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Layering risk work amidst an emerging crisis: an ethnographic study on the governance of the COVID-19 pandemic in a university hospital in the Netherlands

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The start of the COVID-19 pandemic early 2020 has confronted healthcare sectors with risks and uncertainties on an unprecedented scale in recent history. Healthcare organisations faced acute problems, the answers to which had to be provided, and recalibrated, at short notice and informally. University hospitals played a pivotal role in providing these answers and in (re)calibrating institutional arrangements. Based on ethnographic research in an elite university hospital in the Netherlands, in this article we explore the concrete practices of governing risks and uncertainties that COVID-19 posed for the organisation of healthcare. Our fieldwork consisted of the observation of meetings at the level of the hospital boards, the staff, and the regional level. We collected relevant documents and interviewed key-actors. This approach offers us a large dataset on acute risk governance 'from within' and allows us to offer a layered ethnographic account of managerial practices. In our analysis we focus on conceptualising the work-as-done in the university hospital as risk work. We show how the risk work of our participants is generally characterised by high speed and delineated by scarcities. We differentiate between three modes of risk work: working on numbers, working on expertise and working on logistics. This risk work appears innovative, but our analysis stresses how participants' work happened in interaction with traditional institutional logics and routines.

Keywords: SARS-CoV-2; COVID-19; risk work; risk governance; institutional layering; healthcare; organisational ethnography

Introduction

The new SARS-CoV-2 virus was firmly established in the Netherlands in early March 2020. Despite early warnings, for instance, from northern Italy, the course and speed of the pandemic triggered an acute crisis when COVID-19 patients requiring intensive care almost overwhelmed the Dutch healthcare system at the end of March. Hospitals, and in particular university hospitals, were playing a pivotal regional and national role in helping to abate the risks of this first wave of COVID-19, as well as in preparing for subsequent 'waves' as they came to be known. Next to hastily creating the infrastructures, for instance, building on existing regional networks, and preparing

personnel to deal with COVID-19, experts working in these hospitals, such as intensivists and micro-biologists were explicitly put frontstage by government officials and national media to help guide national crisis-management. Understanding exactly what happened in these university hospitals during these critical weeks of the emergent COVID-19 crisis is therefore an insightful case study in risk governance amid a large crisis.

In doing so we aim to contribute to the budding corpus of social science research aiming to understand the broader causes and effects of the COVID-19 pandemic, for instance, from a healthcare governance perspective (Bal et al., 2020), cultural anthropology of risk ritual and (institutional) magic (Brown, 2020) or to draw practical lessons for managing the pandemic (Forman et al., 2020). Tentative research is describing key-drivers of the spread of COVID-19, for instance, identifying the importance of the capacity of the health-sector (A. Collins et al., 2020) or the drawbacks of an overreliance on 'just in time' and 'lean' approaches to healthcare delivery leaving little redundancies in the system (Bryce et al., 2020). Whereas these early reflections are valuable, the crisis is far from over and empirical research will need time (Will, 2020). Social distancing measures are projected to last as far as 2022 (Kissler et al., 2020), and now the 'monstrous threat' and state of exception are being moulded and twisted into a 'new normal', while secondary risks of the pandemic, such as the postponing of routine care, and the neglect of vulnerable groups such as those in nursing home care have become more visible (Zinn, 2020).

Until now we have, understandably, seen comparatively little in-depth empirical research studying the risk management of the COVID-19 crisis. Instead of exploring the broader systemic factors contributing to the COVID-19 crisis, in this paper we aim to understand concretely what happened during the emergence of the crisis in the Netherlands by zooming-in on the board of one elite university hospital in the Netherlands. We explore the practices of the governance of the risks and uncertainties COVID-19 posed 'from within' this hospital and aim to provide an ethnographic account of managerial practice (Bal et al., 2020). This perspective allows us a necessary close-up perspective on the 'work-as-done' instead of its imaginaries (Braithwaite et al., 2020), i.e. on the 'rapid switching between cognition and action' (Kornberger et al., 2019, p. 239) that decision-making under the pressure of crisis such as a looming pandemic is said to emerge from (cf. Ansell & Boin, 2019).

Risk work and incremental change

We conceptualise the work-as-done in the university hospital as 'risk work' (Horlick-Jones, 2005). What types of risk work can be seen in an acute (health) crisis? We follow the more critical and interpretive risk research perspective offered by Heyman (2010) and others to conceptualise risk as not just about calculating likelihoods of hazards occurring, but rather as a way to consider relations between actors and objects, and the (e)valuation of these relations (Boholm & Corvellec, 2011). We are for instance, interested in, as Brown (2020, p. 6) mentions, the different realties and relations that are 'bracketed off' if and when specific risks and their relations are made more legitimate than others.

'Risk work' has been defined as 'situationally-specific risk-related practices' (Horlick-Jones, 2005), or rather 'working practices framed by concepts of risk' (Gale et al., 2016, pp. 1046–1047). Its conception is part of a broader 'turn to work' (Phillips & Lawrence, 2012) in organisation and management theory and the sociology of

professional work and – as a concept – predominantly aimed at professionals and 'front-line' workers – such as police officers – as the ones doing the work (Brown & Gale, 2018). It is closely bound to the idea of 'uncertainty work' as developed in the sociology of diagnosis (Hautamäki, 2018; Moreira et al., 2009; Pickersgill, 2011). Risk work has been appropriated differently; it can be about the translation of risk into different contexts, about minimising risk in practice or about caring in the context of risk (Gale et al., 2016). Another categorisation of risk work delineates interpretative, regulative-normative, techno-scientific and political risk work (Labelle & Rouleau, 2016); in this paper, we focus not only on 'interpretative risk-work', i.e. efforts based on the lived experience of actors to affect the way (safety) risks are managed' (Labelle & Rouleau, 2016, p. 224), but also highlight 'regulative-normative' risk work (e.g. 'tinkering with guidelines'); techno-scientific risk work (e.g. 'translating tools'); and 'political risk work' (e.g. negotiating risk ownership) (Labelle & Rouleau, 2016). That is, we understand risk work as a relational practice, in which both risk-objects, objects-at-risk and social relations are constructed and in which (social) technologies are developed and used that perform these relations (Boholm & Corvellec, 2011).

One of the key insights offered through using risk work is a focus on the agency actors deploy to coordinate and categorise risk and its relations in seemingly stable forms (Brown & Gale, 2018). Next to our emphasis on risk work to grasp the practice of doing COVID-19 risk governance, we want to emphasise in this paper the need to understand these practices as involving a gradual, incremental process of change. Such process, on the macro-institutional level, has been described as 'institutional layering' (Bovenkamp et al., 2017; Van der Heijden, 2011). Institutional layering is generally used to grasp institutional change on a macro-level as the layering of complex institutional arrangements and the interactions between these layers. We make use of 'risk work' as a sensitising concept in order to focus on the crisis-organisation that emerged in interaction with existing practices in Dutch healthcare. Doing so, we attend to the interactions between the macro-level of institutional layers and the meso-level of 'work' about which existing literature is scarce (Bovenkamp et al., 2017). Crisis decision-making and the creation of risk governance structures under duress of the emerging crisis, we argue, occur in rather sediment-like manifestations. New institutional arrangements are building upon existing arrangements of instruments, actors and logics. Doing risk work during an emerging crisis, then, also involves an 'institutional layering' in the sense that institutional arrangements seemingly invented out of the blue to deal with the crisis are layered upon existing institutionalised ways of working. In the process, older layers might become exposed as the crisis reinforces or breaks-down existing risk-related practices.

In these senses, we are interested in a) what different modes of risk work emerge in an acute health crisis? And b) how are our participants doing the incremental institutional 'layering' of the risk governance of the COVID-19 crisis as it emerged? We take as our case the crisis-management of an elite university hospital during the emerging COVID-19 crisis in the Netherlands.

Methods

Our questions on risk work and layering emerged as we engaged in an organisational ethnography focused on the management of an elite university hospital in the Netherlands during the first days and weeks of the COVID-19 crisis. We took this hospital as our site because it was developing a leading role at the regional and

national level in the management of the COVID-19 crisis in the Netherlands. The crisis has, in the Dutch context, generally been framed as requiring a rather strong centralisation at the national level, using consensus-based decision-making with experts and professional organisations in health care (Wallenburg et al., 2020). This centralisation process goes against the grain of a regionalisation effort and the regulated competition between healthcare providers introduced into the Dutch health-care system earlier this century (Jeurissen & Ginneken, 2019). In this context, Dutch university hospitals, because of their regional 'hub' function in acute care delivery, have become even more relevant actors and organisations in managing the COVID-19 crisis.

Our ethnographic fieldwork on this particular site, starting on 5 March 2020 – just before the first COVID-19 death was reported in the Netherlands – consisted of non-participatory observations of (crisis) meetings at the level of the hospital board, the staff, and the regional level, carried out by two researchers, the first and second authors, who alternated their presence in the hospital on a daily basis. In these meetings we closely observed the interactions between members of the board of directors, hospital staff, crisis-managers and support staff (210 hours of observation), resulting in written field-notes (520 pages). We also collected relevant documents, such as policy briefs for the meetings, protocols, guidelines, minutes of meetings, and we interviewed participants in these meetings (N = 29) in semi-structured interviews starting when the initial crisis was averted by the end of April 2020.

None of the participants invited for an interview declined, and topics addressed in the interviews involved respondents' professional experience of the pandemic, of the crisis-organisation in the hospital, and broader themes, such as their experiences with emotions and conflict during the crisis management. Topics were amended to suit the individual respondents and verbatim transcripts were made of each interview. For the analysis presented in this paper, we primarily built on our ethnographic fieldnotes, with the interview-data serving as contextualisation of our observations. We commenced with our fieldwork immediately after having received permission of the Board of Directors. Informed consent for observing meetings was derived always explicitly through the Board. Consent for interviews was obtained in writing from the respondents, and with our data being difficult to anonymise, quotes were approved by respondents before publication. Our research has been approved by our institutional ethical review board (reference IRB2020-08 Bal WMO, 25/03/20).

We have analysed data abductively (Tavory & Timmermans, 2014), making several rounds of iterations between our data and the theoretical concepts that could be used for understanding what we found. We adjusted data collection to the theoretical concepts we found useful (for example, by adding topics to interview guides). We organised three meetings in which we reflected on preliminary findings with key-participants. In any given case, an organisational ethnography requires careful considerations of being close but not too close (for risk of 'going native'), and being distant in order to analyse material, but not too distant as to be unable to join the participants' insider perspective. COVID-19 provided an extra dimension to such considerations; we experienced the physical distance growing between us and our participants as a consequence of spatial distancing measures. As such, we were also engaged in constant risk work ourselves, weighing the value of in-depth fieldwork to the potential dangers of contaminating ourselves and others, at one point also (negatively) being tested for COVID-19. Being in the hospital for an extended period of time, during an exceptional moment in time,

however also allowed us to get an intimate understanding of the people and processes involved.

Findings

Our analysis of the COVID-19 risk management practices in the hospital focused on the high-speed through which actors are engaged in the incremental 'layering' of acute care, as new crisis-arrangements built upon and remodelled existing governance structures. Generally, we analyse this risk work as a layered exercise limited by scarcities. In our analysis, we delineate three main modes of risk work. First, we find risk work in the high amount of care our participants had for specific numbers, almost game-like (Wallenburg & Bal, 2019), while neglecting other numbers and calculations. Second, we identify risk work in the valuation of expert-knowledge and evidence through which to consider protocols and guidelines. Third, and finally, we discuss risk work in the practice of the logistics of the COVID-19 crisis in and around the hospital; relational work in order to arrange patient-flows and to assure the validity of logistical data. We will now discuss each of these modes of risk work using vignettes taken from our fieldnotes.

Working on numbers

During the weeks of our fieldwork, our focus was on crisis meetings happening throughout the day in the hospital. At the height of the crisis in March and April, these meetings occurred daily, becoming less frequent with the first wave of infections coming to an end about 12 weeks after the Dutch 'intelligent lockdown' was initiated on 15 March[th] (LNAZ, 2020). A typical meeting began in the following manner:

> The early-morning crisis meeting starts right on time. The intensivist arrives just a little too late, the micro-biologist still has a cold and is present by phone only. The director of emergency care discusses the current situation at the intensice care unit (ICU) matter-of-factly: the first COVID-19 patient died last night. Eighteen patients are COVID positive, 1 is suspected to be positive. The emergency room is calm, the [external triage unit] outside of the hospital is coming a day early. The clinic is calm as well: 16 patients are proven COVID positive, 21 highly suspect. In total 40 beds are in use, 18 are empty because of Corona. The clinic is busy preparing, the staff are optimistic, the director tells us, but also concerned, for ICU workers things are becoming tense; sometimes working on a new ward, with new colleagues and equipment, searching for what to do and how to do it. The walk-in clinic is mostly done by phone.

> [. . .]

> The director of emergency care continues: the important point is personnel; 76 IC beds means that the regular operating room (OR) programme is shut down, but they do have focus on everyone who can help at the ICU. The intensive care specialist walks to the flipchart at the front of the room without being asked in order to explain the situation at the ICU. Quickly he sketches the 4th floor [where the ICU is located], 4 sections: A, B, D, C, each on the outside. D and C are already in use for COVID-19 patients, A is filling today. If B also fills, the non-COVID-19 care moves to the 6th floor. Filling section B is the "tipping point", the moment at which the OR programme must be shut down. He explains that the aim is now to have 100 IC beds available on by 27 March, but there is still only staff for about 76 beds (Excerpt 1, from fieldnotes 24 March, 2020).

The meetings of the crisis team in the early morning (see Excerpt 1) were important meetings because here all the crisis governance of the whole hospital came together, and the executive decisions were being made. As the meetings developed into crucial sessions through which the risk governance structure of the hospital was executed, we were struck by what we identified as the first mode of risk work we have encountered: working on numbers. Counting the (lack of) available IC-beds was the very first thing participants in these crisis meetings did in response to the dashboard-like situation report provided to them detailing even more numbers to be worked with and discussed – ranging from stock-levels of PPE to outflow of recovered COVID-19 patients to long-term care facilities for revalidation.

The situation report provided to the participants often required extra work and explanation, as Excerpt 1 shows. Despite the immense preparatory efforts of people in the background, participants always had more up-to-date numbers to share verbally, and a number only gains significance in a concrete context: to have 76 IC-beds available for COVID-19 care feels like a high number when this means that regular non-COVID-19 care is no longer possible. Such contexts had to be provided by participants getting up from their seats, explaining busy sheets filled with tables or sketching floor lay-outs or scenario's on flip-charts, as displayed in (Figure 1).

Working on numbers was generally about tallying beds meant for intensive care. We consider this risk work, as this involved an effort to make the crisis-situation manageable
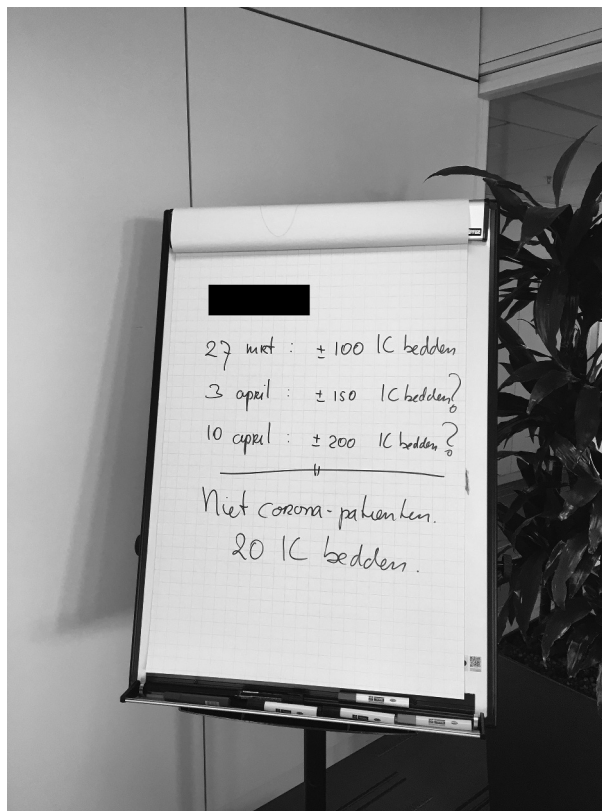

Figure 1.   Flip-chart on March 23rd, 2020 estimating IC-beds available in the hospital at different dates(picture by first author)

such that the organisation of care, and thus care itself, could continue. To count beds was not obvious, but rather a short-hand for the much broader social-technical process required to make intensive care function as participants conceive it should; a 'bed' is about the matrass and the frame of the bed itself, but also about equipment (ventilators), proper space (isolation, a door with a window or not), medication (sedatives, oxygen), available personnel, with the right training and state of mind, and so on. Counting 'a bed' as such is only in part the adding-up of available physical materials, as it is also about the effort of judging the 'social' capacity and possibilities of a healthcare organisation facing an acute crisis.

The affordance of such numbering work exactly lies in offering focus and perspective on the crucial organisational elements for this specific crisis, such as ICU-beds, PPE supplies and trained personnel. This work, however, also created particular inequalities simply because of its focus, frequency and speed; other risk-issues and uncertainties were mostly out of sight in these crisis meetings, such as the financial risks for the organisation, and differences between the cure and (long-term, elderly) care in the Netherlands. Counting beds was therefore illustrative of the risk governance that emerged on top of the existing organisational structure and hierarchies in the hospital. It made use of, and cut through, existing informal relations in the hospital, mainly enabling doctors to be in the lead. Whereas most of our participants very much appreciated the efficiency of this structure – our participants were working at high speed, for long hours, in a situation with high trust, and high uncertainty – this did not work without losing sight of, for instance, regular accountability practices, non-COVID care, or the patients' perspective.

Over time, counting the number of COVID-patients on IC-beds became a national level effort, led by national media reporting these numbers prominently each day. The exact number of 'beds' the Netherlands has available, and needs to have available, has been rather hotly debated but has never been really clear. The initial amount of 1150 IC-beds in the Netherlands, and the 2400 IC-bed goal to which the government aspired, were mostly an educated guess by one of our participants as these beds were never formally counted in the first place, and, definitions of 'a bed' can vary between who is doing the counting. This shows part of the layering of this risk work: the crucial number of 2400 IC-beds was layered upon earlier efforts of counting beds (the 'guestimate' of 1150 which was then rounded off and doubled). Moreover, counting was a social convention practiced often in healthcare, such as personnel, norms on quality of care delivery in the ICU's – and our participants were well-versed in (the resisting of) counting (cf. Wallenburg et al., 2019). We will return to this later when we discuss strategies of transferring patients across regions.

Working on professional expertise

Next to the crisis meetings, we observed meetings of the hospitals' interdisciplinary COVID-19 Outbreak Management Team (OMT) meetings. The Unit for Infection Prevention (UNIP) chaired these meetings in which representatives from many disciplines had a seat. The following fieldnote illustrated a typical discussion in these meetings:

> The Outbreak Management Team (OMT)'s next point on the agenda is to discuss a guideline developed by a professional association to implement a CT-scan before surgeries to exclude SARS-CoV-2 infections, even when patients are a-symptomatic. Employees want this test, they feel unsafe, but it goes against prevailing hospital policy of only testing patients who

show symptoms. Moreover, implementing this measure would require an overhaul of all infection prevention measures, such as use of personal protection equipment. The clinical micro-biologist leading the OMT meeting introduces the issue and stresses: 'we are not simply adopting guidelines in this hospital. We discuss them, we make our own decision.' [...] The paediatrician points out that there is no clear evidence at this point, we only have expert opinion, and this indicates that patients might also be contagious without symptoms. The emergency care physician is visibly struggling with this issue, he wonders: then how to evaluate such guidelines? Without evidence, he says only feelings and emotions remain. The micro-biologist repeats her broader perspective and the paediatrician supports her by asking: where would you stop when we implement this guideline? Patients could still be in the incubation period upon arrival, or develop COVID-19 after the CT-scan, or patients could contract it in the hospital – we cannot completely rule that out ... Some excitement and tension now manifest itself in the meeting. Surgeons will not operate if you do not implement this policy, the pulmonologist says wearily. The micro-biologist counters firmly: as OMT we cannot just follow other's work. And, we have to accept a certain measure of risk; we also accept MSRA [antibiotic resistant 'super-bugs'], we cannot exclude risks up till 99,9%, and we have to consider the whole process of care in the hospital – not just the moment of intake (Excerpt 2, from fieldnotes April 3rd, 2020).

The UNIP was led by prominent clinical micro-biologists and had a small staff who (re) wrote protocols and guidelines, communicated and taught staff, as well as making rounds to see if guidelines were working in the clinics. The OMT meetings were the main vehicle through which the UNIP entered a dialogue with broader staff about infection prevention measures and, most prominently, when and how to use exactly which PPE. For proper infection prevention details mattered. Excerpt 2 shows a telling detail from a meeting in which one group of professionals (surgeons) felt unsafe and through their national professional association attempted to change infection prevention protocols. UNIP was not in favour of the proposed plan, as it challenged one of the core-assumptions of their policies and would accept the risk of asymptomatic COVID-19 patients. The excerpt above shows how the micro-biologists worked to maintain a dialogue as the success of infection prevention measures hinged upon the cooperation of staff to fully comply.

It was in these OMT meetings that we identified a second mode of risk work; the working on expertise, that is, the valuation of professional experts' (tacit) knowledge and evidence-based protocols and guidelines. 'We make our own decision', as the micro-biologists stated in Excerpt 2, but lacking concrete empirical evidence – for instance, on how contagious asymptomatic COVID-19 patients were – other OMT members struggled to come to these decisions. The main risks this risk work dealt with was the probabilities hospital staff faced to becoming infected while delivering care and, in turn, infecting other staff and patients. But that had to be weighed against another risk – that of running out of PPE. The UNIP was continuously involved in judging (levels of) risk of exposure to SARS-CoV-2 in all kinds of situations and practices in the hospital at large; from the work of the cleaning-staff to the routing of the hallways of the offices of the Board of Directors. Often, this risk work involved not so much the objective calculation of risk but rather dealing with the experiences of risk by hospital staff through, for instance, noting the risks already taken in everyday practices in the hospital, as the micro-biologist did in Excerpt 2. UNIP was mitigating fears and unrest, channelling feelings of being at-risk by explaining the necessity of isolation measures, or, conversely, convincing staff that lower levels of PPE would also suffice. The UNIP was rather understaffed for a crisis of this magnitude, yet worked hard to communicate complex infection prevention information while their struggles grew over time. An important

issue for example, was the issue of whether to allow visitors into the hospital; how would you balance risks of infection for staff, scarce PPE without which care would halt, and the appreciation of family in need of visiting their (dying) relatives?

The work on expertise was most concretely apparent in the writing and rewriting (Callon, 2002) of protocols and numerous flow-charts to educate and help hospital staff to properly do infection prevention. This writing and rewriting process was not necessarily grounded in empirical evidence but rather in the expertise of micro-biologists and their peers in professional networks. With research on the virus and disease developing rapidly, this expertise involved, for example, the ability to navigate the deluge of COVID-19 research – often already available without peer-review providing a first correction. This was collective work in that it entailed many discussions within the UNIP, with other departments like the virologists, and with microbiologists from other university centres (and internationally). App groups and (evening) video meetings were important channels of information and coordination as more formal means of communication were too slow. This work also sometimes involved doing studies, for example, to analyse if and which PPE would be reusable, or to determine which operations posed a higher risk to perform through the release of areosols, and thus would need a higher quality of PPE. The experts' tacit knowledge acquired in practice and their (re)acquired status to make such knowledge count was very important given the uncertainties involved. This was not always an easy task since these experts – often for the very first time in their career – had to work under the very unusual condition of PPE being scarce, limiting infection prevention in a very material and emotionally challenging way. While rationing various forms of treatment is part of everyday clinical decision-making in many contexts, managing the scarcity of the basic equipment required to keep colleagues safe was unusual in the Dutch healthcare system.

Similar to the counting of IC-beds, the valuation of expertise was not limited to our research site and appears a national-level phenomenon. In various press conferences and other public briefings, the Dutch prime-minister Mark Rutte often made very explicit that the crisis measures which were implemented were based on expert-understanding of the situation at the time, in particular from the microbiologists, virologists and epidemiologists gathered in the Dutch national OMT – offering a very distinctive kind of expertise and leaving out for example, social scientific expertise. Expertise normally reserved to a formal background was moved frontstage rather prominently.

One of the professional associations that made a consistent move to gain status has been that of the Dutch association of intensive care specialists (NVIC) – in line with the focus on IC-beds and aided by a charismatic president of the association. Interestingly, a national level effort was lacking on the level of infection prevention as a previously existing working group (*Werkgroep Infectie Preventie*) coordinating guidelines and protocols had been defunded in recent years. This had made the work of the UNIP in the hospital more challenging as it was confronted with the efforts of individual professional associations, each developing their own guidelines for their respective medical profession. As Excerpt 2 shows, one of those challenges was that these efforts made the creation of a shared understanding of 'proper' infection prevention within the hospital at large more complex.

In sum, the second mode of risk work we identified involved working on expertise, that is the valuation of expertise and evidence in judging specific risks. This work happened under the condition of uncertainty, in the context of scarcity, and – crucially – involved translating such judgements to the broader audience of the hospital staff. This

kind of risk work was layered in that this work did not primarily build on universalistic evidence-based and standardised approaches to healthcare, but rather on specific professional expertise, such as tacit knowledge, contextualised in specific places and moments in time. With the evidence-based medicine movement challenging such expertise, this evaluation of expertise thus moved against the grain of this institutionalised 'layer'. Moreover, specific voices, such as the patient and the nurse, were notably absent from the OMT meetings we observed. However, our participants still worked hard to (re)create protocols and guidelines that served as devices mediating experiences and emerging evidence of risks across different situations and processes of care in- and outside of the hospital.

Working on logistics

To introduce the third mode of risk work we identify, we first again turn to an early morning crisis-meeting in the elite hosptial:

> The crisis meeting continues, and participants discuss the national coordination of care for patients with COVID-19 who require intensive care. German hospitals are offering help, as Dutch ICU's are still full, despite the worst scenario seemingly having been averted. One participant stresses that several intensivists are completely against the transfers to Germany, which has to do with pride and honour, he paraphrases; 'we can do this, we have 2400 beds . . . ' The head of internal medicine asks if the crisis team agrees to release 0 beds to the LCPS [Landelijk Centrum voor Patienten Spreiding – the national centre for distributing patients], using 2twnty4 [the electronic system used by the LPCS] in order to avoid even more patients from Brabant [an adjacent region hit hard with COVID-19]. Is that allowed? No-one really gives an answer, instead the conversation moves to, again, IC-beds. The director of emergency care is asked about plans for downscaling the ICU's, are we moving down from 114 or from 100? The director answers that the necessary part of the building is not yet scheduled-in, the last 9 beds prove difficult to organize. The board member stresses that it is not yet time to discuss less IC-beds, the numbers might appear stable on a national level, but we can only scale-down our efforts when the numbers are in clear decline. The other board member wonders, ok, but still; what number of beds are we calculating with now? What is normal? (Excerpt 3, from fieldnotes 10 April 2020).

The university hospital we took as our site of fieldwork has a key function in a regional network for acute care delivery (ROAZ: *Regionaal Overleg Acute Zorgketen*) and the bureau supporting this network was in the trauma-centre at the hospital. During our fieldwork, we followed the developments within the network from the perspective of the university hospital. Although hospitals, because of their function in the network, appeared to be dominant in these networks, other actors, such as general practitioners and ambulance services, were also involved. The Netherlands has eleven of these regional networks for acute care, organised together at the national level in the LNAZ (*Landelijk Netwerk Acute Zorg*). In previous years, much effort had been undertaken to strengthen relations in the region of our hospital, amongst others by a large-scale training-exercise involving, co-incidentally, a large outbreak of an influenza-like virus. Next to offering practical lessons, participants mentioned that such exercises had strengthened (personal) relations and trust between the actors in the region. With the emerging COVID-19 pandemic the regional ROAZ network was mobilised, and the staff of the ROAZ-bureau got extremely busy with, amongst other, (re)distributing the available PPE amongst members. The focus in the network remained at the hospitals, the hospitals for instance, receiving a larger proportion of the available PPE, leaving other

care sectors, such as the nursing homes, relatively underserved. Staff worked round the clock to mobilise the network, gather data and coordinate acute care delivery.

The third mode of risk work we have delineated was about this coordination work on the regional and, later on, the supra-regional level, regarding the logistical effort to distribute patients across the Netherlands and into Germany in order to manage, and avoid, the risk of overwhelmed ICU's and hospital staff having to triage because of scarcity in available care. Different from counting beds, the logistical work lies not so much in tallying occupancy but rather in the relational management necessary to achieve cooperation between regional networks and individual hospitals. The risk here was not framed at the level of the individual hospital, but rather at the system-level; the Dutch healthcare system was at imminent risk.

As Excerpt 3 shows, this coordination of care did not always work well; pride and honour, just as the system of 'regulated competition' between care-providers in the Dutch system complicated cooperation between healthcare providers, particularly when production was at stake. Hospitals in the region were neither always eager to share their data nor keen to scale-down their regular non-COVID-19 care delivery:

> From the start we already thought about the post-COVID situation. We cannot become a COVID hospital and must continue to work on our patient portfolio. (…) Some hospitals in the region want more specialized care. They won't do the heart transplants, but there is a gray area (…). If they take over now, we won't get it back (Staff member university hospital).

To try and overcome concerns about competition and future loss of production, logistical work required a persistent and personal-level approach by ROAZ-bureau staff. Although the regional network we studied has functioned rather well according to our participants, in March the pace of the pandemic in south-western parts of the Netherlands necessitated coordination of acute care on the national level as ICU's in these regions were no longer able to manage the number of patients with COVID-19. In record-time different national-level agencies were set up to deal with the distribution of patients, appliances (ventilators) or medicine. At the regional level, we observed that such national level actions often frustrated existing solutions and workarounds already in place, most prominently the (re)distribution of PPE and patients.

The most prominent of these national level agencies was the centre responsible for the distribution of patients, the LCPS. The key-effort of the new staff at this centre was the near constant negotiations with regions and hospitals to provide the necessary data and care to make distribution possible. National coordination thus required local reasoning, for one because 'releasing a bed to the LCPS' (see Excerpt 3) meant one IC-bed less available for either regular care or a patient with COVID-19 who suddenly deteriorated. This was also the reasoning behind the question in Excerpt 3 to 'release 0 beds'; with the intention to communicate that they were declining to release any beds to the national centre – that was to say that the hospital had no available capacity to receive additional patients from other regions. The uncertainties surrounding this relational work was probably the reason why the question remains unanswered.

The LCPS emerged in a very short amount of time, making use of empty classrooms in the university hospital we were in, in close cooperation between the LNAZ, the Ministry of Health and the Dutch defence forces. In a similarly military-fashion, the LCPS was organised, making 'working on logistics' over time a rather hierarchical and top-down affair in working against local reasoning. At the peak of the first wave,

between 21 March and 10 April 2020, the LCPS transferred about 770 patients (LNAZ, 2020, p. 81). To enable this effort, patients quite simply became packaged up to be moved. Valid data were pivotal in making this a success. The LNAZ mandated all regions to cooperate using the same software to (automatically) submit and retrieve data (2twnty4 as mentioned in Excerpt 3), but this did not work well. Not all hospitals appeared to have been willing to relinquish such levels of control to the LCPS, partly because other registrations were already in use, but also because the top-down approach cut through existing informal relations between medical specialists through which such transfers of patients had been coordinated until then. Such informal logistical work continued to happen as well, with hospitals not reporting or reporting less empty beds but negotiating within their region for distribution. The top down approach of the LCPS was thus never completely reached and informal contacts continued to play an important role.

Following the first wave of patients, the LCPS shut down operations during the summer. A plan was proposed to institutionalise the LCPS and to have more IC-capacity structurally available to prepare for the expected second wave of COVID-19 patients. Doing this logistical work, the relational work of distributing patients to manage a health-system level risk, also appeared to be layered. We have explored how different levels of decision-making (boards, region, national actors) interacted, how the LCPS was built upon (and sometimes cut across) existing regional care networks and on existing practices of informal interactions between medical specialists to transfer patients from one hospital to the other. At the same time, this level of coordination of care and cooperation was hampered by the market-logic of the Dutch healthcare system, which has as its basis the competition between service providers and which seems to reduce willingness of hospitals to be fully transparent about their capacity.

Discussion

In this paper we have offered an account of risk work in times of an emergent crisis in health care. Whilst there remain many unknowns about COVID-19, the work we encountered during our fieldwork in Spring 2020 was most challenging for our participants because of scarcity of personnel and (protective) equipment, putting healthcare professionals and their patients at risk of having to lower quality standards, and possibly having to deny patients access to emergency intensive care. This scenario fortunately did not happen in the Netherlands as it has elsewhere. In part, this happened because many severely ill elderly COVID-19 patients in the Netherlands appear to not have been sent to the ICU in the first place, instead opting for other end-of-life arrangements (RVS, 2020). However, this is certainly also due to the efforts healthcare professionals, managers and directors made to make healthcare *work* during these exceptional times.

We have examined here a slice of these practices, focusing on risk work in one Dutch elite university hospital. Having had unique access to such practices during moments of intense crisis, we have delineated three modes that all involved caring work, the translation of risk into different contexts and work to minimise risk in practice (Gale et al., 2016). First, we have illuminated risk work as working on numbers, for example, related to the counting of IC-beds; the reductionist but constant effort of tallying beds to make a broader social-technical process of intensive care delivery transparent and manageable. Such transparency was sought in order to manage the broader organisational risk to the ICU, and the hospital at large, becoming overwhelmed with patients suffering from

COVID-19. Our participants showed much care for these numbers (Wallenburg & Bal, 2019). Second, we discussed the risk work of infection prevention experts who judged and translated risks to the hospital staff. With limited empirical evidence available, we found a valuation of the (networked) knowledge of these experts who were tirelessly writing and rewriting protocols and guidelines that mediated risk judgements between different contexts (Callon, 2002). Third, we highlighted participants' work on logistics, i.e. the relational work needed for the distribution of patients across the Netherlands. To minimise risks for the Dutch healthcare system as a whole; local, regional and national actors were, reluctantly, being tied together in a top-down effort.

To use risk work as a heuristic, that is as sensitising concept, in our ethnographic approach offered us many analytical insights into what Labelle and Rouleau (2016) conceptualised as the 'interpretive' risk work of our participants, the work to affect risk management based on the 'lived experiences of actors' (idem, p. 224). Although Labelle & Rouleau attribute such interpretive work mainly to patients – who are notably absent in our fieldwork – this risk work highlights the 'situationally-specific' (Horlick-Jones, 2005) and collective interpretive work of our participants. Limited by the scarcities most of our participants had not encountered before and limited by the many unknowns and uncertainties on COVID-19, hospital board and staff-members worked hard – together – to interpret the situation as one of being 'at-risk'. The risk-object, COVID-19, proved elusive, akin to a 'fire object' as it appears to generate fear and anxiety because of its invisibility, its possible presence transforming the university hospital building, staff and patients into indeterminate dangers (Shrum et al., 2020). However, our participant's risk work produced several objects-at-risk (Boholm & Corvellec, 2011); the organisation at-risk of lacking capacity to treat all, staff at-risk of being infected and being infectious and, lastly, the entire Dutch healthcare-system at-risk.

In line with broader Dutch COVID-19 crisis-management at the time of our field-work these objects, taken together, focus on the (university) hospital setting, in particular the ICU. Our participants' risk work missed, for instance, the effects on care for 'non-COVID' patients and the situation in Dutch nursing homes that both proved critical when the dust of the first wave of COVID-19 patients settled in the Netherlands. That is, risk work was (necessarily) reductive in that it included some issues at the expense of others. This risk work also shows work that relates to Labelle & Rouleau's further categorisations such as the tinkering with guidelines for infection prevention (regulative-normative risk work), the translation of tools for crisis-management, such as the use of dashboards (techno-scientific risk work) or the negotiations of risk ownership in the distribution of patients (political risk work).

The interpretive risk work of our participants happened, we argue, in interaction with specific institutional layers that highlight commonalities in the three modes of risk work we have distinguished. We found the work of our participants to be rather goal-oriented and hierarchal. This is perhaps common in an acute crisis, but with the COVID-19 pandemic lasting for a long time this appears also part of a move back from normative ideas about multi-actor and distributed risk governance to government and professionals as the central actors (van Asselt & Renn, 2011), and the re-appreciation of 'those who know what they are talking about' (H Collins et al., 2010, p. 195). Specific kinds of professional expertise (micro-biology, virology, epidemiology) shaped the issue(s) at hand and trumped available evidence, or the patients' perspective, in the mediation of risk in hospital-wide and national level protocols, guidelines and policy-measures – an emphasis which has already been criticised in Dutch public debate. The risk work of our

participants thus appeared to prioritise existing institutional logics (van der Heijden, 2011).

Earlier, van de Bovenkamp, Stoopendaal & Bal (2016) identified the market, state and hierarchy, civil society and the professional community as being relevant institutional layers sedimented in the Dutch healthcare system. The institutional arrangements created to deal with COVID-19, such as the process of distributing patients, might instil institutional logics emerging from (the crisis-organisation necessitated by) the pandemic, but this remains to be seen. Interestingly, the most recently introduced institutional arrangement in the Dutch setting – that of a healthcare marketplace of regulated competition (Jeurissen & Ginneken, 2019) – appeared to be less dominant in dealing with the crisis than that of the oldest, the community of healthcare professionals. Hence, the first wave of the pandemic did not seem to have disentangled institutional arrangements in so much as it appeared to 'wash away' layers of institutional sediment, perhaps only temporarily. Our participants' risk work focused strongly on the professional community – on trust in peers, in medical expertise and professional guidelines and, somewhat less strongly, on state and hierarchy, which was especially visible in the logistical work. The logic of the market remained just under the surface but the role of civil society, through consultation and deliberation with stakeholders was not explicit in our data. Whereas the risk work of our participants thus appeared to feel very innovative and creative, working within a situation experienced as high-risk and as highly uncertain, our participants seemed to take a pragmatic approach through which we found particular traditional institutional layers (professional, state) valued over others in a 'bricolage' of risk management practices (Ansell & Boin, 2019).

At the moment of writing the acute phase of the crisis in the Netherlands has passed. The first COVID-19 wave is abating in the Netherlands, and a second wave is deemed inevitable. Non-pharma interventions appear to have been mostly successful (Flaxman et al., 2020), but during the acute phase there has been little time for reflection. We are now offered a brief pause to take stock of what happened, and what has been overlooked, in order to perhaps prepare for new waves of the virus or at least offer an appraisal of the way in which the risks and uncertainties of COVID-19 have been governed initially. One practical lesson we draw from our analysis is that the risk work of our participants might be enhanced by a more explicit organisation of consultation and counter-narratives (cf. RVS, 2020), a broadening of the expertise-base and a stronger voice for both citizens, patients and workers at the 'sharp end' of care. Another lesson is that this crisis does not seem to fundamentally alter the institutional logics of the Dutch healthcare system itself, it might even strengthen traditional institutional arrangements. This appears to have been supported by hierarchical and goal-oriented risk work that aimed to dispel and conquer risks and uncertainties. We therefore call for an appreciation of more adaptive risk work in which risks and uncertainties are reflexively managed and lived with (Ansell & Boin, 2019, p. 1100).

Conclusion

In this paper we have engaged in an in-depth ethnographic exploration of risk work 'as done' in an elite university hospital in the context of the emerging COVID-19 crisis in the Netherlands. In our account we show how the risk work of our participants is generally characterised by high speed and delineated by scarcities. In doing so, we have detailed three modes of risk work; work on numbers in the counting of IC-beds,

work on expertise, in particular in the (re)writing of guidelines and protocols under conditions of high uncertainty, and the logistical work and relational management needed to distribute patients across the country. This risk work often seemed very innovative and creative, but our analysis stresses how participants' work happened in interaction with traditional institutional logics.

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