

Triage as an infrastructure of care: The intimate work of redistributing medical care in nursing homes

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Abstract

This article explores how professionals in older persons care work on a triage system in the daily care setting. We follow how triage is introduced in older persons care organizations in The Netherlands, to deal with a scarcity of physicians and distribute care among health workers in the region. We offer a sociological analysis in which we use the notion of infrastructure and infrastructural work to study how professionals work with triage in the daily care setting. This study is based on a formative evaluation in which we as researchers both studied and contributed to the construction of the triage system by sharing and participating in reflexive infrastructural work practices. We show how this method enabled to gradually adjust the triage system to the daily practices of care delivery, taking the spatial-temporal setting of care into account. We argue that triage not only structures and simplifies but also opens up new ways of replacing medical and care work, both professionally and geographically. As our results reveal, re-placing physicians has complex effects above and beyond the efficient deployment of medical staff. Triage as infrastructure not only changes the location, but also reconfigures the relationships physicians have with residents and nurse aids.

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INTRODUCTION

Health-care organizations across European countries are facing workforce shortages (Connell & Walton-Roberts, 2015; Kroezen et al., 2018), which are most prominent in non-urban, sparsely populated areas and occur against the backdrop of growing care demands due to an ageing population (Kroezen et al., 2018; Kuhlmann et al., 2018). This results in high workloads among existing health-care personnel, urging policymakers and managers to enhance organizational resilience. Policy measures meant to overcome shortages and sustain organizational workforces include task shifting (Kuhlmann et al., 2018), employing immigrant health-care practitioners and 'return to practice' courses that allow former nurses to return to the profession (Kroezen et al., 2015). Various countries have introduced policy measures encouraging health-care organizations to collaborate on workforce capacity-building in specific geographical areas, the Greater Manchester project being a prominent example. There, health- and social care services have been rearranged into a regional infrastructure that integrates health and care services and expands regional care capacity (Lorne et al., 2019). In The Netherlands, a similar movement is made in the health- and social care sectors. In this article, we are interested in how such infrastructures for collaboration are developed for older persons care and what consequences they have for everyday care delivery and for professionals.

A prominent and increasingly common organizational instrument, which is central to this study, is triage. The triage system aims to prioritize care demands and builds an infrastructure to make more efficient use of scarce regional medical resources, such as nursing home physicians and beds—as available places for care—for older persons in nursing homes. Triage is also meant to expand the skills and competencies of nurses and nurse aids, as they are encouraged to interpret care demands and reorganize care delivery (Greatbatch et al., 2005a; Johannessen, 2017). Triage nurses collect, categorize and prioritize health-care needs, making health-care organizations less dependent on the immediate presence of physicians and (re)distributing medical work and responsibilities among other professionals in the organization (e.g. physician assistants, nurse practitioners or specialized nurses). Triage can also facilitate region-based medical care delivery, as it enables the exchange of medical practitioners among health-care organizations (i.e. nursing home physicians and nurse practitioners), for instance during night and weekend shifts. Triage potentially has far-reaching consequences for the spatial distribution of medical work and for the position and professionalization of medical and non-medical roles in health-care organizations (de Bont et al., 2016).

The medical and policy literature usually depicts triage as a classification system for structuring and standardizing medical decision-making in acute health-care settings. Earlier studies in the sociology of health and illness have offered in-depth insights into the use of triage in everyday practice (Greatbatch et al., 2005a; Hillman, 2014; Johannessen, 2017). These studies reveal how nurses often overrule triage guidelines to meet individual patient needs or to enhance patient-centred services in which they rely on their professional expertise and tacit knowledge rather than on the triage system itself. These studies challenge the managerial logic behind triage

systems and reveal that practices are often more complex and ‘messier’ than depicted in the triage system (Greatbatch et al., 2005a; Johannessen, 2017). In recent years, the scope of triage has expanded from emergency care facilities to other settings such as general practitioners’ offices (Charles-Jones et al., 2003) and ambulatory care services (Wilson & Hubert, 2002). In this article, we add to these insights by drawing attention to a triage system in long-term care. We study how triage is used as an organizational instrument to reorganize medical and care work in nursing homes.

For our sociological analyses of triage in long-term care, we draw on the literature of infrastructures and infrastructural work (Bowker & Star, 1999; Langstrup, 2013). We build on the work of Langstrup (2013) to examine how triage is performed through infrastructural work, examining both the spatial dimensions and built environment of care provision (e.g. Buse et al., 2018; Ivanova et al., 2016) as well as social elements (i.e. the social interactions between professionals) in nursing homes. More specifically, we focus on the infrastructural work that goes into the development of protocols, flowcharts, training systems and the creation of new work routines required to allow physicians to work ‘remotely’ and redistribute medical work between different practitioners. We build on an ongoing, formative evaluation of the regionalization of older persons care in The Netherlands (2018–2021) in which we *act with* regional and national actors (i.e. nursing homes, regional health-care insurers and the Ministry of Health) in developing region-based arrangements and health-care facilities to foster care for older persons in non-urban areas. This article focuses on the development and the use of a triage system to redistribute medical care, adding to the current debate on the spatial (re)distribution of medical and care work in non-urban, or peripheral areas.

We begin with a discussion on infrastructures in sociological research and conceptualize the introduction and development of triage as infrastructural work. We then explore the research site and methodology of the study. After presenting our analysis of triage practices in long-term care, we show how infrastructural work involves mapping nursing home care, articulating the crucial importance of intimate and ‘bodily’ knowledge in older persons care and the need to recraft and, at least partly, align the medical gaze and the care gaze when reassigning tasks and responsibilities among practitioners. We reflect on how the formative evaluation method we followed enabled us to feedback observations and analyses to the project group developing the triage system and how this helped to adjust both the instrument and its implementation. We conclude with a discussion in which we outline our theoretical and methodological contribution as well as implications for regional care delivery and further research in this area.

THEORETICAL FRAMEWORK

Infrastructures are often described as technical systems or structures that function in the background of or below our movements (Bowker & Star, 1999). In this body of literature, infrastructures go beyond physical structures to include financial systems or knowledge transfer systems, such as patient portals (Aspria et al., 2016). Traditional research into the development of systems has often been based on rationalistic concepts of infrastructures in which all information can be codified, classified and inserted into an infrastructural system. As Bowker and Star (1999) and others have pointed out, however, this explanation ignores the fact that infrastructural systems are human-made and deliver norms and standards with which people interact and negotiate. Instead of prescribing a technological system, infrastructures produce a social order through

categorizations, which are then embedded in the infrastructure temporally and questioned and negotiated when the infrastructure changes or breaks (Star & Ruhleder, 1996).

Langstrup (2013) has used the notion of infrastructures to show the work involved in transferring care from the clinic to the home. She describes infrastructures as the mundane arrangements, 'made up of various inconspicuous elements (medication, standards, control visits, doses, daily routines, sheets of article for registration and more) that tend to sink into the daily practices of patients and professionals' (2013, p. 1010). Although we attend to Langstrup's insight of the mundane work that is involved in aligning existing care practices, we also aim to extend her insights a bit further by showing how triage as an instrument is reconfiguring an existing infrastructure of medical work and care between nursing homes. We argue that infrastructural work is employed to add new elements to an existing infrastructure, thus changing the organizational practice as well as regional setting of organizing and providing care.

As Bowker and Star (1999) show an infrastructure requires continuous infrastructural work that is both visible and invisible. Here, invisible work refers to the crucial routine actions and 'ways of knowing' that is carried out in hidden or neglected places, often not visible to the outside world. Allen (2014) has highlighted the importance of invisible work in health care in her empirical study on nursing work in hospitals. She argues that nursing work is more than direct patient care; much of the work nurses do is bodily work and invisible yet crucial to enabling smooth (hospital) care processes [see also Timmermans et al. (2012)]. Additionally, Allen (2014) shows how individual disease trajectories can be unpredictable as patients with comorbidities and multifarious needs—to which nurses adapt daily care practices—are a poor fit with standardized systems (Allen, 2014, 9). This research argues that invisible work is inherent to nursing and should be understood as both articulation work (Allen, 2014; Strauss et al., 1985) and intimate work (Timmermans et al., 2012) that is crucial to providing and delivering care to patients. For our analysis, we focus on this significant and hidden work, as 'knowing' this work is essential for building and embedding a new triage infrastructure in a health-care setting.

Earlier work in this journal has revealed that triage standards do not cover the numerous contingencies health professionals come across when dealing with particular patient cases. Standards hamper professionals in delivering patient-centred care because they leave no room for the tacit practices and knowledge that professionals traditionally rely upon, such as nurses' tacit ability to judge a patient's general condition (Greatbatch et al., 2005; Johannessen, 2017). As a consequence, health professionals often do not follow triage standards or alter them in use by reordering, conflating or supplementing them, depending on the situation. Johannessen (2017), for instance, shows how nurses in an emergency primary care clinic use tacit knowledge and social typification, such as older or mentally unstable patients, to judge the credibility of a patient's signals and symptoms and occasionally decide to upgrade the triage code to speed up medical assistance (Johannessen, 2017, 1168). This literature thus emphasizes the situational use of triage as a social practice in which professionals and patients constantly negotiate patient categories and approaches.

Langstrup reveals the importance of including mundane and often invisible care work into the building of new chronic care infrastructures. She stresses that the mundane and 'real' work often is not taken into account when care is re-placed from the clinic to the home. Langstrup shows the importance of recognizing the 'hidden' work because it reveals what is needed to transfer care from one setting to another and enhances our understanding of how infrastructures have place-making effects. First, Langstrup shows the home itself changes by becoming a place in which treatment occurs. Second, the home as the preferred site impacts the treatment method(s), as there are other care materials and resources available in the home than in a health-care setting. According to Langstrup (2013), the negotiations and dilemmas that arise when creating room

for treatment and care can come at the expense of others, for example family members who may have to provide informal care. Langstrup (2013) stresses that these negotiations and dilemmas are scarcely acknowledged in policy arguments or plans, which assume that ‘there’s no place like home’ for chronic disease management. Likewise, researchers who study the re-placement of care as a means to govern health care have revealed the invisible work that goes into re-placing care and reflect on the political-symbolic use of places. This is nicely illustrated by Ivanova et al. (2019), who describe an (illegal) private foundling room for infants that has never been used but offers the possibility of leaving an infant and, therefore, creates an infrastructure of care for both the mother (and/or father) and (unwanted) baby. This article highlights the ‘infrastructural doings’ the place engenders, such as a 24/7 helpline. By conceptualizing place and re-placement, researchers have furthermore examined the processes related to the spatial reorganization of care (Oldenhof et al., 2016). Following this line of research, we recognize that re-placement of care implies more than a geographical movement from one location to another; rather, it involves the infrastructural work of reallocating care between health-care practitioners, health-care organizations as well the care materials and resources used in these settings.

In our article, we use these insights to provide a spatial-relational account of triage practices in a long-term care setting. We study the triage system as an infrastructure and socio-spatial practice of reorganizing medical care provision. In the next section, we elaborate on our research approach and briefly introduce our research sites.

RESEARCH SITES AND METHODOLOGY

This article builds on an ongoing, formative evaluation of the regionalization of long-term for older persons in The Netherlands (2018–2021). The research programme encompasses a quality alliance of older persons care organizations (such as nursing homes) operating in 14 regions, the Ministry of Health, a state-financed platform for improving quality of older persons care (‘Dignity & Pride’), health insurance agencies and our university research group. The aim of the programme was to set up regional pilots in which health-care organizations experiment with new and collective ways of organizing and providing older persons care. We conduct formative evaluations in which we ‘track’ pilots through participatory ethnographic research, sharing findings and insights in three iterative processes. First, we evaluate pilots—in this case, the development of a triage system—with professionals in the participating older persons care organizations. Second, we act in regional project groups in which lessons and experiences are shared with other care organizations. Third, we share lessons and experiences on a national level, for example on the Dignity and Pride website and at biennial national network meetings at which all participants to the programme can share examples of good practice and discuss the difficulties they face. These meetings aim to enhance collective learning and to align regional experiments and national rules and regulations. In this article, we focus on our evaluation of the triage pilot in one particular region, Flevoland. Below, we introduce Flevoland as a care region and then move on to our research design.

Research site: developments in the region

Flevoland, which is located in the middle of The Netherlands, consists of two polders, the result of 20th-century drainage processes. The region became a province in 1986. The landscape is

characterized by vast meadowland alternating with fishing and farming villages and one larger (and expanding) urban area. Although the geographical region is relatively young, the population is ageing rapidly. Four nursing care organizations are active in the Eastern part of Flevoland where our study is situated, and each one has several care locations scattered across the region. Each has its own unique characteristics, often related to the local fishing tradition, the farming mentality or a more urban outlook. All four organizations are experiencing a growing demand for their health-care services (including in primary care) along with shortages of medical specialists. This has already led to a freeze on admissions at one of the nursing home organizations, regarded as highly undesirable (and even ‘illegal’, since health insurers are obliged to purchase sufficient health-care services), as well as illustrative for the worsening of care provision in the region. To complicate things further, in 2018, the local hospital closed down due to severe financial and quality problems, making it even more difficult to attract physicians and nurses with advanced training to this region. The same year, the nursing care organizations decided to use funding from the regional care office to make more efficient use of the available nursing capacity and remaining medical capacity. This resulted in the development of the triage system, introduced to give nurses a more central role in care so that physicians can work at different locations and deliver more care in the primary care setting, where there is an increasing need for nursing home physician knowledge.

Methodology: following a nurse-led triage system

The triage pilot started in November 2018 at two care locations and was tracked by our research group for over 10 months. Data were collected through participatory observations, with researchers spending a couple of hours to a couple of days a week in the nursing home setting, attending project meetings and conducting both formal and informal interviews with care professionals and managers. Dutch nursing homes employ physicians who have completed a two-year specialist training programme to become a qualified nursing home physician (Hoek et al., 2003). Nursing home physicians bear the medical responsibility for admitted residents and usually have a close relationship with residents and their families. They work closely together with nurses (often nurse aids but nurses and nurse practitioners are involved as well) who are responsible for daily care assistance, and allied practitioners such as physiotherapists and nutritionists. In our research, we accompanied nursing home physicians and nurse practitioners on medical visits in the nursing homes and sat with managers designing the triage flowchart. Triage happened face to face or through phone calls in the triage room. We evaluated by providing feedback on our findings and giving presentations on results in other regions and other relevant issues (e.g. previous research findings on similar issues). We also helped to set up a training course on triage for nurse aids that was informed by our formative evaluation (explained in more detail below). As researchers, then, we contributed actively to the regional care infrastructure by sharing and participating in infrastructural work practices.

We shadowed practitioners (i.e. nursing home physicians, specialized nurses, triage nurses, nurse aids and nurse practitioners) for a total of +120 hours during their shifts, allowing for informal conversations and evaluative reflection on the pilot. Field notes on these interactions were worked up into observational reports within 24 h. In addition, researchers interviewed 25 respondents, including care team managers, triage nurses, members of the medical team and nursing home directors. Interviews were recorded with permission and transcribed verbatim. All respondents were anonymized. Following Dutch law, ethical approval was deemed exempt.

Data analysis was abductive (Tavory & Timmermans, 2014), allowing us to move back and forth between data and theory and defining overarching themes. Using Atlas.ti software, we systematically compared our field note observations, memos and transcribed interviews. Our analysis focused mainly on the experiences of health-care professionals and the consequences of triage for their work practices and professional roles. While we discussed the consequences for residents receiving medical care, their perspectives and experiences were not our main line of enquiry. Throughout the data analysis process, we member-checked empirical findings with field participants during project team meetings and (informal) conversations with project managers. This iterative and reflexive approach to data collection and sharing enabled us to substantiate our findings. Moreover, it enabled us to share our insights with the project group developing the triage system, and in doing so helped them to adjust the triage instrument.

The following section presents our results. Excerpts and quotes have been selected to illustrate the themes that arose in the overall empirical data: mapping nursing home care, articulating intimate ‘bodily’ knowledge and recrafting the medical gaze.

MAPPING NURSING HOME CARE

“The meeting takes place in a dusky room which is lighted only by a small window. ‘This is the old mortarium,’ the project manager explains. ‘It’s not very pleasant but we lack quiet spaces in here.’ The triage flowchart (Figure 1) lies before her. We share some of our observational findings: most of the questions we have encountered concern periodic controls, evaluation of treatment plans and ad hoc questions regarding (small) changes in a resident’s behaviour. We suggest that such (ad hoc) questions are specific to the elusive and mundane setting of a nursing home, where all sorts of care issues ‘pop up’ throughout the day. We argue that these small yet important issues are difficult to pinpoint on the flowchart. The project manager nevertheless insists on transferring these questions to the flowchart: ‘In which boxes should we put these types of questions then?’”

(field notes, 28 February 2019).

This excerpt illustrates how the triage project manager attempts to draft a triage system to prioritize care demands and make more efficient use of scarce medical resources (in this particular case, physicians and a room for medical visits). Drafting the triage system involved describing and categorizing processes of care-giving, allocating these activities on the map and rendering them into neat care delivery practices and processes (Figure 1). Besides distinguishing and categorizing medical problems (e.g. urgency of a situation) through the triage system, managers aimed to differentiate care work as well as types of care delivery. Only in an urgent situation is the medical team’s assistance immediately required. In all other cases, care questions are assessed using the flowchart, linking medical issues to the ‘right’ practitioner.

This new infrastructure makes it possible to distinguish between ‘medical work’ and ‘nursing work’. Whereas physicians used to be involved in all sorts of care matters, medical and care issues are now assigned to a variety of (specialized) nurses and physicians. For instance, questions concerning wound care (such as pressure ulcers) are assigned to a wound nurse, while questions

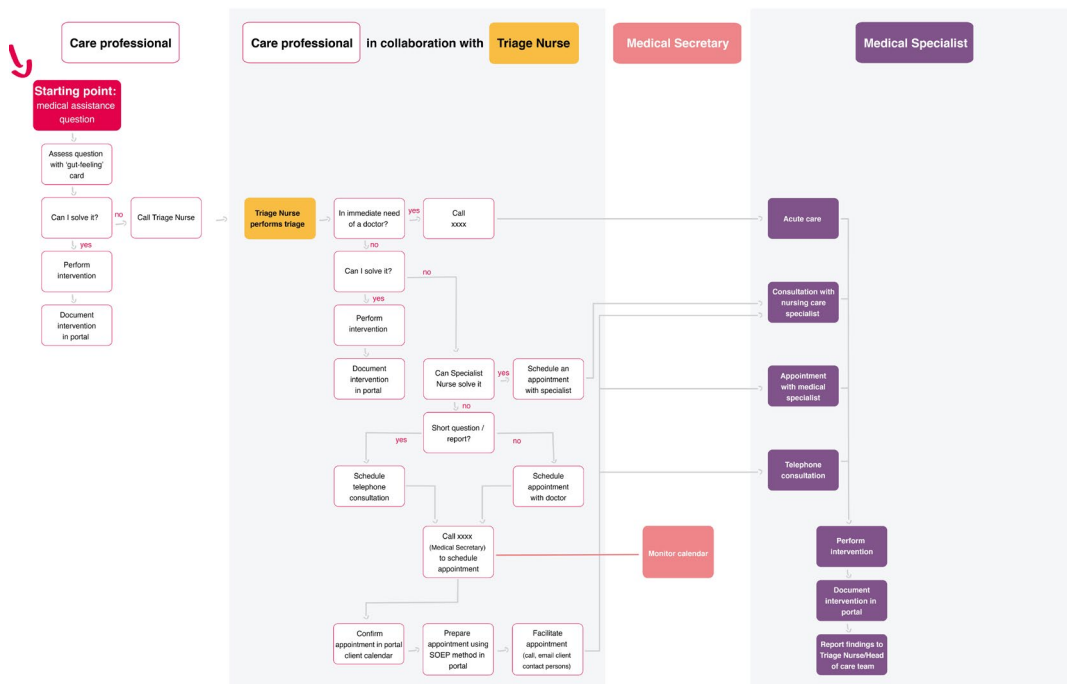


FIGURE 1 Flowchart [Colour figure can be viewed at wileyonlinelibrary.com]

regarding psychogeriatric problems or symptoms (such as restlessness or depression) are directed to a behavioural health nurse and questions about pulmonary problems to a COPD nurse.

The triage system also stipulates when and where consultation should take place (i.e. ‘the same day in the resident’s room’, or ‘within three working days at the doctor’s office’), depending on the problem categorization and the information obtained. Thus, besides distributing care activities, the triage system aims to (re)locate care spatially (Langstrup, 2013) and temporally. However, because the nursing home lacks adequate meeting rooms and privacy (remember the mortarium where we had to discuss our research findings), professionals tinker with space. Before introducing the new triage system, nursing home physicians frequently visited ‘their’ residents on the nursing wards. They paid regular visits (e.g. once a week) or stopped by during the day in response to an unexpected medical question. The new triage system has changed this routine. Nursing home physicians now only visit a department when the triage nurse request a consultation. Triage nurses act as gatekeepers who guide and schedule the limited availability of medical personnel and available resources (Johannessen, 2017). A triage nurse explained: ‘We not only define the type of injury or problem, but also have to figure out the processes that follow, for instance: when is the wound nurse available and where should the consultation take place?’ (triage nurse 7). Tinkering with space and time has led to new care routines. For example, nurses decided to conduct wound care early in the morning, when residents are still in their private rooms and not yet dressed, as this is more convenient than attending to them later in the day when they are fully ‘dressed and dwelled’ in the living room. Triage nurses thus play a central role in developing a new care infrastructure that facilitates smooth care processes. They seek to (re) connect residents, physicians, nurses, daily care routines and residents’ lives, reconfiguring established care routines.

Spatial-temporal orderings of triaging

In interviews and during observations, triage nurses pointed out that most of the departments' questions were not about clearly medical issues but more mundane matters or small changes in a resident's behaviour. Triage nurses played an active role in figuring out possible medical issues and distinguishing categories of emergency. A triage nurse explained that urgency is a rather fuzzy concept in older persons care: '...[C]ome on...it is older persons care, right... so there is the top four, it can be lung infections; cystitis; something cardiologic; or neurologic'... However, she also pointed out that these situations are rarely acute: 'Yet a heart attack is rare, when people come here, they probably already have had one or two [heart attacks] and are already using anti-coagulants. The people here live in a therapeutic environment, which means they are constantly being watched...' She continued the list: 'CVA [cerebrovascular accident] is also a rare one; TIAs [transient ischaemic attack] however are more common...' (field notes, 12 March 2019).

Rather than an immediate need for medical action, changes happen more slowly. Deterioration of a (medical) situation often spans a longer period of time, from when residents enter the nursing home until they receive palliative care or die. In contrast to the acute health-care setting (e.g. a hospital emergency department), where patients walk in or call in and are diagnosed based on expressed problems, the spatial-temporal setting of the nursing home is much more about attending to daily issues that happen at a much slower pace (Johannessen, 2017; Charles-Jones et al., 2003). Most residents suffer from multiple chronic illnesses (e.g. diabetes and residual effects of cerebral vascular accident, such as difficulty with physical balance and memory) and are unlikely to recover from the disease. Although sometimes they worsen rapidly after admission, residents usually take multiple medicines and have multifarious care needs and problems that arise more gradually and are more diffuse and hence difficult to grasp. The flowchart, however, suggests that medical problems can be assessed remotely. The triage nurse plays an important role in translating care issues into medical problems, joining nurse aids in figuring out the medical issues at hand. At an early stage of the pilot, the triage nurse team decided to move the 'triage centre' (a room with computers and a telephone) from an office building to the second floor of the nursing wards. This allowed them to pay a quick visit to a resident who was deteriorating and to collect the information needed to communicate a case to the medical team. Triage nurses thus conducted a great deal of visible ('actual triage work') and invisible work, such as articulation, administration and creating workarounds to coordinate the different timetables so that triage could be merged into daily care routines. The nursing home setting is, therefore, more about responding to and adapting with residents' bodily signals, utterances and nurse aids' observations than about a 'neat' and orderly reality, requiring a more intimate repertoire of signalling and dealing with medical issues and 'doing' triage.

ARTICULATING INTIMATE 'BODILY' KNOWLEDGE

We now turn to the nursing wards to examine how physicians and nurse aids gather information on residents and how decision-making happens collectively. As explained above, medical issues are often not clear-cut but diffuse, emerging gradually. In the recent past, both physicians and nurse aids exchanged information and decisions informally with one another, often over a longer period of time. However, this 'mutual doctoring' (e.g. Struhkamp et al. (2009) changed when physicians began working more remotely, as they were no longer available to 'pop in' when issues or questions arose. Today, nurse aids are expected to notice deterioration and (possible)

medical problems and articulate them to a triage nurse. In the following, we describe how nurse aids signal (possible) medical issues, how they make their observations explicit, and how triage nurses and physicians subsequently interpret this information and knowledge—and the difficulties this involves.

Triage practices such as signalling, diagnosing and decision-making are closely interwoven with nurses' bodily work. Earlier research has argued how nurses perform the 'dirty work' in care and how the body is central in this (Meldgaard Hansen, 2016; Twigg, 1999). Nurse aids are both physically and emotionally close to residents, as they often spend many hours assisting them with daily and intimate activities (getting dressed, visiting the toilet, bathing, taking medicine, eating and going to bed). The body is itself arranged spatially according to what Twigg calls 'graduations of privacy' (Twigg, 2002, 427). In their caring practices, the nurse aids notice and experience feelings, emotions and bodily experiences, for instance while washing a resident's body, or putting on the compression socks. Physicians, on the other hand, have less of such a hands-on experience of care, which provides them with different bodily knowledge of their residents than the nurse aids. Nurse aids are constantly in the residents' intimate space—not only their bodies, but also their private rooms filled with their belongings and memories of past times—and thus become acquainted with their habits and care needs (Buse et al., 2018). Moreover, residents and health-care practitioners together build up routines over a longer period of time (Meldgaard Hansen, 2016; Skeide, 2019). Through this intimate work, nurse aids develop a 'bodily knowing' that is crucial for signalling (small) changes. As one of the nurse aids put it, it is often a 'gut feeling':

"In nursing home care it's often 'a feeling', you know the client, you see that he/she is more confused or sleeper than normal; that it's not 'just a bad day'. But it's difficult to make it tangible... this differs from hospital care, for example. In the hospital, medical decisions are based on diagnostic instruments, here it's based more on a feeling."

(nurse aid, field notes, 19 February 2019)

Additional to clinical, textbook knowledge, a 'gut feeling' is based on the informal and intimate knowledge that health-care professionals have acquired in numerous interactions with residents over a longer period of time. It is about 'knowing the resident' (Meldgaard Hansen, 2016). Nurse aids develop this gut feeling through intimate work, and in the past, they would call in the nursing home physicians when they noticed changes, engaging with them in a collective process of reasoning and sense-making or 'mutual doctoring' (Struhkamp et al., 2009) that involved different ways of (bodily) knowing and acting (Twigg, 2002). The triage system reconfigured this process by assigning it to nurse aids and triage nurses. Nurse aids, however, found it difficult to judge when they should consult the triage nurse or wait. A client could feel better in a few minutes or hours, or perhaps after a good night's sleep. Nurse aids had been used to speaking briefly and informally to the nursing home physician—who was also familiar with the residents—about their doubts and signals (their 'gut feeling'), but now felt lost and often did not report small changes in the residents' behaviour.

The new triage system also affected the physician's medical gaze. Similar to the bodily knowing of nurse aids, the nursing home physician's medical gaze is closely interwoven with 'knowing the resident'. They too are used to interacting closely with residents, for instance by posing a quick question or greeting a resident in the hallway, making eye contact, or chatting with the nurse aids about the goings-on on the ward. This is how they conduct their medical observations, comparing them with what they saw, heard or smelled that morning, yesterday or a week ago. The importance of such daily interactions is illustrated in the next excerpt from our field notes:

“A nursing home resident pushes the wheels of his wheelchair firmly with his hands while, unintentionally it seems, blocking forward motion with his feet, which drag over the ground. The nursing home physician stands in front of him, greets him in a soft voice and places the resident’s feet on the foot supports. The resident attempts to connect in his own way, though dementia has robbed him of speech. The physician turns to the nurse aid and asks, ‘What is it with his legs? Are they (limp) like this a lot? Is he limited to his chair nowadays? How is he actually doing?’”

(nursing home physician, field notes, March 2019)

In this particular case, the resident had lost the ability to speak due to progressive dementia. His dragging feet cued the physician to ask questions about his medical situation. The triage system has, however, altered encounters like these. Physicians now spend less time with residents and nurse aids and visit them less often, hampering the building of intimate relationships with residents in their living space and with care personnel on the wards. This requires a different medical gaze and related work routines.

Moreover, nursing home physicians worried whether nurse aids possessed sufficient medical knowledge and skills to signal medical problems, and whether they would be able to articulate medical issues ‘clearly’ and adequately to the triage nurse and nursing home physicians:

“I’m worried what will happen if management decouples us from the departments and residents... He [nurse practitioner] explains to me what just happened...: ‘The nurses had doubts about administrating paracetamol; they pointed out a cold without articulating a clear medical question... and she [nurse aid] overlooked ‘the belly problem’... she has trouble telling the ‘whole story’ and doesn’t ask the right questions.”

(nurse practitioner, field notes, 12 March 2019)

This excerpt shows that medical practitioners (in this case, a nurse practitioner who is part of the medical team) have doubts and worries about no longer visiting the wards and residents regularly. In this particular case, information was lacking because the nurse aid had overlooked important medical symptoms (i.e. a swollen belly indicating cystitis) and expressed doubts about administrating painkillers (paracetamol), which the nurse practitioner found irrelevant. If a story is incomplete or ‘untrusted’, the physicians pointed out, they would have to examine a client anyway and she felt uncomfortable about being ‘decoupled’ from the residents.

The excerpts demonstrate that health-care professionals must build on a shared understanding and language concerning what is and is not a medical issue (or may or may not become one) and how this should be articulated. This requires the invention of new tools and social structures that make-up the infrastructure of ‘doing triage’. Nurse aids and the other professionals had to find (new) ways to communicate, to articulate their tacit knowledge and to preserve informal and intimate knowledge. We address this infrastructural work below.

RERAFTING THE MEDICAL GAZE THROUGH INFRASTRUCTURAL WORK

Our interventions took shape by sharing our insights with health practitioners and managers in the course of the project. One intervention occurred during the project meetings held every two

weeks with nursing home physicians and nurse practitioners, the triage project manager, the medical team manager and triage nurses. We presented and discussed new versions of the flow-chart during these meetings and listened to and evaluated triage-related experiences. In their study on an Internet-based application for referring patients between primary and secondary care in a Dutch region, Bal and Mastboom (2007, 258) show that researchers do 'repair work' by travelling between all the places relevant to the research project. By showing up and conducting interviews at different locations, researchers are able to transfer experience and knowledge from one place to another. In our project, we travelled between the triage room, the nursing wards, residents' homes and consultation rooms. We soon discovered that nurse aids were unfamiliar with the triage system and felt uncomfortable with the new approach to recognizing and communicating medical issues. We pointed out the importance of nurse aids' embodied knowledge and signalling role, as there appeared to be too much focus on the physicians and triage nurses. The project team subsequently decided to expand its scope to include the nurse aids and the nursing wards by organizing training days regarding the signalling of deterioration and by providing more organizational support (emphasizing scheduled, practical tasks and co-worker support).

All this shifted the project emphasis somewhat as well. Early on in the pilot, the S-BAR Method was used to train the 'new' triage nurses. The S-BAR method (Situation, Background, Assessment, Recommendation) is commonly used in triage practices to structure communication between professionals (usually nurses and doctors) (Greatbatch et al., 2005b). There was no such training for the nurse aids on the wards; however, there were few instances in which the medical team and nurse aids could practise exchanges and deliberation. Besides the S-BAR method for the triage nurses, no common guidelines had been established for how nurse aids should respond to residents' changed conditions. To strengthen the autonomous role of the nurse aids on the wards, as well as their observational competence and organizational skills (i.e. scheduled and practical tasks and co-worker and family support), the nursing home organization developed a training in close collaboration with the triage nurses and nurse aids. This included a 'gut-feeling card' (Figures 2 and 3) with details about changing client conditions and how to communicate them. For instance, a triage nurse pointed out during training that nurse aids would no longer call a triage nurse or physician and simply say 'the resident is wheezing'. Instead, they used the gut-feeling card to clarify the signal 'wheezing' in terms of frequency and depth of breathing: is the resident coughing, and what is the medical background? The gut-feeling card offers a list of categories, such as 'breathing, circulation, saturation, neurology, mental responses, client indicates that '...':

Using this card should enable nurses to describe in detail what they had observed and what they thought could be the problem at stake. Hence, the gut-feeling card supports the articulation work of nurse aids, rather than classifying residents in a particular category. With the card, nurse aids were encouraged to ask residents questions, collect information, and ask for and provide co-worker support. Part of recrafting the medical gaze, then, is to craft the care gaze and strengthen the role of nurses and nurse aids. The gut-feeling card opens the door to conversations, to develop a shared language and to provide training-on-the-job when the doctors can no longer be nearby. It moreover made the nurse aids part of the infrastructural work of the triage system.

Reconfiguring the care gaze in this manner involves not only practising care expertise, but also defending and institutionalizing that expertise in daily practice. For example, a specialized nurse should not only do what the physician wants but also develop her/his own area of expertise to which the physician should listen in return. Or, as a specialized wound nurse explained:

'gut-feeling' card

Respiration:

- Audible breathing
- Short of breath
- Unable to speak full sentences
- Uses muscles of respiration

Circulation:

- Change in skin colour (pallid, gray, mottled, red)
- Sweating, damp skin
- Reduced blood flow to skin
- Feels cold to touch
- Edema
- Quivering / shivers

Neurology

- Muscle weakness, muscle twitching
- Drooping mouth corner
- Confused speech

Bones

- Changing limb position

Pain

- New/unusual pain
- Increasing/persistent pain
- Grimacing

Urinary tract

- Decreased urine production
- Increased urine production
- Changing urine production: red (blood), milky (pus)

Mental

- Apathy: withdrawn, slower, sleepy
- Disorientated, confused
- Restless: uncomfortable/ unsettled / agitated / pulling on tubes / calling/ shouting
- Anxious: panicking

Digestion

- Decreased appetite
- Decreased fluid intake
- Diarrhea

- No bowel movement for several days

Not expected progress

- No progress: not responding to treatment, no recovery
- Bloating stomach
- Nausea, vomiting
- Bleeding
- Dizziness
- Fainting / falling

Patient indicates

- Not feeling well: feeling general malaise, unable to explain what ails them
- Sense of dread

Nurses' observations:

- Changes in behaviour
- Doesn't look good
- Look in the patient's eyes

FIGURE 2 Gut-feeling card front [Colour figure can be viewed at wileyonlinelibrary.com]

“Margot is worried about the wound plan that one of the nursing home physicians has altered. She explained to me that the physician misunderstood her plan and that he can't just make changes without informing her... “There's a certain philosophy for every wound”. She called the doctor to explain this new way of working to him (once again).”

(specialist wound nurse, field notes, 12 April 2019)

It is not just the knowledge flow that changes; the triage system designates several professionals who bear 'final' medical responsibility and the nursing home physician or other medical specialist sometimes has to get used to this. Triage is part of a broader infrastructure; it makes the invisible work of nurses more visible and challenges power relations embedded in the older persons care system. The development of the care gaze in the gut-feeling card makes categories and work visible and negotiable for both physicians and nurses, and connects to the caregiver's perception and meaning-making processes. Based on our findings, we argue that the triage infrastructure, far from excluding moments of interaction and personal contact demands new connections into which these moments can be integrated and transferred to different professions (e.g. educating nurse aids to signal deterioration, introducing specialized nurses as contact person for the family and wound nurses who are accountable for treatment plans). Rather than classifying and structuring, then, triage as infrastructure connects the different professions and locations through a process of 'mutual doctoring'. Hence, triage is not a matter of well-argued individual choices but something that grows out of collaborative and continuous attempts to attune local possibilities and constraints to the daily needs of residents.

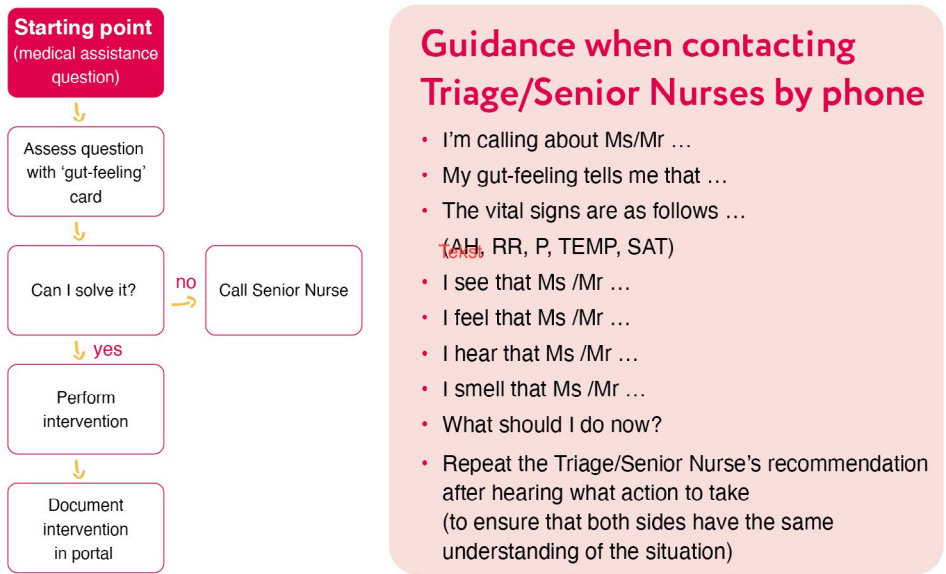


FIGURE 3 Gut-feeling card back [Colour figure can be viewed at wileyonlinelibrary.com]

DISCUSSION

In this article, we have shown how triage in the long-term care setting has evolved into a new infrastructure that establishes a regional system of older persons care in which nurses and nurse aids play a significant role. It involves doing the infrastructural work of creating and adjusting the flowchart and rethinking where and how care should be provided as well as introducing new materialities to make triage happen (i.e. the gut-feeling card). Mirroring previous studies, we have shown how triage nurses create workarounds and use coordination skills to work with the triage infrastructure in the daily care setting, for example by adjusting guidelines and work schedules to local circumstances (Greatbatch et al., 2005b; Johannessen, 2017). Our study has revealed how nursing home physicians, specialized nurses, triage nurses, nurse aids and other practitioners perform continuous infrastructural work to embed triage within the spatial-temporal order of long-term care. Our findings suggest that, unlike in acute care, triage practices in care for older persons are more diffuse, and that diagnosis and decision-making take place collaboratively and over a longer period of time, with health practitioners acquiring a familiarity and bodily intimacy with residents that appear to be significant for signalling and responding to medical deterioration (Struhkamp et al., 2009). Like previous studies, we argue that triage, as an infrastructure, not only structures and simplifies but also opens up new ways of re-placing medical and care work, both professionally and geographically.

Our findings furthermore indicate that crafting a triage system in the long-term care setting means departing from the traditional doctor–client relationship, with medical work being distributed in a larger (regional) care network. This changes and challenges physicians'

professional role because they must now take a different approach to diagnosis and depend more on various information sources and input from other health-care practitioners, in particular nurse aids. At first sight, our findings suggest that this distance does not necessarily have a negative impact on the quality of care because other professions have taken over the signalling and treatment tasks and must come up with new solutions when the physician is not on location. Defining these new roles is not an intuitive process, however. Instead, infrastructural work is needed to adapt existing roles and tasks, joining 'old' and 'new' approaches to care. The gut-feeling card is one example; it gives the nurse aids an information tool to strengthen their new, autonomous role by building on their own knowledge and on existing relationships and materials. This tool facilitates reflection and articulation, and reconfigures the care gaze among nurse aids, rather than functioning as a standard that should be followed. Moreover, by travelling between the different care locations and talking to the various health professionals who shared their stories and experiences, we were able to unpack knowledge, relationships and materials. What we learned and contributed to the pilot project are insights that already existed in the project, but as researchers, we transformed them, if only by transferring them to other places (Bal & Mastboom, 2007). In this way, we as researchers have also become part of the infrastructural work, enabling different kinds of choices and materializing new ways of doing an information tool.

The crafting of a triage infrastructure thus creates room for (new) ideas on 'doing' quality of care. In earlier research, Oldenhof et al. (2016) show that once care is re-placed, the process of care also changes, producing different ideas on what good care is. In our case, physicians travelled between the different care locations, contributing and sharing their knowledge and expertise. Every care location has its own ideas about good care and treatment that are embedded in daily routines and practices. These ideas had to be clarified more explicitly among physicians and (medical) practitioners. Furthermore, the notion of good care changed in the process of developing the triage system. For instance, wound nurses got a more central position and can provide specialized wound treatment care while also educating nurse aids on the wards, for example which mesh to use and when and how to clean wounds. Medical care for older persons becomes more nurse-driven in this way, and including the nursing professions in the triage decision tree supplements the medical gaze with a care gaze. However, the risk exists that diversifying professionals could lead to more fragmented care and coordination problems. Further research should focus on the development and strengthening of the care gaze within the medical context of older persons care.

Although our findings reveal opportunities to reorganize medical distribution in long-term care, they also present various challenges. Since triage as infrastructure takes shape situationally and gradually, it is more complex to deploy on a regional scale (Lorne et al., 2019). Reorganizing care on a larger scale, such as in the Greater Manchester project and the regionalization of health care in The Netherlands, should accommodate place-appropriate and adaptive solutions. In this article, we showed that, unlike the instrumental and technical approaches to dealing with decreases and shortages, there is a need for a flexible planning framework where people are encouraged to meet more often and adapt to place-based solutions (Sennett, 2019). Oldenhof et al. (2016) and (Ivanova, 2020) argue that re-placing care involves more than moving from one geographical location to another. They show how care and place are linked not only through geography, but also through affective emotions, identity and imagination. As our results reveal, re-placing physicians has complex effects above and beyond the efficient deployment of the available medical staff. Triage as infrastructure not only changes the location, but also reconfigures the relationships physicians have with residents and nurse aids on the wards. Being where residents

live and dwell acquaints physicians with their habits and care needs. The triage system we have studied aimed to make these stories and experiences 'travel'. Oudshoorn (2012) has pointed out how the place dependency of the use and meaning of technologies has important consequences for the design and implementation of technologies. In our case, the design of the triage system challenges its regional aim. Although the triage system assumes a certain place-lessness, our research shows that medical decision-making in long-term care is place-dependant and should be embedded in care practices. The formative evaluation method can take this place-dependency and social relationships into account, by revealing such elements and making them part of the infrastructural work.

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AUTHOR CONTRIBUTIONS

Nienke van Pijkeren: formal analysis (equal), methodology (equal), investigation (lead).

Iris Wallenburg: formal analysis (equal), methodology (equal), investigation(supporting), project administration (lead).

Roland Bal: formal analysis (equal), methodology (equal), project administration (supporting).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on reasonable request from the author. The data are not publicly available due to privacy or ethical restrictions.

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