Tinkering with Time and Technologies in Dementia Care

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Introduction

In Scandinavia, many technologies have been adopted as so-called 'welfare technologies' since the late 2000s (Kamp et al, 2019). These technologies are linked to the idea of securing and improving welfare. The term encompasses technologies used 'to maintain or increase security, activity, participation or independence for people with a disability or the elderly' (Nordic Welfare Centre, 2024), and includes automatic toilets, Global Positioning System (GPS) trackers, eating robots, tele-care solutions and other devices (Kamp et al, 2019). While there are differences across the Scandinavian countries, for example, in how fast various welfare technologies are implemented (Kamp et al, 2019), all three Scandinavian countries have established national platforms to support knowledge sharing and implementation (Helsedirektoratet, 2024; RISE, 2024; Videnscenter for digitalisering og teknologi, 2025).

Welfare technologies are embedded in a discourse of a *better future* in different ways (Kamp et al, 2019; Peine and Neven, 2019; KL Local Government Denmark, 2021). Some focus on supporting people with disabilities and frail older people in living lives without depending on carers, while others aim to support and enhance care work itself. This chapter focuses on the second type, which aims to facilitate care. More specifically, we look at the use of video–based check–ins, GPS tracking, door alarms, and motion sensors in dementia care. These technologies aim to detect the needs of vulnerable people who have difficulties articulating when they need

support or help. In this sense, they are shaped around the idea of triggering an alarm when it is time to react. This helps care workers who are alerted through the technology. For instance, when someone like John, who needs a supportive hand because he forgets his walker, gets up at night, he triggers a motion sensor; or when someone like Elsa, who enjoys walks but gets lost easily, leaves the premises, she triggers an alarm through her wearable GPS tracker.

Watching over, detecting needs, and monitoring have always been part of care work, but using new technologies drastically changes the scope and method used (Kamp et al, 2023). The technologies we look at do not merely monitor. They monitor to modulate the time of response and intervention as part of care practice. For this reason, we understand them as surveillance technologies, and will refer to them as such throughout the chapter.

We base this understanding on Peacock et al's modification of Lyon's influential definition of surveillance, in which surveillance is understood as 'watching over through human and/or non-human technologies for an intended purpose' (2023, p 2). These technologies arrive with a strong, normative sense of purpose, in terms of supporting certain care responses to obtain a specific understanding of welfare. By referring to these technologies as surveillance technologies, we wish to bring their aims of enhanced care through technologically mediated vigilance to the foreground. Through ethnographic examples of various technologies that aim to modulate the response time, we explore what happens when aims for a timely response meet everyday care practices at three Scandinavian nursing homes.

Surveillance, time, and care work

Surveillance is often understood through a dystopian imaginary, where it is an Orwellian tool enforcing discipline. However, more recent studies conceptualize surveillance in a much more nuanced way. Lyon (2001) describes surveillance as two-faced as it involves both care and control, which are sometimes impossible to separate. This volume challenges the idea of surveillance as an Orwellian force of discipline, by stressing the caring and protective (Dungey, Chapter 2, this volume) and self-care (Bruun, Chapter 1, this volume) features of surveillance. Furthermore, this approach to surveillance also highlights the importance of considering surveillance as a *practice* rather than a pre-given, non-negotiable force. Surveillance technologies are rarely adopted at face value, but adapted and made malleable to fit the situation (Schwennesen, 2019; Kamp et al, 2023).

Stressing the value of looking at practices and adaptations is also fundamental within Science and Technology Studies (STS). Especially within STS studies of care technologies, scholars have highlighted the importance of *tinkering* (Law, 2010; Mol et al, 2010; Pols and Willems, 2011; Molterer

et al, 2020; Jansky, 2024; Kamp et al, 2023). Tinkering is used to characterize how people 'adapt their tools to a specific situation while adapting the situation to the tools, on and on, endless tinkering' (Mol et al, 2010, p 15). It is a term that helps articulate the attentive experimentation with technologies and practices to make them run more smoothly. As explained in the Introduction (Peacock, this volume), tinkering can be understood to make time trajectories of technologies work in harmony with the rhythms of lived life. Drawing on *Rhythmanalysis* (Lefebvre, 2009), tinkering is thus an attempt to avoid *arrhythmia* (disruption of rhythms) by attending to the *polyrhythmia* of everyday life where many different rhythmic demands exist simultaneously.

Following these lines of thought, we are particularly interested in how care workers tinker with time, and navigate polyrhythmia, when using surveillance technologies. Other studies have engaged with tinkering (Kamp et al, 2023) and temporality (Kamp, 2021) in a Danish nursing home context. Meanwhile, Løvschal–Nielsen et al (2022) have used tinkering to characterize how children with cancer navigate and negotiate situations in hospitals. While our use of the term similarly recognizes how time is adjustable through unplanned, socio–material actions, we use the idea of tinkering with time primarily to characterize the relationships between care workers, time, and technologies. In our approach, we draw on Grosen and Hansen (2021) and their concept of 'responsive care' (Grosen and Hansen, 2021, p 263). The study points to how care workers do not necessarily follow the temporal demands of the technologies, as they continue to walk rounds even though the technology is meant to guide their attention (Grosen and Hansen, 2021, p 269). Thus, there appears to be some tension between temporality enacted by the technologies, and the way time is enacted and experienced at nursing homes. There is a fine line between rejecting technological determinism and recognizing the consequences of using technologies in care work. In this chapter, we walk the same theoretical line, while closely examining surveillance technologies in dementia care and temporality at nursing homes.

One way to conceptualize some of the consequences of using surveillance technologies in care work, is through Bogard's concept of simulation (1996). Bogard uses the idea of simulation to draw attention to the seductive imaginaries of surveillance technologies. Bogard argues that 'to understand what the technology of surveillance is and the effects it aims for today, increasingly we have to appreciate the fantasy that drives it' (Bogard, 1996, pp 8–9). We recognize the powerful and seductive character of a simulation, in the Scandinavian, and especially Danish, context of using alarms and surveillance technologies in dementia care. Municipal administration, tech companies, and the media have great hopes for the technologies, and expect them to support timely care and prevent people with dementia from getting hurt (See KL Local Government Denmark, 2021; Nyvang Burmeister, 2022).

Focusing specifically on temporality and rhythms in care work, and how they are reconfigured, intertwined with, and occasionally clash with the temporal demands ingrained in care technologies, we explore *how care workers negotiate and balance temporality when working with surveillance technologies.* Surveillance practices are used differently during the day and at night. To accommodate this, we look at alarms, monitoring technologies, and timely responses, first during night, and then during day shifts. In the last part of the chapter, we draw on Bogard's work of surveillance as simulation, to further articulate how the technologies understood as surveillance play a role in simulating ideals for a timely response in dementia care.

Context and method: surveillance technologies at three nursing homes

Our analysis is based on ethnographic fieldwork at three nursing homes that use different surveillance technologies. The first nursing home, Lakeside[1] in Denmark, uses technologies focused on tracking or detecting movements, such as motion sensors, door sensors, and GPS trackers (see Figures 3.1, 3.2, and 3.3). A legal framework[2] in Denmark was developed for increased use of these technologies. Previously, nursing homes had to apply to the municipality for permission to use these technologies. Now, the head of

Figure 3.1: A motion sensor

Source: Photo by Astrid Meyer

Figure 3.2: A door sensor

Source: Photo by Astrid Meyer

the nursing home can make the decision autonomously (as long as the resident or relatives do not object). The legislative revision reflects a change in how the technologies are perceived. Previously, the technologies were associated with an invasion of privacy and a use of force. In contrast, now they are framed as 'safety-enhancing welfare technologies', which alert care workers when potentially dangerous situations occur, enabling them to take preventive actions immediately. Thus, motion sensors alert care workers whenever a resident who is at risk of falling leaves the bed, while door sensors alert care workers when a resident with dementia, who needs companionship to stay safe outside the nursing home, leaves the apartment

Figure 3.3: GPS trackers
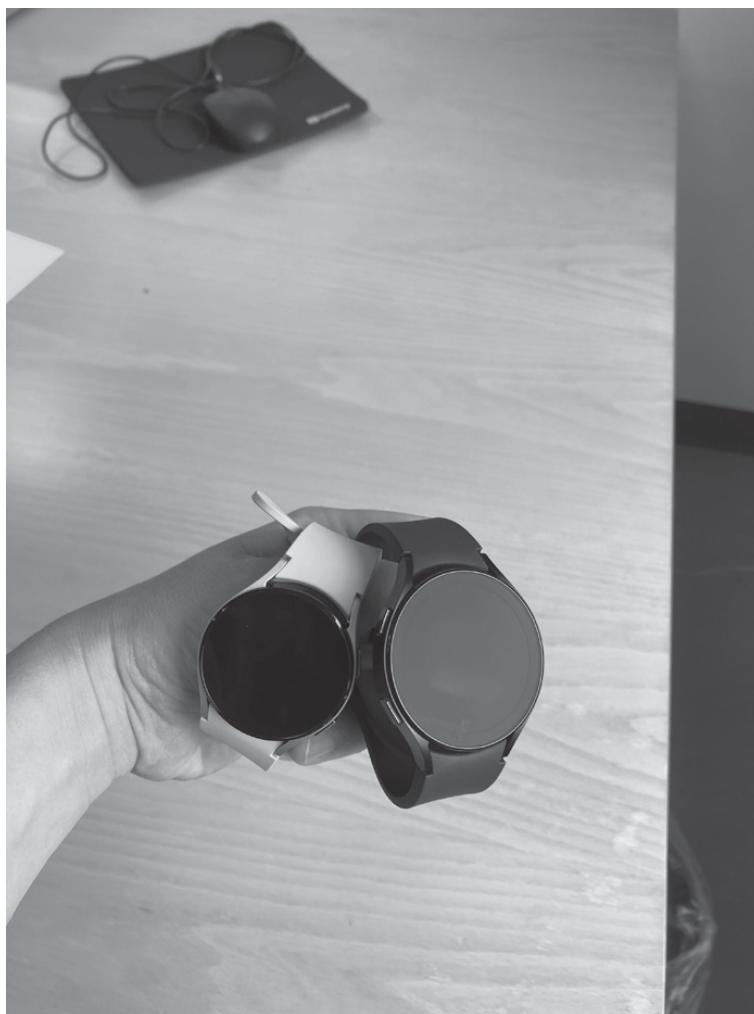
Source: Photo by Astrid Meyer

or unit. GPS tracking is used in two ways. Firstly, it is used to support the care of residents who enjoy walks. In this case, the intention of the GPS tracker is to make it safer for them to continue walking alone, as they are easy to find if they get lost. Secondly, the GPS tracker is used to prevent residents from leaving the nursing home alone if they are deemed unable, for instance, to navigate safely in traffic. In such cases, the GPS tracker is typically linked to a geo-fence, which triggers an alarm when the resident leaves the premises. Through the GPS coordinates, carers can quickly find and accompany the person back.

The two other nursing homes, Norwegian Glenview and Danish Evergreen, have expanded surveillance further by using technologies that display live images of residents' apartments. At Glenview, the images are modified, making it impossible to recognize the displayed person, but possible to see whether a resident is out of bed or has fallen over (see Figure 3.4). Meanwhile, Evergreen uses unmodified live images (see Figure 3.5). In both nursing homes, the care workers make use of the live images with residents who are disturbed by a physical check. In these cases, this type of video check-in technology is considered to be less intrusive than a physical check, where care workers risk waking residents.

Ethnographic fieldwork was carried out to study the use of the technologies. Extensive fieldwork took place at Lakeside between April 2021 and September 2022 as part of a large, collaborative research project where the nursing home, the municipality, and researchers explored the use of surveillance in care work together, and the ethical issues that emerged when using these technologies.[3] Two researchers, AM and SAB, shadowed and interviewed care workers (Czarniawska-Joerges, 2007), and residents, and observed daily life at the nursing home. Meanwhile, the fieldwork by SAB at Glenview and Evergreen was less extensive, consisting of six to nine interviews and observations at each place. The fieldwork at Glenview took place in August 2022, and was part of a research project investigating international experiences of using surveillance technologies. Between 2017 and 2022, the fieldwork at Evergreen explored the implications of a trial, in which the Danish Ministry of the Interior had granted seven municipalities permission to use video check-ins in care for nursing home residents with dementia, after they or their relatives approved its use[4] (Ballegaard and Andersen, 2023).

The legislation in Denmark and Norway is similar, as both allow for certain surveillance technologies to be used to enhance safety for people

Figure 3.4: A live image depicted by the sensors used at Glenview

Source: Sensio, used with permission

Figure 3.5: A sensor in a resident's apartment at Glenview

Source: Photo by Stinne Aaløkke Ballegaard

with dementia who are at risk of being harmed. The usage presupposes that surveillance technology is the least intrusive means of taking care of residents with dementia.[5] While both countries agree that GPS tracking and sensor technologies may be the least intrusive ways of monitoring movement, they did not agree on the use of video during our fieldwork. In Norway, the use of video was, and still is, seen as less intrusive than a physical visit (Eide and Barken, 2021), while additions to the Danish Social Services Act[6] explicitly mentioned that video cannot be used to monitor residents.[7] Thus, in Denmark, video check-ins could, during our fieldwork, only be used in the trial cited earlier, where special permission was granted.

Night

Surveillance and timely responses

We start by looking at the use of surveillance technologies during the night. At all three nursing homes, care workers used technologies aiming to support timely care, while avoiding waking or disturbing residents. A noteworthy example took place at Evergreen, where Linda, the night watch, explains how she used technologies in two ways to help the resident John. Firstly, the motion sensor alerted her if John left the bed. He struggled with his balance and needed either a supportive hand or a walker to get to the bathroom safely, but suffering from dementia, he would often forget this. Secondly, Linda used the video check-in during the morning to see if John was awake. Using video-based check-ins provided valuable information on his morning state, and helped her decide on the right time to enter his apartment. Linda explains that she must not enter too early, as this would agitate him since he needed time to wake up, but not too late either, as this entailed a risk of him falling, or becoming confused and frustrated by the effort of trying to put his own clothes on.

This example points to how surveillance technologies support care workers in aligning care work to the resident's rhythm, and consequently achieving timely responses. At the same time, it also points to how a timely response has multiple levels. Based on studies of controller systems such as air traffic control and crisis responses, Johansson and Lundberg (2017) suggest that a timely response is characterized by three basic notions: firstly, *temporal expectancies* linked to the particular environment help regulate activities. They relate to expectations of 'how processes will develop over time, on the times and timings of change, and on the times and timings of required corrective actions' (Johansson and Lundberg, 2017, p 116). Secondly, they argue for the idea of *time scales* when understanding timely responses. Here, the points of *perception, decision*, and *action* are differentiated, to understand more complex situations where expectations alone are insufficient for a timely response. This framework is centred around the idea of a controller who can perceive a task, decide what to do, and act on it (see Figure 3.6 for a visualization). Thirdly, the framework highlights the importance of *recovery intervals*. Drawing on Woods (2010), Lundberg and Johansson use the term recovery interval to consider a timely response as acting within the window where actions can be taken to avoid (negative) consequences.

As Linda describes her use of the motion sensor, it appears to follow the trajectory of perception leading to decision leading to action, laid out by Johansson and Lundberg. The care worker is alerted by the technology, decides what to do in the situation, and acts on the decision. However, in the case of video check-ins, the idea of a timely response appears to be more complex. Linda's temporal expectations are involved from the onset

Figure 3.6: A visualization of Lundberg and Johansson's time scales for a timely response
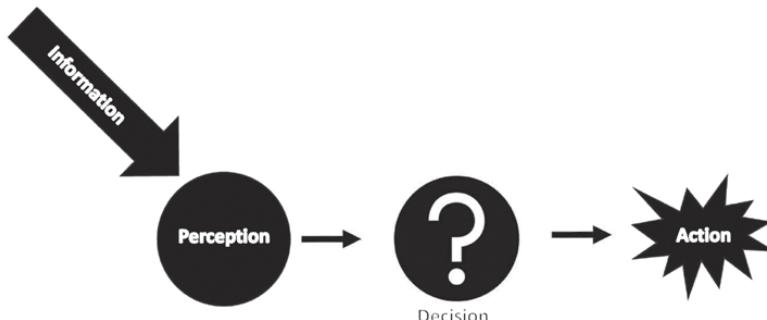
Source: Modified from Johansson and Lundberg (2017)

as she, rather than being alerted, must check in on John when she expects him to be awake. Furthermore, her temporal expectations also matter, when she waits a little while to enter at the right time. This idea of entering at the right time is equally interesting in terms of the recovery interval, as a component of a timely response. It points to how there is a window of time when entering may prevent John from falling, getting confused, or getting frustrated. At the same time, this observation also points to an additional aspect of the recovery interval: namely, that acting too early may disrupt a timely response. In this way, Linda's temporal expectations are key to finding the right time to act. In other words, surveillance technologies can support care workers in achieving timely responses, but Johansson and Lundberg's framework helps to articulate how this is by no means something the technology achieves alone. Rather, the timely responses potentiated by the surveillance technologies hinge on the care worker's existing knowledge and expectations. It shows how surveillance technologies can play a role in tinkering with time, as they provide information, which fits into the experimental effort to be at the right place at the right time. Care workers hence use surveillance technologies to avoid or reduce everyday arrhythmia, as they balance the complex polyrhythmic demands of institutional care work.

Supplementing the technology

During our fieldwork, we also saw examples of care workers who encountered challenges when using surveillance technologies during the night, and who actively tried to bridge these challenges. At Lakeside, the night watch, Sandra, would sneak in and adjust every motion sensor at the beginning of her shift to ensure it faced the right direction, and then trigger

the alarm to check that it worked. She would then rush out again and close the door, before the alarm sounded on her tablet. Sandra would do all this while being highly conscious not to wake the resident. When asked why she went through all the trouble of adjusting, she explains that the sensor could have been moved ever so slightly, making it unlikely to register relevant movement. Checking the sensors in person was the only way for her to make sure she could trust the alarms throughout the night. This is an example of a care worker who actively engages with surveillance technologies and wants to depend on them in her work. However, she first needed to tinker with the technologies, to ensure they did what she expected. This type of tinkering could be conceptualized as repair work (Schwennesen, 2021), as Sandra actively engages with the technology to make it meet established safety expectations.

While Sandra tries to bridge the challenges of using surveillance technology in care work by adjusting it to fit her own and the residents' needs, we witness other types of adjustments unfold at the Norwegian nursing home. At Glenview, the night watch is instructed to perform digital video check-ins three times during the night. However, they explain that there are limits to what can be observed digitally, specifically breathing or the lack thereof. Therefore, some night watches continue to perform physical checks in the morning, to ensure that all residents are alive and well. A unit manager explains that this had been a key issue when introducing the video check-in, as some care workers felt they failed to do their job properly if a resident passed away during their shift without their knowledge. Not noticing straightaway that someone has died conflicts immensely with a sense of moral responsibility and duty of care. To deal with this, some of the care workers take it upon themselves to take on additional work, by checking in person without being encouraged or instructed to do so.

Both these cases involve care workers who work with surveillance technologies and encounter challenges in trusting the system completely. They see gaps and work to fill these gaps in different ways. At Lakeside, this happens by tinkering with, and repairing, the set-up of the technology to make it more likely to give alarms. In this way, Sandra made sure the technology worked according to her expectations. However, at Glenview, the care workers supplement the technology by checking up on residents physically when they encounter gaps. This points to a reversal of how technologies are envisioned as being aids or supplements to human systems,[8] as the system comes to depend on care workers who deal with the system's blind spots. These ethnographic examples show surveillance as motivated by, but also depending on, care, as the technologies need care workers who complement and supplement them. As a result, surveillance technologies in nursing homes are by no means able to totalize care, they depend on continual tinkering.

Day

Timing use

Surveillance technologies are, in some cases, meant to indicate needs. When the residents cannot convey their needs themselves, the technologies may help facilitate timely responses. This is the case at night, where using the technologies is typically characterized by switching them on and leaving them on for the whole night. During the day, however, it is necessary to time when alarms are needed. Residents often spend their days on activities such as going for walks, getting visitors, napping, or watching TV. Throughout the day, there are activities where tracking technologies make sense, and situations where they are redundant or even a nuisance – such as when care workers may trigger alarms themselves by walking in front of a motion sensor while helping a resident. As a result, a particular type of time-specific work is associated with switching the technologies on and off. To find the right timing for using the technologies, the nursing home primarily relied on establishing routines and daily rhythms for using technologies adapted to each resident. This would be based on professional assessments, and annotated in the day-protocol[9] for each resident, which, for instance, reminded care workers to turn the motion sensor off first thing in the morning, to avoid triggering alarms while helping a resident get up.

Timing the use of technologies did, however, also often rely on the residents themselves accepting these technologies. This acceptance played a role in terms of respecting the residents, but in some situations, they also relied on the residents' acceptance and participation in terms of timing the use of the technologies. AM saw an example of this when she met Elsa. Elsa was a Lakeside resident who enjoyed walking to the nearby lake. Elsa got lost during such a walk before we started our fieldwork, and as a result, the nursing home asked her to wear a GPS tracker when going for a walk. Subsequently, Elsa could continue her walks, and it would be easy to find her if she got lost again. During an informal interview, Elsa extends an invitation for AM to go on a walk with her down to the lake. Upon leaving, Elsa first drops by the staff office to say she is going for a walk and asks for 'one'. By 'one', Elsa means a GPS tracker. The nursing home staff had made an agreement with Elsa to pick up a GPS tracker and let them know she was leaving. In this way, she did not need to wear a tracker the whole time, but only while walking. On the way out of the nursing home, AM asks Elsa about what she thought about wearing a GPS tracker. Elsa replies that she knew it told them where she was, and that was good. This shows how Elsa played an active role in finding the right time to wear a technology like GPS tracking. Social factors and communication between residents and staff thus also play an important role in establishing routines for the technologies. However, as dementia is a condition that changes over time, these routines

must be adapted constantly to fit the current situation. This was also the case for Elsa, who, towards the end of our fieldwork, no longer remembered to ask for a GPS tracker before leaving. As a result, the nursing home ordered a GPS watch for her to wear constantly. Understanding this type of continuous follow-ups as tinkering makes it possible to highlight the ongoing problem-solving adapted to the concrete situation and the technologies used.

Tinkering towards a careful response

During the day, care work is characterized by being hands-on and socially present. Care tasks like helping someone get dressed, serving a meal, assisting with personal hygiene, and providing medication depend on tuning in and responding to the person needing help. Furthermore, documentation, coordination, and discussion on the course of treatment and care are important aspects of care due to daily developments in residents' situations and health. As a result, many different needs often coincide during the day, and care workers must juggle overlapping tasks. A care assistant at Lakeside summarizes this when she says: 'You never *just* do something at a nursing home' (italics added). She emphasizes that even just walking down the hallway to attend to a resident can involve multiple interruptions, as other care workers and residents call for her attention.

Surveillance technologies also play a role in constituting Lakeside's many interruptions, as the motion sensors, door alarms, and GPS trackers all trigger tablet alarms, which the care workers are always expected to carry. The tablets allow the care workers to read the residents' journals, write observations, and respond to alarms. They make a loud sound that many care workers describe as 'annoying'. The alarms are meant to interrupt as they indicate something is happening, which the care workers should react to. While observing at Lakeside, we encounter two problems with the tablet alarms. Firstly, at a very material level, the tablets are too big to fit in most pockets, which means they are put down often, usually on the trolleys care workers push around in the hallways when attending to residents (see Meyer et al, forthcoming). Secondly, some residents react strongly to the tablets when an alarm is triggered. Caroline, a care assistant, elaborates on this as AM shadows her:

> She explained that there are some residents, like Kaj, a man with severe dementia, who just cannot take hearing the sound of the alarm. When care workers attend to these residents, they typically leave the tablets outside. Then, alarms may go off without anyone around to attend to them. (Extract from AM's fieldnotes)

This way of dealing with alarms in certain care situations, points to an aspect of surveillance technologies raised by Wajcman (2015), on the

relation between time and technology. Based on long-term studies in an office environment focusing on interruptions from calls, emails, and voice messages, Wajcman argues against a mechanistic approach to technologies as something constituting an environment of interruptions. Rather, she shows how employees are rarely in situations where their 'only response is to attend to the call for their attention' (2015, p 98). Wajcman argues for a socio-material understanding of time and temporality, entailing that both technologies and humans shape practices. This appears to be the case after the adoption of tablets with alarms at Lakeside. As articulated, the alarms make it possible for care workers to be at the right place at the right time. In some situations, care workers find it impossible to reconcile the alarms with their other work, and as a result, they bypass the alarms by leaving them out of hearing range. When care workers leave their tablets outside in the hallway and physically remove themselves from the alarms, they tinker with time in a different way. They tinker with how surveillance technologies facilitate time. By leaving the tablets behind, care workers weigh two rhythmic demands up against each other. On the one hand, there is the timely response facilitated by the tablets. This depends on responsive and alert care workers, who can be trusted to repeatedly hear and react to the alarm. On the other hand, there is the value of being present, to care for the person in front of them. This implies approaching care in ways that emphasize reoccurring, relational qualities and meaningful interpersonal connectedness (Tronto, 2015; Molterer et al, 2020). Receiving loud alarms in a setting where residents react badly to the alarm indicates a tension between the two. Care workers address this tension by altering between carrying the tablet around with them and leaving it behind. This is not a complete rejection of the technology, because they pick it up again. Rather, it is a tactic to decide when to value the uninterrupted care for, and wellbeing of, certain residents higher than timely responses to the needs of other residents as determined by the technology.

Tensions creating more tensions

On many occasions, care workers tell us about how they think there are too many alarms, that the alarms contribute to a stressful work environment, and that the alarms keep ringing in their heads after they go home. At Lakeside, we observe how care workers distancing themselves from the tablets affects the number of alarms. The fact that care workers often leave their tablets in the hallway when attending to residents, means that the unanswered alarms pass from one tablet to the next. Consequently, the same event can trigger multiple alarms. Thus, tinkering sometimes multiplies the alarms to an extent where care workers experience too many alarms during the workday to take all of them seriously.

The term *alarm fatigue* is often used to describe situations where alarms are considered a 'nuisance', and where people, as a consequence, may 'disable, silence or ignore the warning that is intended to make the environment safe' (Cvach, 2012, p 269). In such situations, the nuisance alarms create encourages desensitization rather than making the environment safer. We argue that surveillance technology depends on the care workers who tinker with it, and how they integrate it with their existing knowledge. However, care workers tinker with the technology in ways that often prioritize the person in front of them, rather than the system at large. Care workers are placed in difficult situations without any obvious solutions. If they refrain from tinkering with the surveillance technology and alarms, this may affect the quality of care. If, on the other hand, they continue to tinker as they have done, they can end up with an unhelpful and even desensitizing number of alarms.

Surveillance perceived as a solution

Policy makers, municipal administration, tech companies, and the media point to increased use of technological solutions to the challenges associated with dementia care (KL Local Government Denmark, 2021; Nyvang Burmeister, 2022; Stella Care, 2023). Here, welfare technologies are often linked to saving time and optimizing care (Kamp et al, 2019). We saw a drastic increase in the use of surveillance technologies, while spending time at the nursing homes. For example, the number of GPS trackers at Lakeside went up from ten to just over twenty during the year and a half of our fieldwork.

Care workers often talk about the limitations of the technologies and how they come up short in many situations. At the same time, they often stress the technologies' importance and use terms like 'huge help' and 'a source of safety' when discussing them. While witnessing this combination of conflict and appreciation, we are left with questions about how nursing homes dealt with the care challenges addressed by video check-ins, GPS tracking, door alarms, and motion sensors before the technologies were available. We ask Marianne, an experienced care worker at Lakeside with 35 years of experience in Danish nursing homes, about this. She tells us how, when she first started working, she would receive calls about people with dementia who had left the nursing homes she worked at and would have to find a solution, usually involving a taxi, to get them back. She does, however, also underline that the premise had changed dramatically, as the residents today are older, sicker, and in need of more care:

The category of residents is getting heavier and heavier and more and more difficult, and they do so both physically, psychologically, and

socially. The ones who come here, they always bring a lot of baggage and problems with them. (Interview with Marianne)

Marianne partially attributes this development to the Danish policy of allowing people to age in their own homes for as long as possible (see also Kamp and Hvid, 2012). As a result, the residents moving into a nursing home like Lakeside are older, frailer, and more ill than residents were when she started working. She sees the new technologies as troublesome and often unpredictable, but also as a resource. Several other care workers and nursing home management similarly stressed that surveillance technologies figured as a resource to tap into. This points to a complex picture of care work and technologies as experienced by care workers. They are dealing with emerging and ever-moving care challenges, and see the technologies as a part of this moving picture.

William Bogard's *The Simulation of Surveillance* (1996) helps to understand the profound disparity between the surface-level portrayal of events at nursing homes and the intricate realities of care work. In Bogard's view, surveillance does not go behind or penetrate the surface of things to make everything transparent and available. Instead, it carries with it a fantasy of a manageable world that transcends the limits of physical presence and provides the illusion of omnipresence. Systems like video check-ins, GPS tracking, door alarms, and motion sensors are positioned in ways where they at once represent the challenges and offer a solution to them. They offer a fantasy of a system where care workers are made aware of problems in time for them to react and prevent them. Bogard characterizes this as hypercontrol, a concept that steps beyond being efficient and instead is 'prefficient' as it 'eliminates problems before they emerge' (Bogard, 2005, p 60). As we have shown, this logic of hypercontrol does not last long in everyday care situations. The alarms meant to facilitate timely responses require interpretations and judgement, and may not always reach the busy care worker. Care workers deal with the ambiguity between alarms indicating that they ought to be alert and how they tinker with the system daily. As reflected by Marianne and the other care workers, this ambiguity is exacerbated by perceiving surveillance technologies as a solution to many care challenges at nursing homes, while constantly struggling when working with them. While surveillance systems may offer the fantasy that hypercontrol is within reach, it does not take many hours at a nursing home to establish that this remains a simulation, and impossible to realize in practice.

Recognizing tinkering

It is important to recognize that care workers often tinker, while also interacting with the surveillance system through tablets. The surveillance system does not register how care workers adjust the technology continuously, and it does not see the logic when they refrain from responding to certain alarms. This

poses a potential issue if policy makers, tech companies, and administrative staff follow the traces left in the system and continue to push the technologies based on the simulation in the system. Peter, who works administratively at the municipality and helps in person at nursing homes when they experience technical difficulties, told us more about this. He was fully aware of the challenge of looking at the surveillance system alone. He shares a story in which he accidentally witnessed a resident leaving unaccompanied, and later was able to observe the same resident through the system:

> I drove past a man who evidently was confused and upset. There was a car from the municipality, and two care workers who tried to calm him down and help him. I could guess what the scenario was, and after a quick glance at the [surveillance] system's dashboard I could see that no one had handled the geofence alarm. It was handled 85 minutes later. This is a good illustration of how the data only is 'half the truth'. Care workers had responded to the alarm immediately. … The resident was very fast and got far through a network of paths … but the care workers were with him within 15–20 minutes. Here, the data might show we don't do enough, but in this scenario, the reality is different – the care workers had heard the alarm, and in the 'heat of the battle', they had not handled the alarm [in the app], but everyone knew what to do. (Extract from email correspondence with Peter)

This shows how surveillance data does not necessarily reflect care workers' timely responses. Had Peter only looked at the surveillance system, it would have seemed like a situation in which the care workers had failed to *do enough* or had acted too late, while, in fact, they responded promptly when the resident left the nursing home. This is work which bypasses the system without leaving accurate data behind.

The flip side of this story, where emergencies develop, which the simulation cannot see, is also worth considering. These are incidents such as when the resident Kurt left Lakeside and went missing for eight hours. He wore a GPS tracker, but one day, a substitute care worker forgot to charge it, and the tracker ran out of battery. Later that same day, Kurt went out on a long walk alone, wearing shorts in the brisk autumn weather; he took a bus to the other side of town and finding him again involved a long, stressful search. Luckily, he was unharmed, but this tale shows that there are situations where people get lost, and the GPS tracker cannot register it. In tandem with Peter's story, it points to how a simulation involves reducing the inherent complexity of care work into an easily digestible overview, yet the reduction loses much of the richness and nuance that goes into the subtleties and intricacies of care work.

Given the strong push for technologies in care work, the implications of surveillance as simulation are concerning. The simulation of surveillance

creates a sense of order and control which can be reassuring from the perspective of administrators and policy makers, but without recognizing tinkering there is a risk that simulation produces the illusion of control. This underlines the importance of people who, like Peter, know of the limitations when looking at information from the surveillance system alone. A surveillance system is not necessarily able to surveil or regulate itself, as it is blind to the many ways people adjust the technology. This tension between simulation and lived reality is important, and we maintain that there is a need to recognize tinkering as essential to making care work at nursing homes. As a result, it is crucial to keep looking at situated practices with surveillance technologies when making regulatory decisions about them.

Conclusion

In this chapter, we have focused on those forms of surveillance motivated by an attempt to improve care. We have explored how timely responses and surveillance technologies, such as GPS tracking, motion sensors, door alarms, and video check-ins, intertwine and sometimes clash with dementia care. Drawing on ethnographic fieldwork from three nursing homes in Scandinavia, we looked at how care workers negotiate and balance temporality when working with technologies. In this context, we employed the idea of tinkering as an experimental approach to care and technology.

We find that surveillance technologies, especially at night, depend on care workers who tinker when they combine their existing knowledge with the technologies to support timely responses, and align themselves with residents' rhythms. At the same time, the technologies also depend on ongoing tinkering, as care workers adjust and supplement them. During the day, the relationship between timely responses and alarms is more intricate. It requires care workers who engage actively in negotiating and balancing temporalities – in ways that sometimes involve minimizing or even blinding their surveillance gazes, when care workers physically distance themselves from the tablets to avoid unwelcome interruptions. Consequently, working with surveillance technologies is a complex process involving weighing up values, and balancing responsibilities through various timely responses. We argue that care workers tinker with the technology to find ways to address the complex tensions that arise when introducing alarm-intensive technologies into nursing homes.

Care workers tinkering with the system may address problems and moral dilemmas in concrete situations, but not at a larger scale. Because care workers tinker with the surveillance in ways that run parallel to the system, much of their tinkering is unregistered, or recorded in misleading ways by the technologies. Drawing on Bogard's concept of surveillance as a simulation helps us to highlight how a system can render tinkering invisible, while

simultaneously offering a fantasy of a manageable world. This serves as a reminder that the problems and dilemmas care workers tinker with are also rendered invisible through this very process. Given the push for increased use of welfare technology, such as surveillance technology, in care work, it is important to know how surveillance may simulate a reality that is blind to many problems and solutions of everyday care work. When making decisions about surveillance in care work, it is crucial to be aware of these limitations, to avoid decisions based on a fantasy.

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Notes

[1] Throughout the chapter, we use pseudonyms for people and place names.

[2] Bekendtgørelse om Tryghedsskabende velfærdsteknologiske løsninger i relation til afsnit VII I lov om social service, BEK nr. 1412 (Danish Order).

[3] Through this, we gained access to the fieldwork opportunity at the nursing home collaborating with the project. The fieldwork was approved by The Danish Centre for Social Science research's ethical review board.

[4] Bekendtgørelse af lov om frikommunenetværk. LBK nr 831 (Danish Act).

[5] Lov om pasient- og brukerrettigheter, nr 30 (Norwegian Act), and Bekendtgørelse af lov om social service LBK nr 170 (Danish Act).

[6] Lovforslag nr. L 156, fremsat d. 6.2.2019, Forslag til Lov om ændring af lov om social service, lov om almene boliger m.v., lov om leje af almene boliger og forskellige andre love, afsnit 2.6.3.

[7] This addition was revoked in 2024 after our fieldwork, where legal changes allowed nursing homes to use live images in specific situations. See: Lov om ændring af lov om social service, lov om voksenansvar for anbragte børn og unge, lov om retssikkerhed og administration på det sociale område og lov om opkrævning af underholdsbidrag LOV nr 680 (Danish Act).

[8] An example of this is how welfare technologies are described, by the Nordic Welfare Centre (2024), as 'an important tool for, among other things, enabling the Nordic region's around 1,200 municipalities to handle the pressure and to continue to provide high-quality social welfare.'

[9] Each resident has a so-called 'visiting plan' (*besøgsplan*) which is a detailed daily care plan.

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