aid assignments, the doctors appreciated the experience of saving or improving many lives and making a difference with limited means, as opposed to the overly organized Western medical care. In the interviews, they were generally very reflexive on "recontextualizing" (Smeby, 2012, p. 59) their medical and social knowledge, professional performance, or ways of cooperation to adjust to the demands of the local "community of practice" (Harris, 2014; see also Wolanik Boström & Öhlander, 2015a). Although they did not use the knowledge typology I applied here, the well-educated and reflexive interviewees did use concepts from philosophy, psychology, and social sciences—a frequent phenomenon of a "spill-over" of epistemic cultures from research to other areas (Jensen, Lahn, & Nerland, 2012; Knorr Cetina, 2007; see also Fenwick & Nerland; 2014; Smeby, 2012; Wolanik Boström & Öhlander, 2015a). With narrative and paralinguistic signals, they indicated that they distanced themselves from their personal experience narratives to a meta-level, trying to give a bigger picture of the global medical context and their own professional identity.

If their learning is conceptualized with Blackler's (2002) and Williams and Balaz's (2008) typology, *the encoded* knowledge from books and reports seemed easiest to obtain during an assignment and share back home, if only their colleagues found it relevant (for example, facts and figures about HIV or Ebola). The doctors also reflected on *embrained* knowledge, for example, sharpened diagnostic capabilities, and *embodied* knowledge, as practical thinking resulting from medical procedures in a different context. Some of the physicians could apply only more general skills, while others acquired a lot of specialized medical knowledge, which was of relevance for how it was valued in Sweden. For example, improved surgical skills in cleft palate surgery were more career framing than general surgery, which admittedly did save lives and limbs, but did not require extraordinary competence.

What I find interesting is that every interviewed doctor emphasized that social, political, and cultural insights were the most striking and often overwhelming feature of their learning, but also the most difficult to share upon their return. These insights involved *encultured* knowledge (shared understandings on health care or learning) and *embedded* knowledge (context-specific knowledge on management, organisation, or post-colonial power dimensions in the professional role) (see Fechter & Walsh, 2010; Williams, 2006, p. 591). The experience seemed to enhance *reflexivity* and made clearer the "knowledge of" other types knowledge, as well as the (Western) preconceptions that became more tangible.

Back in Sweden, the doctors carried with them reflexivity and the "knowledge of" other types of knowledge, resulting in changed perspectives and new ideas for change. However, the proposed organisational solutions encountered in the global South or that were preferred by the aid organisations, for example, making things more effective, smoother, and simpler, met resistance in the Swedish context. Some of the interviewed doctors tried to "translate" and modify their ideas, some more successfully than others. Others concluded that they had to settle for keeping the cultural and organisational "realities" apart because they were too different for any

cohesion to occur. This kind of mental split-up suggests fragmentation of their work trajectory (and indeed, even their life trajectory) into parallel tracks. This, in turn, has repercussions for their professional status and career possibilities in Sweden—if they choose to go on assignments that the Swedish employers regard as disrupting administrative schedules and narrowing one's specialisation, and thus not being professionally rewarding, this might create gaps in the physicians' career paths. The intensive, sometimes life-changing *individual learning* of the doctors appears not to be met with structured *organisational learning* that would acknowledge the doctors' experiences in the global South as thought-provoking and valuable in Swedish practice.

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Connective Routines: How Medical Professionals Work with Safety Checklists

Abstract: New standards like checklists are introduced to establish so-called "connective professionalism," but it is difficult to work with checklists in daily circumstances. Professionals might comply with standards, but they might also neglect or resist them. By linking the sociology of professions to routine theory, we develop a relational perspective on working with standards, which is sensitive to the actual usage of standards, not so much "by" but "in-between" professionals. We analysed whether and how checklists are part of daily professional routines. Our ethnographic data show that medical professionals pragmatically cope with checklists. They "tick boxes," but also use standards to improve case treatment, depending on the nature of cases, time pressure, and team composition. Connections between professionals not so much result from standards, but are a prerequisite for using standards. Professionals themselves rather than checklists establish collaboration, but checklists might be important devices for using "connective potential."

Keywords: Professional work, surgery, standards, implementation, routines, coping

The past few decades, many scholars have emphasized that routines are crucial for how organizations accomplish their tasks (Cyert & March, 1963; Nelson & Winter, 1982). Routines are "recognizable, repetitive patterns of interdependent action carried out by multiple actors" that structure work and are a basic necessity to carry out complex work in organizations (Feldman, Pentland, D'Adderio, & Lazaric, 2016, p. 505; Feldman & Pentland, 2003; Novak et al., 2012). Routines were mostly associated with stability and inertia (Cyert & March, 1963; Nelson & Winter, 1982) but a more recent perspective in the literature explicitly focuses on routines as a source for coping with complexity and change (e.g., Becker et al., 2005, Feldman & Pentland, 2003; Feldman et al., 2016; Parmigiani & Howard-Grenville, 2011).

Building on this, studies paid explicit attention to how organizational routines are changed triggered by *exogenous* events (Nigam, Huising, & Golden, 2016). Fundamental transitions in the context of work, such as new governmental regulations, knowledge and technologies, client demands and budgetary restraint (for an overview see Noordegraaf, 2015; 2016) explicitly affect work in professional service domains and urge professionals to adapt their ways of working.

More specifically, the complex interplay of service pressures has made professional service delivery more multifaceted, and this calls for multi-professional action (Noordegraaf, 2011; 2016). Multi-problem cases in youth care, law, social work, and

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healthcare require cooperation between various professionals. They might come from different (sub)disciplines. Professionals need to find ways to organize collaboration and create new routines that are *connective* (Noordegraaf, 2016; Noordegraaf, Schneider, van Rensen, & Boselie, 2016; Noordegraaf, van der Steen, & van Twist 2014). Put differently, the "recognizable, repetitive patterns of interdependent action carried out by multiple actors" need to be reconfigured to routinize collaboration.

Professional fields increasingly implement specific artefacts—formal, "physical" rules such as checklists, standards, forms, and guidelines (D'Adderio, 2008; Pentland & Feldman 2008)—to deal with new demands and organize *connective professionalism* (Noordegraaf, van der Steen, & van Twist, 2014). Examples are standards for feedback and peer-to-peer learning among judges, or safety checklists for surgical teams (e.g., Haynes et al., 2009). However, it proves difficult to incorporate new artefacts in daily work processes. They do not necessarily result in collaborative action (Feldman & Pentland, 2008; see, for example, Creedon, 2005; van Klei et al., 2012).

In this paper, we analyse professional work practices in which such artefacts have been introduced. We do not so much analyse how these artefacts have been introduced, and how they are used by (individual) professionals, but how they work in-between professionals—how multiple professionals work with (or against?) them, and whether and how they connect the work of different professionals. We focus on checklists that are used by medical professionals in surgical care teams. By combining insights from routine theory and insights coming from the sociology of professions, we study whether and how medical professionals cope with checklists, and whether and how these checklists—as connective artefacts—are actually securing collaboration. We apply ethnographic methods: we observed surgical care teams in action, in a Dutch hospital, and analysed the daily usage of checklists. By studying professional action, we describe how checklists are used and which conditions affect collaboration. We do so with an eye on lessons for health care but also for other professional services.

Theoretical perspective

The idea of actors performing, and consequently adapting routines, demarcates a breakthrough in thinking about routines as a source of flexibility and change. Feldman and Pentland (2003) conceptualized internal routine dynamics by discerning two dimensions that make up routines: ostensive and performative. The ostensive dimension is the abstract, generalized idea of the routine. It relates to structure. The performative dimension consists of "actual performances by specific people, at specific times, in specific places." It relates to agency. In other words, the ostensive dimension is the idea; the performative dimension is the enactment (Feldman & Pentland, 2003; Pentland & Feldman, 2005, p. 795). Besides, the authors distinguish artefacts as factors that enable or constrain routine dimensions. Artefacts take on visible and tangible forms, such as written rules. Feldman and Pentland (2003; 2005) recognized a recursive cycle of performative and ostensive aspects affected by artefacts. This dynamic produces both stability and change.

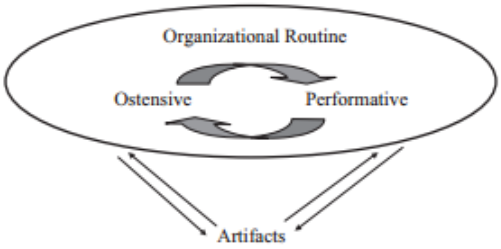

Figure 1. *Routine dynamics (Pentland & Feldman, 2005, p. 795).*

"Designing" routines—a complex matter

Since routines entail multiple actors in multiple interactions, Feldman and Rafaeli (2002) suggest that routines make connections between individuals. People connect through the performance of routines and then create shared understandings on two levels: on a micro level (1) shared understandings about a particular instance of the routine being performed in its specific context, and on a macro level (2) these connections lead to shared understandings about the broader goals of the organization, backed with ideas about what is appropriate (Feldman & Rafaeli, 2002).

These shared understandings are vital for organizations. Although organizations aim to "plan" and "implement" routines—that is, make a new artefact routine behaviour—there is an essential element of interpretation in routinizing these artefacts. "Seemingly routine behaviour in organizations frequently involves human beings making interpretations regarding appropriate actions to be taken in a particular context" (Feldman & Rafaeli, 2002, p. 321).

Managers often introduce a bunch of artefacts to create a new routine. Sometimes they get the result they want, "but often they do not" (Pentland & Feldman, 2008, p. 235). The artefact thus reflects the managerial idea of the new routine, but the concrete expression of the artefact might differ from the written rule on paper. It is essential to recognize that the routine in practice that emerges might differ from the routine in theory (see also D'Adderio, 2008). This resembles Brunsson and Jacobsson (2000, pp. 127–128) distinction between "standardising practice" and "practising standards."

Different perspectives on implementation

The implementation of new artefacts such as standards, aimed at creating new routines, has attracted considerable attention from various scholars from different disciplines. Different insights lead to different explanations of differences between routines "in theory" and routines "in practice."

Complying with standards

Although in routine theory the difference between the two routine dimensions, artefacts, and their interaction is widely recognized, it is attractive to focus on implementing standards. The implementation of new artefacts might be considered a rather "technical" matter. New artefacts such as checklists are seen as simple and cheap solutions to transform professional practice (see, for example, Treadwell, Lucas, & Tsou, 2014, claiming that surgical safety checklists "represent a relatively simple and promising strategy").

Studies that adopt this instrumental approach often apply a certain kind of measure to score the extent to which employees comply with a new standard. These studies mostly rely on professionals' self-registration data, reporting compliance rates even up to 99% or 100% (see, for example, Fourcade, Blache, Grenier, Bourgain, & Minvielle, 2011; Urbach, Govindarajan, Saskin, Wilton, & Baxter, 2014). It is increasingly acknowledged, however, that checklist compliance in a direct observation study is "a different reality" (Saturno et al., 2014, p. 289). Observational studies report compliance rates that hover around 30% (complete checklist compliance) to 55% (partial checklist compliance) (e.g., van Klei et al., 2012; Rydenfält et al., 2013). Nevertheless, even the few observational studies in the field merely measure whether there is rule compliant behaviour, without taking notice of the context with all its existing work patterns in which the checklist should be adopted.

Moreover, when there is a focus on complying with standards, connections and shared understandings between participants are presented as an outcome of the artefact. Bliss et al. (2012, p. 766, emphasis added) state that "[a] surgical checklist is an inexpensive tool that *will facilitate* effective communication and teamwork." So by these insights, artefacts are seen as simple and inexpensive tools that will generate connective actions and improve teamwork.

Resisting standards

We might use different insights, which stress social and cultural contexts in which new artefacts are introduced. The implementation of new artefacts might be seen as a social intervention that interferes with taken for granted ways of working (Evetts, 2011). This, in turn, might lead to acts of resistance. Standards are kept at a distance, manipulated, ritualized and/or *counteracted.*

It is important to note that standardization has always been a crucial aspect of professional work. To reduce complexity, various standards focusing on diverging facets of professional work acted as a form of occupational self-control (Freidson, 1974). To claim a jurisdiction, professionals set educational standards, ethical codes, and codes of conduct. Until recently, these standards thus mainly regulated professional work as case treatment (Noordegraaf, 2016). They did not really interfere with how professionals work together and how they jointly (re)configure professional work, set against new (performance) expectations and demands.

Formal standards, however, are quickly seen as the ultimate bureaucratic instrument, prescribing what to do when and in what ways (Berg, Horstman, Plass, & van Heusden, 2000). This is considered an assault on professional powers, for at least two reasons. First, the standardization of medical work interferes with professional judgment. Professional autonomy enables workers to assess and evaluate cases and conditions and to make judgements regarding advice, performance, and treatment (Evetts, 2002). Standards that prescribe how we should (re)configure professional work interferes with longstanding professional arrangements and is seen/felt as "intrusion" (Evetts 2011, Levay & Waks, 2009; see also Kirkpatrick & Noordegraaf, 2015). Second, standardization of professional work creates opportunities for external parties to exert control over professional work. Increasingly, standards are used by external parties as tools to hold them to account (e.g., Timmermans, 2005). Studies have therefore emphasized the lacking willingness of professionals to implement new standards that cause conflicts with professional values (Freidson, 1994).

What is more, new standards increasingly cross the borders of professional groups. Although there is a shift towards more multidisciplinary service delivery which calls for stronger connections both *within* and *between* disciplines, the socialization process through which professionals internalize "ways of working" and construct a professional identity takes place within professional segments (Bucher & Strauss, 1960).

The sociology of professions has emphasized how professions not only powerfully shape their members' perceptions of themselves, but also of others outside their

profession, and the "appropriate" patterns of behaviour in relation to *others* (e.g., Burford, 2012; Freidson, 1994) This creates an emphasis on the difficulties in generating mutual understandings. It is argued that the different subcultures with their internalized norms, values, and diverging jargon, make the creation of mutual understandings crossing professional boundaries problematic (Abbott, 1988; Lingard et al., 2004). Consequently, a recent and growing body of literature has focused on what professionals do to maintain professional powers (e.g., Lozeau, Langley, & Denis, 2002; Waring, 2007). This explains acts of resistance.

Recent empirical findings move beyond notions of mere resistance but report how professionals adapt or capture reforms to strengthen their own position (Levay & Waks, 2009; Waring & Currie, 2009). These more nuanced analyses, however, predominantly depart from an *individual* standpoint—how individual doctors cope with reforms.

Relational perspective

Although these insights are relevant for understanding how artefacts are used, or not, something is missing in these analyses—they are too instrumental, too political, or too individual.

We, therefore, take routines as our analytical perspective, allowing us to study how professionals work with certain standards *together.* This is where (contemporary) routine theory can strengthen the sociology of professions, as (a) the ideas about a new routine (ostensive aspects) become very important, (b) the dynamic interrelation between abstract ideas and concrete actions becomes the point of departure, and (c) the relations between professionals become the analytical focus. Feldman and Pentland's model (2005, Figure 1) conceptualizes routines as dynamic, iterative processes in which "performances" in-between professionals might also influence abstract ideas about the routine.

Beneath, we use the notion of a recursive cycle with ostensive/performative dynamics to understand whether and how medical checklists—as artefacts—affect collaboration between medical professionals, and whether and how more connective professionalism can be witnessed. First, we explain how we collected and analysed data.

Research design and methods

We have relied upon observations of surgical care teams and how they use medical checklists. We analysed the (potential) complexities and contradictions in real-life situations, unfolding in practice, allowing the researcher to capture ambiguities of professional situations and offer a rich explanatory narrative of the mechanisms at work (Flyvbjerg, 2006).

Surgical Safety Checklist

The World Health Organization (WHO) launched its "Safe Surgery Saves Lives" campaign in January 2007. The main goal of the campaign was to improve the safety of surgical care around the world, by decreasing unwanted variety in surgical care and improve teamwork within the OR (Haynes et al., 2009). One of the final outcomes of this program was the Surgical Safety Checklist.

The checklist was designed after extensive consultation of a team of surgeons and anaesthetists (WHO, 2009). Based on the WHO format, the hospital under study introduced the following series of checks that have to be performed at three strategic points in the process: (1) a team *briefing* at 8.00 a.m. in which each operative patient is briefly discussed by the complete operating team (surgeons, anaesthesiologists,

and assistants) to review critical items such as patient identity, planned procedure, required materials, and known allergies, (2) a *time-out* just before incision, when again these items have to be checked, and (3) a *sign-out* where crucial items have to be checked before the patient leaves the OR, for example, if all gazes and needles have been removed, and where team members have to agree upon and register proceeding therapies.

Information about the new checklist was disseminated among the staff during several meetings and by e-mail. In addition, the checklist was made available in poster format in every operating theatre as well as electronically in the software system.

Research setting

This paper presents fieldwork conducted in 2015 and 2016. Over the course of fourteen months, the researcher undertook multiple field visits to the surgery department of a teaching hospital in the Netherlands. Approval for the study was obtained via the hospital board and the heads of the various departments. In order to formally gain access to the hospital under study, the researcher was appointed as "a research assistant" and to ensure the privacy of patients, had to sign a confidentiality agreement (CA). Before commencing the fieldwork, the researcher visited each key informant to inform and answer questions. The conversations all lasted between 40 and 60 minutes.

Data collection

A focused ethnographic methodology was adopted because it enables a close observation of the day-to-day activities of medical professionals. "Focused" in this approach refers to its problem orientation, as in case of FE the topics of inquiry are pre-selected (see, for example, Higginbottom, Pillay, & Boadu, 2013). Although the focus of this study thus was clearly demarcated in advance—Surgical Safety Checklist, artefacts, ideas, action, connections—this qualitative method using an inductive paradigm to gain in-depth understandings differs from deductive (observational) studies that might fail to capture an in-depth perspective. We especially related the checklists to day-to-day complexities and the real-life mechanisms that affect how and why checklists are used (or not).

Data collection involved observation of everyday work using a shadowing technique, *in situ* informal interviews as conversations (Mishler, 1996) arising during the course of observation, the collection of documents and attendance at meetings. As such, the data presented in this article are not gathered from formal interviews and stem mostly from participant observation and informal conversations.

There was a specific pre-selected focus on the checklist, but as this study's aim was to find out as much as possible about the routines and interaction of workflows professionals are engaged in, we decided to observe full working days. To get access to the normally "closed world" of the surgical department, a shadowing technique made a valuable contribution (see, for example, McDonald, 2005). We started with purposive sampling, where we, together with a "gatekeeper," identified key actors. Subsequently, snowballing led to the selection of other relevant actors that were willing to participate. Although we only shadowed the contact persons, during our days at the surgery department, we also interviewed many additional respondents, like full professors, division leaders, medical doctors in training, OR assistants, and nurse anaesthetists.

Observations were carried out over a period of fourteen months. Observation days lasted for approximately 10 hours, providing a total of about 140 hours of observation, carried out across the different physical areas of the department, including operating theatres, anaesthetic rooms, holding, recovery, training and meeting rooms,

corridors, coffee room and changing room. Table 1 provides an anonymized overview of the data collection.

This method to collect data generated possibilities to gather information about the three different routine dimensions. Firstly, observations provided information about the actual performances by specific people, at specific times, in specific places (*performative*). What do they do, especially together, when they treat cases? These observations also gave insight in the specific physical setting, and the presence of written rules and procedures (*artefacts*), including the checklists as a physical or digital artefact. Lastly, conversations provided information about the ideas and (shared) understandings of the participants (*ostensive*). The conversations also helped to reflect on the gathered data with participants, and link the three routines dimensions in order to get a grip on how they are interrelated.

Table 1.
Overview of the data collection.

Activity	**Division/contact person**
Conversation (acquaintance/exploratory)	Anaesthesiologist I (**Gate keeper*)
Observations (shadowing)	Anaesthesiologist I
Observations (shadowing)	Anaesthesiologist I
Observations (shadowing)	Anaesthesiologist I
Conversation (reflective/progress)	Anaesthesiologist I
Open interview (implementation SCC)	Anaesthesiologist II
Observations (shadowing)	Anaesthesiologist III
Observations (shadowing)	Anaesthesiologist III
Observations (shadowing)	Anaesthesiologist IV
Conversation/analysing video footage SCC	Senior researcher, Quality & Safety I
Conversation (formalising UMCU appointment)	Anaesthesiologist V
Conversation (reflective/progress)	Anaesthesiologist I
Conversation (progress/appointment UMCU)	Senior researcher, Quality& Safety I
Conversation (acquaintance/exploratory)	Gynaecologist I
Conversation (acquaintance/exploratory)	Vascular surgeon I
Participation/observation (compulsory) activity for new employees (Module Quality & Safety)	Not applicable
Conversation (acquaintance/exploratory)	Orthopaedic surgeon I
Conversation (acquaintance/exploratory)	Gynaecologist II
Conversation (acquaintance/exploratory)	Trauma surgeon I
Observations (shadowing)	Orthopaedic surgeon I
Conversation (acquaintance/exploratory)	Thoracic surgeon I
Observations (shadowing)	Gynaecologist I
Observations (shadowing)	Thoracic surgeon I
Observations (shadowing)	Gynaecologist II
Observations (shadowing)	Vascular surgeon I
Observations (shadowing)	Trauma surgeon I
Observations (shadowing)	Orthopaedic surgeon I *(outpatient clinic)*

Data analysis

The ethnographic field notes were jotted down in a notebook and meticulously worked out in digital format after every episode of data collection. Both observation and conversation data were imported into Nvivo10 software for the purpose of thematic content analysis. We started off with an initial coding scheme (Figure 2) listing the two routine dimensions and artefacts. These codes are presented as three separate codes for analytical purposes, though we acknowledge that in practice they are constantly interacting and thus might be more "blurred." Although we included artefacts in the analytic scheme, most emphasis in this paper was on ostensive/performative dynamics. For both these codes, we developed a subcode that reflects the connections; on the ostensive dimension, they refer to shared understandings (ideas), on the performative dimension they refer to actual interactions. The unit of observation was "action," whilst the unit of analysis was patterns of action.

Informed by the sociology of professions literature, we also included a sub-code "professional power" at the ostensive dimension, to incorporate professionals' ideas regarding the new standard. During the empirical process, we identified other relevant themes and inductively added thematic codes. "Team stability" for example, emerged as an important factor explaining differences in routines that were created. Further, practical circumstances strongly influenced the ostensive and performative dimensions and were added as a code.

The empirical findings will be presented beneath, revealing conditions under which connective routines can emerge. The results are structured along the themes that emerged and are specifically discussed in terms of ostensive/performative dynamics. The data was used to explore the processes of connective routines as social, situated and ongoing activities. Our aim was not to trace the implementation process in a longitudinal study but to get an in-depth understanding of how surgical teams jointly work with (or against) the checklist.

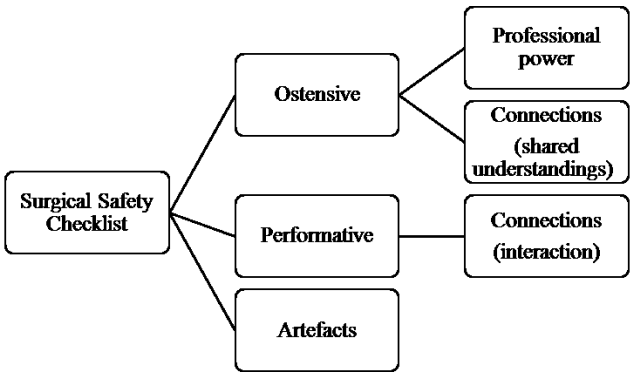

Figure 2. *Initial coding scheme.*

Results

The hospital where the fieldwork of this study was conducted had introduced the Surgical Safety Checklist in 2009. At the time, the implementation of the checklist was considered a more or less "linear process" that would, if well prepared, lead to the adoption of the new standard. To prepare the staff for its introduction, information about the checklist was shared during staff meetings and through e-mails and the electronic system. Posters were put up in the operating theatre as a reminder.

Three years after its introduction, the hospital performed a retrospective cohort study to measure if the implementation of the checklist indeed had led to a reduction of in-hospital mortality. Although the study found a correlation between the two, a

striking result of the study was that compliance did not exceed "average." The numbers of this self-evaluating study indicated that the checklist was used in practice, but also that there are "barriers" for fully incorporating them. Conversations with various key actors revealed that the hospital was having a hard time in finding clues for "lacking implementation." Possible explanations remained rather general; "It is something cultural I guess" or "The staff wasn't well-prepared enough." By looking at routines, we were open to a more social and situational explanation of the use of artefacts.

Checklist use by general surgery teams

An explicit purpose of the checklist was to strengthen connections among team members. With more than twenty operating theatres, this large teaching hospital not only has a significant labour force but also a high staff turnover, since multiple employees come and go for educational purposes. As a consequence, the "teams" vary, and people operating together who have never met before is quite ordinary. In order to familiarize team members with one another, the SSC not only includes checks concerning patient identity and intervention but explicitly stipulates that team members introduce themselves before a case by writing their name and function on the whiteboard.

Partial use of the checklist

Halfway the period of episodic observations, several "time outs" had passed by during the days at the various theatres in the general surgery department, and in all these instances, the time out was performed in "some kind of way." Mostly, the first items were systematically checked (identity patient, intervention, allergies), while other aspects were often more "loosely" applied and in varying sequence. Every now and then, the names of team members were on the board. However, if any mutations in the team composition occurred, this was not adopted. Moreover, there seemed to be no attention for or vocal confirmation of the names on the board at all. We wondered how this pattern of "selective" performance emerged; the first items were systematically and consequently checked, whereas the items striving for stronger connections were—if at all—more "loosely" applied.

Varying ostensive aspects: The short-term versus the long-term

During a coffee break, a conversation about such selective performance started, and ostensive ideas about the checklist surfaced. Professionals often do attach importance to the time out procedure, yet some items are considered more important than others. Writing down the names of all the team members, for example, does not add to the safety and quality of the specific surgery performed is the dominant conviction. In other words, there mostly is a focus on the short-term—performing a high-quality surgery—and with regard to that, writing down the names of the team members is not immediately considered to attach value to the quality performance of the operation.

However, a conversation with an anesthesiologist brings forward a different version of the ostensive dimension that emphasizes long-term effects. Writing down the names of team members on the board will strengthen connections between routine participants on the long-term:

> We are such a large hospital that it is impossible to know everybody by name. In that respect, just reading the others' names on the board makes it easier. If I don't have to ask, "hey you, can you give me that ampule" it becomes easier to communicate, and I am more inclined to ask more personal stuff like "how was your weekend," you see?

Writing down the names serves a broader purpose—it does not only mean that team members basically know each other's names, but it is also an attempt to form more in-depth connections that could ultimately lead to more shared understandings.

These views that reflect different understandings of the ostensive dimension of the time out—rooted in focus either on the short- or long term—explain differences in the performative dimension.

Performing the checklist, but not connective

The performance of the checklist requires interaction among the various team members. Every individual participating in the team must be able to communicate about the various items and "pause" the process in case the requirements of items have not yet been met. The findings show that for creating connective patterns of action, the hierarchical position matters.

The following observation note reflects the performance of a time out procedure in the general surgery department.

> *Time out*
> The resident in surgery does the time out with the patient. The checklist poster is put up prominently in the OR. The resident asks for the patient's name while checking his wrist ID, after which he asks the patient to describe the surgery in his own words and name the surgical side and site.
>
> | | |
> |---|---|
> | Resident in surgery: | Okay, perfect. And you have no allergies, no. Do you have any questions left for us, sir? |
> | Patient: | [nodding] |
> | Resident in surgery: | No? Okay. We're gonna take care of you, sir. Let's start. |
> | OR assistant: | [mumbling] And we all live up to hygiene protocol. |
>
> The OR assistant starts writing down the names of all team members on the whiteboard.

In this performance of the time out, the first items of the checklist were consistently checked in interaction with the patient. However, the surgeon performing the checklist finishes the procedure by checking for allergies and herewith neglects, for example, hygiene items and team composition. The fact that one of the assistants "mumbles" these items and writes down the names on the board herself indicates that she is aware of the incomplete performance of the time out. Nonetheless, she does not communicate about these items with the other team members.

Varying ostensive aspects: Equal teams vs hierarchy

The working situation hindered the possibility to immediately ask for further clarification—why did the assistant mumble? A conversation later on, however, focuses on the experienced hierarchical relations. This OR assistant is finalizing her education, and because of her educational program, she has worked at various surgical departments to get acquainted with the diversity of surgical interventions. The observation note reflects the conversation we had about the performance of the time out in various contexts.

OR assistant:	The performance of the time out differs widely. In some instances, it is just very quick and superficial, while in other cases, it is a rather extended procedure in which all items on the checklist are also written down.
I:	How do these differences occur you think?

OR assistant: I think it has to do with how approachable the doctors are, and whether it's a 'real' team. It has to do with the atmosphere, whether there is a pleasant and open atmosphere. Sometimes, you have the feeling that we are all equal, and then it [the checklist] goes smooth. Especially with the older doctors, you notice that it's more hierarchical.

This conversation shows how individuals high in the hierarchy play a key role in the emergence of connections. Team members refer to a "pleasant atmosphere" and the existence of "a real team" as requisites for performing the checklist together. The surgeons—who often lead the checklist procedure—are indicated as the actors responsible for the atmosphere in the theatre. If other team members feel free to speak out, they are more inclined to participate in the team discussion and interrupt when necessary. However, if the surgeon explicitly presents him or herself as leader of the team and others do not feel that they are "all equal," it becomes more difficult to cross these hierarchical borders. In these situations, there is attention for the checklist, for example by the assistant who mumbles and completes the items by herself, but not in a *connective* matter.

Checklist use by specialized surgical teams

Although most surgeries are performed in "variable" teams and an explicit purpose of the checklist was to create firm connections among team members, there are a few subspecialties where teams work together in more stable compositions. Subspecialties such as thorax surgery and vascular surgery are forms of very specialized work that require more stable teams. Anaesthetists that work in thorax surgery, for example, *only* work in these specialized areas. Therefore, fixed teams emerge in which surgeons, anaesthetists, nurse anaesthetists, OR assistants, and specialists that operate the cardiopulmonary bypass machine frequently work together. Because of these frequent encounters, these teams have the possibility to create shared understandings about what has to be done and what is appropriate.

Performances: Deciding on the spot

Observations were conducted at both the departments of vascular and thorax surgery to see how these specialized teams work with the SSC. The observation day at the thorax surgery starts at 8.00am in the operating theatre. The team immediately starts with the time out—the second part of the checklist. Since all team members only have responsibility for operations in this OR today, everyone is present in time. The thorax surgeon starts the time out and checks the patient's identity, allergies, and prosthetic devices, and he performs the procedure entirely from memory.

After the time out, the surgeon leaves the OR to scrub, while the residents, nurse anaesthetists, and OR assistants prepare the patient for the surgery. Interestingly, when the patient is asleep, the team members are making 'fun' with each other while doing their jobs, for example, by squirting water from injection needles in each other's ears. People not only know each other by name, but they also seem to get along quite well and work in a "relaxed" atmosphere.

A couple of minutes later, the surgeon is operating the first patient of the day. While he is working, the next patient is already discussed in an informal way. Statements like "what shall we do", "you tell me!" and "we'll get there" pass by. Though the "plan" for the next patient is discussed on the spot—comparable to what a briefing stipulates—this conversation is not systematic and moreover, required equipment is not yet resembled *at the start at the day*, as the checklist prescribes.

Two hours later, the operation is finished. While the assistants are cleaning up the OR, the surgeon asks: "Did we do the sign-out?" The other team members nod

approvingly. “Oh, I missed that. That’s not quite right actually.” He replies. When the next patient on the table, the surgeon takes the lead in the time out again. Just like the case before, he checks the identity, intervention and prosthetic devices out of memory. The performance here deviates from the prescribed items on the checklists; some items are not covered, whilst others (prosthetic devices) are added to tailor the checklist to the needs of this specific context.

Ostensive aspects: What actually “is” the routine?

A few minutes later, when the patient is on the table, and the time out has just been performed, we start a conversation with the resident in thorax surgery to ask him about the briefing. The observation note covers the short conversation.

I:	Do you also have a team briefing?
Resident in surgery:	This was the briefing
I:	No, this was the time out, the last check right before incision of the skin.
Resident in surgery:	Oh, no. We don’t have a briefing then.

Some confusion occurred, since the resident was convinced that they do work with the checklist—they indeed “performed” some deliberation regarding the patient. However, it turned out that this team had altered the checklist through recurring performances in such a way, that it deviated from the artefact as such. In this case, strong connections among team members—that thus already exist—seem to encompass a lot of trust among team members in which people are inclined to *rely* on each other’s performances rather than explicitly checking the items with one another. Table 2 summarizes the findings covering the internal routine dynamics.

Table 2.
Summary of findings of the interrelation of routine dimensions.

Performative	***Ostensive***
General surgery	
Selective, partial use of the checklist	
Checking identity, procedure, allergies	Important items for patient safety
Putting team member names on the board	Will ultimately lead to better teamwork (long-term)
Not putting names team members on the board	Does not add to quality of the surgery performed (short term)
Individual, not connective use of the checklist	
Individual actors perform items of the checklist but not in collaboration	Senses of hierarchy (not speaking up)
Connective use of the checklist (high ranked professionals playing front-runner role)	Feelings of a “pleasant atmosphere”

Specialized surgery (vascular, thorax)	
Informal checking, not using checklist Checking safety items, but loose and without artefact Tailoring the checklist to local circumstances (e.g., adding prosthetic devices)	Not clear what the routine is; "this is how we do things"
Partial checking, but not as a whole team	Entrusting others

Practicalities and unexpected events that affect routine dynamics

Although our initial focus was on the *internal* routine dynamics, the interaction with existing work routines showed great influence on these dynamics.

The surgery department schedules the various operations in which mostly one surgeon is responsible for the surgeries in the operating theatre planned that day, for example, a range of hip fractures or colon carcinomas. The anesthesiologists on the other hand, are responsible for at least *two* of these operating theatres at the same time, which not only means that they have to monitor two patients at the same time, but also that they have to attend two briefings and time outs "at the same time." The observation record shows how the organization of the time out in the care process leads to "basic" irritations, simply because people have to wait for one another.

Time out

Surgeon:	People, can we please first do the time out? Where is everybody? I have a full schedule today!
Anaesthesia assistant:	[Walks towards the neighbouring room where the operation is being prepared to get the other team members.]
Surgeon:	Okay, is everybody there? Thank you. [Does the time out and then leaves the operating room.]

The anaesthesiologist starts to administer drugs for general anaesthesia. When the patient is asleep, about ten minutes pass by.

Anaesthesiologist:	[annoyed] Who is waiting for who now?! She could have started surgery ten minutes ago. She was pressing to do the time out and look what happens now; we don't even know where she is!

This situation reflects the importance of the embeddedness of the new artefact within existing practices. The organization of the care process makes it difficult to create a new connective routine within this high-paced, demanding environment. The checklist aims to connect the different professional segments and improve their collaboration, the lack of "fit" with the existing workflows, however, not only hinders the creation of a connective routine, but the basic irritations tend to reinforce segmentation and thus stimulate the opposite effect.

Comparable practicalities emerged for example with "two-part surgeries," where two different surgeons perform different parts of the intervention (for example, a breast mastectomy followed by reconstruction), but have to be present for the briefing and time out together. This routine required professionals to wait for another, interrupt and align their tasks, which proved time-consuming effort. In these instances, the checklist routine interfered with existing workflows, which means that professionals have to improvise and decide "on the spot." This might imply that the

action patterns that emerge deviate from the "rule" as inscribed in the artefact. Nonetheless, these instances of "noncompliance" might very well be best solutions for the situation at hand.

Discussion

In this paper, the case of the Surgical Safety Checklist was used to examine what happens when a checklist that aims to facilitate collaboration is introduced in a professional environment. A micro-level focus on routines allowed us to trace whether and how such a connective artefact is used (or not) in day-to-day professional actions by multiple professionals.

The data show that the routines that emerge often vary from strict prescriptions in the artefact. However, our findings show that these routines are often meaningful patterns that emerge from professionals' efforts to cope with artefacts in demanding and high-paced environments. Instead of resistance and professionals' active attempts to restore or maintain the status quo, many connections crossing the borders of professional segments already exist. However, the results also show that communication and collaboration are not "automatic" outcomes of artefacts. On the contrary, they can be better considered as *effortful accomplishments* (also Feldman et al., 2016). Moreover, communication beyond professional borders is not an *outcome* but a clear *requisite* to make checklists work in practice. The findings show that especially individuals in high-ranked positions are key players in establishing connections since they have the position to both help *or* hinder this process.

In instances where connections appeared weaker, *practicalities* such as variable workflows and unexpected events made it difficult for professionals to connect. In these instances, the artefact seems to instigate irritations that ultimately reinforce ideas of "us" and "them." Therefore, although there was no fundamental resistance to the new standard, at first sight, a lack of *fit* of the envisioned checklist routine with the already existing work routines resulted in more negative attitudes.

We conclude that in professional contexts, it might be more valuable to adopt practices to situational demands, rather than focusing on strict "compliance" with artefacts. We have shown that professionals not so much actively try to preserve old values but *pragmatically cope* with artefacts in other to find the most convenient way to incorporate a checklist in existing workflows. Connective routines partly already exist. Further development of such routines should result from enduring, repetitive efforts. Organizing connective professionalism is thus a matter of pragmatic coping with artefacts in high-paced circumstances.

These results are in line with a growing body of literature that focuses on the active involvement of professionals in the reconfiguration of professional work. Exogenous pressures not only lead to resistance. Either, professionals actively work with and give shape to reforms (see, for example, Wallenburg, Hopmans, Buljac-Samardzic, den Hoed, & IJzermans, 2016). In the literature on "organized professionalism," there have been research efforts to overcome the divide between organizational and professional logics (e.g., Kirkpatrick & Noordegraaf, 2015; Noordegraaf, 2011; 2015; Postma, Oldenhof, & Putters, 2015). In this research strand, there is a strong emphasis on the hybridization of logics in professional work.

This analysis adds to this, by explicitly approaching the introduction of new standards as a *relational* matter. Our analytical perspective focusing on routines *is* a collective lens and allows for contributions to the literature in different ways. First of all, checklists have been heralded for their simplicity, and health care scholars often refer to the successes of a checklist that led to a reduction of sepsis caused by central lines (see, for example, Pronovost et al., 2006). However, this checklist was developed for *individual* use to prevent infections. A surgical *team* checklist fundamentally differs from these individual checklists, since its success is determined by

the *connections* that individuals make in performing the checklist. Nonetheless, explanations for lacking implementation of (team) checklists mostly stick to the *individual* level. It has been commonly assumed that most of the barriers to "effective implementation," such as negative attitudes, operate at the level of the individual health care professional (Grimshaw, Eccles, & Tetroe, 2004). An observational study by France, Leming-Lee, Jackson, Feistritzer, and Higgins (2008) on the compliance to a surgical team checklist, for example, focused on the "engagement" of individual professionals. Although we argue that individual attitudes do matter, from our analysis, we claim that they only exist, change—and thus matter, in *interaction* with others. Our analysis from a routine perspective underlines the collective and therefore social nature of working with standards.

In addition, scholars increasingly differentiate between "individual" and "system barriers" when it comes to standard implementation (see, for example, an overview by Grol & Wensing, 2004). This study shows that it is not so much about different factors at different levels. The analytical perspective enabled us to provide a more social and contextual understanding since routines capture the dynamics *in-between* the system and the individual level.

Finally, a focus on routines allowed us to trace on a micro-level what action patterns actually emerge. In implementation studies, many different conceptualizations are used to "measure" compliance to standards. Although mostly, the actual use of a checklist (performative dimension) and the registration of the checklist are considered one and the same thing (see, for example, Fourcade et al., 2011; Urbach et al., 2014). Based on our analysis we urge scholars to clearly differentiate between registration data and actual performance. Our findings demonstrate that two separate routines might emerge; one for the performance of the checklist that thus varies widely, and one for the registration of the checklist (ticking off the boxes) that takes place after the actual performance.

Our study is a specific case of a connective artefact used by a particular professional group of professionals (surgical teams). Contextual conditions might have foregrounded particular circumstances. However, we have drawn lessons for healthcare and revealed conditions that could be further explored in other professional domains in future research.

This study gives rise to new research questions. First, it would be worthwhile to shift the focus from routine dynamics to routine interactions. During the empirical work, it showed that the interaction or "fit" with existing work routines affected routinization of the checklist. Practical issues often hindered a smooth routinization process. Therefore, an explicit focus on how new standards interact with longstanding ways of working would be highly relevant. Second, as this paper predominantly focused on the routine dynamics, a closer look at how different representations of the checklist (the artefacts) influence the creation of routines would be highly interesting (see also Feldman et al., 2016). Hospital boards often introduce different artefacts, be it posters, boards or digital versions of the checklist, to stir professional behaviour. Follow-up research might concentrate on how these material representations affect routine dynamics.

Conclusion

We have shown how medical professionals really use medical checklists as artefacts, although we sketch a nuanced picture. First and foremost, medical professionals pragmatically cope with checklists amidst high-paced circumstances. In many ways, they are critical of new standards and they "tick the boxes" whilst working with them, but they also really use standards to improve case treatment. How they do this clearly depends on the nature of cases, time pressures and team composition. Real-life circumstances count and affect the extent to which connective professionalism is established, by forming connective routines. This is partly a matter of ideas, but largely

a matter of performances, strongly affected by real-life circumstances.

Connections between professionals, moreover, do not so much result from standards but are a perquisite for using standards. There must be some *connective potential* when standards for making connections are used. High ranked professionals play important "frontrunner" roles in order to exploit such "connective potential." When they set the tight tone and stimulate others to collaborate, checklists are used differently, both in terms of ideas and actions. Professionals themselves rather than checklists establish collaboration, but checklists are important devices for actually using such connective potential. Even when they work against connective standards, they might work with each other.

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