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Alignment Work: Medical Practice in Managing Antimicrobial Resistance

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ABSTRACT
Policies intended to reduce unnecessary use of antibiotics have been promoted as a key to preventing antimicrobial resistance. However, reduction of antibiotic use in health care potentially involves tensions between health of the patient receiving care and the health of the (future) population. An analysis of general practitioners' talk about everyday medical practice in relation to respiratory tract infections shows how they manage to move between policy and patient interests through 'alignment work.' Alignment work is the discursive strategies used to manage risks and demands related to antibiotic resistance as well as patients receiving health care. Through alignment work conflicting demands and risks can be juggled, and antibiotic prescribing becomes discursively doable. Alignment work is not solely a matter of making conflicting demands and risks coherent, but might also involve leaving tensions and ambiguities intact. It enables general practitioners to align with AMR policy and the imperative of being restrictive with antibiotics, while still managing the risks threatening individual patients. As a consequence, lapses from AMR policy do not necessarily undermine it, but can instead be crucial to allowing the policy to work in the context of actual medical practice and, as such, be crucial to the overall success of the policy.

Introduction

Antimicrobial resistance (AMR) has been framed as a major threat to human health that requires radical global and national interventions to prevent misuse and overuse of antibiotics (WHO, 2015). Interventions targeting unnecessary antibiotic prescribing within health care include treatment guidelines, motivational measures such as pay-for-performance, and audit-feedback

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mechanism for prescription rates (Laxminarayan *et al.*, 2013, p. 1088). The main actors targeted by these interventions are medical doctors, as they are facilitators and gatekeepers of drugs such as antibiotics. At the same time, doctors' duties lie foremost – according to professional ethics – in promoting the interests of the patient receiving health care here and now. A solid, trustworthy relationship with the patient, based on bedside experience and scientific knowledge, is of primary value to medical professionalism (Bradby, 2012, p. 123). However, policies intended to govern medical practice have generally been based on epidemiological research and emphasize health at the population level (Armstrong, 2002; Mykhalovskiy and Weir, 2004; Timmermans and Kolker, 2004; McDonald *et al.*, 2013). Accordingly, doctors are potentially squeezed between the best interests of the patient receiving health care and what is best for the general population.

Indeed, differences and ambiguities are general characteristics of medical work (Berg and Mol, 1998; Mol, 2002; Goodwin and Mort, 2010). Medical practice is certainly complex, as it involves managing heterogeneous demands (e.g. Berg, 1992; Atkinson, 1995). According to Berg (1997, p. 1084), one feature is that 'many different rationalities, many different ways in which considerations are weighed, coexist.' As a consequence, medical work entails bringing together elements from various 'worlds' – elements that need to be reconciled into manageable problems (cf. Berg, 1992; Casper and Berg, 1995). As suggested by Struhkamp *et al.* (2009, p. 56), clinical practice requires a 'fuzzy, complex and adaptive style of knowing and acting.' Tensions between different rationales may become especially manifest in relation to strategies aimed at preventing AMR, where the risk borne by an individual patient with an infection needs to be weighed against the risk that might be borne by patients in an abstract future (cf. Stivers, 2007; Will, 2017; Gröndal, 2018). The demands of caring for patients and of adhering to policy requirements may at first glance seem irreconcilable. As this article will argue, doctors' creative management – their 'juggling' (Struhkamp *et al.*, 2009) with risks and uncertainties – make policy and patient interests align.

In the international context of fighting AMR through decreased antibiotic prescription, the Swedish case stands out as particularly successful (cf. Mölstad *et al.*, 2017; Bonk, 2015). Intense policy measures seem to have had an impact, given that antibiotic prescription rates have decreased dramatically since the 1990s.[1] The most striking decrease is in the area of respiratory tract infections, e.g. tonsillitis, pharyngitis, sinusitis, otitis media and the common cold (Mölstad *et al.*, 2017). This is a particularly important outcome, as the majority of all antibiotics prescribed for humans in Sweden target such infections (André *et al.*, 2008). One specific policy measure put forward to tackle AMR in the Swedish context was the *Patient Safety Campaign*: an initiative launched by the Swedish Government, Swedish municipalities and county councils between 2011 and 2014 (see The Public Health Agency of Sweden, 2014). The campaign promoted predefined protocols, monitoring and reward

systems to meet quantifiable performance goals for antibiotic prescription rates. Given this background, we argue that the Swedish case is a fitting one as regards examining management of potentially conflicting demands and interests.

The article is based on interviews with Swedish general practitioners' (GPs) performed in the context of the *Patient Safety Campaign*. We explore GPs' talk about everyday AMR policy and the treatment of mundane respiratory tract infections in outpatient care, as it involves adhering to policy-driven public health agendas, while at the same time caring for the needs of individual patients based on established medical knowledge. With a particular focus on the relationship between these demands, we ask:

- Do tensions between demands of caring for individual patients and of adhering to policy requirements emerge?
- If so, how do GPs discursively manage such tensions?

In line with the research referred to above, we argue that doctors' AMR policy management is a matter of 'making things work' (cf. Casper and Berg, 1995) through active and creative articulations. The aim of the article is to develop the concept of 'alignment work' in order to shed light on the discursive strategies through which antibiotic prescribing is managed in the age of AMR.

The following sections contextualize antibiotic prescription and review previous research on antibiotic prescribing, patient safety, and the opposition between populations and individual patients in medical practice. We then describe the theoretical framing underlying our probing concept of alignment work before moving on to the interview data and the method used in the study. The analysis is presented in two main sections: (1) when policy and patient interests are in line and (2) when policy and patient interests are in tension. While a clear theme in our data is that GPs describe the AMR policy and restrictive use of antibiotics as aligning in an unproblematic manner with their obligations to patients with respiratory tract infections, they also problematize the policy and justify making exceptions. In the final discussion, we revisit the problematics of managing heterogeneous demands in medical practice, arguing that loyalty to the restrictive approach to antibiotic prescription is constructed *through* discursive strategies of making exceptions for individual patients.

Antibiotic Prescribing: Managing Policy and Patient Interests

Prescribing drugs, in general, and antibiotics, in particular, is considered 'one of the core activities that demarcate the medical profession from other groups,' and thereby a 'battleground on which the cause of clinical autonomy is defended' (Britten, 2001, p. 479). The clinical autonomy of doctors, including GPs, demands the ability to prescribe medications without pressure from the outside (Weiss and Fitzpatrick, 1997).[2] In particular, antibiotics – as a miracle

drug or magic bullet that cures previously lethal conditions – have been characterized as the key to the medical professions' status, authority and in turn clinical autonomy (cf. Timmermans and Oh, 2010, p. 100). As a consequence, clinicians might prescribe antibiotics not only for medical reasons, but also to maintain authority and patient loyalty (Butler *et al.*, 1998). Research suggests that this rationale for prescription may entail that doctors do not prioritize the risk of AMR in practice.

Moreover, several studies have shown that, in medical practice, the risk of AMR tends to be outweighed by medical risks related to the patient receiving health care. For example, Butler *et al.* (1998, p. 6) showed, in relation to GPs managing patients with sore throats, that the theoretical community risk from resistant bacteria was outweighed by potential medical benefits to the patient at hand. In a similar vein, Broom *et al.* (2014) argued that hospital doctors understand AMR as an issue of limited significance for actual clinical practice, compared to the risks borne by individual patients. Will (2017) stated: 'As an issue, AMR can be posed as invoking a tension between an individual with current health problems and collective, future needs that demand that we seek to preserve the efficacy of antibiotic drugs.'

Tensions between populations and individual patients have been discussed in relation to other interventions intended to increase the health of the population and to promote the 'common good' rather than that of individual patients. For example, Rose and Blume (2003) discussed the dilemma between individual risk and collective protection in relation to immunization programs. The aim of public immunization programs is not solely to protect the individual (immunized) patients; the actual priority is to establish *community* immunity. As a consequence, the risks to individual patients might be downplayed. Bragesjö and Hallberg (2011, p. 118) similarly argued that with an immunization program there is 'always an innate tension' between risk assessments at the collective and individual level. Moreover, some of the ambiguities discussed by Singleton (1998) in relation to a cancer-screening program are created by the program's effect at the population level and the consequences for individual women. Thus, professionals have problematized the fact that individual women might experience great stress due to false positive results – stress that however is accepted given such programs' positive effect on population health.

The tensions between individual patients receiving health care and the health of populations have also been described by several researchers as at the core of the increasing external regulation of medical practice, including evidence-based medicine (EBM). Researchers have argued that while medical practice was traditionally ideally based on observations of individual patients and doctors' own clinical experience, epidemiological research and statistics form the basis of EBM (Armstrong, 2002; Mykhalovskiy and Weir, 2004; Timmermans and Kolker, 2004). McDonald *et al.* (2013) conceptualized this development as a turn toward population-based medicine, which they contrasted to medical

professionalism. Thus, while in medical professionalism the best interests of individual patients ideally form the basis for the medical professional's actions, population-based medicine instead prioritizes ensuring the best health outcomes for a given population. In this context, policy measures for rational use of antibiotics appear to follow a broader pattern of emphasizing health and risk at the population level rather than the health and risks of individual patients.

Researchers in medicine as well as in the social sciences initially feared that EBM would undermine the medical profession's focus on the individual patient receiving health care. However, empirical studies have shown that the influence of external regulation and EBM on actual medical practice is an uncertain matter that needs to be studied empirically (Timmermans and Berg, 1997; Mykhalovskiy and Weir, 2004; Timmermans and Kolker, 2004; McDonald et al., 2013). Thus, the issue of investigating antibiotic prescribing in the crossroads of different, and potentially conflicting, demands and risk rationalities requires further empirical investigation. As stated above, the risk of AMR not only exists at the population level, but is also located in a more or less distant future.

Alignment Work

We draw on the understanding that medical work involves continuous management of heterogeneous, and sometimes ambiguous, elements and demands in order to make things work (Casper and Berg, 1995, p. 399; cf. Knorr-Cetina, 1981). In relation to a scientific context, Fujimura (1987) conceptualized 'doability' as the active work of aligning different 'levels' of an organization. Thus, problems become more or less doable depending on how successful the work with alignment is. The core of such work is to satisfy the demands of different audiences or actors well enough. Fujimura wrote (1987, p. 275): 'constructing doable problems took the form of creating strategies which allowed the scientists to juggle and balance multiple simultaneous demands at multiple levels of work organization.' In the present article, we focus on how GPs discursively manage the potentially conflicting demands of antibiotic prescribing as such doable problems.

To explore this, and particularly how (potentially conflicting) risks and interests were managed in the interviews, we constructed the concept of alignment work as an analytical tool. Alignment work refers to the discursive strategies used for handling AMR policy interventions, implications for professional practice and patient-doctor relations. Alignment work can be a way for GPs to discursively harmonize different demands, interest and risks – that is, to construct them as coherent. However, alignment work also allows us to see and conceptualize how instability and incoherence are sometimes left intact in the interviews. Thus, we are inspired by, for example, Will and Weiner (2014), who explored how apparently contradictory repertoires can be *combined* in talk about cholesterol reduction. In their interviews with patients with coronary heart disease, they found 'a readiness to live with

apparent incoherence' (p. 292). As in Law's (2010, p. 69) writing about competing 'objects of care' in veterinary practices, alignment work is a way of 'holding together that which does not necessarily hold together.'

So how is this holding together done in practice? Mol (2002) argued that conflicts and differences are managed through their *distribution* – thus by being separated or spread to different sites (cf. Law, 2010). Goodwin and Mort (2010, p. 62) instead showed how medical practitioners account for situations where tensions and incoherence are not distributed, but 'collected together in one location, at one time.' Here, they drew on Singleton's (1998, see also Singleton and Michael, 1993) work, in which she suggested that tensions and ambiguities are not necessarily in opposition to stability. Instead Singleton argued that instabilities – in her empirical case the critique against a cancer screening policy program, described briefly above – might be necessary for creation of coherence, stability and durability (of the policy program). Instabilities are, according to Singleton, actually necessary, because they create flexibility and make things workable. In Fujimura's (1987) terms, it is ultimately through instabilities that problems become doable.

In line with these theoretical underpinnings, we understand alignment work as a fruitful way to make sense of how GPs manage to adhere to AMR policy – especially the demand of prescribing antibiotics in a restrictive manner – and simultaneously being reflexive about the policy and justifying the exceptions made in specific situations. Thus, alignment work conceptualizes the discursive work GPs do when managing conflicting demands, without letting them create too much instability. The concept of alignment work highlights how the creation of tensions and ambiguities is sometimes necessary for the stabilization of policy (cf. Berg, 1992; Singleton, 1998). Through the concept of alignment work the analysis is allowed to shift from the dichotomy of adherence and non-adherence to *policy as something that is performed and (de)stabilized* in practice. Although we understand alignment work as a discursive strategy, we argue that it affects AMR management in the context of respiratory tract infections, and that the concept enables an analysis of what these effects are and how they come about.

Studying Antibiotic Prescribing

The data on which the present article is based were collected in the context of a larger study with a mixed-method design that explored the factors influencing antibiotic prescription practices for respiratory tract infections in primary health care (Strandberg *et al.*, 2016).[3] In the study providing the data for the current article, a sample of 29 GPs from 8 publicly run health centers in three different Swedish counties were interviewed. Demographically, the GPs represent variation in gender, age, educational background, working experience, and the urban/rural dimension. Individual semi-structured interviews, with open-ended questions, were conducted. The topics for the interviews were clinical diagnostic

procedures in relation to respiratory tract infections, antibiotics and AMR, guidelines for respiratory tract infections, collaboration between different professions, patient education, and patient-centered consultation.[4]

The analytical process of making sense of the interview data is based on a three-step model. First, a general empirically driven coding of the dataset was performed. The analysis started from a general interest in how AMR policy was managed by the GPs. Second, we zoomed in on certain codes and identified instances in which interviewees articulated various risks scenarios, for example, conveyed through stories from personal experiences. Third, the analysis focused on how these instances emerged in relation to the themes 'policy interests' and 'patient interests.'

At the time of the study, the *Patient Safety Campaign* was on-going and the county councils in which the studied health centers are located allocated financial rewards based on the centers' antibiotic prescription rates, the aim being to prevent unnecessary use. Although the GPs were encouraged to freely express any critique and experienced problems they may have had regarding AMR policy, the framing and design of the project may contain potential bias, in that the interviewees may have described themselves as having more positive attitudes toward AMR policy than they would have in another context. Thus, the analytical themes and the alignments observed need to be viewed in this light.

However, we argue it is precisely *because* of the framing – the study explicitly targeting antibiotic prescription – that the data are interesting. Although the interviewees probably articulated policy friendly answers, we find clear patterns of alignment work, e.g. discursive strategies of handling AMR policy interventions in relation to present as well as future medical practice. Moreover, in light of the solid research base in the field of STS regarding the persistence of management of similar dilemmas in medical practice, we firmly believe that our results make an important contribution to both separating and holding together potentially conflicting demands and risks.

When AMR Policy and Patient Interests Are in Line

In the following sections, we demonstrate how restrictive use of antibiotics, in line with the Swedish AMR policy, is made sense of by the interviewees as desirable. We show how population-based medicine is harmonized with the GPs' responsibility for their patients, in what seems to be an unproblematic manner. This harmonization is made possible through alignment work, e.g. through strategies that serve to align patient and policy interests.

Being Restrictive as an Unproblematic Matter of Course

When analyzing the interviews, we identify a clear and recurrent baseline: a restrictive approach to antibiotics so as to hinder AMR in the future is

something the GPs support. The interviewees generally stated that they are careful and restrictive with antibiotics:

Interviewer: Is there anything in particular you find important when it comes to caring for patients with respiratory tract infections?

GP: Yes. Yes … but, well, to first try a conservative treatment, without antibiotics, right. (Interview 25)

GP: I think a lot about resistance. […] So, I'm careful about prescribing antibiotics.

Interviewer: Yes.

GP: Right, so it's probably like, this restrictiveness appears in my head as a warning flag right, almost as soon as you hear the word antibiotics. (Interview 22)

The quotes above show that the imperative of being 'conservative' and 'restrictive' is so strong that the mere mentioning of antibiotics may signal cautiousness. Probing into the justifications for being restrictive, interviewees state that treating patients in the future will otherwise become problematic. As an illustrative example, one GP stated: 'one day we won't be able to treat a seriously ill patient, or at least not treat effectively' (Interview 23).

The recurring theme of caring for future patients through restrictive measures today can be related to previous research. This finding differs from research showing that doctors understand AMR as an issue of little importance to clinical practice (cf. Butler *et al.*, 1998; Broom *et al.*, 2014). However, the emphasis our informants placed on AMR and restrictive use of antibiotics can be explained by how they described future patients as individuals whom they may meet and not be able to cure. Thus, it appears as if the GPs make AMR relevant in their current practice by concretely considering and making manifest future patients in the doctor-patient dyad. In addition, it is important to note that the hospital doctors Broom *et al.*'s (2014) study, referred to above, probably met patients with more severe infections. How potentially severe infections are managed by the GPs in our study is something we will return to when discussing the tensions between policy and patient interests.

The interviewed doctors did not only align with the general importance of restrictive AMR policies. The specifics of antibiotic prescribing for respiratory tract infections were rehearsed and repeatedly portrayed as being completely consistent with the practice of restrictive antibiotic prescription.

Interviewer: […] how to deal with infections … and, how do you think that works at this health center?

GP: I think it works well. We've taken on board all measures, instructions, suggestions made. We follow … them and are pretty restrictive. (Interview 26)

Interviewer: Do you think it works well here?

GP: I do. It's not like you, well … prescribe antibiotics straight away, no, we don't do that. (Interview 10)

In these representative quotes, being 'pretty restrictive' is equated with desirable management of infections, while prescribing antibiotics 'straight away' is described as a disfavored practice. In addition, in the first quote the GP said that they had 'taken on board all measures, instructions, suggestions made,' thus implementing policy goals was made equivalent to managing antibiotic prescribing in a desirable manner. In interviews at health centers that previously had a higher antibiotic prescription rate, this history was generally narrated as problematic, while statements concerning the currently lower rate and more restrictive approach included: 'It's better now that we're being stricter' (Interview 21).

When a desirable management of antibiotic prescribing was coupled with a restrictive approach to antibiotics, the GPs aligned not only with this policy, but also with a dominant medical discourse on AMR. Such discourse describes restrictive prescription of antibiotics as part of 'rational' medicine, making exact and medically accurate diagnoses (Laxminarayan et al., 2013). The analysis above again contrasts with previous research showing that restricting doctors' prescription of antibiotics is problematic and something they tend to resist (Butler et al., 1998; Timmermans and Oh, 2010; Broom et al., 2014). In the next section, we move on to show how the interviewees frame the restrictive approach as positive, even for the actual patient receiving health care.

AMR Policy as Aligning with Specific Patient Interests

In addition to stressing the value of restrictive prescription for a desirable medical practice, in line with AMR policy, the interviewees portrayed it as beneficial for specific patient interests. What is best for the future population thus harmonizes with the traditional position to safeguard what is best for the patient and to minimize patient risks. For example, GPs stated that it is, if possible, better for patients with respiratory tract infections to heal without antibiotics. Typically, doctors described experiences of abstaining from antibiotics as clinically successful.

Several GPs described antibiotic use as potentially harmful to the patient, because it has negative side effects for the gut flora. The bowels become irritated and it may take a long time for patients to recover. Here, personal experiences of misjudgments were brought up to justify this framing:

GP: … I hate broad-spectrum antibiotics and Dalacin. I've had three old women who died from clostridium.

Interviewer: You have?

GP: At nursing homes, after receiving Dalacin for minor complaints. (Interview 21)

By referring to clinical experiences involving lethal consequences, the doctor quoted above stated that *Dalacin* – a brand of broad-spectrum antibiotic connected to adverse effects such as severe diarrhea – may entail severe risks for patients using it. The strength of the doctor's opposition is underlined by the exclamation 'I hate.' Another similar example concerns how 'natural healing' is thought to be in the best interest of the patient.

> *GP*: What we try to ensure is that … when we prescribe antibiotics, that we do it narrowly and effectively and for brief periods, but also at any cost we try to, like, facilitate natural healing, without antibiotics. (Interview 13)

When needed, a 'narrow,' 'effective' and 'brief' drug is said to be preferable, in order to promote the 'natural healing' process. In both of the examples above, restrictive use of antibiotics aligns with population-based medicine, as some microbes (the gut flora) are understood to be favorable and protective.

GPs also described how clinical experiences created a shift in attitudes towards antibiotic prescription policy. For example, one interviewee said that she initially did not trust the new guidelines for otitis, because they promoted a practice different to what she was used to. However, when she 'tried out' the recommendation, she saw that the patients actually healed anyway (Interview 7). In this example, what can be labelled 'clinical experimenting' is in line with a restrictive approach to antibiotics. Other studies have similarly pointed out how doctors' experiences of successful clinical practice can change their behavior, without threatening their medical autonomy (Armstrong, 2002; Armstrong and Ogden, 2006).

In addition to aligning AMR policy with patient interests concerning what constitutes best medical practice, GPs reported that patients were generally satisfied without antibiotics: 'Well, I don't think patients now … they rarely come and want to get antibiotics' (Interview 11). Like in this brief quote, especially doctors who had worked for many years tended to state that patients' attitudes towards antibiotics have changed, and that while it was previously common for patients to expect and even demand antibiotics, it is not common today.

In sum, it would appear to be unproblematic to align AMR policy on restrictive prescribing of antibiotics with patient interests, with regard to both actual medical needs and patient satisfaction. The alignment work included strategies such as distancing oneself from the 'bad' broad-spectrum drugs and downplaying patients' expectations. Interestingly, this result is at odds with findings from previous research (Butler *et al.*, 1998; Broom *et al.*, 2014), showing that doctors' prioritization of patient interests had instead led to unnecessary use of antibiotics.

Managing Monitoring

As part of the patient safety campaign, health care centers were obliged to provide GPs with prescription statistics, the goal being to encourage more

rational practice. Such data were also used as a basis for economic incentives. Using statistics in relation to a clear policy goal to reduce antibiotic prescriptions and encourage doctors to monitor themselves and their peers is a clear example of external clinical governance in order to safeguard population health.

Even though a small number of interviewees criticized monitoring of antibiotic prescriptions, it was generally described in positive terms. Accordingly, the visibility of individual GPs prescribing patterns as a measurement of good doctoring was framed as unproblematic.

> *GP*: Mmm. We've had bad results when it comes to antibiotics prescriptions for many years. But we have become … we've worked very hard on this for two years now, so now it's better and as low as in the last report just a few weeks ago, this is the lowest we've been. So that is very good. (Interview 9)

The prescription data are described in positive terms; making rates visible for co-workers and health care center management has had an impact on the outcome ('better,' 'very good'). Good performance – low prescription rates – means that GPs come out well in follow-ups. As an illustrative example of how the reports could be used, the data at one health center were a topic of discussion at coffee breaks between colleagues. This was due to the weekly public display of pharmacy statistics, posted on the kitchen cupboard: 'We saw exactly how we did last week' (Interview 23).

The doctors also frequently mentioned that the prescription data had made them aware of their health center's relative position. Consequently, it would seem that the health centers were competing to get the 'best' – the lowest – numbers:

> *GP*: We get our figures and we can compare our figures locally, how we prescribe, and we can also compare them nationally. And I think it's like in our minds when we prescribe that … that this is being followed up, and it's quite often put on the agenda, these issues. (Interview 13)

Comparisons across units were presented as feedback from pharmacy authorities, and when put on the 'agenda,' they created a general awareness. This awareness was also said to influence behavior: 'I cannot run my own race – it will show up in the lists' (Interview 26). However, the GP above who described visibility as something she was constantly aware of was also careful to say: 'If I decide to, like, now I prescribe antibiotics, then I prescribe antibiotics.' Thus, monitoring was framed as positive, while still putting forward the GP's own agency in relation to the patient receiving health care.

It is worth noting that the positive effects of the contemporary restrictive approach to antibiotics were never explicitly mentioned in relation to monetary incentives. Thus, even though the interviewees appeared to align with AMR policy, our results confirm previous research on the complex relationship

between doctors' performances and external governance through financial incentives. In a sense, our results confirm the norm suggesting that doctors should not make economic considerations when managing patients (Armstrong and Ogden, 2006; Bradby, 2012).

To sum up the arguments thus far, the alignment work used to marry policy and patient interests involved, first, understanding future patients as actual patients whom the GPs could meet. Second, that restrictiveness with antibiotics was viewed as beneficial for individual patients: Healing without antibiotics is better for patients, and they generally do not expect antibiotics. Third, monitoring antibiotic prescription was essentially described as benefiting current and future patients. Thus, a restrictive approach is both rational and ethical. In these examples the GPs successfully used alignment work in order to construct the interest of the patient receiving health care and the interest of the future populations as in line and harmonizing.

When AMR Policy and Patient Interests Come in Tension

This section analyses situations in which patient and policy interests are in tension. First, we show that AMR policy was described as potentially creating risks for patients with respiratory tract infections and how these risks were managed. Second, we demonstrate that harmonizing patient satisfaction with restrictive antibiotic prescription (described above) was not automatic, but the result of various efforts on the part of GPs.

Restrictive Use of Antibiotics can Create Risks for Patients

Several interviewees expressed worries that restrictive use of antibiotics might put patients with respiratory tract infections at risk, stating that risks to patients and risks of AMR needed to be balanced. Such concerns were exemplified by personal experiences of cases in which the treatment strategy failed due to non-prescription of antibiotics:

Interviewer: Are you afraid that something might happen if you don't prescribe …

GP: Yes I am afraid, for the patients' sake […]

Interviewer: What are you thinking about then?

GP: Yes … I have waited … you're always playing with boundaries here, sometimes you wait and then sometimes there is a backlash

Interviewer: Has that happened to you?

GP: Yes that has happened

Interviewer: Yes, has it been something serious that …

GP: Yes, it happened a few years ago that … someone was hospitalized and I found that … or, at least, treated … yes I think, a couple of days with intravenous antibiotics. (Interview 16)

This quote illustrates how GPs may equipoise the risk of AMR with the risk that the infection will develop into a severe condition. The interviewee justified this concern by describing two cases in which patients became severely ill and were hospitalized due to lack of treatment. Thus, the GP described the restrictive practice as 'playing with boundaries.'

The examples of when things had 'gone wrong' problematize the restrictive approach to antibiotics, framing it as a potential risk for the individual patient. While we showed above how GPs drew on personal experience to justify *non-usage* of antibiotics, here the same strategy was used to justify *usage*. In both cases, professional experience was brought into the interviews, demonstrating the alignment work done to make the potentially conflicting positions remain legitimate. In particular, the norm that the doctor must never miss a severely ill patient is clearly evident, despite the seemingly hegemonic status of being restrictive with antibiotics. The informants repeatedly described how they conducted careful examinations to identify patients who need antibiotics, and thus, when it was medically justified to use the drug. Again, the GPs made a distinction between unjustified, irrational use of antibiotics and rational, medically justified use. Thus, the GPs problematized a restrictive approach to antibiotics and reproduced it at the same time.

GP: But if the patient gets in and I can see that he is a bit pale and very tired, has a higher respiratory rate, coughs through the whole examination, right, I can see that he is almost decrepit, he is really-really bad … I get the impression.

Interviewer: General condition?

GP: I get the impression that one has to consider a serious disease. And of course I check his … like, I examine the patient and if I need to I send him to the laboratory to complete the examination with CRP [a laboratory test indicating inflammation or bacterial infection] and if that is elevated I make the diagnosis and prescribe antibiotics if needed. (Interview 5)

The quote shows, through use of the term 'impression,' how crucial the clinical examination is in identifying patients who need antibiotics. Symptoms such as paleness, coughing and high respiration rate guide the GP towards a diagnosis. Noteworthy, there are several markers of circumspection in the quotes. The patient should be 'almost decrepit' and 'really-really bad' in order to be treated with antibiotics. Such circumspection markers appeared in accounts justifying antibiotic prescription and indicates the use of alignment work. Again, the norm of restrictiveness was produced together with a problematization of that norm. In Berg's (1992, 1997) terms, two potentially rationalities – emphasizing

Figure 1. Clinical examination.
Note: Illustration by Påhl Sundström; reproduced with permission.

different demands and risks – were here prevalent at the same time in the interviews (cf. Goodwin and Mort, 2010; McDonald *et al.*, 2013).

Another strategy for aligning the potentially conflictual policy and patient interests was to encourage patients who had not yet received antibiotics, or who might need a broader type of antibiotic, to get in touch again if they did not get well or got worse (Figure 1).

> *GP*: But in addition to that, much of this has to do with justifying for the parents, why you refrain.
>
> *Interviewer*: Yes, of course.
>
> *GP*: But also that you open the door, that of course if the child gets worse, you have to make that call, or that they get in touch again if it doesn't get better within two-three days.
>
> *Interviewer*: Mmm.
>
> *GP*: But of course if it gets worse. (Interview 13)

The doctor here provided a safeguard through the 'open door,' encouraging the parents to return to the health center if necessary. This strategy enabled a delayed treatment instead of using antibiotics as a precaution. Another doctor described the situation as follows: 'If you are really worried about a patient

who is seriously ill, you might get back on the phone the following day' (Interview 9). Strategies used for keeping doors open for both patient and doctor have previously been described as 'safety netting' (Strandberg *et al.*, 2013). With the help of alignment work, including safety netting, antibiotics can be avoided, (possibly) without jeopardizing the individual patient's safety. Thereby, the risks related to the individual patient and the risk of AMR can be aligned even in cases where they actually might be in opposition, or in other words a doable medical problem is created (Fujimura, 1987; Berg, 1992; Casper and Berg, 1995).

Restrictive Use of Antibiotics Potentially in Tension with Patient Satisfaction

Although one recurring observation is GPs' reporting that patients generally do not expect antibiotics, some interviewees did characterize patients as wanting, or even demanding, antibiotics.

> GP: And then sometimes I think it's hard, when you feel a bit squeezed, that you have … the demands and wishes of the patient and then you know that you should be restrictive, so there is a balance. (Interview 1)

Here, a feeling of being 'squeezed' between the patient's demands and wishes and the policy requirement of being restrictive was expressed. We found only a few accounts of patients explicitly demanding antibiotics: 'some say that, right, "I want to have, I expect to get"' (Interview 6). However, even though these explicit conflicts were rare, and it seems unproblematic to combine patient satisfaction with restrictive prescription of antibiotics, this is not something that happens automatically. Instead, the subtext testifies to the various efforts made.

> GP: I find it quite easy, yes, but it requires a bit of time, you need to sit down and explain a bit. (Interview 25)

> GP: If you … have the ability to describe, to care, to persuade the patient in a good way, then the risk of unnecessary prescribing decreases. (Interview 7)

The efforts made by the GPs involved explaining things to the patient. Naturally, providing information is an important dimension of all medical practice. Interestingly, though, the term 'persuade' was coupled with 'care,' implying that patients do not always know what is in their best interest and need to be firmly guided. Another way to manage potential disagreements is to offer patients something other than antibiotics, e.g. cough medicine or a laboratory test that is not fully medically justified. Simple and relatively cheap laboratory tests have been promoted as tools to reduce the consumption of unnecessary antibiotics, as they make diagnosis exact and thereby facilitate rational use (Laxminarayan *et al.*, 2013). GPs thus used the strategy of compensating for a restrictive approach by offering various alternatives.

To sum up this second half of the analysis, AMR policy and patient interests were sometimes in tension. This occurred when there might be a risk associated with refraining from treating the patient with antibiotics. In relation to this scenario, GPs reported using various forms of safety netting, leaving a door open for the patient to return if the symptoms were to change. Further, the risk was framed as being harmful to the doctor-patient relationship. The patient may want to get treatment for what is diagnosed as a minor or viral infection, where antibiotics are not needed or have no effect. Here, the potential conflict between policy ideals and patient-centered care was handled through information, alternative drugs or tests. In short, GPs performed alignment work using the strategies of safety netting and compensation. In this study, patient interests clearly involved both safety and satisfaction dimensions.

Taken together, the analysis rather unsurprisingly shows that restrictive use of antibiotics was something the interviewees said they supported and followed, and that such an approach was often described as easily harmonized with patient interests. However, the AMR policy imperative of being restrictive was also problematized, particularly because it might put patients with a respiratory tract infection at risk, but also because satisfying patients without prescribing antibiotics requires active measures on the part of GPs. The efforts and strategies used were the results of meticulous alignment work.

Conclusion: Aligning Policy and Patient Interests

AMR policy, particularly promotion of restrictive prescription of antibiotics, is intended to prevent risks not only at the population level, but also in an abstract future for patients to come. As such, it has the potential to produce difficulties in choosing between individual patients receiving care here and now and an abstract, future, population (see Stivers, 2007; Will, 2017; Gröndal, 2018). The study is positioned in a Swedish context where intense, and seemingly successful policy measures have been carried out in order to lower GPs' antibiotic prescription rates.

In the introduction, we posed the questions: 'Do tensions between demands of caring for individual patients and of adhering to policy requirements emerge? If so, how do GPs discursively manage such tensions?' We show that the potentially conflicting logics of on the one hand the population-based medicine with its' focus on the health of the abstract, future population, and on the other, the medical professionalism prioritizing the patient receiving care (McDonald *et al.*, 2013), may harmonize quite well. GPs reported that refraining from prescribing is often in the medical interest of the patient who may accept antibiotics free treatments. Thus, the tensions we expected were not always explicitly articulated. The study, however, confirms that over emphasizing the restrictive use of antibiotics might, in the GPs view, both obscure and produce risks for current patients with

respiratory tract infections. In particular, our analysis of alignment work demonstrates that tensions are lurking around the corner.

GPs' articulate strategies and measures intended to make patients feel satisfied with non-antibiotic treatment and to align the risks of AMR with the risks related to patients receiving health care. We argue that this is a viable way for the GPs to make things work in a practice that is sometimes characterized by ambiguous and even conflicting demands (cf. Berg, 1997; McDonald *et al.*, 2013). Through alignment work, such conflicts can be juggled, and antibiotic prescribing becomes discursively doable. Thus, the concept of alignment work enables us to conceptualize how doctors do not simply prioritize one risk or demand above another in relation to antibiotic prescribing, but manage them simultaneously. Thus, our study adds to previous research (Berg and Mol, 1998; Mol, 2002; Struhkamp *et al.*, 2009; Goodwin and Mort, 2010), by suggesting that alignment work might be a useful analytical tool when analyzing how doability of medical problems is performed.

Our findings show that the GPs' alignment work is not particularly demanding as long as AMR policy does not put specific patients at risk. When demands on restrictive prescribing potentially put the patient receiving care at risk, more effort goes into alignment work. However, even when recalling cases where refraining from antibiotics put patients at risk or when arguing for the need for exceptions to AMR policy, the GPs expressed their loyalty to the policy by presenting themselves as 'restrictive' and 'careful' with prescribing practices. We argue that alignment work does not solely make seemingly conflicting demands and risks coherent and harmonized, but also might leave tensions and ambiguities intact. Through alignment work obvious incoherence and conflict can to some extent be accepted. We find parallels in the studies of Goodwin and Mort (2010) and Will and Weiner (2014), showing that tensions and ambiguities are not always resolved, or treated as a problem, but sometimes accepted by professionals as well as by patients. Thus, we argue that it is problematic to understand our data in terms of clear distinctions between adherence and non-adherence, or between what lies within and outside of policy. Such distinctions appear unhelpful and perhaps even problematic. Drawing on Singleton (1998) and Singleton and Michael (1993), instead we argue that the readiness to leave tensions intact is of importance to the overall success of the policy program promoting restrictiveness in antibiotic use. It creates flexibility and allows GPs to align with AMR policy and the imperative of being restrictive with antibiotics, while still keeping the professional autonomy in managing the risks that may threaten individual patients.

Accordingly, through alignment work, the norms of being restrictive with antibiotics and of never failing to identify a severely ill patient can coexist and be reproduced simultaneously. While previous research (Butler *et al.*, 1998; Broom *et al.*, 2014) states that doctors tend to prioritize AMR in theory but

not in practice, our argument is different. We do not consider alignment work to be a tool for GPs to cover up for prioritizing their own patients over the health of a general population. Instead, since alignment work makes it possible to leave tensions intact, there is no need for after rationalization. We argue that, through alignment work, the GPs can comply with AMR policy, while reflecting on conflicts between policy and patient interests, and even criticize, and make exceptions from, the same policy. This way, the restrictive approach to antibiotics seems to be justified not only by the ways in which patient and policy interests may be harmonized, but also by the strategies used to make space for maneuvering. This finding is of importance to further research at a time when policy is being promoted as a principal tool in preventing AMR by reducing unnecessary use of antibiotics. We argue that these kinds of policy processes cannot solely be interpreted in terms of adherence or non-adherence. Lapses from AMR policy do not undermine it, but can instead be crucial to making the policy work in the context of everyday medical practice and, as such, be crucial to the success of the policy.

Notes

1. Currently, use of antibiotics in Sweden is among the lowest in Europe, and the AMR rate is similarly low (European Centre for Disease Control, 2016; The Public Health Agency of Sweden and National Veterinary Institute, 2017).
2. Prescribing pharmaceuticals in general, and antibiotics in particular, is also a matter of the pharmaceutical industry's economic interests. In turn, these are related to the regulations of this industry (see for example Mulinari 2016). For a historical analysis of the Norwegian drug regulation, which has parallels to the Swedish case: Hobæk and Lie (2019). This aspect of antibiotic prescribing is however not further examined in the current article.
3. The study, entitled 'What influences general practitioners when prescribing antibiotics?,' was funded by the Swedish Public Health Agency. While the focus of the overall study was on differences between high/low prescribing health centers, this comparative approach is not the focus of the current article. In an international perspective, all Swedish health centers have a low prescription rate (see The Public Health Agency of Sweden and National Veterinary Institute, 2017)
4. Three of the interviewers were medical researchers and two were social scientists, including the first author of the present article. The interviews were audio-recorded and transcribed verbatim.

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Notes on Contributors

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