Can Proximity be Reached at Distance?

- A qualitative study exploring nurses' perspective on new camera surveillance at an intensive ward

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June 3th, 2022

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Abstract

Background: Rigshospitalet and the innovation department at the Neurointensive ward saw a need for camera surveillance of patients. Therefore, they launched the project, "*Proximity at Distance*". This study is based nurse's perspective on how a new technological solution, camera surveillance, can support or challenge the nurses' interaction with patients. A study was made to find out if proximity can be reached at distance and what challenges must be overcome when working with video surveillance.

Method: Empirical evidence was found through literature search, participant observation and qualitative semi-structured interviews with five nurses, the users of the technology, and one innovation nurse, the expert of the technology. Data collection went on from February to March 2022. Thematic analysis was applied to analyse data and results were discussed using theory from; Don Ihde, Peter-Paul Verbeek, and Olya Kudina's theory of post-phenomenology and technological mediation of morality, Constructive technology assessment, Botin et al.'s model of actors involved in technology and Tom Børsen's theory of ethical assessment.

Results: The study shows that there are different ways of understanding how to use camera surveillance among nurses and experts due to the technology being multistable and something that mediates the actors in different ways. However, challenges must be addressed for the technology to succeed. These challenges stem from the fact that there must be a basic rule set for how and for whom the technology should be used.

Conclusion: The study indicates that camera surveillance can be used by the nurses in practice, and proximity can be reached at distance. However, there must be more cooperation between the various working groups, and the nurses must be consulted and involved, therefore, recommendations are made for the ward.

Keywords: *Healthcare, video surveillance/monitoring, hospital, patient, safety, intensive wards, intensive care, critical care, cameras, welfare technology, implementation, innovation, nurses, qualitative research, ethics, technology*

Preface

First, I would like to thank Rigshospitalet and the Neurointensive unit for letting me participate in workshops and collecting interviews on the ward.

In addition, I would also like to thank the amazing nurses at the ward who go to work every day and take care of critically ill patients. Thank you for your openness and honesty during the interviews I conducted at the ward.
I also want to thank Malene, the innovation nurse on the ward, for giving me access and sending me material regarding the project; *"Proximity at Distance"*.

I would like to thank my supervisor Lars Botin, professor at Aalborg University, Copenhagen, for his guidance, support and motivation throughout this process.

Finally, I would like to thank my family, friends and my boyfriend for joining me on this journey, thank you for being patient, for your advice and for encouraging me.

I dedicate this master's thesis to our son, Konrad

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Motivation

I have a motivation to explore this topic, of new camera surveillance as visual monitoring, as I am a specialised intensive care nurse with eight years of experience in both Norway and Denmark and because I have worked in this particular ward for the last seven years.

It is because of my position as a nurse working in the ward that I had the opportunity to interview and gain access to the project; "*Proximity to Distance*", as it is still a confidential project under development.

My hope for this master's thesis is that the nurses are heard in the debate when implementing new technology. Often, new technology is implemented without the nurses having had a voice in the process. However, the introduction of this technology has been different, as the experts have tried to involve the nurses, however, they have only scratched the surface and users could be much more involved in the co-design of camera surveillance.

I hope this thesis will shed light on the future implementation of innovative projects when it comes to involving the nurses that use the technology in the pursuit of interdisciplinary work between different actors. I will therefore start this thesis with a quote from one of the nurses;

> *If it does not make sense for us to use it, or for the patient,*
> *or the relatives, then it will not be well received. Then it*
> *becomes really difficult to implement (D)*

Introduction

As a nurse working in hospitals, it is important to show proximity and care for patients, but also to create a safe environment for patients. This is something nurses at intensive care units [Hereafter; ICU] must practise in their daily work, when taking care of patients who require monitoring 24 hours a day. The goal on these wards are 1-1 observation. However, this is a challenge for hospitals, as the need for nurses is increasing parallel with the need for saving, costs in health care, on a societal level. The cut in resources are obviously impacting the care of patients.

In January 2020, an agreement was made between the Government and Danish Regions. The number of working nurses in the regions of somatic and psychiatric hospitals, should be increased by 500 in 2020 and another 500 in 2021, leading to an outcome of 1000 more working nurses (2).

The Ministry of Health stated in a press release the 14th of April 2021 that the 1000 nurses are well on their way, as there had already been an increase of 584 full-time nurses by the end of 2020, and thus more than half of the prescribed target of 1000 more nurses (3).

Tabel 1
Fuldtidsbeskæftigede sygeplejersker, 4. kvartal 2019 - 4. kvartal 2020

	2019	2020				Udvikling
	4. kvartal baseline	1. kvartal	2. kvartal	3. kvartal	4. kvartal	4. kvartal 2019 - 4. kvartal 2020
Sygeplejersker	35.146	35.255	35.675	36.244	35.956	810
Heraf studenter, sygeplejevikarer/ventilatører	106	97	241	391	332	226
Sygeplejersker (fratrukket studenter)	35.040	35.158	35.433	35.854	35.625	584

Anm.:   Afrunding kan medføre at summering på tværs ikke stemmer.
Kilde: Statistikken: *Ansatte på offentlige sygehuse*, Sundhedsdatastyrelsen, KRL

Figure 1, Showing how many nurses are working between 2019-and 2020 and the increase of 584 full time nurses (3).

It sounds satisfying that the ambition has been reached in the first year. However, Covid-19 has made the nursing profession difficult. Especially working at the ICU, an insecurity is constantly present, whether there are enough nurses at work, the risk of catching Covid-19, and the practical issues of having to take care of more than one patient on evening - and night shifts.

An article from the Danish Nursing Council January 2022, states that in just one year, 144 ICU nurses have disappeared (4). However, the management of the Neurointensive unit [Hereafter; Neuro ICU] at Rigshospitalet has managed to change the emigration of nurses through three initiatives; "*Management, Development Opportunities, and Work-Life Balance" (4)*. Among other things, there has been a focus on education and development of competencies, why several nurses with experience have been able to take part in the development in the department and research projects (4).

One of the nurses is ICU nurse Malene who has been working at the Neuro ICU for 8 years and now works as a 100% innovation nurse at the ward. Two rooms have been created for testing different innovation solutions through workshops and for sparring with other actors. Malene's job consists of leading and introducing innovation projects in the ward, she must be in contact with various partners and facilitate, together with Rigshospitalet's innovation department, workshops with the involvement of users.

Both in hospitals and in society, there is an increased focus on researching artificial intelligence (AI). This is also seen at Rigshospitalet, which is in rapid technological development to create new health care solutions due to emerging need for products. The solutions are meant to "*create value for patients and healthcare professionals"(5)*. When an idea is to be developed, the innovation department at Rigshospitalet, has created an innovation model;
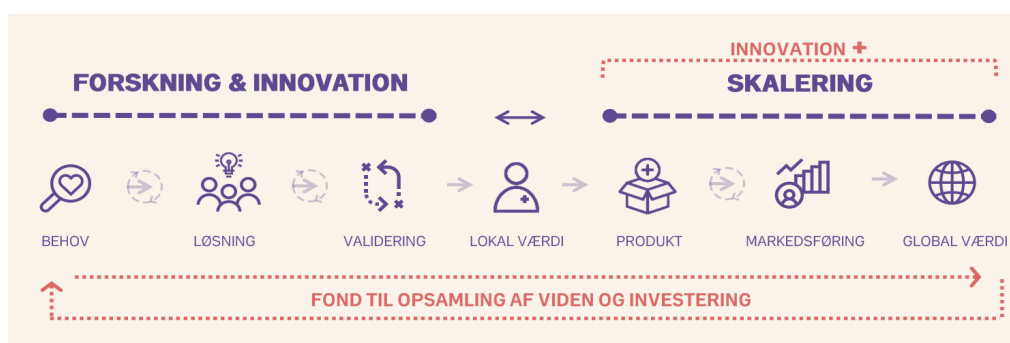
Figure 2, Innovation model made by Rigshospitalet (5)

One need that has arisen at the Neuro ICU, is the need for visual monitoring of patients, when the nurse is absent. It happens that nurses take care of more patients at the same time, they have to help a colleague, or they have to collect medicine. Visual monitoring is believed to ensure patient safety, due to an alarm going off, should a patient make movements which are critical.

The need for visual monitoring is present as the technology helps the nurses keep an eye on their patients, even when absent.

Looking abroad, mostly articles found from America where video surveillance has been tested for several years in the use of patient monitoring. This solution has shown to benefit patients, as it creates more safety when left alone in the room. Moreover, giving nurses the option to observe their patient at a distance, has proven to disturb patient's way less, for example when they are sleeping and taking the necessary breaks to recover from their condition.

Reading from the articles, the implementation of cameras has been made based on several accidents, (i.e. patients falling, extracting their intubation tube or medical catheter) when there are no eyes on the patients, due to a low nurse-to-patient ratio (6)(7). Obviously, it creates insecurity for the staff and for the families of patients. The accidents also cost society a lot of money, an American article mentions that falls alone will cost the American society more than 43.8 billion $ when year 2020 was reached (7).

On the other hand, at the wards where camera surveillance was installed, nurses were not used to working with this kind of technology, hence some nurses encountered the technology with scepticism (7). Another perception was, that the technology invaded the privacy of patients, having them under surveillance (6). Finally, workload was believed to increase with the use of camera surveillance and the nursing profession would be threatened by technology (8).

All these critical comments about new technology can also be seen in the light of the need for a cultural change at the wards. Once this culture has been changed and the users have become familiar with camera surveillance, a more positive side appears.

One article by Michard, F and Kalkman, Cor J 2021, it is mentioned that, in order for this new technology to function, the *"fears need to be carefully addressed when implementing continuous monitoring systems on the wards"* (8) and *"training to nurses and physicians when implementing technology for continuous patient monitoring" (8)*. This is also something that is addressed in another article, by Purvis, S; McKenna A and Fedorov E 2018, which mentions the "*Concerns-Based Adoption Model*" has been created, as a help to staff, patients and families to break down the barriers that may arise when using new technology (9).

Another aspect of adding cameras as video surveillance is that the nurses feel more connected to their patients when the patients are installed in a single room, where the nurses cannot be constantly present. This is supported by an article featured in Digitalhealth 2022, which states

that the technology can be used, *"when there are physical barriers" (10)* and *"technology that provides nurses with near-real-time alerts about those under their care will make patients more visible and in turn, their care more manageable and effective" (10).*

The above-mentioned articles bring hope for a successful implementation of the visual camera surveillance. It has the potential of improving and change the workflow for nurses, better the safety for patients, and give relatives a sense of security, even though met with resistance from the nurses at first. However, the cameras are not yet a permanent part of Danish hospitals, as the technology is under development and being tested at Neuro ICU.

At the moment, Malene (the innovative nurse at Neuro ICU) is testing new innovative camera surveillance (MiGo) and a (MiGo)-application together with Rigshospitalet, the company M2call (and Mindfuture), and Siemens. The innovation project is called; *"Proximity at Distance"* (Appendix - Project description from the ward).

Today, nurses on the floor at Neuro ICU get alarms, on their work phones, which are connected to the patient rooms, when something needs to be checked (i.e. on the respirator, the medication monitor, or the monitor for vital values). The alarms do not provide visual contact to the rooms, in contrast to using camera surveillance which uses an application (MiGo) on a device called "Zebra" to create visual contact.

This thesis set out to address and investigate if the technology has the potential to help nurses in their daily work. To explore how the nurses, react to this new technology, and if they are ready for this kind of change in their workflow using cameras and applications.

I find it important to learn from the experts of these cameras and applications if they can give some background information about the technology and provide some knowledge of why it is important to use cameras when working in the ICU.

The questions I ask are; Can the technology create closeness and support nurses in their work with patients, even if they are not physically close to the patients? Can the nurses on the ward see the benefits of using cameras? Or will the technology take the nurse further away from the patients? What does the use of cameras do to the nurses working in at Neuro ICU, and why was this specific technology chosen? In addition, what kind of ethical dilemmas arise among nurses when filming patients who intubated and sedated, and therefore are incapable of speaking up for themselves?

I see my study as a help to create awareness and insight into a Danish hospital ICU and of how technology can play together with humans and the outcome of this interaction. In terms of my education as a techno-anthropologist, I can contribute with learned skills and knowledge to this field, by "*contribute to the development of robust and socially responsible solutions to societal challenges*" (11).

Thesis statement and specific aims

Goal

To investigate how and if proximity can be reached at distance, where video cameras can be used as a new form of monitoring of patients in the intensive care unit, and to make recommendations for the ward.

Thesis statement

How can camera surveillance as monitoring on an ICU support or challenge nurses in their practices with patients, and how can challenges be overcome?

Research questions

- What are the visions of the involved actors in the implementation of camera surveillance?
- Which mediations are at play between technology and humans?
- Which ethical considerations occur when working with new technology involving humans?

Clarifications

I wish to inform the reader that selected theories will first be applied in the discussion (Chapter 5), where I will discuss my results from the interviews and workshop with my elaborated theory.

A great inspiration for this thesis came from German Philosopher G.W.F. Hegel and his view on dialectics. Based on the framework of dialectics, I will unfold my thesis statement, presenting two opposite sides of how technology can support or challenge nurses. I will then further discuss the differences and contexts.

This study will therefore go through the concepts of thesis-antithesis-synthesis etc. which will appear later, during the analysis (TA) and in the discussion. In the analysis, the nurses state a thesis (positive talk about the technology) and antithesis (resistance towards technology) which are finally summarised into a synthesis (on how the nurses think technology should be used), at the end of my analysis.

Hereafter the synthesis (a new thesis) is challenged in a discussion by Malene (the innovative nurse), who already has a "script" for the technology, this is seen as opposing statements in the form of an antithesis. By combining the two opposite sides (the nurses and Malene) I will again make a new synthesis, in the conclusion (12)(13).

I will direct the reader to the appendix; Thesis - antithesis - synthesis on page 100, where a scheme of the dialectics has been created.

As a final note, it is important to mention that there are actually two technologies at play; The camera in the ceiling of the patient room and the application on the device; "Zebra". However, for the aim of this study, these two are seen as interrelated and will be mentioned as one, either as 'new technology', 'technology', 'video surveillance' or 'camera monitoring'.

Overview of chapters

Chapter 1: Present the field of interest, the innovation project; "*Proximity at Distance*" at the Neuro ICU and facts about the new camera surveillance.

Chapter 2: The chosen theory of this thesis will be unfolded and be presented.

Chapter 3: Description of the methodological aspect of the study, i.e. the literature review, participant observation herein the workshops I participated in, and my data collection to examine the camera surveillance function. Moreover, the chosen method for analysing the data; thematic analysis is unfolded.

Chapter 4: Description of the results of the nurse interviews, based on thematic analysis. Through the analysing process, themes occur, and these will be unfolded through statements from the nurses.

Chapter 5: Results will be discussed using relevant theory. In addition, reflections and limitations of this study will be presented.

Chapter 6: Based on the analysis and discussion, a conclusion is drawn, and recommendations are made for the Neuro ICU or others who have an interest.

Chapter 1: Field of interest

Project: "Proximity at Distance"

In this chapter, the study at the Neuro ICU is described and the innovation project; "*Proximity at Distance*" is investigated, as the prototype of camera surveillance is under development.
I have studied and interviewed the staff at the Neuro ICU at Rigshospitalet that are introduced to this new technology, of movement recordings, that later can be used by nurses in their practise with patients.

I started my fieldwork by visiting the Neuro ICU, which is located in the new hospital building in Blegdamsvej, Copenhagen. In the past, the ward was located in the old building on the 9th floor, where up to four patients lay in the same room, making it easier for nurses to constantly observe patients.
In the new building, patients are placed in single rooms, making the logistics difficult when a nurse is in charge of two patients, as monitors can only be accessed at the nurse base. Every time the nurse is called for assistance or for example picking up medicine it is at risk for the patient.
This new type of video monitoring is designed to allow the nurse to leave the base when needed. In addition, the new ward, being larger with long corridors, placed a need for upgrading the old camera surveillance for one with increased mobility.
That is why the innovation team, with Malene at the forefront as the innovation nurse on the ward, has come up with exactly this project of mobile camera surveillance which they call; "*Proximity at Distance*" (Appendix - Project description for the ward).

Figure 3, Shows the project; "*Proximity at Distance*", a photo taken by me at the ward.

Equipment

I want to give the reader a picture of how the ward intended to use camera surveillance and where the video monitoring in the ward is installed. Firstly, I want to show a picture of what the ward vision patient monitoring should look like (note, it is a doll lying in the bed).

The camera is a stationary located video camera placed on the ceiling above the patient. It gives a cat-eye effect, so it covers much of the room. The intubated patient is always placed close to the ventilator, so no larger width on the camera is required.

In addition, the camera can film in daylight and in the dark because it has diodes that make it infrared when light is lowered.

The video is recorded by a computer that reads and sends a message to a mobile looking device called "Zebra". This application is made for the specific purpose, of detecting unsafe movements. Thereby, the nurse can always keep an eye on the patients and be notified of any critical movements without being in the room.

It is up to the nurse to either react or not when the alarm goes off. The nurse can approve that the alarm has been seen without having entered the patients' room based on their professional estimate, or the nurse can reject the alarm and the alarm will go to the other nurses in the team.

Chapter 2: Context and theoretical framework

Presentation of theories

In this section, I will introduce my theoretical framework. The first theory I will unfold is post-phenomenology described by Don Ihde (14)(15), Peter-Paul Verbeek (16)(17)(18)(19) and Olya Kudina (20)(21), which will be used in my discussion of technological mediation, the role of technological morality and the meaning of values that are co-shaped by technologies.

Post-phenomenology can provide an insight into how technology mediates nurses' experiences/perceptions and actions/practices, but also how designers/experts can add ethical values to technology and intentionality. Technology mediates and there are different paths for the technology, therefore, seen with post-phenomenological eyes, it is multistable. Even though technology mediates the nurses, the designers still have a role in guiding the mediation of the technology.

In post-phenomenology, there is no symmetry between humans and technology, because humans have normative ethical intentions of what is good and bad. The intended technology is influenced and shaped by the designers to make the technology do something specific. To go more in-depth with the moral part of what technology mediates, Kudina has additionally been chosen to describe how technologies mediate morality. As the designers attach ethical value to the technology, which makes them ethically responsible for their designs via their intentionality inscribed into the technology.

When designing new technology, designers must consider and evaluate the ethics of their design, as mentioned the designers inscribe their intention in the technology and therefore possess ethical responsibility.

I have chosen to assess the technology myself, in collaboration with the statements from the nurses. For that purpose, I have included Tom Børsen, Professor at Aalborg University, Copenhagen and his model, "*A Quick and Proper Ethical Technology Assessment Model*" *(22)*. The model is meant to help to deduce for example unforeseen consequences and infinity dilemmas of ethical matters when using camera surveillance (22)

Post-phenomenology often looks at technologies that are fully developed and implemented, described as *"technologies-in-use" (16)*, as Ihde describes; Eyeglasses, MRI, ATM etc. and Verbeek; Ultrasounds, Google glasses, smart toilets, implants etc. They are therefore not talking about technologies-in-the-making. However, the theory is still relevant as it is a technology that already exists (camera surveillance) on the ward but is now being upgraded. In

addition, I also think that if Kudina uses post-phenomenology theory in her PhD. about technology-in-the-making, it is also possible for me to use it (20).

Nevertheless, these theories of post-phenomenology and "*A Quick and Proper Ethical Technology Assessment Model"(22)* are limited to not cover all aspects of Techno-Anthropology content, such as the expert-user relationship, where nurses' perspectives are involved in the process of co-designing and participatory design of the technology.

Therefore, Constructive Technology Assessment [CTA] is applied as well(1). This, is to understand the different elements of the technology together with the model from Botin el. al. (23) which is trying to map out the different actors involved and their interests when making or evaluating a technology (1)(23).

Post-Phenomenology

Post-phenomenology was introduced by the American Professor of Philosophy, Don Ihde, and then later developed by Dutch Professor of Philosophy of Technology, Peter-Paul Verbeek. Post-phenomenology stems from the theory of phenomenology, which has a history of seeing how things appear. The classical theory of phenomenology wanted to describe reality and therefore became the opposite of theories of science which had the goal of explaining the world (17).

A philosophical movement emerged, and phenomenology was further developed, by Maurice Merleau-Ponty, Edmund Husserl, and Martin Heidegger. They served the purpose of, "*analyze the relations between human beings and their world rather than to be a method for describing reality" (17).*

Mediation

Ihde then redefined phenomenology and developed post-phenomenology, which seeks to deviate from phenomenology by granting an essential role to technology in the human-world relation. Post-phenomenology suggests that technology mediates how humans are in the world. Ihde argued that the central elements of phenomenology, should be "*understood in terms of ''intentionality,'' the directedness of human beings toward their world [...] however, that this intentionality relation is most often technologically mediated"* (17).

Therefore "*intentionality*", is the connection between humans and technologies, and human actions are based on the mediation of technology, as the world experienced by humans is

through a mediating technology that forms the connection between humans and the world
(18)(17). The figure below shows the human-technology-world relation;
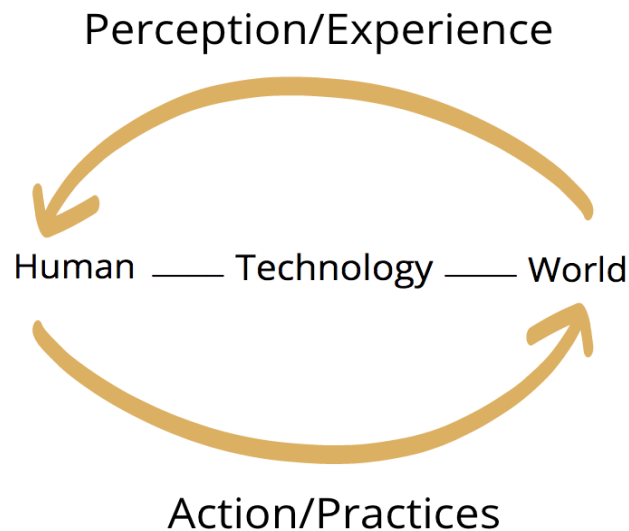
Figure 4, Mediation model (based on Verbeek's description) (24)

Human beings must therefore be understood in the context of their lived world, because *"they cannot simply "think" but always think something; they cannot simply "see" but always see something; they cannot simply "feel" something but always feel something"* (18).

This new way of thinking means that technologies are not neutral, and *"they themselves co-shape the use that is being made of them. Practices around technologies cannot be entirely reduced to human intentions"* (16).

The connection between humans and technology are very clear, technology must not be understood alone, but in the context of human, as it helps to create our existence; *"Technologies help us develop our knowledge of the world, our moral actions and decisions, and even our metaphysical and religious frameworks" (19)*. Therefore, post-phenomenology argues that there is a value in how technology is affecting humans and one has to keep in mind that the design should be responsible and ethically designed. In addition, the user of the design has choices and ethical decisions to make when technology is introduced to them.

There must be a reflection of the technology that is introduced because designers design new technology with their intention inscribed into the technology. The reflection is necessary

because *"designing technology is designing humanity, in a sense [...] and will therefore have an impact that can be understood in ethical terms"* (19).

All designs have an ethical responsibility and some consequences are a combination of how technology *"shapes human perceptions and interpretations of reality" (17)*. One can look at the ethics of technology design that are embedded in the theory of mediation by assessing the technology with the use of Verbeek's mediation analysis (17);

> *To develop moral assessments of technologies, evaluating the quality of their mediating roles in human practices and experiences and their impact on moral actions and decisions. Second, mediations can be explicitly designed into a technology (18).*

Reflections are important on how technology could affect humans and their ethical values, herein how technology affects the human and the ethical value. Designers must reflect on the *technology-in-design* and shape the technology of their mediating role (18). How to assess a technology will later be elaborated on with the use of Tom Børsen's model of ethical assessment (22).

Nevertheless, technology should not be seen as a threat to humans, but rather as a unity with the humans and their world (16);

> *Ethics then does not merely come down to protecting ''humanity'' against ''technology,'' but consists in carefully assessing and experimenting with technological mediations, in order to explicitly shape the way in which we are subjects in our technological culture (17).*

Human-technology-worlds relation

Ihde argues that there are four different relations that all show mediation in different ways, these human-technology-worlds relations are, embodiment relation, hermeneutic relation, alterity relation and background relation (see table 1);

Embodiment relation	(Human - technology) → world.

Hermeneutic relation	Human → (technology - world).
Alterity relation	Human-technology-world
Background relation	Human (technology/world)

Table 1, Human-technology-world relations, based on Ihde's description (15)(25)

Ihde's human-technology-world relation (see figure 4) illustrates that technology can function in two ways of mediation, first *"technologies help shape human experiences and practices" (19)*, second, *"technologies will help to shape human actions and experiences"* (19*)*. One example that is often used is the embodied relations with glasses. It is through the glasses I see the world; Therefore, humans and technology are combined as a unity, directed at the world (19). Another example Ihde makes is the hermeneutic relation, where a unity created between technology and the world (for example; ultrasound - unborn child) and the human reads into it (17).

Verbeek has furthermore added four more relations, as, according to him, nowadays technologies don't fit in the above-mentioned relations by Ihde. Below in Table 2, these new relations are shown;

Fusion or cyborg relation	(human/ technology) → world
Interactive context	human <> technology/world
Augmentation	**(human – technology) → world + human → (technology – world)**
Encounter	human <> technology <> world

Table 2, Based on Verbeek's description (19)

Here I want to focus on Verbeek's augmentation relation which consists of the embodiment and the hermeneutic relation combined. The example he gives is Google Glasses, which is a

division of something into two parts. "*On the one hand, smart glasses can be embodied to give an experience of the world, while, on the other hand, they give a representation of the world in a parallel screen*" (19). I will argue that the same relation is present, in this study of camera surveillance.

Multistability

Technology can mediate actors in different ways. As the tables above show, these meditations suggest that technologies are multistable because they do not have an "*essence, no identity in itself*" (16).

> *The notion of multistability thus points out that a technology always has the potential to mediate human experience in multiple ways. There is always more than only one possible path for a given technology to transform a user's ability to act on, perceive, and understand the world. And simultaneously, the materiality of that technology places limits on what those potential acts, perceptions, and understandings may be (26).*

An example that is frequently used is Heidegger's Hammer, "*a hammer is not just a hammer, but can also be used as a bottle opener, murder weapon and so forth*" (27). In this example post-phenomenology argues that there are different ways of using technology, technology can be used for various things and not just specific things, it depends on the given situation and context of what the users of technology are (27).

Multistability in this thesis is used in the sense that cameras on the ward can be used for different things (i.e. social, economic or political, serving different purposes and agendas) depending on the context.

Post-phenomenology has been used for this study, as it gives a picture of how technology should not stand alone but be seen in the light of those who use it and other actors involved, hence the nurses at the Neuro ICU and the designers/decision-makers.

Moral mediation of technology

Olya Kudina examines in her PhD; "*The Technological Mediation of Morality*", the relationship between ethics and technology. She describes the concept of moral mediation as

important and necessary in order to look at "*how technologies co-shape the moral decision of people*" (20).

She uses the word, "*'value dynamism' that explores how technologies co-shape the meaning of values that guide us through our lives and with which we evaluate these same technologies*" (20).

In a Ted-talk, she explains how technologies mediate morality and the meaning of values, where she lists three points;

1. *Technologies help to shape our **perceptions** about ourselves, each other and the world around us (e.g. Instagram/Snapchat filters, female voices in smart devices)*
2. *Technologies also help to shape specific situations of moral **choice** emphasising some options and reducing the visibility of others (e.g. sex selection).*
3. *Technologies also help to **define the meaning of values** - reaffirm or challenge the values we have* (e.g. Google glasses) (21).

With this in mind a picture emerges that technologies are far from "*neutral tools but do something more than what they were designed to do*" (21) used by humans and affects how the world is presented to us by technology.

Technologies mediate morality, the world is experienced/perceived, the way we act/practice in the world, our values and choices and how these are produced or even changed by technologies. This also means that technology help co-shape our moral actions and decisions, thus technologies are not moral agents themselves (20).

Nevertheless, there may occur some ethical consequences that need to be addressed, when technologies mediate morality, Kudina states in her study, "*if ethics is about the question of ´how to act´ and ´how to live, and technologies help shape our actions and the way we live our lives, then technologies are `actively´ taking part in ethics*" (20).

However, this does not mean that humans are passive individuals who use technology without questioning them. On the contrary, we need to look at the hybrid relationship between them (18).

Technology should be seen as an ethical invention, why in the next section I will explain Tom Børsen's four-step model for ethical technology assessment, and how this can be used when wanting to detect desired or undesired effects.

Ethics

"Ethical input is needed if technological solutions are to be successful in the long run" (28), as it is a new technology, meant to be implemented in a hospital ward, this thesis is based on, ethical considerations are essential.

In this section, I will look at Tom Børsen's chapter, *"A Quick and Proper Ethical Technology Assessment Model" (22),* which describes that when designing technology, there must be considerations about *"intended and unintended effects"* (22). As Techno-Anthropologists, we are schooled to **"***promote robust and responsible technological innovation that explicitly aims at preventing undesired technological effects" (22).*

To make a technology assessment of a product, one must understand the concept of technology or socio-technical configuration. It is not only technical but also defined as a social matter of interest and values from humans and society (22).

To assess the ethical aspect of technology and its desired or undesired effects, Tom Børsen has made the; *"Quick and Proper ethical Technology Assessment model" (22)*. He describes it as a four-step model;

> *1. Identification of intended beneficial consequences, potential misuse, unintended adverse side effects, and long-term consequences for society*
> *2. Linkage of intended consequences, misuse, adverse effects, and cultural implications of the uses of the assessed socio-technical configuration to appropriate ethical values*
> *3. Identification of unethical situations and ethical dilemmas related to the socio-technical configuration under assessment*
> *4. Formulation of appropriate technological and institutional design criteria that can resolve the identified ethical dilemmas (22).*

I intend to use *"The Quick and Proper ethical Technology Assessment model"* to find out the intended beneficial effects, misuse, unforeseen adverse effects and long-term society/social consequences of new camera surveillance. In order for me to apply this ethical assessment to technology, I used the discussions at the workshops and interviews with the nurses on the ward

as they mentioned ethical concerns and experiences that have come up from installing the new socio-technical configuration of the camera surveillance at the ward (22).

In the eyes of techno-anthropology, one needs to analyse the socio-technical configuration and its features, in order to address the way it can generate trust and not mistrust (22).

Through the interviews with the nurses on the ward, I want to look into the ethical aspects of camera surveillance, with the use of the *"Ethical Technology Assessment Model"* by Børsen (22).

The ethical considerations and inputs that emerge in the interviews and the workshop are important to include when I, as a techno-anthropologist, are responsible for involving these actors in the technology assessment. This must also be conveyed in my study and to the technical designers (22).

Constructive Technology Assessment

This theory was developed by Jens Müller among others at Aalborg University, Denmark in the '70s and '80s. It is a method *"that enables them [students] to understand how the technical matters they study and develop are embedded in society, and how society and its actors impact the development of technology"* (1).

Constructive Technology Assessment [Hereafter; CTA] focuses on the socio-technical understanding of technology and its impact on society. In order to develop the technology and make responsible design other actors must be involved.

This is important to understand before making a CTA. This approach is also seen in techno-anthropology, where we as techno-anthropologists are required to address complex or wicked problems which emerge from technology development. Both with regards to analysis and assessment of technology, but also to assess how several actors co-construct technology (1).

As a techno-anthropologist, I will use my ethnographic and participatory skills to enable the need for co-design with the users and experts with the aim of making sustainable and responsible technology. This is in line with CTA, which also uses this participatory method when making co-designs (1). Therefore, I see an interplay between CTA and techno-anthropology, where participatory methods are used to add;

> *New insights and enhance or qualify CTA through much*
> *more targeted and focused interventions that facilitate a*
> *specific involvement of technology actors, e.g. users,*

> *designers, producers, etc. Furthermore, we do this by applying context sensitive participatory and ethnographic methods within a socio-technical framework of analysis* (1).

In my thesis, I have used the participatory method to get an understanding of the nurses' and Malene's perspectives in the technological assessment. CTA is an approach that uses these methods of involvement of different actors. As described by Bertelsen and Petersen, *"from a techno-anthropological perspective, there are five main reasons for the relevance and importance of CTA today" (1);*

> *1. A socio-technical perspective gives depth to the understanding of technology.*
> *2. By assessing technologies, the contextual elements of technology becomes clear.*
> *3. CTA facilitates engagement in technological change with local people and thereby highlights the importance of understanding the local settings and further engaging in participatory processes with key actors (users, designers, producers, etc.).*
> *4. CTA provides a framework for addressing technology-related complex or wicked problems.*
> *5. CTA can be used to emphasise sustainability (social and environmental) perspectives in technology development, implementation, and transfer (1).*

Müller describes that technology contains four elements; *"technique, knowledge, organization, and product" (1).*
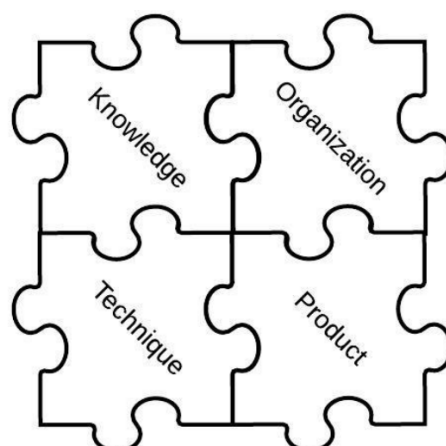
Figure 5, Elements of a technology (1)

By using this theory, I remind myself that I need to look beyond the technology. In my examination of camera surveillance as monitoring, this model is useful, as it defines the elements of technology. Like post-phenomenology, CTA does not see technology as neutral or something in itself. Technology must be seen in relation to other actors and contexts in order to understand the possibilities of the technology and its use (1). Camera surveillance should therefore not stand alone but be discussed based on the four elements in the socio-technical model of technology (see figure 5).

Figure 5 can help me understand the different elements of the technology in question, through the as socio-technical configuration, by identifying the four elements. This theory will work in conjunction with the similar model by Botin et. al. (see figure 6) which focuses on the humans involved, because it tries to map out which actors are at play in the socio-technical configuration (23).

This figure (6) seeks to shed light on how technology can be inclusive by involving participation and design processes. It is necessary to look at all the involved groups of the socio-technical configuration, and I have therefore named the different groups according to my knowledge of the study. The people (patients), the healthcare professionals (the nurses), decision-makers (Rigshospitalet) and the system designers (engineers/designers at M2call/Mindfuture, Malene, Frederikke). The model states that there are different interests within different groups and sheds light on how participation is featured among the different groups with the focus on their relationships with technologies (23).

In order to include all relevant actors, I have to consider techno-anthropological solutions as an *"interdisciplinary, participatory, and value-based approach to sustainable and responsible technological innovation, development, implementation, and use" (23)*. The focus is *"on how to meet and challenge the dominant technological and systemic rationale and logics of modern Western society, which manifest on the individual, institutional, and societal scales" (23)*.

Assessing participation
(dialectical)

People
(Citizens, patients, relatives and informal carers)
Interest: Care and cure
Logics: Lifeworld and experience

Decisionmakers
(Politicians and administrators)
Interest: Triple Aim with a focus on economy
Logics: Instrumental and systemic

Health Informatics Technologies

Staging participation
(dialectical)

Designing participation
(dialectical)

Healthcare professionals
(Doctors, nurses, social workers etc.)
Interest: Triple aim with a focus on health and care
Logics: Scientific and disciplinary

Designers
(Technical experts, planners and facilitators)
Interest: Formal and functional
Logics: Instrumental and (inter/trans)disciplinary
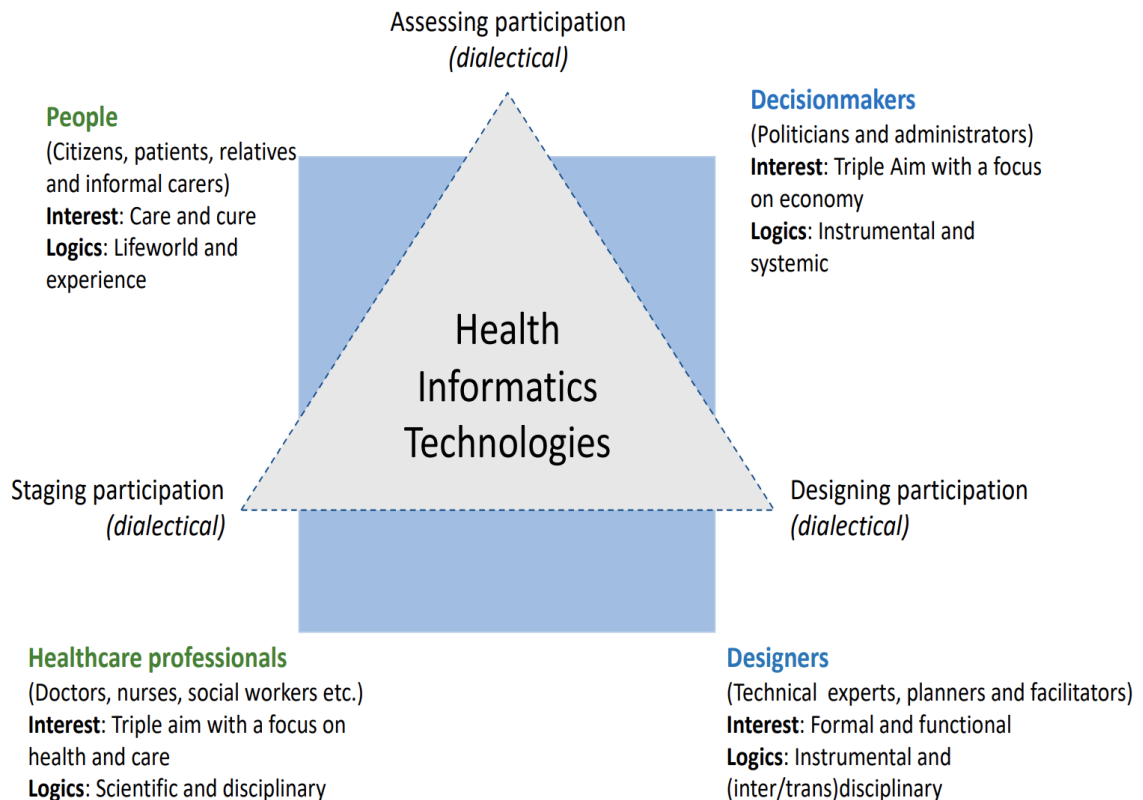
Figure 6, Techno-anthropological framework for research based on Health Information Technology (23)

Chapter 3: Methodology

In this section the empirical method for this study is brought to light in order to answer the thesis statement and the research questions.

The fieldwork started off with a search for relevant existing literature in the field, after which participant observations and semi-structured interviews were conducted. In the following, empirics regarding camera surveillance such as monitoring in hospitals across the world is described. The point of the literature review is to highlight knowledge and gaps. Through the online search, it became clear that there is no existing literature about implantation of camera surveillance as monitoring, in Denmark yet, and Rigshospitalet is the first hospital to try one to send out a prototype.

The chosen methods will be put into focus below, whereby presentation of the process of participant observation and semi-structured interview will be elaborated.

Literature search

The goal of the literature search was to learn more about video surveillance in hospitals and how nurses work with this new kind of monitoring. The focus was not on the patients or any literature having a patient/relative's perspective, was therefore excluded from the project.

At the beginning of this project, a broad search was done to get a feel of the field. Articles, e-books, books, literature and materials from lectures related to the study as well as video clips were gone through. As the project progressed, a narrower and more rigorous search was conducted.

Keywords for the process were; *healthcare, video surveillance/monitoring, hospital, intensive wards, intensive care, critical care, cameras, welfare technology, implementation, innovation, nurses, qualitative research, technology.*

In addition, chain search was applied, when articles were found that linked to other relevant articles, based on their headlines and abstracts.

The databases that were used were; PubMed, Cinahl and Google Scholar. Keywords for searching in Cinahl and PubMed were; ((*nurse) AND (patient) AND (camera surveillance) OR (video monitoring) AND (hospital) AND (implementation)),* this gave 19 and 17 hits. These keywords were used in the narrow-down process of the literature search.

Relevant articles and abstracts were skimmed through for relevance, which led to the following articles from Cinahl; *"Improving Patient Safety Through Video Monitoring" (6)* and *"Outcomes of Clinical Nurse Specialist Practice in the Implementation of Video Monitoring at an Academic Medical Center" (9)*. A chain search was done from these articles by looking at their sources, which then resulted in the article; *"Centralized Video Monitoring for Patient Safety"* (7). Although the primary search consisted of articles from 2018 till now, the articles from 2013 were also included.

Articles from 2018 and onwards were initially set as an inclusion criterion, as I had a preunderstanding that video monitoring/surveillance was a newer technology. However, I was proved wrong as, to why the search criteria were changed.

The only article that showed up again was on PubMed was; *"Outcomes of Clinical Nurse Specialist Practice in the Implementation of Video Monitoring at an Academic Medical Center"(9),* the reason other articles emerged is that this database (PubMed) deals with life sciences and biomedical topics, whereas Cinahl also covers nursing.

The above-mentioned article is included in the study as the focus of that article is on the nurses' experience with camera surveillance. What it does to their practice, what challenges there have been and what can be done to improve collaboration with the technology.

Articles I received from Malene were; *"Rethinking Patient Surveillance on Hospital Wards"(8)* and *"Breaking down the barriers of nursing behind closed doors"(10)*, these were articles that grounded the research of the innovation department. I have also chosen to include them in my project as they express the nurses' angle on camera surveillance and the pros and cons this brings.

It became clear through the literature search that there are only a few studies done in the research field on camera surveillance. This study set out to explore the knowledge gap.

Fieldwork

This study is based on qualitative fieldwork, in the form of participatory observations and qualitative interviews. Fieldwork is not about finding facts, but more about doing research in the field of a relatively small area of interest and to achieve a deeper understanding of an issue (29).

For the purpose of this study, I went out to investigate the Neuro ICU. Because fieldwork was used as a method, conversation topics were prepared along with a written interview guide in

order for me to meet the interviewee with respect, and to better understand their actions, practise and reflections (29).

Participant observation

Ethnographic data collection was done through participant observations. In this case, nurses were being observed while engaging in their natural environment. Moreover, they were observed participating in workshops, where the cameras that are measuring movements were being tested. Participant observation can be short-lived with a single visit or it can last months to years, however, these visits are always about illuminating and understanding the experiences of the observed people (30)(31).

Because I only made a few visits to the ward, I made exploratory participant observations where it is important to write down everything observed; *What happened in the room? Who was present? Who was not present? What did the actors express*? etc. (31). It is important when conducting exploratory participant observation, that the field is not analysed but instead to "*describe concrete, sensory details regarding actions and exchanges of words and make as nuanced descriptions as possible*" (30).

Due to my private interest in the ward, being a colleague of the nurses, reflections were done on my level of involvement, and why I maintained a passive participant in the workshops. If I took the role as an active participant, there was a risk that I would become a full participant where tacit knowledge remains tacit, because I am already socialised into the setting and this would create damaging problems in my fieldwork. I must therefore realise I am biased here and move away from the situation of going native (32)(29). It can however be questioned if I have not already gone native because I am working as a nurse in the ward.

Nevertheless, I took upon the role of a passive participant, meaning that I was present without interfering with the other people present when they tested the cameras and when involving the nurses on the ward in co-designing the application. I took notes and pictures which were later used in my analysis. A pattern of behaviour was then created on how to work with new innovative technology and how this would enhance the nurses' practice (33).

Ole Broberg and Ingelise Helmund explain in their paper*; The OHS consultant as a 'political reflective navigator' in technological change processes (34), that* one can take on different roles when doing research, with this in mind, I saw myself as a dialogue researcher, as I was

not part of the intervention, even though I know the field. I studied and observed the introduction of the prototype by participating in workshops and interviewing the nurses and Malene, from this I can use my findings to make recommendations for the ward (34). I used participatory observations to explore the field of interest and remained neutral, because I wanted to perceive the field as a techno-anthropologist and not as a nurse.

Workshop 1

The first workshop I attended was held in the Neuro ICU innovation rooms, at the beginning of February 2022, over a three-day period, and had two actors per day.

Present were two people from M2call, Malene, and actors from the ward. The actors were nurses or doctors on the ward who have several years of experience with intensive care patients, hence the movements were as realistic as possible.

I stayed in the background and took notes and pictures. Here is my description of the situation;

The actor is lying in bed, she is hooked up with the equipment patients would normally have in the ICU. An arterial cannula (measures the invasive blood pressure), saturation meter (measures oxygen saturation in the blood), hourly diuresis, feeding tube, external ventricular drainage (drains that drain excess fluid from the brain), peripheral venous catheter, and an intubation tube (connected to the respirator, and controls the breathing). With the actor connected, testing of the movements started. Three movements which trigger the alarm were tested as well as three movements which should not trigger the alarm.

The actor was instructed to do six movements in total; Move the arm, move it up to the face, cough on the tube, open eyes, chew on the tube, and turn the head. All of these movements happened lying down, sitting, and on the sides. In addition, all the movements were made in a light and dark space.

The chosen movements had been determined in advance, at a previous workshop. After this workshop, other relevant movements to test were detected. Since it is a new technology, there is room for further development (Attached appendix 1: Workshopresultater MVP).

Workshop 2

The second workshop was also held at the Neuro ICU. This time it was Frederikke who is a consulting innovation engineer at Rigshospitalet and software programmer Denis from Mindfuture. Mindfuture is working together with M2call on this project and is involved in creating the software, as well as coding the application. Malene was responsible for recruiting nurses from the ward to attend the workshop. I was there as an observer like in workshop 1.

This workshop was based on the nurses' views and opinions on the cameras and the application. First, there was an introduction to the application and the nurses had to discuss their views on how the design should be. A lot of new ideas came up and it was clear to see that most were very positive about the application and the camera surveillance. However, some were more critical. One critique or fear was that you can get alarm fatigue. Today the nurses are already running around with devices that give several alarms and when another type of device (alarm) is added, the considerations are whether this creates more stress.

Another consideration mentioned was whether it can be ethically justified that all patients should be video monitored and if they should be recorded. Some nurses were afraid that the recordings might be hacked and used for other intentions.

Malene listened and replied that it was something they had discussed internally and that there must be an on and off button on the application, so that in some situations there is no filming, for example when the patient switches to palliative treatment. In addition, when lower hygiene is performed, it must also be possible to pause the recordings.

But when the video is paused, it can also be forgotten to turn it on again and this can lead to the more critical considerations where fatal things could happen if you pause the video and forget to turn it back on. This can result in the nurses not getting an alarm if there is a critical movement from the patient while they [nurses] are not present in the patient room.

It was an interesting workshop to witness, as the nurses were consulted in the design of the app and they helped to co-designing this prototype.

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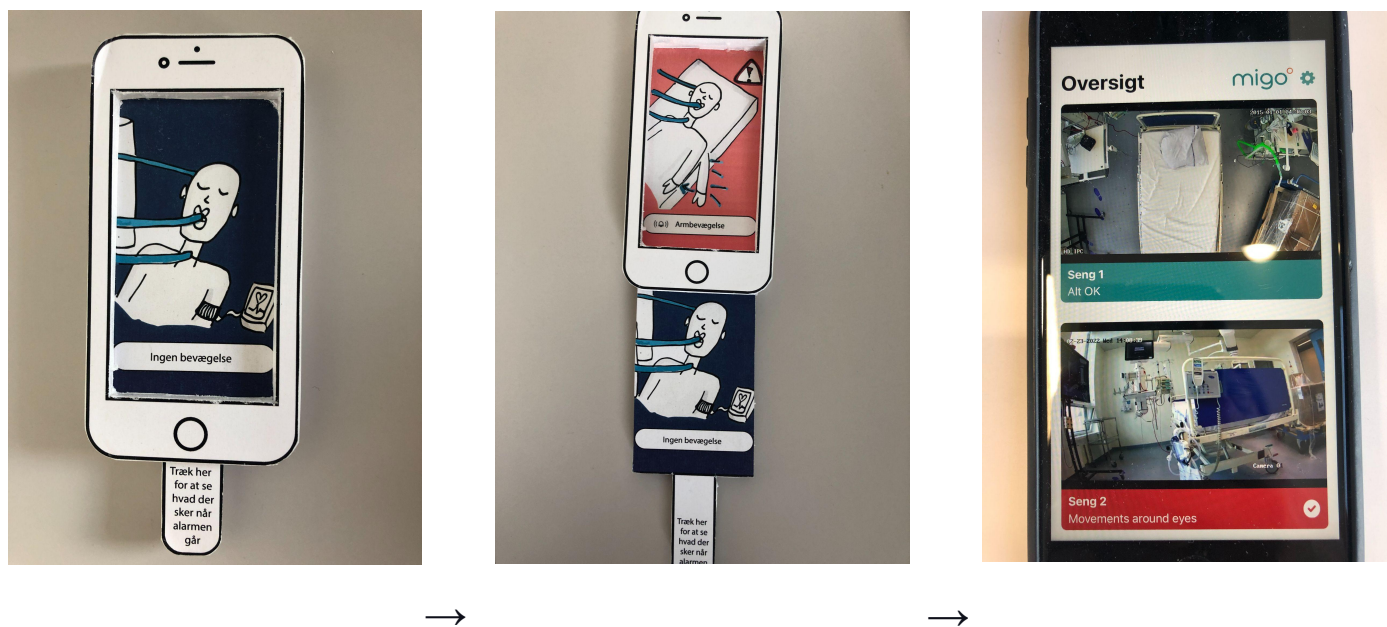
Figure 7, Pictures taken by me of images showing the processes and the development of a prototype, the application "MiGo".

The two workshops I attended were just two of many that have been held at the ward. This innovation project began in 2020, when Frederikke from Rigshospitalet's innovation department examined the Neuro ICU, located now in the new hospitals building. Frederikke investigated in how the ward monitored their patients without a video camera and why this innovation could be a solution to some problems the nurses in the ward struggled with (Attached appendix 2: Follow the Actor).

My role as a researcher

I questioned if I can use myself and my position as a nurse to get the insight information about the field of interest. Because it is a new innovation project at Rigshospitalet, and not known publicly yet, here I only have access to the project because I work at the ward and have the right contacts. This way of doing ethnographic work is how I use myself and my position in the ward, and the question is if I can include my thoughts and experiences? This is also called autoethnography which is a qualitative method. Some would say no, but others who see this

method as valid would say yes to including themselves in the empirical design. Lene Ingemann Brandt, who has an PhD. in sociology, says a scientist can use their own experiences;

> *The quality of the method is that you get the double gaze, which partly points outwards to the subject field you are dealing with in research, and partly turns inwards to pursue what your own experiences are with the subject field (35).*

With this in mind, I have chosen not to reject my knowledge in the field of my research, but to include myself in the process as it is impossible to stay 100 % passive objective anyway, and my knowledge and experience from the ward could be useful in the process (35).

I took on the role as a sole researcher with a pre-understanding of how work-life is on the ward, and why according to Luigina Mortari, article *Reflectivity in Research Practice: An Overview of Different Perspectives,* 2015, it is not possible to maintain the role of an impartial observer (36). While I still work as a nurse on the ward, I have made reflections based on my experience with the patients in single rooms and the possibility of taking care of two patients at the same time. In the same article described above, the American philosopher and professor Donald Schön states there are two types of reflections; *reflection-in-action* and *reflection-on-action* (36). I also do hold *reflection-in-action* of the instant situations of how I practice as a nurse, as to now where I can move to the other level of *reflection-on-action,* where I can reflect on the way myself and other nurses are working on the ward (36).

In addition, I have chosen and conducted interviews to get to know the people I am interested in. It requires mutual trust when interviewing another person. As an interviewer, I can never be completely neutral, I have to give a little of myself to meet the other in the conversation (29). In the work as a nurse and the interaction you have with your colleagues, there is a lot of trust involved. I can carry this trust with me when I interview people, as I know those I interview and vice versa. Therefore, a bond of trusts has already emerged in the interviews. With my observations from the workshop and as a nurse on the ward, I hoped that I could "*become able to ask the right questions"* (30).

Data collection

The interviews were semi-structured qualitative interviews where questions were prepared and based on an interview guide (Appendix - interview guide: Malene/nurses). The interviews were

conducted from February to March 2022 and were all conducted in Danish as the investigation took place at a Danish hospital.

To have a representative of the ward the following participants were found; Nurses with little and with years of experience in the ward and nurses with and without ICU education[1]. Moreover, females and nurses.

It would have made the study even more representative if it has been possible to include interviews with the designers of the camera and the application. However, due to the scope of this study and due to confidentiality agreements signed late this was not possible. However, knowledge was given to me when I participated at the workshops and through documents made in connection with the innovation project; "*Proximity at Distance*" which gave an idea of their perspective of the technology.

Nevertheless, Malene became the voice of the experts, and she agreed to be interviewed. Her interview guide was different from the one for the nurses, as she holds the expert perspective (Appendix - Interview guide).

Semi-structured interview

The semi-structured interviews were made to gain a deeper understanding of the nurses' views and reflections on the installation of the new technology and how they think they can use it in their daily work. The interview with Malene was made to gain more technical knowledge of why the technology has been chosen, where the idea came from, when should it be launched and used and what were their ethical reflections internally.

Semi-structured interviews were chosen as a method, as it allows the interviewer the opportunity to go off script and ask in-depth questions. I choose to make descriptive questions as I know the routines of Neuro ICU. It is important that I as an interviewer know the interviewee's daily life and thereby am able to ask about specific situations (31).

My questions to the nurses and Malene were made based on an interview guide (Appendix - Interview guide). When I made my questions, I thought it was important to look at the order in which they should be asked, so I started with a few questions to start the interview and then move on to some slightly more complicated/narrow questions. In addition, I avoided questions that could be answered with yes or no, but instead, I used open questions that allowed reflections and considerations (31).

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[1] ICU education takes two years to complete

When asking descriptive questions, it is also important to look at the length of the question as longer questions often give longer answers. James Spradley has compiled various types of descriptive questions; Grand-tour, Mini-tour, Example, Experience and Native-language questions (37). I was inspired by him when asking questions based on grand - and mini-tour questions.

My grand-tour questions took place in a hospital and therefore it was obvious to ask about their everyday life with technology in the ward. The question I asked the nurses was; *"Can you describe your practice working with technology?"* by asking this I would receive answers from the nurse's terminology and their native language (37).

Mini-questions were also used to increase the field of experience after asking grand-tour questions. These questions would sound like; *"What kind of consideration do you have when installing a new camera surveillance?"* (37). At the end of the interview, I ask the interviewee, if there were any questions, I had not asked (31).

The semi-structured interviews were performed at the Neuro ICU at Rigshospitalet in a calm environment where there were no disturbances. The participants were made aware of the use of the interview and that they can withdraw their statements at any given time. The conversation was recorded for later transcription.

Transcription

Transcriptions of the interviews were made to start the analysis process. While transcribing can be a lengthy process, it is also a very useful tool, as it allows the researcher to go in-depth with the data and to start the analysis process whilst still transcribing the interview. I did not take notes during interviews as it can seem to distract some, why I relied even more on the transcripts for further analysis (38).

The transcripts were done to get language and statements as accurate as possible, however phrases, such as *"øh"* and *"ah"*, were excluded to get a more coherent text. Pauses and emotional expressions have not been noted either. Nurses, when describing their daily work, often use phases not known by people who do not work in the field. For that purpose, these words were rewritten so that it is more understandable.

Nevertheless, I do find it important to do transcription, so I remember what is being said in the conversations and to get an overview of patterns that are degenerating (38).

Since all the interviews were made in Danish, the transcripts were also made in Danish. Final themes and sub-categories as well as participant quotes were translated into English to get a more coherent language.

Thematic analysis

The qualitative data was analysed by using the method of thematic analysis (TA) by Braun and Clark, 2006 (39). TA is a method which systematically organises the dataset of transcribed interviews to find *"patterns of meaning"*(39). With the help of the TA's six step-by-step guides, it was possible to do an in-depth and complex data analysis of the interviews which resulted in a network of themes. These will be represented later (see figure 8).

1. **Familiarising yourself with the data**

Although I did the interview myself and made some considerations and thoughts during the interviews about how the data should be analysed, it is important to set this aside to dive into the interviews to work in-depth with them. Therefore, transcriptions of the data were done in order for it to be read through several times prior to coding whilst taking notes. This point is where the researcher has a chance of familiarising her/himself with the data, why it is important to be thorough in this step before moving on to the next step of coding (39).

2. **Generating initial codes**

The transcribed interviews were organised in piles of codes of what I found interesting.
The data was reduced to codes by compressing them into short sentences where the core of the data extract was expressed either alone or merged with other codes if they had the same message. The coding was done manually, where printouts of the transcription were cut into pieces and placed in piles and then the coding began. The name of the code was either a name I came up with or statements directly from the participants. In the end, I ended up with 80 codes (39).

3. **Searching for themes**

This phase starts where the codes are analysed and categorized according to overlap, and thereafter divided into themes. A formation of main themes and sub-themes took shape. I used a table on the computer to get an overview of this phase, after which a thematic map was made to get an overview of codes and themes (Appendix - mind map phase 3) (39).

4. Reviewing potential themes

In this phase, I read through the themes and assessed whether they were themes with enough data to support them or whether some could be merged, should be split up or even cut out. In this phase, themes were redefined (Appendix - mind map phase 4) (39).

5. Defining the naming of themes

Here, the essence of each theme will be specified with a text on what the theme is about. This phase is about defining and then redefining the themes for my analysis. This is important in order to see how the themes fit together in the final network conducted data (39).

In the end, I ended up with two main themes;
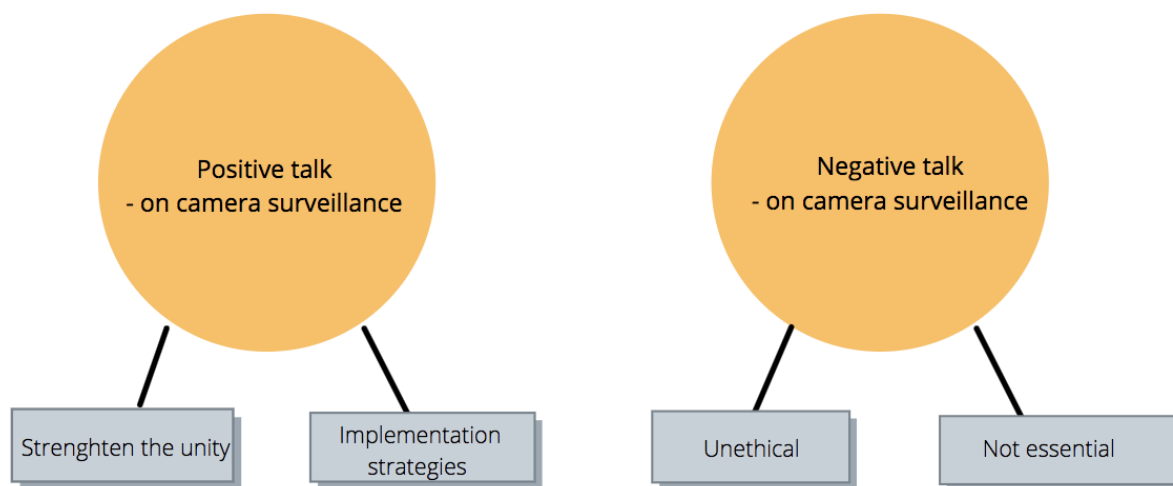
Figure 8, The final product of my thematic map presents two main themes

6. Producing the report

In this phase, is where the write-up of the report is produced, and the codes and themes are used in analysis with the rest of the study (39).

Chapter 4: Results

This study set out to investigate the nurses' perspective on a new kind of visual technology that can monitor patients' movements when the nurses are not in the same room at the Neuro ICU. From the interviews, I wanted to explore how nurses' practice is with the present technology they use and their imagination on how their future practices will be using this new technology. I wanted to find out if they meet any challenges along the way in the implementation process.

Based on the TA, two main themes occurred; *Positive talk and Negative talk - on camera surveillance* where data has been coded and sorted to make this analysis.

By looking at this through dialectics, one can see that a thesis (positive talk about the technology) and an antithesis (resistance to the technology) emerge through the use of TA (see figure 9), which eventually culminates in a synthesis at the end of this chapter.
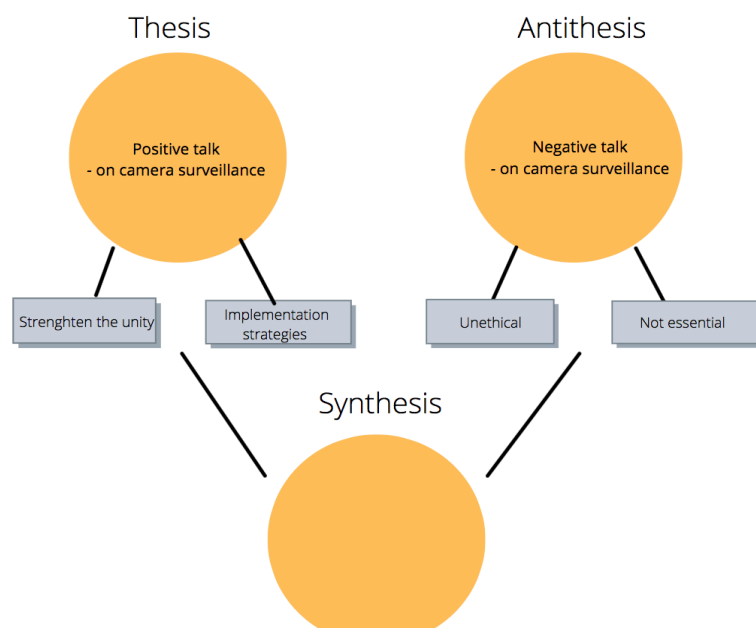
Figure 9, Thesis and anthesis from the nurses, from which a synthesis spring

Later, this new synthesis is set up next to an antithesis, presented by Malene in a new dialectic in the next chapter (5), where the discussion process will begin by applying relevant theory. Malene represents the experts and their views on why it is necessary to implement the technology.

When presenting the quotes, I have marked the nurses according to the alphabet to make it as anonymous as possible, therefore they are named A, B, C, D and E. In relation to this, I have chosen to write "she" as the majority of nurses are female.

Positive talk - on camera surveillance

In the interviews, it became clear that the nurses are not only pro or con camera surveillance but have considerations, reflections, and thoughts about both. Although they are positive about this kind of new technology, they also have reservations and critique points about it. In this section, the positive statements are focused on.

Strengthen the unity

> *"I'm just looking forward to getting started with it (…) It is something we can get something exciting out of" (A),* *"that is the future. We imagine something else if we do not think that more technology should be included" (D),* and *"I also think it's a good idea" (B).*

All the nurses I interviewed do see some advantages when the technology is being used on the ward, but they also acknowledge that a cultural change is necessary. Some of the nurses already see the change in the newer generation of nurses working at Neuro ICU. There is a tendency among this generation of nurses that it is "legalised" to leave their patients if they find that it is responsible. Also, moving from the old ward with more patients in one room, to now single rooms, calls for a discussion on how to open up the work environment so that they do not end up with a divided ward and nurses not reflecting with each other.

It is important for the nurses to be able to see their colleagues and reflect with them as the patients they handle are critically ill with various issues the nurses have to deal with. When a nurse says that it is the younger generation that leaves the patient more, it may also be because they are new to the profession and need the help of their colleagues, therefore it also requires that the experienced nurses are visible.

In the interviews, it also became clear that in some contexts it is good to be able to withdraw from the patient's room. This can contribute to and improve the work environment. Nurse B, D and E express this point of benefits for the patients and nurses;

> *I can see my new colleagues are much better at sitting outside the patient's rooms and meeting each other. There is definitely some work environment benefit to be gained from the fact that you can cultivate social skills in a different way than you can when you isolate yourself sitting by the patient. It was also the fear when we came over to the new single rooms, whether we could socialise with each other (B).*

And,

> *In some patient groups I think there are [benefits] and also in some on-call teams. Then there are not many nurses in the shifts or if there are many sedative patients, then I can see the benefits of it (D).*

And,

> *I have also withdrawn from the patient room when working night shifts, where you sit at the base with your colleagues and still have your eyes on what is happening. But it has also been with stable patients. So, there are some benefits to it, so you just get a break (E).*

And,

> *There are definitely advantages in that you can withdraw, e.g. a Guillain-Barré patient or it is very heavy to be in there. If it is a very unfortunate situation, relatives, then it is great that you can withdraw and at the same time know what is going on there. There are definitely some benefits as well (E).*

Nurses on the ward can quickly isolate themselves if they cannot retreat from a patient, and video surveillance can give them that opportunity to get a break and meet with their colleagues while they at the same time keep an eye on their patients.

Therefore, it can be said that for the work environment to improve and for the nurse to socialise with each other or to develop competencies, it is necessary to withdraw from the patient room. Using this new technology, allows the nurses to keep an eye on their patients at all times while they are out. In addition, nurses D, and E mention that some patient groups can benefit from the nurses withdrawing.

There is also a common understanding among some nurses that they are excited about the new technology and can see many positive advantages with this new improvement in camera surveillance which can benefit their workflow on the ward. As nurse A states;

> *I think that as a starting point I like the idea that if, for example, you have to be in two places at once, then you can have a visual tool, it is mostly in relation to you observing, a patient who goes after the tube, or peels something of its equipment out (A).*

The visual technology can help her in her practice with patients, and by having this technology she can always keep an eye on her patients when she is not in the room. A continues;

> *Yes, the advantage can also be that you can withdraw from the patients' room, to maybe help your colleague and it could also be an advantage if you have a delirious patient who needs total peace, so I can for sure also see benefits (A).*

There is satisfaction among the nurses in helping their colleagues at work, there are often more sick patients on the ward, and nurses help each other taking care of patients. With this new technology, it becomes easier to help a colleague out, without stressing that your patient or patients are left unguarded.

One can say if there is a good work environment, then you also get happier colleagues who want to go to work. By reading the above statements from the nurses, this technology may help in creating an environment where it is safe to retreat from the patient room and be more in the hallway and visible to others, whether it is to pick up some things, share knowledge/competencies, help others, get a break etc.
But what does it take for this technology to be implemented and be well received in the ward? This is something the nurses also give their take on.

Implementation strategies

It is common for all nurses they want to be heard and participate in designing process.
Nurse D, states;

But where it often goes wrong is when you forget to ask those who need it [technology]. Then it gets pulled too far away from the user interface. If it does not make sense for us to use it, or for the patient, or the relatives, then it will not be well received. Then it becomes really difficult to implement (D)

It is important that the nurses feel that they are heard, and they are seen as co-creators when designing this new technology, they must be included in the process. For the technology to make sense to them, they need to be included as they are the ones who need to use it every day. This is also something I heard some of the nurses say in the workshop. For this exact reason, workshops were also made in which they could participate and express their opinion about the product. When I asked the nurses if they had participated in these workshops, almost everyone answered yes that they had been involved in the process of product development of this new technology.

Some of the nurses also make demands of the management and the innovation department at the ward that they manage to combine and define the purpose of this innovation project. Nurse D continuous;

The management that implements this, as a minimum must go out and define what is the purpose and for which patient group because otherwise you start and think it is because we think we can and be cool on innovation? Or is it to save nurses? or what is the purpose? (D).

And,

Influence from the staff group, ethics about it and the purpose is crystal clear, training and proper work tools - so the craftsmanship in it follows (D).

Another take is nurse E, who thinks, *"there must also be some key people, that introduces how to use the technology, not just in the daytime, but also in the evening or even at nighttime"* (E). It is important that the regular nurses who work evening/night shifts are also introduced to the technology and receive as much instruction in it as those who work during the day.

Nurse A and B both think that the innovation project will probably succeed, but that management must also have patience with the nurses as all implementation is difficult in the

beginning. Therefore, the nurses should not be rushed, but they should have time to get to know the product so that they can see the point in using it;

> *All change is difficult. I think if this is to be implemented, it is probably going to be a big thing, but one should not be in a hurry to succeed with it right away. They should expect a time of transition. You never get to have everyone with you from the start. It takes time to change a culture (...) all implementation and something new is difficult because there are many things to deal with (A).*

Followed up by nurse B who mentions simulation could be a good idea. Simulation is known in the hospital world as it tests and strengthens skills that provide security for staff and create patient safety.

> *I think that for it to succeed, it requires some simulation, say that this is coming, just like when we moved here or when we got a new patient's registration system (SP - Superplatformen), where you did simulations and had fictional cases.*
> *In the beginning, there will always be people who are critical, and who say the old way was better, why do we need something new. There will always be someone who is better at adapting to new things and then there are others who have been here for many years who will have a hard time adapting to new workflows. That's the way it is (B).*

Both nurses know their profession and their colleagues well enough to say that all change is difficult and there is always someone who is critical of new workflows. It is these people who may need a little more time getting to know and use the technology. But as is often the case when you see value in the product, you use it. Therefore, it must make sense for them to use.

Summary

Many of the nurses expressed that they are looking forward to getting started with this new way of video monitoring and can see many benefits from using this, they also think technology is the future and something one cannot ignore. The use of video surveillance can benefit the nurse environment, some patient groups and patient safety.
Nevertheless, all the nurses state that as long as the technology is introduced with seminars or training sessions and is to be used properly and thoughtful with some ground rules, it can easily be used in their professional work in the ward. Also, the nurses feel they should be included in

the process of designing the technology. Yet, some nurses are more critically of the technology, this is the next theme and antithesis I will go in-depth with.

Negative talk - on camera surveillance

In this section, I will look at how the nurses feel challenged and question why this technology should be used on the ward.

Not essential

Although in the interviews I got the feeling that most were positive about this new technology, it also emerged that there are some concerns about the use of video surveillance and how it will affect the ward, but also the patients. One of the nurses who had some critical commentary on the project was nurse C;

> *What worries me is that we get more work, we have to take care of more patients and the management can open more patient rooms.*
> *This is where you also get a little worried, yes you can see the patient (on the app) and have to run back and forth. It goes beyond the care of the patients, but also our own workload. That may well worry me when talking about cameras (C).*

Along with the concern that there would be more work for the nurses, there was also a fear that it was a cost-cutting exercise, this was expressed by nurses B, D, and A, *"but I also have a built-in fear that in the long run, they are a saving exercise"* (B), and *"I also have a built-in fear that in the long run, it is to save money"(D)*. This is frightening though, as the nurses do not believe that technology can stand alone and replace a nurse.

> *But I still do not think it should replace a nurse, because there are still many things that you do not get (…) There is a lot of information you do not get on a camera, so you should not think of it as a solution that replaces you for your patient. But it's a helpful tool, for sure (A).*

There is a fear that it will become the norm not to be with your patient because the nurses who have been in the profession for many years are afraid that they will lose their grip on their patients if they are not present in the patient room. It is an important part of their work to use

all their senses, so not only to see the patient as one can with the new technology but also to be able to feel, smell and hear them. Nurse E says;

> *The professional judgment where you see, feel and listen - you cannot, in the same way, if you sit and look at monitoring, you can have a patient who has a high respiratory rate, and if this alarm is turned off, then you do not hear/see them and then something unintentional may happen. Because one has just believed too much in technology (E).*

The nurses share different opinions on whether the technology is necessary. One nurse mentions that when she withdraws from the patients' room, it is in order to go into the medical room where she has to concentrate and therefore cannot look at the monitoring of her patients at the same time (B). Another mentions (E) that when she withdraws from the patients' room, then it is not because she has to go out and have fun but to pick up things for the patient, like medicines, food or drinks. In those situations, she does not think she should video monitor the patients and perhaps she even finds the use of technology irresponsible and dangerous. Therefore, they do not believe that the culture of telling their partner of a nurse, that you are just out of the room, will change;

> *I do not think people would trust it enough and leave the patient room and turn on the surveillance. I think people would still sit with the patients. Unless they are mega heavily sedated, and that surveillance is already there with cameras filming (not recording) (E).*

In the quote above it is clear that one can believe too much in technology and that things get too technological (E). In the interviews, it is also stated that there has previously been a problem with the current alarm system, where alarms have not been activated on their work phones or activated alarms themselves without reason. When nurses have to leave their patients, they must be convinced that they are covered by technology to warn them when to act on something. If nurses do not trust the technology as it is now, they are not going to use it. Moreover, it is not abnormal for them to question the introduction of new technology for monitoring their patients. Some of the nurses' state that;

> *I can feel how vulnerable it is when you do not get an alarm, for example, if I sit outside and eat food and my colleague*

> *comes and says, "haven't you heard your respirator?" Then*
> *the alarm has not gone off on the phone (C).*

And,

> *Sometimes there is a loose connection, so you constantly*
> *receive alarms on your phone that are not there, which do*
> *not exist. It stresses the life out of you. There are maybe four*
> *who get it every 15 minutes on a night shift, where there is*
> *a red alarm, it is extremely important because all of a*
> *sudden you do not react to them (D).*

And,

> *For example, this morning, I got three alarms, where I then*
> *went down and checked, however, there was not an alarm*
> *to act on (…) it just kept calling (E).*

In these quotes, it is clear that trust in the current technology is not great and therefore future technology must be improved so that the nurses do not get alarm-tired (B and C). There are already many alarms in the Neuro ICU and adding another alarm can scare some.

In addition, there is some strong opinion about the devices (Zebra), currently used at the ward and where the application of the visual live stream of the patients is going to be featured.

Nurse D says, "*we already know that the Zebra works like shit, we have a lot of problems with that, it is the worst work tool" (D)*. This is backed up by nurse E, "*the Zebra (…) it's almost a battle to get people to use it" (E)*. If the nurses already think the technology does not work as it should, they may have some barriers and reservations about the application which is installed on the Zebra.

Ethics

The ethics surrounding this new way of video monitoring emerged both in workshop 2, but also in the interviews. Some nurses attach more weight to this than others. Some believe that it is ambivalent and transgressive to film and record patients who are not able to give consent.

Nurse C says, "*what is ethically right in such a situation? When the patients are lying in the bed, here they are just so vulnerable. I just think it is ambivalent to film the patients" (C)*.

With the introduction of new technology, several ethical dilemmas arise, this I will approach in more detail with the following quotes from the nurses;

> *I also find that uncomfortable. Because 80% of our patients cannot be asked, so their voice is put out of play and that you do it consistently inside all rooms, it is not okay (...) So you have to take a stand on each situation and be able to turn it off and on. And then it should not be by definition that we admit all patients, no! Because then we totally exceed the patients´ limits (D).*

And joined by nurse E;

> *In general, I think the fact that we are filming them is transgressive, the patients are in a really difficult situation, and I also think that if the relatives found out that we were filming them, it would not be so good. Because it's a little unethical in my opinion. Because they have not given consent to it, there are of course many things they have not given consent to, but it also requires that we take care of them (E).*

In the quotes above, it is clear that the nurses find filming problematic and unethical on the patients' behalf when patients cannot be asked if they want to be filmed. It is up to the nurses to safeguard the patients' integrity and autonomy, it can therefore be difficult for the nurses to argue why this technology needs to be used.

In addition, it also emerges that some nurses find it uncomfortable to be filmed themselves. They are afraid that the footage may be used against them and they may be put in an unfortunate situation where they have to defend themselves and their actions. This is stated by nurses B, D and E;

> *I can see some disadvantages in that you can feel monitored, that you can feel there is someone who can sit and watch if you do your things correctly. However, one must assume people do. But yes, we do not like to have surveillance in medicine rooms either (...) But surveillance cameras and patient video monitoring by drawing Big Brother into the hospital world is not something I am a fan of (B).*

And,

> *What are our rights? Am I lying on a film, am I lying for 14 days and should I then go in and defend myself what it is I have done on the film, is that where we are now (...) So now*

> *it's like something suspicious instead of everyone thinking "Yes how cool is this?" (D).*

And,

> *They can go back and see if a mistake has been made, one might start and go in and look at the different nurses. You use distrust of your employees (...) you may well feel that you are being monitored, in relation to how you do things. If it can be recorded, the management can then use it for something (...) I would just be afraid, however, that you can create distrust of the staff, and I do not think that is cool (E).*

As it is right now in the production of the application it is possible to turn the camera on and off. This is also a requirement previously set by the nurses, as some situations must not be filmed, e.g. lower hygiene, dying patients, or other things where it is not ethically correct to make recordings of. But it also makes demands on the nurses that they remember to turn off the cameras, but also that they remember to turn them on again.

However, right now on the ward, there is a camera that films but does not record, this film can be seen live on one of the "bases" on a computer screen at the ward. Sometimes the filming is not stopped and then everyone can watch, this includes doctors, relatives of patients and others passing by. This is something the nurses reflect on and find ethically incorrect, nurse A states, "*it is problematic if you look at other patients' rooms, there are probably some who can feel monitored*" (A) and joined by nurse D;

> *But how often have they not forgotten to turn them off and then relatives come in the morning, there are doctors, everyone can sit and stare at the patient, or at the child's parents trying to lie down to sleep. I think you go a lot of cross borders, there are some workflows/lines/frameworks that have not been thought through with this properly (D)*

Nurse A and D do not think it is ethically okay as the technology right now is visible to others who are not necessarily allowed to watch, so this new technology must be well thought through to avoid inappropriate recordings of patients.

Summary

Some nurses do not feel this technology is a helping hand in their work and feel it is an obstacle to their care of the patients. Some of the nurses are afraid that the implementation of camera surveillance will create more work and cut downs for nurses. Some feel that their professional judgment is threatened, others do not see the need to film and record, because there are already installed cameras that film and some do not trust that the technology will work as they are already working with devices that do not work properly. Lastly, ethics are a big concern in their care of patients but also on the nurse's behalf. They are afraid of what their rights are, and that the technology can make the nurses suspicious of each other.

Synthesis

Based on the two themes above, two sides were represented. A thesis and an antithesis, where the first thesis is positive comments from the nurses about the technological developments in the ward, and the other is an antithesis showing resistance to the thesis and has a critical angle. A synthesis will now be created, based on the overcoming of the antithesis, which then helps to create a new synthesis, (i.e. a new form of a thesis).

Some nurses are critical of technology, they do not find it ethically correct to use, and do not think it is a necessity. However, the same nurses themselves also acknowledge that the technology is the future and one should not neglect that more technology is to be implemented. My synthesis is therefore the following; Some ground rules must be implemented for *how and on whom the technology is used* (see figure 10).
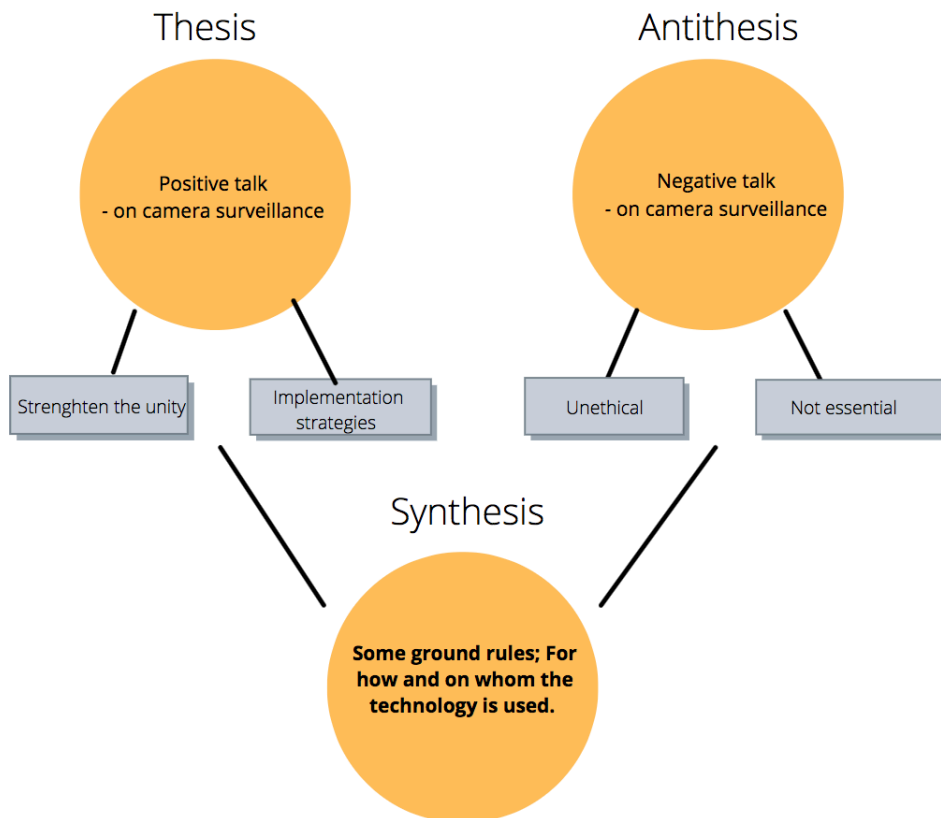
Figure 10, Presentation of my thesis - antithesis - synthesis

This synthesis will, in the next chapter, be challenged by Malene, who has already set ground rules for the technology. The designers and Malene, have dictated a "script" for the technology, without the nurse's agreement on how the technology is intended.

Therefore, a conflict may well arise when the new technology comes into practise and the nurses are "forced" to use it. It is important that this conflict is addressed, and solutions are found when the technology is in use. Different angles that emerged from the data, i.e. challenges associated with technology and how to embrace these challenges have been used as a starting point for my examined thesis statement of whether technology can support or challenge nurses, and how challenges can be overcome.

The aim of the following is to shed light on the new thesis and new antithesis which through a discussion will lead to a new synthesis (see figure 11). The conclusion becomes the new synthesis with added recommendations for how the technology should work in practice with the nurses.

Figure 11, Presentation of my thesis and antithesis

Chapter 5: Discussion of results

In the results, I have identified two approaches to the introduction of this type of technology, where the nurses on the one hand are positive (thesis) towards it and on the other hand are more negative (antithesis) (see figure 10). From this I have discovered the synthesis, which consists of basic rules for, *how and on whom the te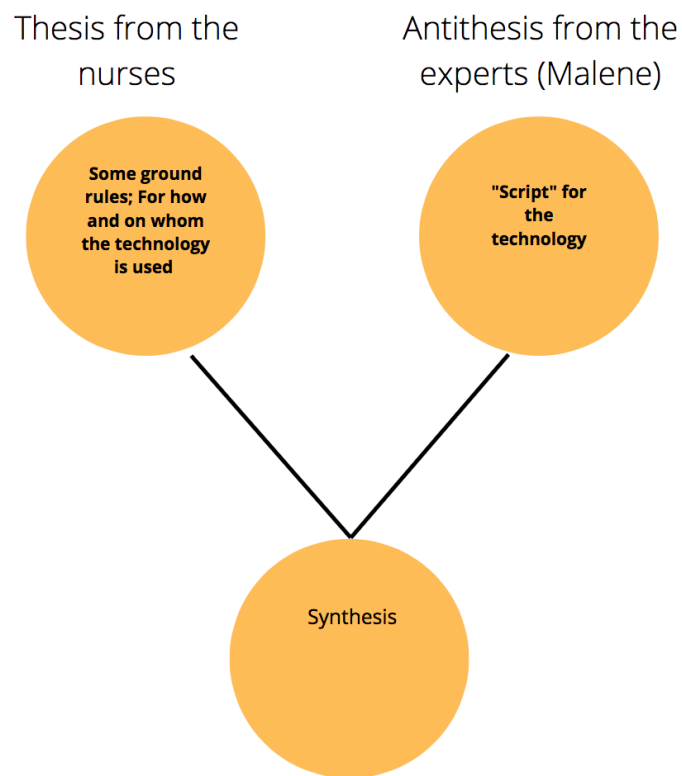chnology is to be used* which will be discussed in relation to Malene's statements, talking as the expert, where she contributes with an antithesis to the above thesis (synthesis) (see figure 11).

My discussion is based on the ground rules of what the nurses see as important when new technology is to be implemented in the Neuro ICU and in order for the technology to support their work in practice with the patients, otherwise the technology will only challenge them. This is combined with the experts' vision on how and on whom the technology should be used on, as they have already made a "script" for how they technology should function.

In doing so, I will discuss the different actors' perspectives on how to use the camera surveillance, how technology mediates between nurses and their world, and the ethical and moral challenges technology produces. Lastly, I will discuss what I as a techno-anthropologist can contribute with in relation to user-expert, expert-product, and user-product.

Techno-anthropological frame with a starting point in camera surveillance

To understand the technology, I have to look around the technology as well, therefore I have chosen and used the theory from CTA which describes that technology is much more than just the technical elements (57). Seen through CTA, one needs to look at;

> *Its production methods, the knowledge of designers, producers, and users, the organisation of work, and the product within economic, political, distribution, and use settings. To understand the technology, we need to understand the physical, cognitive, organisational, and application processes related to the technology* (57).

I want to include the theory from CTA (1) (see figure 5) and the model from Botin et. al. (23) (see figure 6) as background theories, where I am guided to look at the different elements and groups surrounding the technology. The components of the technology from a CTA perspective

consist of, *knowledge, organization, technique,* and *product* (1) which I will describe further down combined with different perspectives of the involved actors, herein their interests and focus, and how they participate. All this is done with a techno-anthropological framework for my research based on camera surveillance. It must be mentioned that the *product*, is a combination of *knowledge, technique and organization*, as the product cannot stand alone and is not something in itself (1).

The designers and innovation team's visions for the technology, I heard from the workshop and the background material that was sent to me. The reflections and assessment of the users of the design (nurses) I received from the interviews and workshops. In addition, I learned the visions from the organisation that I describe as the decision-makers of Rigshospitalet and designers consisting of the Neuro ICU, Malene, Frederikke and M2call. I hereby learned how all the involved groups perceive and interact with the technology that is about to be put into action on the ward.

Because I wanted to include the users of the design and their perspectives, I made semi-structured interviews, which are also described as a method in CTA to involve the users of the technology.

I will start by looking at the different group's involvement and the importance of involving the nurses when co-designing technology, in addition, the model from Botin et. al. (23)(see figure 6) will be used to try to map out who is at stake in the technology [socio-technical configuration].

What are their different interests and how do they differ from each other when looking at the perspectives of the actors involved?

First, I will describe the experts' drive for the implementation of the technology, Malene being the voice. Malene's *knowledge* about the *product*, how the idea of the *product* came to life and how it should be used, how this should create safety among the patients on the ward, but also create a more social environment for the nurses (Appendix - interview with Malene);

> We had to move from more patients per room to single rooms, and we could see with this standardisation, it could not harmonise with the conditions we had to have with single rooms. Then we talked about how we can optimise

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> *our observation of the patients without being present in the patient room. Then this idea came up (Malene).*

And,

> *Even though it sounds wrong to pull the nursing staff out of the rooms, we find a solution that still increases patient safety (...) No matter what we need to get medicine, or equipment - we cannot do without it. Therefore, patient safety is a top priority, as we have this extra monitoring (Malene).*

She also gave her take on how the *product* in the future should be part of diagnostics and be used by doctors as well. This is also backed up by the material that was sent to me from Rigshospitalet and the workshops I attended, herein I received knowledge on how they are driven by creating innovations that have value for nurses and patients.

However, the *knowledge* I received from the nurses is divided into how they perceive the *product*. The synthesis I previously made of the nurses' perceptions on, the technology, was that some ground rules must be implemented, such as the rule that not every patient should be filmed. The nurses state that a purpose must be defined for why the technology should be used on the individual patient and not just used as a matter of fact. Therefore, they demand that there should be a purpose for how the technology should be used and on whom it should be used. An article from the online magazine DSR.dk, also states that *"Technology must make sense and not be part of a cost-cutting exercise"(40)*. This is something the nurses addressed in the interviews, that it was especially important that the technology made sense both for the nurses but also for the patients. It should not be used because one could, but because it is a necessity for the treatment and the nursing care performed (Appendix - Interview with nurse D).

However, Malene said in the workshop and in the interview that the technology helps to define situations where the nurses must leave the room for various reasons, and by the use of the cameras, patient safety can be optimized. Therefore, Malene believes the technology should be used on everyone, just like the existing monitoring devices at Neuro ICU (Appendix).

However, it became clear when talking to the nurses that they did not believe camera surveillance would increase patient safety, as a nurse physically present would always be considered the safest (Appendix - Interview with nurse E). Nevertheless, they also believe that there are situations and patient groups that can benefit from the nurses withdrawing. In addition, there is the whole aspect of cost savings, and about technologies replacing nurses and the ethical dilemmas associated with this. These two views on who the technology should be used are

conflict-ridden why it is important that these dilemmas are addressed by making basic rules in collaboration with nurses as they will be the dominant users of the technology. That is why I argue that they should be seen as co-creators in the process.

Rigshospitalet is a large organisation, that consist of different monodisciplinary angles and interests, that need to work interdisciplinary. Therefore, I would like to highlight Botin et. al's model (see figure 6) which states which actors are to be looked at in interdisciplinary collaboration around my researched technology (23).

To the right and left of the figure 6 are decision-makers and designers who often have a different approach to technology than the health professionals (nurses) and people (patients and relatives) who want to be involved in a co-design for healthcare information technology to succeed, generate trust and work in practice. The connection between the nurses and the patients is through technology that promotes health and care. But at the same time, they (nurses) have the knowledge at the same level as decision-makers and designers, with a *"high degree of scientific discipline/rigor, instrumentality and structural systemic procedure" (23)*. Through the inclusion of and connection between Botin's et al. triangle and the model from CTA (see figure 5), I see a connection between *knowledge* and logics. Here I would argue that the logics of the actors is the same as *knowledge* from CTA, as it consists of their experience, know-how and approach to the technology (1).

Even though the nurses have some of the same logics as the decision-makers and designers, there is also a conflict between logics and interest where health care professionals (i.e. the nurses), are often in the pocket of the bigger player, Rigshospitalet. Rigshospitalet obviously, has the focus of optimising the *product* by being efficient and economical. This is also something that emerged in the interviews with the nurses that often something is "scripted" for how they should work.

However, from reading the material Rigshospitalet sent me, and by talking to the nurses and Malene, it is clear that decision-makers, designers and nurses all still have an interest in bettering the patients' lives (23).

In the interview, Malene also addresses the fact that the technology should be used as a way of optimizing the situation when the nurses are away from their patients and also encourage them to be able to leave their patient during a shift (Appendix - interview with Malene).

The nurses are a little nervous about this, and they state in the interviews, that they have previous *knowledge* about savings rounds and technology that can replace them, and in that case, one might fear that the technology will fail to support and instead be seen as an opponent to the nurses on the ward (Appendix - interview with nurse D, B).

The conflict seen through the eye of the nurse manifests itself in the need for some ground rules for the technology to be successful and not challenge their practice. This conflict has tried to be addressed in the collaboration between the actors involved through the initiated workshops that were held at the ward. The workshops were meant to include the nurses on the ward in making the technology, however, there is not complete agreement on whether nurses' influence on technology development has been sufficient.

Mediation of camera surveillance

When I attended the workshop, the nurses had different points of view on how the camera should be used, this was also seen in the interviews. The camera will become part of the nurses' practice and is therefore involved in their actions and interaction in the care of patients. Therefore, the cameras mediate the nurses to act differently than what they are used to now on the new ward, using the application on the "Zebra" and transforming their perception/experience of the world, where they can follow the patients' movements.

Nurses describe when working in the new ward that there has been a cultural change, both in terms of the workflow, but also by the new and less experienced nurses who dictate this workflow.

Malene also mentions in the interview that the technology has been developed to benefit the new generation of nurses. As they are the once who often leave stable patients and perhaps have a different confidence in technology than more experienced nurses who have been taught to be inside the patient room all the time.

> *It may not be our new nurses who do not have the needs as us other more experienced nurses have [to be sitting inside with the patients]. There I have to get used to my way of thinking a bit, we cannot go on and neglect them and say they should be in the patient room because they do not. So, we must also make some solutions that fit the generation that is coming now (Malene).*

Since technology is a big part of their work already and the new version of camera surveillance is on the verge of being launched, it can therefore be said that technology is not neutral, as it is about to mediate the nurse's experience and practise with patients (16).

Using Ihde and Verbeek's mediation theory, I will argue that my studied technology is about to form a unity with the human and is focused to the world, meaning the nurses form a unity with the cameras and the application. This is what Ihde calls the embodiment relation (19);

(I – Technology) –> World

It is through the recordings of the camera that the nurses experience the patient rooms. The cameras should be seen using the terminology from post-phenomenology as an extension of the arm, and not just as a tool, as many of the nurses' state that it is, but as a technology that is "to-hand". It is here in this mediating role by the cameras, that the nurses' relationship with the world is created, as it is through the application and the camera they perceive their patients (16)(18).

From a post-phenomenology perspective, technology should not be seen as good or bad, but as an important opponent in co-shaping human-world relations (17). The cameras co-shape how the patient room is presented to the nurses with a wide eye perspective of the patient, their movements, and the ability to show two patients at once.

This calls for a dispute between the different stabilities the technology may mediate, as it is seen in the interviews and the workshop, there are different perceptions of how the technology should be used and for whom. That is precisely why it is seen with post-phenomenological eyes that the cameras are not something in themselves, but can be understood in many ways, known by Ihde as "*multistable*" (14). The technology means something different to the different actors involved and their perceptions of it vary as I talk to them.

From the nurses' perspective, the stability of the technology should be used as an extension of the arm, i.e. how they can be close, but still not near in distance. I would argue that this is possible because it is a live video that can be responded to immediately and therefore proximity can be achieved even though there is a distance. One could imagine that technologies in healthcare can create distance, however, it is still possible to ensure the object (i.e. the patient) safety and efficiency. This is also the case with e.g. magnetic resonance (MR) scanners where you scan the patient, as you can better see them through the scanner or using an

electrocardiogram (ECG) to better find out if something is wrong with their heart. But it requires not only to scan or take an ECG of the patient, it must be read by a doctor or a radiologist and then passed on to the nurses.

However, I will argue that camera surveillance does the opposite, it tries to create closeness even when the nurse is far away from the patient because it is live footage and it is possible for the nurses immediately without the help of a human translator to read possible scenarios that may be dangerous to the patient. With this perspective, it may therefore be possible for the nurses to use the technology in practice, provided, however, that they must be involved in the design processes, professional reflections and ethical discussion about the use of the technology and how and on whom it should be used.

Another stability is seen from the decision-makers point of view, Rigshospitalet, is how the technology can replace nurses in the long run, in an attempt to streamline the care of the patient, thereby also a financial saving.

Malene, the designers and the innovation team all have different professional competencies, on how the technology should be interpreted and used in practice. Malene sees the technology as a release of the nurses' work in the ward, where they can withdraw from the patient (Appendix - interview with Malene). But it also requires nurses to work with the technology and set up the application correctly, so they get the right alarms and do not get tired of alarms, she states;

> *Of course, there is some risk when working with technologies where there are also things that can go wrong along the way and it requires something from the nurse. There must be an on and off button because one would like to have it in some situations, but it requires the nurse to remember to turn it on again. This can be a disadvantage to this technology (Malene).*

And,

> *Possibility of alarm fatigue, and that's exactly what we try to work on, where we made a product where there are not a lot of unnecessary alarms. This is also why it takes so long; it must become as accurate and as useful as possible in this product* (Malene).

The way the technology entails the nurses to act and practise with the patients is based on the settings the nurses make on the application, e.g. when they turn the recordings on and off. The

application helps to ensure the nurses' eyes on the patients, this is done based on the availability of the application and its functions.

In addition to the nurses forming a unity with the technology aimed at the patient, is there also another relation present, namely the hermeneutic relation. In this relation technology and the world form a unity, which enables human beings to *read* how technologies represent the world, which is enabling new relations because the humans are offered a new way of seeing things. Herein the way the nurses perceive the world that represent the patients and their movements, which are revealed by the technology. The technology of camera surveillance detects critical movements made by the patient, which is then experienced by the nurses, as the technology produces a representation of reality. This is what Ihde calls a Hermeneutic relation (18)(19);

human → (technology – world)

Combining the two relations, embodiment and hermeneutic, I see the nurses alternate between the two relations. Firstly, the nurses shift between acting with the technology directed at the patient, and secondly how the nurses are reading the images on the "Zebra" (25);

(human – technology) → world + human → (technology – world)

I will argue that my investigated technology can be seen as an argumentation relation, were accordingly to Verbeek, the technology on one hand can be "*embodied to give an experience of the world, while on the other hand, they [technology] give a representation of the world in a parallel screen*" (19).

The nurses can get information about the patients' room and the patients because the technology has the function to read the patient's movements whether they are critical and make recordings of them. But again, it requires that the nurses know how to set up the application and if the nurses do not have the knowledge to set up the application it can be difficult for them to interact. This can have fatal consequences for the patients and can challenge their work with their patients as the nurse holds some responsibility in the mediation of the technology.

This leads me to another post-phenomenology term is "*intentionality*", the camera and the application have a double-sided "*intentionality*". The first is the "*intention*" itself, the nonhuman part and then the second, is the human part, nurses' who use the technology (18);

> *[…] technologies do indeed 'have' intentionality – intentionality is 'distributed' among human and nonhuman entities, and technologies 'have' the nonhuman part. In such 'hybrid intentionalities', the technologies involved and the human beings who use the technologies share equally in intentionality (18).*

I argue that we need the intention of the nurses for the technology to work, if their intention is not rooted in the technology, it will be a challenge for them to use it. That is why it is so important that they are consulted when it comes to developing the technology.

Nevertheless, as stated by Verbeek, there is also the intention from the designers, they have already made a "script" for how to use the technology and how it creates the practice of nurses due to its function, as a form of monitoring of all patients to be filmed and recorded (16). Therefore, the cameras can be seen as moral agents, and the intention is to lead the nurses in the direction of unforeseen or unintended consequences (18). One of these unforeseen or unintended consequences can, as previously mentioned, be when the nurses have to use the on/off button. We need the nurses to act and to remember to turn on the camera, or then unfortunate situation can occur, where the nurses think they get alarms from their patients, but they do not. Nonetheless, it is also inappropriate and unfortunate if nurses, on the other hand, forget and turn off the cameras in situations where they should be turned off, because it does not safeguard patient integrity. The nurses thereby hold responsibility for their intentions (good or bad) in the interaction with the technology and the consequences of their interactions with the camera surveillance. This is what Verbeek calls a *"hybrid intentionalities"* a relationship between the technology and the nurses, where one is nothing without the other (18).

> *Intentionality is hardly ever a purely human affair – most often it is a matter of human-technology associations; and (2) freedom should not be understood as the absence of 'external' influences on agents but as a practice dealing with such influences or mediations"* (18).

The introduction of new technology to the ward also calls for an ethical debate, because the technology is intended to be used by someone and on someone. The technology should be used on the patients and my previous synthesis is that ground rules should be made for *how and for whom the technology* should be used, I therefore, believe that we must ethically assess it. Verbeek describes mediation analysis as a help to assess the technology;

> *First of all, mediation analyses can be used to develop moral assessments of technologies, evaluating the quality of their mediating roles in human practices and experiences and their impact on moral actions and decisions. Second, mediations can be explicitly designed into a technology"* (18).

As stated above technology affects the nurses in the care for patients, and with that comes ethical values. One must reflect on the technology; How can we design new technology, and does it move our ethical values? As Kudina states, one must look at "*how technologies co-shape the moral decision of people*" (20).

She lists three points of how technologies mediate morality and the meaning of values. According to Kudina, technologies shape humans' perceptions, their moral choice, and help define the meaning of values (21). With this in mind, I argue that when new technologies are introduced like camera surveillance, then new practices, new situations and new choices can arise of what is significant to the nurses on the ward. But these new practices etc. may challenge the nurses' current values and how they used to work (21).

Perhaps with the use of theory from post-phenomenology, one can argue that nurses should experience a new relationship with the technology that they will soon have to use in practice, so they do not see it as a tool or as good or bad. But as a means to a goal of how they can see the patient and respond to their needs through technology like an extension of their arms. This is not to say that nurses should not reflect on the design. The nurses are able to shape technological mediations, this is done by reflecting on how the technology of camera surveillance is used, what it does to them and the surrounding people using the technology, and the provocation of feelings and preferences one might feel. This can lead to reflections on how a possible modification of the technology can arise.

The ethical debate regarding the use of camera surveillance

In this part of my discussion, I want to study the ethical debate that exists among nurses on the ward to understand concerns that arise when this new technology is introduced and how the ethical debate can shape how the practice will be with the use of camera surveillance.

For this, Tom Børsen's model to do an ethical assessment of technology is applied because "*technology assessment is a central tool in the techno-anthropological toolbox because it sets out to assess the impacts of technologies on humans, human culture, and the human condition*"

(22) and where *"technology assessment's mapping of technological impacts is a prerequisite for designing technological solutions where notice is taken of both intended and unintended effects" (22)*. It is, therefore, necessary as a techno-anthropologist to assess technologies in relation to humans and the consequences these may have, whereby this model helps me to ethically assess and reflect on camera surveillance.

The nurses I interviewed do not use this technology yet and they do not have any practical experience with this new camera surveillance and the application, as it is a technology-in-the-making. Therefore, they can only imagine what their actions and experiences would be with this technology. Nevertheless, the nurses have previously worked with live video recordings on the ward, and therefore possess some sort of understanding of the new upgrade of surveillance cameras, because of this they do have some ethical considerations of the new technology. These considerations were expressed by the nurses in the workshops with the experts, and in the interviews, I did on the ward.

It was clear in the interviews and in the workshops that there was a group of nurses who questioned whether this technology has too many ethical challenges, and these had to be analysed before the new technology was put into use. It is seen in the interviews and workshops that some nurses believe that privacy is exposed by the use of camera surveillance. Therefore, they saw the importance of discussing how the technology was used, as the nurses believe that in the worst case it offends the patients (Appendix - interview with the nurses).

But it was not only the nurses who ethically reflected on the technology, the designers and Malene also did this. Malene believes that nurses should not be worried about using video surveillance as it is just part of the patients' treatment;

> *We have talked about that, first of all, there is surveillance in the patients' room already. I know it will not be saved, but it is also not intended that the new video surveillance should be stored in some video box [...] we monitor our patients in all possible ways now, it is not something that requires permission. It must also be part of the treatment here with us using the technology, and extra security for our patients, and not an offer to do video surveillance (Malene).*

As it is seen in the interviews some of the nurses are afraid that the recordings may be used against them, but Malene sees this differently as she does not think that the purpose of the design is to put some nurses to shame or distrusted;

> *Of course, you can make a mistake, it's human. If a relative comes accusing you of something, then the video can show exactly what you did. Therefore, it should not be seen as a disadvantage (Malene).*

And,

> *I can see what they mean! But what surprised me was that the ethical considerations concerned the patients. It was not because they did not want to be monitored themselves, it was more about what is ethically correct towards our patients (Malene).*

Although the nurses and Malene view ethics differently, Malene knows exactly where their concerns came from. It should also be mentioned that Malene has years of experience working as a floor nurse in the same ward.

Because of the different perspectives on ethics, I will try to understand the ethical dilemmas of the technology that arise, with the use of Tom Børsen's model to assess the technology;

> *The model is useful for techno-anthropologists and others who want to make a quick and proper ethical assessment of a real or imagined socio-technical configuration (22).*

I want to look at and specify the; "*Identification of intended beneficial consequences, potential misuse, unintended adverse side effects, and long-term consequences for society*" (22)

The intended beneficial consequences of camera surveillance are that patient safety is increased, one can be in two places at once, diagnostics, prevention of undesired critical movements, and a benefit for some patient groups and on-call teams. These are statements taken from the nurses and Malene, as it appears that there are many benefits to the technology. However, it is also seen that the technology can lead to *potential misuse*, as video recordings can be used against the nurses, ethical principles of privacy are not protected, violating the patient autonomy and integrity, mistrust of the nurses, curious glances from other relatives or health care staff.

In addition, some *unintended side effects* can occur when using video surveillance. In this way, the nurses are pulled out of the patient rooms and this means that a nurse set aside their professional judgment, something they acquire by being inside the patient room. In addition, if the data (recordings) are not protected, it may violate the privacy of patients and nurses. Or if the camera is forgotten to be turned on/off.

There can also happen *long-term consequences for society,* in the form of savings rounds among nurses who are being replaced by technological solutions. This replacement of the nurses means that the human part is taken out of the composition of technology, thereby reducing the social, in the socio-technical configuration.

The ethical dilemmas of camera surveillance, are, on one hand, the beneficial potential to both patients and nurses, thereby improving health in the form of more patient safety and socialisation. On the other hand, there may be a concern from nurses that the recordings are being used against them and that the patients´ integrity/autonomy is being violated by filming them.

To sum up the above, interventions emerge that can be made by a techno-anthropologist, on how we can act in the best interests of the patient and not violate their autonomy by recording them in situations where they are exposed. As Børsen mentions, the techno-anthropologist doing technology assessment should include and collect knowledge from relevant stakeholders of the technology that are to be assessed and further let the designers know of this (22). This was done with the inspiration of CTA (1) and the model from Botin et al. (23), where the focus was on relevant actors in the process of creating new technology and also assessed the technology-in-the-making by identifying dilemmas and situations of ethical character.

Competences of a techno-anthropologist

The T-A triangle (see figure 12) by Tom Børsen, in *"What is Techno-Anthropology"* (28) is included in the thesis, as post-phenomenology does not focus on the relationship between expert and user, why this triangle can help to shed a light on this relationship. The T-A triangle places post-phenomenology in two places, namely between expert-artefact and between users-artifact. Because post-phenomenology does not focus on the user-expert relation, I have chosen and incorporated this model, as it is important to focus on all individuals outside of the technology and their relationships.

By using this model, I want to focus on an individual level whereas I as a techno-anthropologist must focus on the technology and the surrounding components of experts, users/stakeholder, and procedures/artefact and the relation between them. In this relation, problems can show themselves between the components (28). This is an interdisciplinary process that is learned through my study of becoming a techno-anthropologist, where skills and competencies for how

Figure 12, The T-A triangle (28)

technology together with the three cornerstones should be analysed in relation to each other. I will therefore turn my attention to Tom Børsen's model of a triangle that represents just this (28). I will discuss the different angles of the illustration and how the interplay between them is seen in the light of my field of interest and where problems show themselves.

Starting with the relation of interactional expertise between **expert and user**, herein I have earlier mapped out the different groups' understandings of the technology. The expert is Malene and the users are the nurses.

Previously in this chapter, I have discussed with theory the different groups' perspectives on technology and how they see the collaboration with this new way of monitoring. Now I will summarise the angles of the two groups which can result in an understanding of each other's agendas and perspectives. This is done on the basis that I as a techno-anthropologist act as a translator between the groups.

It has risen from a clash between different interests and ways of seeing how video surveillance should be used and on whom. My discussion leads to the fact that the different groups looked differently at the synthesis, for *how and for whom the technology should be used*.

Malene came up with an antithesis to this synthesis, as she, as an expert had a different take on how the work should be with the camera and the application. This was seen in the light of how the two groups (experts and users) viewed the involvement of the users. The nurses wanted to be more involved, but Malene and her team already thought they had involved them in the workshops. There were different angles on how the technology was multistable, where the technology has the potential to mediate the nurses' experience of the technology as an extension of their arm which can help them to act in some situations and with some patients in their practice when they go out of the patient room. However, the technology is not for all patients and there must be a purpose described when using it.

The path for the technology, seen with the eyes of an expert is constant monitoring of all patients, which can create freedom for the nurses to leave their patient rooms and which can maybe in the long run replace a nurse in the care of patients.

The two different perspectives on how the technology should be used and for whom supports the fact that the technology is multistable and cannot stand alone. Because of the different opinions on the paths for the technology, it is necessary that I, as a translator, translate between the two groups, and make the different perspectives known to one another.

In addition, the nurses and Malene looked at ethics differently. The nurses attach greater value to ethical principles and something that needs to be safeguarded in the care of the patient who now has to be filmed and recorded. Where Malene and her team understood the nurses' attitude but thought that the ethical dilemma was well thought through and argued well for, as filming was already being done on the ward and it just had to be considered in the care of the patient that they were now monitored on film.

I can understand the nurses' ethical reflections and the issue they face when it comes to adding more monitoring to the patient, because although it is a way to monitor their patients, we must remember that the nurses are "brought up" to be physically by the patient and to cherish their integrity.

The Danish Nurses'' Council on Ethics has written down some ethical guidelines, which nurses are taught during their studies and encouraged to protect (41). These guidelines call for;

1. *Promoting ethical reflection in discussions and deliberations among nurses.*
2. *Promoting the ethics of nurses' judgment in order to develop professional quality.*
3. *Support nurses in situations, where choices have to be made.*

4. *Focus on ethical dilemmas and make visible ethical practices (41)*

Therefore, it is not surprising that nurses experience ethical dilemmas when their basic ethical nursing values (*responsibility, care* and *well-being*) and principles for the patient (*self-determination, dignity* and *integrity*) are challenged in this context of video monitoring where they have to withdraw from the patient and where videos of the patient are recorded and stored somewhere (41).

As a techno-anthropologist one must reach a common understanding of technology, how nurses experience the technology and their ethical dilemmas so that the camera surveillance can be optimised and improved for them to use in the future.

Between the **expert and the product**, I as a techno-anthropologist, possess competencies that must accommodate a social responsibility, in which I must identify ethical dilemmas regarding new technology (28). That is why I used Tom Børsen's model to do an ethical assessment of the camera surveillance (22). However, it is not only me as an individual who has to deal with social responsibility, it can also be Malene, the expert, who also has a responsibility to include ethics and unforeseen/unintended consequences in her reflections on making new technology. I know from the interview that Malene and the designers considered the ethical challenges that could occur when implementing the new kind of monitoring. They came to the conclusion that there is already camera monitoring of the ward's patients, however, without recording (28).

Between expert and product, a techno-anthropologist must also overcome the problem that lies in this relation, with problem-solving of how responsible research and innovation [RRI] in technology design can be addressed (28). Here I want to include a quote from Rene von Schomberg, which states;

> *Responsible Research and Innovation is a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society) (42).*

With this in mind, RRI should be aligned with the nurses' values on how to build a disabled future and their view should be included as well as the other actors involved. RRI should therefore, promote and involve engagement with the nurse (42).

This is why co-designing and public engagement are so important to incorporate when designing technology.

Between **user and product**, the focus is on anthropology driven design (innovation), which is a combination of participatory design and anthropological methods (28). This means that I have to come up with proposals for technology that contains the criteria of user-friendly, solution-oriented and innovative, this could be, among other things, experiments, observations or models (28). Users should be seen as co-designers when making participatory designs;

> *Involving users as co-designers takes as indicated as its starting point that those affected by new technology (e.g. workers and users in general) should have a say in the design process and hence in the development of the technologies shaping their work lives and lifeworld in general (43).*

The nurses must be seen as co-designers, both because of the democratic conditions we live under and because they have a different approach and view of the technology to be used and thus have the knowledge to be put into play when developing technology (43).

This is also something the nurses talk about in the interview that they need to be heard and seen, because if they do not and do not express their opinion on the product, it may not make sense to use it. That is why it is so important to involve the users as co-designers in participatory design, where they are allowed to participate in design activities and design new technology. It should be mentioned that it is also something Malene and her team in the department have tried to facilitate, but not everyone has participated in the workshops, as they are held during the day.

Other activities in anthropology-driven design can consist of making personas, and mock-ups, in addition to doing several future workshops and prototyping (43). These activities are used to *"envision use-before-use as well as design-in-use" (43)*. As a techno-anthropologist I could contribute to the process of being involved and engaging the users of the product;

> *The ambition of studying and working with participation in design processes is an explicit competence that a*

Techno-Anthropologist should master. To be able to facilitate users participation in technology design (44).

This participation of users is necessary as the technology will affect their lives and how they practise nursing (44).

Reflections and limitations

Some reflections and limitations have been made in connection to this master's thesis. I did not have the opportunity to interview and include the designers and decision-makers points of view in this master's thesis. Due to late signed secret agreements, and the scope of this study. This is a limitation of my study.

In addition, this thesis is not based on patients' and their relatives' perspectives. This would have been a much larger project. However, I have had reflections on this, and certainly believe they are central actors in the debate on camera surveillance, as they are the ones being filmed or having their love once filmed.

A reflection was made on what else I could have done in terms of facilitation of the design processes, where specific tools can be used. Before I attended the project, I had a goal of wanting to facilitate some workshops, design games or other activities with the nurses at the ward and make participatory design by engaging with the users of the technology. Instead, I took advantage of the already established workshops that I have the opportunity to attend.

Talking to Malene and who they see as their target audience for whom they are designing for, she explains that it is the younger, newly trained nurse that there is the specific aim of the technology. My reflection and what we learned in the study of techno-anthropology, is that the innovation department at the Neuro ICU could consider making personas, as this could help them to whom they should design for (44). From what it sounds like, they are designing for the younger generation of nurses. I reflected on this and came to the assumption that the younger nurses will probably be the ones more adaptable to the product, as they are already the ones sitting outside of the patients' rooms. However, it is the older and more experienced nurses who should be the primary persona the product is designed for, as they are the ones who have a resistance to technology, cultural change, and the ones who do the introduction of new nurses to the ward.

It should be mentioned, that my study is based on a participatory mindset, where "users" must be seen as partners and as active co-creators. Where persona is a method of creating a toolset for making assumptions about the nurses, which has a different approach to seeing nurses as subjects, through an expert mindset, also known as user-centred design (45). However, the use of personas can be important for the designers as it can allow them to account for the choice of their designs. Another benefit of using personas is that it can remind the designers who to design for (44).

I would like to point out that this study is based on participant observation and semi-structured interviews and I see my study would have been enhanced through triangulation of different methods. But due to the scope of this study, time and resources this has not been possible for me to perform.

Finally, one last note concerning reflections and limitations, because I signed a confidentiality agreement with Rigshospitalet, not to talk or discuss the project; "*Proximity at Distance*" and therefore, also my master's thesis, it was then not possible for me to get others to peer review and assess my study, to get feedback.

Chapter 6: Conclusion and Recommendations

Conclusion

Goal

To investigate how and if proximity can be reached at distance, where video cameras can be used as a new form of monitoring of patients in the intensive care unit, and to make recommendations for the ward.

Thesis statement

How can camera surveillance as monitoring on an ICU support or challenge nurses in their practices with patients, and how can challenges be overcome?

Research questions

- *What are the visions of the involved actors in the implementation of camera surveillance?*
- *Which mediations are at play between technology and humans?*
- *Which ethical considerations occur when working with new technology involving humans?*

Although there is a lack of best practices in the ward, as it is a new technology that is to be implemented, have I come to the conclusion that the technology can most likely support the nurses' work at the Neuro ICU and proximity can be reached at distance.

However, it has to make sense for the nurses to use the technology and there have to be some ground rules for *how and for whom the technology should be used*. Challenges must be overcome, with more cooperation between the various working groups, and the nurses must be consulted and involved ((Synthesis), appendix: Thesis-antithesis-synthesis). Therefore, I have created some guidelines (see; Recommendations) to overcome challenges when implementing camera surveillance.

In this study, I have located there are divided opinions *on how and on whom the technology should be used*. Malene believes that camera surveillance should be used on all patients, as it

is a monitoring device just like all other monitors used in the unit. In addition, it must help the nurses care for more patients. This is something the nurses fear, as it causes them to receive more alarms which can seem stressful, that they are undermining their professional judgment, that it will affect the standardization of nurses, and that there are false alarms or no alarms on patients' movements.

There might be some challenges associated with the installation of the technology, in that the use of it is defined in advance by the experts. These different angles on how the technology should be used and which patients should be filmed means that a conflict can arise when it is implemented in practice. Therefore, it is important to address that conflict in advance before it develops and creates a greater difference between the different actors' perspectives on the technology.

From my research, I have found that there is a lack of collaboration between experts and users, assessment of the technology, whether it is ethically sound, and an ongoing debate about ethical values that change with the use of camera surveillance. Right now, the ethical considerations are that the nurses and Malene are not in the same term of including and sharing their considerations, as the nurses are afraid of their own and their patient's autonomy/integrity and misuse of trust, these ethical considerations are not shared by Malene. Because they do not meet each other in their deliberations, it is important that the ethical debate is ongoing on the ward and that technological innovation is assessed and reflected upon by designers and users. The nurses make demands to the management of Neuro ICU, that there must be defined a purpose for how this technology should be used and on whom. In addition, some guidelines must also be provided so that the nurses do not feel that it is a cut backs in hospital resources, they are losing colleagues and so that no one feels trapped in the use of the technology and that it can create a negative environment by filming and recording. In addition, it also requires that nurses are open to cultural change and change in workflow and the ward is prepared and open for a slow start-up, workshops/simulations and critical questions about the technology.

Though the nurses are critical of the way the technology is intended, I have also found out from my investigation of the involved actors, that camera surveillance can help some patient groups and some nurses' on-call teams on the various shifts, and the technology can be seen as an extension of the arm and create closeness and proximity even though the nurses are not right beside the patients. In addition, the ward is designed so that they can quickly isolate themselves

and therefore this technological solution can help get the nurses out of the rooms and into the hallway with the others on duty.

I would argue that the technology mediates an argumentation relation, where nurses act and practise based on their experiences and perception of the technology. This mediation takes place when the nurses withdraw from the patients and are not physically present in the room, but by Verbeek's argumentation mediation, a world is shown to them that they will not be able to see without the use of technology. Therefore, technology can be an important partner in nurses' care.

In addition, existing literature which was assessed at the beginning of this master's thesis supports my findings. That technology can meet with scepticism, ethical questions, and concerns from nurses. In these articles assessed, the nurses ended up being satisfied with the technology that was implemented.

Recommendations

I will hereby address my recommendations to help create an environment in the ward where proximity can be reached at a distance through the use of camera surveillance and the application. To overcome the challenges and to support the nurses in their practice with the patients, these guidelines are made.

1. Several workshops, seminars, personas, and mock-ups should be held where the nurses co-design further with the experts.
2. Before the launch of the new monitoring system, there should be exercises on how it is used, so there is no doubt about the function of the camera and the application.
3. The management at Neuro ICU, in collaboration with the nurses, must make clear guidelines for how the technology is to be used and on whom.
4. Neuro ICU must be prepared for opposition from some nurses, especially those who have been in the ward for many years, as it requires a culture change for them to physically move away from their patients.
5. Relatives of critically ill patients must be made aware that filming is part of the daily care of patients, this helps to create transparency and openness, but it also helps in providing an understanding of how their loved ones are monitored and not just left alone in the living room.

6. The different types of nurses who practise their nursing, in the ward, must be taken into account concerning how technology co-creates nurses' identities.

7. Ethical assessment of the technology must not be downgraded.

8. Finally, I would urge that the ward does not put a lid on the ethical discussion that may exist regarding this technology, as it is a natural part of their nursing to reflect on ethical dilemmas and consequences.

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Appendix

Interview guide
Semi-structured interviews with the project nurse and the nurses on the floor

Questions for Malene

Kan du starte med og præsentere dig selv og din stilling?

Hvordan kan det være denne teknologi er blevet valgt til og brugt på afd?

- Hvilke samarbejdspartnere har?
- Hvad er tidplanen for teknologien?

Hvad skal teknologien kunne?

- Hvad er visionen for teknologien?
- Ser du nogle udfordringer/barrierer med teknologien?
- Ser du nogle fordele med teknologien?

Hvordan tænker du teknologien kan understøtte sygeplejerskernes arbejde/praksis?

- Hvilken indflydelse har sygeplejerskerne på afd. Eventuelle ændring ved teknologien? Workshop fx?

Har du nogle etikovervejelser i forbindelse med denne teknologi?

- Har du nogle overvejelser om at kameraovervågning kan krænke værdien af privatlivet, på grund af manglende kontrol over situationer der filmes og optages?

Har du nogen afsluttende kommentar?

Tak for din tid.

Questions for the five nurses

Hvordan er samspillet mellem dig som sygeplejerske og teknologien i bruger på afdelingen?

Hvad tænker du som det første, når der nævnes at der skal bruges kamera som monitorering af patienterne?

- Har du været til workshop eller andet omhandlende kameraovervågning?

Hvordan tænker du kameraovervågning kan understøtte din praksis som sygeplejerske?

- Hvad tænker du fordelene kunne være ved kamera som monitorering af patienterne?
- Hvad tænker du ulemperne kunne være ved kamera som monitorering af patienterne?
- Hvorledes tænker du at kameraovervågning kan bruges som monitering?
- Hvorledes tænker du at kameraovervågning kan bruges i sammenspil med det faglige skøn?

Ser du nogen etiske udfordringer/dilemmaer forbundet med opsætning af kameraet?

Tænker du at du har brug for at lære om denne her form for overvågning før den kommer ud på afd?

Har du nogen afsluttende kommentar?

Tak for din tid.

Interview with innovation nurse Malene the 10th of March 2022

Interviewer: Kan du starte med og præsentere dig selv og den stilling du har på afd.

M: Malene hedder jeg, og er intensiv udd. været på afd. i 8 år, og er for et par måneder siden blevet ansat som sygeplejerske med særligt ansvar for innovartion laboratoriet, så jeg skal være med til og drive innovationslaboriet og de innovative løsninger som vi får sat i værk i innovationslab. og min rolle som sygeplejerske er at jeg skal være sygeplejerskernes talerør og jeg skal være med til og implementere de løsninger de kommer bland sygeplejerskerne og selvfølgelig være med til udvikle på løsningerne.

Interview: Det her innovationsprojeket der er lavet lauchet her på afd. Nærhed på distance, hvordan kan det være det her projekt er valgt til afd.?

M: Der er to veje, da vi skulle flytte i nordfløjen, så blev er på højere hospitalsledelsesplan, blev der sagt at man havde et stort ønske om at man fik innovations ind som en del af vores hverdag, så det gjorde lidt at vi tænkte hvordan kan vi være innovative her. Så det gjorde at vi oprettede de her innovationsrum, det var den ene tankegang (telefon ringer, optagelsen bliver stoppet). Tændt igen: Det andet spor hvorfor vi startede på det her projekt, var at vi skulle flytte på flersengsstuer til enestuer, og vi godt kunne se med denne her normering vi havde før hvor vi var lidt flere patienter i vagterne, det kunne ikke rigtig harmonere med de forhold vi skulle have med enestuer. Så snakkede vi så om hvordan kan vi optimere på vores observation af patienterne, uden at vi er på stuerne. Så kom denne her idé frem.

Der var sat video overvågning op på stuerne, men denne her form for overvågning var ikke nok i sig selv, så vi skulle sætte denne her definition på at der også kom alarmer på denne her videoovervågning. Så det var lige som start ideen til det. DEt var sprugtet ud af at vi ikke kunne se os selv i den normering vi kom fra, at den ikke passede ind på enestuer. Vi havde brug for noget mere overvågning for at kunne passe vores patienter.

Interviewer: Så ideen til kamera overvågning til monitorering den udsprang af det, altså det var ide i fik selv eller var det noget man fandt på basis af noget af noget andet.

M: vi fandt ikke selv på ideen, det er jo en kendt ting det her med og have/bruge videoovervågning for at alarmere på forskellige parametre. Så det fandtes på alle mulige andre punkter, folk bruger det i overvågning i eget hjem.

Så på den måde skulle vi bare overføre det til hvordan vi kunne bruge det til vores patienter.

Interviewer: Hvornår startede det her projekt.

M: Vi flyttede her over i sep. 20, det var allerede lidt i snak inden, men så er der gået lidt tid, dog er man kort til efter hold nogle workshopper, hvor de sygeplejersker der var på vagt over flere dage, kunne komme med ideer og så var innovationsafd. hvor Frederikke var fra, var med inden over ret tidligt til og drive det. Og så kom der det eksterne firma (M2Call), og det var også dem der havde denne her ide også.

Interviewer: Du nævnte sygeplejerskerne de har været inden over workshopsene allerede fra start af.

M: Det har de.

Interviewer: Hvad med lægerne?

M: det var primært sygeplejerskerne, der blev blandt andet hold workshops hvor folk kunne gå ind og kigge og så blev der også holdt nogle samlet, hvor man blev samlet blandt et bord og så kunne man komme med ideer.

Interviewer: Så der har været en del?

M: Ja det har der

Interviewer: Denne her teknologi, kan du kort forklare hvad den skal kunne?

M: Ja, for det første skal man have live videoovervågning hele tiden, og det er bare en ekstra ting, for det den skal kunne er at give alarmer til sygeplejersken, ved specifikke bevægelser, som vi har vurderet som risikofyldte bevægelser. Så skal den give mulighed man kan koble flere sygeplejersker op til flere patienter. Det vi også snakkede om, ved og flytte på enestuer, var at man kunne mangle denne her supervision, som vi havde før på den gamle afd. Så hvis vi også skulle prøve og imødekomme det behov, så skulle man kunne invitere ens kollega med på ens videoovervågning om man så på det møde kunne supervisere den vej over.

Interviewer: Det er sådan visionen for den?

M: Ja, det var det der var i tankerne hele tiden, og så kan man sige at ting ændre sig hele tiden, hvor vi i starten tænkte der skulle være en primær og en sekundær sygeplejerske, der var den sekundære den superviserende sygeplejerske. Hvor den sekundære sygeplejerske måske i det sted vi står lige nu, er det en alm. sygeplejerske der tager de alarmer man ikke selv kan tag. Så der måske brug for at der både er en sekundær og en superviserende sygeplejerske. Lige nu er der ikke to poster, men definitionen af sekundær har ændret sig, men der kunne være behov for det andet også.

Interviewer: Nu er det prototype, men kan du se om der skulle komme nogle barrierer for hvordan teknologien bliver brugt?

M: Ja, altså der har været mange parametre oppe, den største kan være denne her alarm træthed, og det er lige præcis det vi prøver og arbejde hen til hvor vi lavet et produkt hvor der ikke kommer en masse unødvendige alarmer. Det er også derfor det tager så lang tid, det skal blive så præcist, så brugbart så muligt det her produkt. Det er ligesom en af tingene. Selvfølgelig er der noget risiko, når man arbejder med teknologier, hvor der også er ting der kan gå galt undervejs og det kræver noget af sygeplejersken. Der skal være en tænd og sluk knap, fordi man gerne vil skulle i nogle situationer, men det kræver sygeplejersken husker og tænde igen. Det kan være en ulempe ved denne her teknologi.

Interviewer: Kan du også nævne nogle fordele ved denne her teknologi?

M: Ja, fordelen er for det første at vi frigiver os selv i denne her observation af patienten, mere ud på gulvet. Det tænker jeg er flere fordele i, der både noget patientsikkerhed. For lige meget hvad skal vi hente medicin, udstyr - det kommer vi ikke udenom. Derfor er der en patientsikkerhed inden på stuen, da vi har denne her ekstra overvågning. Teknologien er en optimering hos patienterne lige nu, så kan vi måske få en bedre døgnrytme for vores patienter. Hvis vi kan lave vores overvågning ude af stuerne, fx i en nattevagt. Der er nogen patienter hvor man godt kan sidde ude af stuer. Og så er der også hele aspektet om arbejdsglæde, frygten ved og flytte her over det var at vi kunne skulle være sociale mere, men ved denne her teknologi, så er det muligt og trække sig ud af stuerne.

Specielt der erfarne sygeplejerske, tænker at nu skal vi erstattes af elektronik og har vi overhovet brug for sygeplejersker. I forvejen med det overvågningsudstyr (telefonen - NIMA kald) vi har fået fra vores scop og pumper, det har givet denne her sikkerhed for at gå ud, men det fjerner også det sygeplejefaglige som vi andre er vokset op med at man er inde hos patienten. Det er måske ikke det vores nyere sygeplejersker de ikke helt på samme måde de har ikke de behov, som måske os andre mere erfarne sygeplejersker har. Der har jeg skulle vænne min tankegang lidt, vi kan ikke blive ved med og sparke dem over benene og sige de skal være inde på stuen, for det gør de ikke. så vi må heller lave nogle løsninger som passer ind til den generation der kommer nu. Selv om det lyder forkert at man trækker den sygeplejenæreting ud af stuerne, så finder vi til gengæld den løsning som stadig øger patientsikkerheden. Det gør også at fordelen at lige nu er det ret svært at passe to patienter, så skal det være to som ligger ved siden af hinanden. Og hvis man skal passe de to så skal være kandidater til og blive passet af kun én sygeplejerske. Teknologien, gør at man kan passe to patienter, to forskellige steder i afd. fordi man havde den ekstra overvågning på. Af de to patienter ville aldrig man fra den som var urolig.

Interviewer: Hvordan tænker man denne her kamera overvågning kan understøtte arbejdet på daglige plan?

M: Jeg tænker også at den kan understøtte meget mere, denne patient er mere rolig eller mere urolig end man troede fordi kan se en alarm historik, og når vi også senere hen udvikler en mere diagnostisk tilgang. Tror også vi ville opfange nogle ting som vi ikke ville lægge mærke til.

Interviewer: Hvad kunne man fx opfange?

M: Simpel ting som krampe, før at de udløser noget andet. Vi har snakket meget sådan noget at vi forventer at pt er paretisk i den ene eller anden side, så kunne man i en senere version indtaste noget patientspecifikt ved denne her patient. Fx at jeg ikke forventer at patienten bevæger højre side, jeg vil gerne have at vide hvis de bevæger højre side.

Vi har også talt om genoptræningpotientiale, at man på en eller anden måde/se en eller anden ting i hvordan patienterne udvikler sig. Det er dog meget mere avanceret end det plan vi er på nu.

Interviewer: Hvornår kommer teknologien ud på afd?

M: Det som er planen lige nu, at den ligger inde hos videnskabs medicinsk komenté, og der mangler vi en godkendelse før vi må sætte den op på stuerne. Forhåbentligt får vi den godkendelse inden for den næste måned, så vi kan sætte kameraer op på stuerne. Men ikke som overvågning, kun til vi kan gemme optagelser, så vi kan gemme algoritmerne og lagre på softwaren, så vi kan lære algoritmen, hvad den skal give alarmer på og hvad den ikke skal give alarmer på. Og det skal der mange optagelser til før algoritmen bliver klog nok til og vide her.

Interviewer: Hvornår tror du teknologien kommer ud i praksis?

M: Vi forventer der er et færdigt produkt til sep. 2022.

Interviewer: Som skal bruges på alle patienter?

M: Det er umiddelbart tanken at det bliver sat op på alle stuer. Den prototype, MVP (den første version) der kom ud, den er rettet mod RASS -2 til -3, til intuberet eller tracheotomeret patienter, men som udgangspunkt er det på alle stuer, og det vi har valgt som en del af den her app, er alt vi kan slå alarmer til og fra, så på den måde kan man tilpasse det til patienten i sengen, der er ikke sat nogen restriktioner på om det er børn eller voksne, man skal bare huske på hvad det er udviklet til det her produkt, så man ikke bliver skuffet og bruger det på en vågen ikke intuberet patienten, men det er jo heller ikke til en start de patienter vi har tiltrængt produktet til. Men vi er allerede begyndt og tiltænke de patienter med RASS score nedad, de her patienter som man jo egentlig nok forlader nu, men det er også hos dem der kan ske fejl, så vi kan fange hvis de laver den mindste bevægelse.

Interviewer: Nu har du været med hele vejen i projektet, har du hørt hvordan sygeplejerskerne tager imod projektet?

M: Ja, det har jeg jo lidt, og har også stået på den anden side selv. Som udgangspunkt er der god stemning, men der er også den bekymring specielt fra de erfarne sygeplejersker at nu gives der endnu et redskab som gør at man tillader sig og forlade stuen. Og det kan man godt frygte lidt at man mister den der føling af når man sidder inde ved patienterne.

Interviewer: Tror du de kan få en følelse af at teknologien underminere deres faglige skøn?

M: Det tror jeg, det er jo det man får når man er inde hos patienten. Men det er jo heller ikke tiltrængt at man skal bruge overvågningen hele døgnet, men kun i de situationer hvor man har brug for at forlade stuen, eller patienten har brug for ro på stuen, eller du har to patienter.

Interviewer: Nu var jeg med til sidste workshop, og der er var nogen der talte om det etiske aspekt om det var blevet overvejet og har I internt haft nogle etiske diskussioner?

M: Altså det har vi, jeg kan godt se hvad det er de mener, det der kom bag på mig, det var på patientens baggrund at de talte det etiske aspekt, det var ikke fordi de ikke selv ville overvåges, det var mere hvad er det der etiske korrekt overfor vores patienter. Vi har snakket om at for det første er der overvågning på stuerne i forvejen. Jeg ved godt det ikke bliver gemt, der er der jo

ikke den finesse der, men det er heller ikke tiltænkt at det bliver gemt på en eller anden videoboks, hvor man kan gå ind og starte en video, det bliver jo bare lagret til vi senere kan bruge det og det bliver nødt til og blive lageret for at få de alarmer på det. Så har vi talt om er det her et problem, bliver det til et problem. Det vi ligesom er nået fra til, vi overvåger vores patienter på alle mulige måder nu, det er ikke noget man skal give tilladelse til, det skal det her også bare være, det skal også være en del af behandlingen her hos os, og en ekstra sikkerhed hos vores patienter, og ikke en tilbud om at lave en videoovervågning, det handler om at vi kan få nogle alarmer, lige som vi kan få en alarm på en saturation der bliver lav. Nu er det bare visuelt.

Interviewer: Så du tænker ikke det der med det bliver optaget at det kan krænke privathedens fred?

M: Nej det tænker jeg ikke og der skal være en mulighed for at slukke for kameraet i visse situationer.

Interviewer: Og der var slet ikke nogen der gav til kende at det var ubehageligt og blive filmet?

M: Det var ikke umiddelbart det jeg hørte eller der var nogen der gav det til kende. Det er jo heller ikke videoadgang vi alle kan få, det skal på ingen måder bruges til at vi kan tjekkes nogens arbejde.

Interviewer: Man kunne bare godt forestille sig, at hvis der så kom en klage fra patienten/familien, ville de her optagelser så blive set igennem? kan det bruges af politiet, i retten?

M: Vi har snakket om det, men det er slet ikke tiltrængt i det her, alt andet bliver jo også gemt hos patienten, alt det vi gør eller ikke gør. Selvfølgelig kan man lave en fejl, det er jo menneskeligt. Er det så ikke federe det er optaget, hvis der kommer en pårørende der anklager for noget, så vise at jeg gjorde faktisk det her. Hvis man skal vende det lidt den anden vej, i stedet for at se det som en ulempe at vi bliver fanget af nogle fejl, det er jo menneskeligt og lave fejl.

Interviewer: Har du nogen afsluttende kommentar?

M: Næh, det er jo et produkt der udvikler sig hele tiden og vi bliver klogere hele tiden. Det er jo et svært samarbejde fordi vi sidder og arbejder med nogen som ikke er fagfolk og de har nogle rigtige store ideer om et produkt der kan komme til og virke, men igen de kender ikke vores patienter og vores behov. Man sidder jo ikke på skødet af hinanden og laver det her produkt. Der er mange aktører involveret.

Interviewer: Så vil jeg sige tak for din tid.

Interview with Nurse A, the 10th March 20222

Interviewer: Den teknologi i bruger til daglig på afd. hvordan er sammenstillet med dig og den?

A: Du tænker på vores ASCOM system?

Interviewer: Ja

A: Det kommer an på hvordan det bruges, ASCOM systemet kan også gå hen og blive en sovepude, jeg tror for nogen så er det sådan lidt, du ved jeg bare jeg den så er alting godt. Men der går jo bare en alarm ind, du kan se om den kommer fra en skærm eller nogle pumper, men du realt ikke se hvad er det her for en alarm, er det fordi patienten har pillet deres tumbe ud, er det fordi der er noget med blodtrykket, hvor er det lige vi er henne. Det kan du ikke se på din telefon, det er lavet til du har et opmærksomhedspunkt i de tre steder. Så kan man sige, hvis man tror man kan bruge telefonen til og side udefra stuen, hvor der ikke engang er en slaveskærm i to timer, og så får du bare de informationer på din telefon, så er det ikke nogen god ting. Men den kan være rar og have hvis du bare skal forlade stuen lidt tid, og du ved du har et blodtryk der driller, og du så får alarmer mens du er ude, så kan man tænkte det er

blodtrykket den alarmere, hvis man kender sin patient godt nok. Så på den måde er det egentlig fint nok.

Man kan bruge det som et hjælperedskab, men det er ikke en erstatning for en sygeplejerske.

Interviewer: På afd. er der tænkt og lave denne her visuelle monitorering, en slags opgradering af det system du talte om. Hvor man kan være længere tid væk fra patienterne eller passe to samtidig, hvad er dit første indtryk af det når du hører det?

A: Jeg tænker at som udgangspunkt kan jeg godt lide tanken om at hvis man fx skal være to steder på engang, så kan du have et visuelt værktøj, det er mest i forhold til man også observere, en patient der går efter tuben, eller flår noget af sit udstyr ud. Hvis man stiller sine alarm, grænser ordentlig så burde man stadig få de alarmer man skal have og hvis man så samtidig har det visuelle så tror det kan hjælpe en. Men jeg mener stadig ikke at det skal erstatte en sygeplejerske, for der er jo stadig mange ting som man ikke får, du kan jo ikke høre din patient. Der er mange ting når du sidder på din stue, at nu lyder det fx lidt mærkeligt henne ved tuben, alt der er noget her som ikke skal være som det er, du får heller ikke farve på din patient, hvis de er blege, man kan heller ikke mærke dem, er de klamt svende er de ved og få feber. Der er mange informationer man ikke får på et kamera, så man skal ikke tænke det er en løsning der erstatter man er inde hos sin patient. Men det er et hjælperedskab, helt sikkert.

Interviewer: Hvad tænker du om det faglige skøn, bliver det undermineret?

A: Jeg tror for nogen at så behøver jeg ikke være inden på stuen, jeg kan bare side herude og få alt det jeg kan få. Der kan også sige, jeg har været her mere end 5 min, jeg har lært og observer min patient på flere måder, men det er ikke sikkert at man har den viden eller har tilegnet sig den viden hvis man har været her et år. Så hvis så tænker at hvis bare jeg har denne her så er alting godt, så misser du mange informationer du kan få inden hos patienten som også gør at man kan handle på nogen ting hurtigt.

Interviewer: Hvis vi bliver i den bolde gade, omkring ulemperne ved monitorering, det kunne så være ulemperne at man misser det faglige skøn?

A: Ja, den bedste måde at vurdere din patient på det er og have din patient i hænder, det er der mange der synes er nedtur artigt at vaske patienten om morgen eller omlejring af dem. Det er jo der vi får de allervigtigste informationer om patienten, det er jo når vi står ved vores patient. Man kan sige man får mange ting på scopet, omkring iltmæntningen og blodtrykket, men der er også rigtig mange ting vi ikke kan få på et scop.

Interviewer: Kan du se andre ulemper?

A: Jeg tror den største ulempe for mig, det er der hvor man tænker at se bliver det legalt at man ikke er på stuen, i forvejen er det allerede sådan med vores alm. telefon, når man har den så er det okay ikke at være på stuen.

Interviewer: Så hvis vi vænner den om, kan du se nogen fordele ved teknologien?

A: Ja, fordelen kan også godt være at man kan trække sig fra stuen, lige ud og lave nogen ting, eller hjælpe sin kollega og det kunne også være en fordel hvis du har en delerøs patient der har brug for total ro, så jeg kan helt sikker også se fordele.

Interviewer: Tænker du i nogen grad at den kan understøtte din praksis som sygeplejerske?

A: Ja, helt sikkert. Det er helt sikkert noget vi kan få noget spændende ud af, men det bliver også et system for vi er nød til og lægge nogen grundregler. Det er fint nok vi kan gøre de her ting, men 1 er stadig det her.

Interviewer: Har du været med i nogen af de her workshops de har hold på afd.

A: Nej, jeg har ikke været med. Jeg er først kommet lidt mere i dagtiden, ellers er jeg primært i nattevagt.

Interviewer: Har i fået nogen mail ud?

A: Ja, jeg synes jeg har set lidt om det, på vores lukket FB gruppe, at de mangler figuranter, og så er der nogen der melder sig til. De pladser bliver hurtigt optaget, mange vil gerne være med.

Interviewer: jeg har tidligere hørt nogen tale om det etiske aspekt i kameras brug, da det bliver filmet og lagret, kan du se nogen etiske udfordringer/overvejelser?

A: Som udgangspunkt så tænker jeg vi gør de ting vi skal, så personligt har jeg ikke noget problem med det. Men hvis jeg skulle tænke hvis jeg var patient og der lå optagelser af det, så ved jeg ikke hvor godt jeg ville have det med det. En ting er at der ligger optagelser under indlæggelsen til brug, jeg tænker hvis der er en patient der ligger og kramper, så kan man gå tilbage og se det, så hvis man bruger det i behandlings øjemed så for min skyld kan jeg ikke se der skulle være nogen udfordringer. Men jeg tænker det er noget der bliver slettet når patienten er udskrevet. Der må være nogen GDPR regler om hvor lang tid det bliver lagret. I virkeligheden er det nok ikke anderledes end hvad vi har nu, hvor vi har en slaveskærm. Det er jo problematisk hvis man kigger på andre stuer, der er nok nogen der kan føle sig overvåget. Men jeg tænker ikke det er noget man tænker også til hver dag, at der er skærme der kan blive tændt. Det fylder ikke så meget, hvis man vender det om og ser det som et redskab.

Interviewer: I dit øje er det en form for redskab?

A: Ja, hvis der sker et eller andet, så kan man gå tilbage, kan man fange noget på kameraet, hvis man nu har været ude af stuen og kommer tilbage og patienten ligger og kramper. Så kan man gå tilbage og se at det startede måske lige når jeg gik ud af stuen. Så kan det være en fordel at det bliver lagret. Så jeg tænker hvis det er den vej rundt så kan jeg ikke se det er et problem, som udgangspunkt tænker jeg vi alle sammen gerne vil lave et godt stykke arbejde, så jeg tænker ikke at det er lavet for at slå folk i hovedet bagefter.

Man kan sige det er godt der ikke lyd på, sygeplejerskens humor kan jo godt være lidt hård til tider.

Jeg tror på alle gør det bedste de kan, og hvis det betyder man hive nogle data ud som man kan bruge til behandling, så er det super fint.

Interviewer: Har man brug for oplæring til at det lykkes?

A: Alt forandring er svær, jeg tror hvis det her skal implementeres så skal man ikke have travlt med at lykkes med det med det samme. Det kommer nok til til og blive en stor ting, så inden man rigtig lander i det, og finder ud af det. Så skal man forvente der går noget tid. Man kommer aldrig til og have alle med fra start. Det tager tid og ændre på en kultur.

Fx WeCare, det har vi haft i lang tid, og det har været langtid undervejs og få implementeret om natten, man har ikke så meget Ja-hatten på om natten. Så al implementering og noget nyt er svært fordi det er mange ting man skal forholde sig til.

Men jeg tror på det bliver godt

Interviewer: Har du nogen afsluttende ting?

A: Jeg glæder mig bare til og komme igang med det, og der kommer nogen flere ting frem som man synes er meget godt.

Interviewer: Så siger jeg tak for din tid.

Interview with nurse B, the 10th March 2022

Interviewer: Kan du fortælle om hvor lang tid du har været her på afd?

B: Ja, 7 år og 5 måneder

Interviewer: Så du kom fra den gamle afd. hvor man havde fleresengstuer og nu er vi her med enestuer?

B: Ja

Interviewer: Bruger man mere teknologi ovre på denne her afd?

B: Nej, men vi har fået decktelefonerne, som vi ikke havde på den anden afd, hvor man kan få alarmer. Men vi er nok også blevet bedre til selv og bevæge sig ud af afd. Det krævede lidt tilvending lige da vi flyttede herover. Så der har også været kulturændring, udover nogen fertaliteter som har ændret sig.

Interviewer: og du nævnte decktelefonen, hvordan er samarbejdet med den? er det godt? stoler man på det?

B: Ja, jeg tænker den alarmerer som den skal, men jeg ville gerne have haft den mindede lidt mere om den de har på GN, de minder lidt mere om en telefon, med lidt større skærm og der kan man se værdierne og se udførligt hvad en dinger for. Det kan man ikke på vores som de er lige nu.

På vores lige nu kan man ikke se hvad den dinger for men, men kun at der er overskredet en grænse jeg har sat på monitoren.

Interviewer: Okay, oplever du det som mange alarmer du får?

B: Nej, det gør jeg ikke.

Interviewer: Nu skal der installeres video monitoring, som så kan overvåge patienterne og personalet kan gå ud af stuerne på en anden måde end man kunne før fordi du kan se patienterne, hvad er dine tanker om denne form for teknologi?

B: Umiddelbart, ja. Men jeg bliver også sådan lidt når der bliver indført ny teknologi, tanker om at det er en spare øvelse på sigt, og varme hænder fremfor sikkerhed. Så jeg får altid lidt en modstand inden i mig, selvom jeg synes det er spændende og alt udvikling er fantastisk og jeg vil rigtig være med til og bidrage og have en ja-hat på. Men jeg synes, og mine erfaringer indenfor de sidste mange år siden 98, hvor jeg startede med at arbejde i sundhedsvæsnet, har jeg oplevet på forskellige fronter hver gang man har indført ny teknologi, har det været på bekostning af nogen hænder.

Interviewer: Så det er du nervøs for denne her gang?

B: Ja det er jeg. Men synes også det er en god ide. Det gør også at man bedre kan sidde udenfor stuen, uden at gå så langt væk. Men stadig være tæt på dem fysisk. Fordelen ved dette kunne være dem som vågner let og sover dårligt, de kunne få en bedre søvn.

Så jeg ser helt klart nogen fordele, men jeg har også en indbygget frygt for at de på sigt er en spareøvelse.

Interviewer: Der nævnte du fordele og ulemper, vil du uddybe?

B: Jeg ved ikke helt hvor langt man har gennemtænkt og om dataen bliver slettet hen af vejen, eller om det bliver gemt 24 timer så man kan kigge tilbage om patienten har krampet. Lige som man kan kigge tilbage på et EKG. Og så ved jeg ikke i forhold til GDPR, og om der er nogen regler, hvordan det skal gemmes i journalen.

Jeg kan se nogen ulemper i det at man kan føle sig overvåget, at man kan føle der er nogen der kan sidde og holde øje med at man gør sine ting rigtig. Man må dog formode folk gør det. Men ja, vi bryder os jo heller ikke om at have overvågning i medicinrum.

Interviewer: Hvad med patientens vinkel, de ved ikke de bliver filmet, kan du se der er nogen etiske der kan komme i spil?

B: Helt klart, bare det og vaske folk. Vi dækker til kameraet til når vi vasker patienten der får taget EEG, så dem der sidder og kigger på EEG'et ikke behøver at være med til det.

Og ja især hvis det bliver gemt, og nogen sygeplejerker ikke tænker over at slukket for kameraet.

Jeg kan godt forestille mig at man kan stå i nogen situationer, at film kan misforstås, at nogen kigger på filmen når de ikke selv er der.

Jeg er ikke så vild med det, dog kan jeg godt se det smarte i det. Men overvågningssamfund og overvågning af patienter og trækker big brother ind i hospitalsverden, er ikke noget jeg er fan af.

Interviewer: Er du mere den type der sidder hos patienten? eller trækker du dig også?

B: Jeg sidder faktisk tit og spiser herinde, jeg kan godt lide at være herinde. Men jeg kan godt lide at mærke, se, og lugte dem - bruge mine sanser til og observer patienten. Jeg bruger mit faglige skøn.

Interviewer: har du nogen overvejelser over samarbejdet med dit faglige skøn og denne nye form for monitorering?

B: Ja, Det kræver nok lidt til vending af mig. Lære en gammel hund nye tricks.

Jeg kan se mine nye kollegaer er meget bedre til og sidde udenfor stuerne, og til mødes med hinanden. Der er helt klart noget arbejdsmiljøgevinst og hente, det at man kan dyrke det sociale på en anden måde end man kan når man isolerer sig selv på en stue. Det var også frygten når vi kom over på de nye enestuer, og om der kunne ryge noget socialt.

Men personligt kan jeg bedst lide og sidde inde på stuen. Måske har jeg heller ikke det der store behov for at mødes med folk, ikke fordi jeg asocial, men jeg kan bare godt lide at være tæt på patienten.

Interviewer: Når teknologien kommer frem, og bliver brugt på patienterne, tænker du sygeplejerskerne på afd. skal have noget oplæring? Hvad skal til for at det lykkes?

B: Jeg tror helt sikkert for at det skal lykkes, så kræver det noget simulation, italesnakke det at det her kommer, ligesom da vi flyttede herover eller da vi fik SP, hvor man lavede simulationer og havde fiktive casses.

I starten vil der altid være folk der er kritiske, og sige den gamle måde var bedre, hvorfor skal vi have noget nyt. Der vil altid være nogen der er bedre til, adapterer nye ting og så er andre der har været her mange år, som vil have svært ved at adaptere nye arbejdsgange. Sådan er det.

Fordelen er at, nu er vi landet herovre, så folk er vant til stuerne, så det er ikke nyt teknologi og så stuerne. Vi kender stuerne, vi kender patienterne, vi kender Sebraen, det har vi på plads. Så nu er det noget nyt vi skal have oveni, en ekstra app i kendte redskaber. Det er en kæmpe fordel, så vi ikke skal starte forfra med Adam og Eva.

Interviewer: Tror du denne her form for monitering kan understøtte din praksis hvordan du er sygeplejerske på afd?

B: Jeg tænker helt klart det kan overstøtte når jeg lærer og bruge det. Hvor meget merværdi den kommer til og give mig, det ved jeg ikke.

Interviewer: Giver det en sikkerhed når du står i medicinrummet?

B: Man kan så sige at når jeg er i medicinrummet er jeg dybt koncerteret, så der vil det være ufedt jeg står og kigger på min app, så der ville det være risikabelt og der kam ske fejl.

Udover det, alt efter hvad for en stue jeg på, så jeg forholdsvis lang væk, så hvis jeg skal stå og kigge på min telefon, koncentrerer mig om medicin og være langt væk fra min stue og jeg lige pludselig ser min patient lave en uhensigtsmæssig bevægelse som fx at gå efter tuben, og jeg begynder løbe mit i det hele.

Jeg synes stadig man skal huske og sige til sin nabo og at de skal kigge på skærmen, så jeg ikke skal kigge på dem når jeg skal koncentrere sig. I medicinrummet skal jeg koncentrere mig, der ville jeg hellere bruge teknologien til og videregive til en anden.

I situationer hvor man har en sekundær sygeplejerske kiggende på skærmen så kan man bruge teknologien, i de situationer hvor jeg skal koncentrer mig.

Interviewer: Har du nogen afsluttende kommentar?

B: Jeg synes det er spændenden, alt udvikling er spændende. Jeg var også figurant på projektet, så jeg har ikke nej-hatten på. Jeg har også været med til workshops, hvor vi kiggede på appen og spurgt om vi havde nogen inputs. Jeg ville gerne have at alarmerne på appen havde forskellige lyde. Ligesom på telefonen nu. Så skulle alarmerne antyde om at nu var der noget der var kritisk, så man kunne reagere hurtigt.

Men jeg synes at nu hvor man i gang at det kunne være fedt hvis der var lyd på, især vores tetrapatienter - dem der kan klikke. Det er dem der allermest har behov for at man trækker sig, det er dem der er mest vågne og ikke skal observeres i forhold til bevidstheds (GCS) det er vores tetraplegiker. Det er dem man pt mindst dem kan trække sig fra, og det er dem man sidder mest hos, for man kan ikke høre de klikker hvis man går ud af stuen.

Alle dem som ikke kan klikke, det er dem vi trækker os fra, og det er måske dem der har allermest behov for kontontinuerlig observation, det er dem der kan ændre sig hurtigt i forhold til kramper, vasospamer, ødemer, reblødning.

Interviewer: Så siger jeg mange tak.

Interview with two nurse (C & D) the 2th of March 2022

Jeg vil gerne høre jer om hvordan samspillet er mellem syg og teknologi, hvordan er det på afd. bruger man meget technologi?

D: Ved ikke om man bruger meget teknologi, men det meste af den teknologi vi bruger, er blevet indarbejdet meget godt, men der er stadig nogle arbejdsredskaber, som er elendige, som ikke lever op til det de burde. Der er blandt andet Zebra og rover - det undrer mig meget at sådan et arbejdsfelt som vores det skal stilles til rådighed med sådan nogle dårlige arbejdsredskaber og man har så lidt indflydelse på det selv.

C: Jeg er helt enig med K, men jeg vil sige jeg er meget afhængig af min telefon til dagligt, det er en stor del af vores arbejde når vi passer en patient. Det er jo den telefon, eller ville vi sidde inde på den stue hele tiden og ikke ville kunne bevæge os ud i medicinrummet, ud at at spise, hente ting. Derfor er jeg meget afhængig af telefonen. Og selvfølgelig scop.

Interviewer: Så scopet går via telefonen, det er der kommer alarmer når der sker noget inde hos patienten.

C: Jeg kan mærke hvor sårbart det er når det er man ikke får en alarm, fx hvis jeg sidder ude og spiser mad og min kollega kommer og siger, "har du ikke hørt din respirator?" Så er er alarmen ikke gået ind på telefonen.

Interviewer: Hvordan kan det være den ikke er gået ind?

D: det har vi bare oplevet nogle gange at det ikke virker

I: og der kan man godt mærke at man ikke stoler på teknologien på samme måde. Hvad ser der, hvorfor er den ikke gået ind? Det er derfor man er meget afhængig af denne her telefon, og at den virker.

Interviewer: Man bevæger sig meget væk fra sin patient?

C: Ja, man er meget væk fra patienten, specielt efter vi har fået enestuer.

D: Det kan også være den omvendte problemstilling, nogle gange er der en løsforbindelse, så modtager du hele tiden alarmer på din telefon som ikke er der, som er ikke eksisterende. Det stresser livet ud af dig. Der er måske fire der får det hvert kvarter på en nattevagt hvor der kommer en rød alarm, det er meget uhensigtsmæssigt, for lige pludselig reagere man ikke på dem.

Interviewer: Så bliver man alarmtræt?

D og C: Ja.

Interviewer: det er ikke så godt. Men nu skal der sættes de her kamera som monitorering som er endnu en form for teknologi der bliver implementeret, hvad er jeres første tanker om dette, når jeg siger at nu kommer der kamera som skal være med til monitorering af patienter?

C: Det synes jeg er meget ubehageligt, jeg kigger på patientens, det ville jeg ikke bryde mig om også selvom jeg ikke er vågen.

Interviewer: Fordi de filmer?

C: Ja.

D: Det synes jeg også er ubehageligt. Fordi 80% af vores patienter kan man ikke spørge, så deres stemme er sat ud af spil og at man gør det konsekvent inden på alle stuer, det er ikke okay. Vi skal ikke gøre det fordi vi kan, det er ikke et formål i sig selv, det skal være til en bestemt patientgruppe, ikke dem der er sederet, ikke når vi vasker, ikke når der kommer pårørende, det skal ikke være når vi tager afsked og der er 100 andre situationer. Så man bliver nødt til og tag stilling til hver enkel situation og kunne slukke og tænde. Og så skal det ikke være per definition at vi optager alle patienter, nej! For så overskrider vi total patientens grænser.

C: Og der kommer der en etiske diskussion frem, hvad er etisk rigtig i sådan en situation? Når man ligger her er man bare så sårbar, man ligger jo meget af tiden blottet, på mange måder. Jeg synes bare det er grænseoverskidende at man så bliver filmet.

D: Vi bruger det allerede nu, oftest når vi er mindre bemandet i nattevagterne, så er der et kamera i loftet der filmer, hvis vi har børn hvor forældrene ligger på stuen, eller hvis vi har en urolig patient, så sidder vi ude i basen. Så er der kamera på. Men hvor ofte bliver de ikke glemt og blive slukket og så kommer pårørende om morgen, der er læger, alle kan sidde og glo ind på den patient, eller på barns forældre der prøver at ligge og sove. Jeg synes man går meget over grænserne, der er nogle arbejdsgange/linjer/rammer som ikke er blevet tænkt ind i det her ordentlig.

Interviewer: Så jeg kan høre i er patientens advokater. Hvad med en selv, er det ubehagelig selv og blive filmet?

D: Hvis jeg har en tænd og sluk-knap så er er det fint, men hvis ikke jeg har det så er det også ubehagelig for mig hvis jeg ikke har noget og skulle sige i denne her sammenhæng.

Interviewer: Der skal være en tænd og sluk-knap, så du aktivt kan gå ind og tænde og slukke, så du kan skærme patienten for nogle situationer.

D: Og så synes jeg også at ledelsen som implementerer det her, som minimum skal ud og definere, hvad er formålet og til hvilken patientgruppe for ellers så begynder man og tænke er det fordi vi kan og være fede på innovation? eller gør det for at spare sygeplejersker? eller hvad er formålet?

C: Det der er min bekymring, det er at vi får mere arbejde, vi skal passe flere patienter og ledelsen kan åbne flere stuer. Det er der man også bliver lidt bekymret, ja du kan se en patient og skal løbe frem og tilbage. Det går udover plejen af patienterne, men også vores egen arbejdsbyrde. Det kan godt bekymre mig, når de snakker om kameraer.

Intervieweren: De her alarmer kommer til og gå ind på Zebraen, så det vil sige i skal rende rundt med telefonerne og en Zebra. Hvad tænker i om det?

D: Zebraen ved vi allerede virker af røven til, det har vi rigtig mange problemer med, det er det værste arbejdsredskab. Du havde aldrig givet det til en murermester, så havde han grinet dig op i ansigtet og nægtet og arbejde med det. Det er vores røv der står i klaskehøjde, jeg kan næsten ikke tag det seriøst, det bliver jeg nødt til og sige.

Interviewer: Designerne ville gerne bruge en device der allerede var afd.

C: Køb dog en iPhone til alle, så har vi også en regnemaske på vores telefoner.

Interviewer: Det vi talte om før, at man bliver alarm træt, fordi I kommer til og havde alarmer fra monitoren til telefonerne, men i kommer også til og have alarmer på Zeberaen fra kameraer. Jeg tænker mange hænger de to ting sammen, så ser i en udfordring med at der kommer flere alarmer.

D: Der kommer en masse støj på afdelingen.

C: Som er rimelig støjende i forvejen

Interviewer: Ser i nogen fordele ved kameraer?

D: På nogen patientgrupper tænker jeg der er, og i nogen vagtlag, så er det. Så er vi ikke særligt mange og hvis der er mange roende patienter, så kan jeg godt se fordelene ved det. Men hvis det er alle der skal gå rundt med den der (Zebra), bare fordi vi skal så er det ikke en fordel. Bliver vi ordentlig introduceret i det? eller bliver det ligesom vi plejer, ved og læse mails og så er du i gang.

Interview: der har ikke været nogen introduktion?

D: Nej det har der ikke.

Interviewer: Tror i denne form for teknologi kan fungere sammen med ens praksis og at I så kan få et samarbejde med en app på telefonen?

D: Det tror jeg sagtens, det er fremtiden. Vi bilder os selv noget ind hvis vi ikke tror at man skal inddrage mere teknologi. Det tror jeg bestemt. Men der hvor det ofte går galt, det er når man glemmer og spørge dem der skal bruge det, og dem det bliver anvendt på. Så bliver det trukket for langt væk fra brugerfladen. Hvis ikke det giver mening for os der skal bruge det, eller for patienten, eller for de pårørende, så bliver det ikke velmodtaget. Så bliver det rigtig svært og implementere.

Interviewer: Også selvom det er noget der, jeg kunne forstå på dem at det bliver sat op på alle patienter.

D: Men det er også det, uanset hvad du synes bliver det sat op, det er et rigtig dårligt udgangspunkt.

Interviewer: Har i været med i workshoppen til og re-designe appen?

D: Give det en farve?

Interview: Give jeres mening til kende.

D: Nu er det så op til designerne og høre hvad vi siger, det er meget på deres bord nu.

Interview: Hvordan med det faglige skøn, tror i det kan undermineres eller kan det måske mere fremme det?

D: Nej jeg tror ikke det kan undermineres, men spørgsmålet er hvordan vi anvender denne her teknologi, hvordan er vores rettigheder, ligger jeg på en film, ligger jeg i 14 og skal jeg så ind og forsvare mig selv hvad det er jeg har gjort på filmen, er det der vi er nu. Formålet er defineret klart og tydeligt endnu. Så nu er det sådan noget mistroisk noget i stedet for at alle tænker "Yes hvor er det fedt det her".

D: Som patient, helt personligt så ville jeg ikke bryde mig om og blive filmet, medmindre jeg er til fare for mig selv. Så giver det god mening, men der er 100 andre situationer hvor der ikke skal filmes, specielt fordi jeg ikke ved om jeg ligger et eller andet sted ude i cyberspace, det er så ufedt.

Interviewer: Så i nogen situationer, der kan man godt se de her kamera som en del af ens sygepleje og fremme ens praksis med patienten.

D: Ja

Interviewer: Hvis de er til fare for dem selv, har brug for ekstra overvågning.

D: Sagtens, men det foresætter at der et formål, indflydelse fra personalegruppen, etik i det og formålet er krystalklart, oplæring og ordentligt arbejdsværktøj - så håndelaget i det følger med. Jeg synes ikke vi er nået hele vejen endnu.

Interviewer: Det er en prototype der hvad jeg kan høre skal udvikles lidt endnu?

D: Ja

Interviewer: Har I nogen andre ting og tilføje?

D og C: Nej

Interview with nurse E, the 11ᵗʰ March 2022

Interviewer: Hvis kan fortælle hvad du hedder og hvor lang tid du har været på afd?

E: Jeg hedder **** og har været på afd. siden aug. 2021, så jeg har været her lige over et halvt år, men har også være her som studerende inden, så sammenlagt 1,5 år.

Interviewer: Kom du fra den gamle afd?

E: Ja jeg nåede lige og være derover i em måned, så mine erfaringer er mest herfra.

Interviewer: Du har tidligere været i praktikker hvor der har været flersengsstuer, så det er noget nyt for dig med enestuer?

E: Ja

Interviewer: Den teknologi man bruger her på afdelingen, hvordan tænker du samarbejdet er, man bruger jo meget teknologi herovre.

E: Jeg synes der er mange ting der er rigtig finde, med teknologien, men der er også nogen ting der ikke rigtig spiller, hvor det bliver lidt for teknologisk.

Interviewer: Hvad tænker du der?

E: Fx videoovervågning den kan du ikke slå til på alle stuer, man kan kun bruge det i en af baserne, der er ikke lyd på. Så hvis man har en patient med GB så kan man ikke bruge det til noget, de kan jo ikke bevæge sig, de bruger lyde til og kommunikere, så ville det være smart hvis der var en lyd der kunne optage. Jeg bruger det derfor slet ikke. Medmindre man har en patient, hvor det er sikkert og bruge

Interviewer: Oplever du det bliver brugt meget den overvågning?

E: En gang imellem, hvis man har nogle isolationspatienter, fx COVID. Men igen så er det begrænset, så skal det helst være ned i vores anden base. Så er det lidt svært hvis man har en patient i gruppe 1, og så skal man sidde i base 2 - og det gør man ikke. Det fungerer ikke optimalt, og det er nok også derfor det ikke bliver brugt.

Interviewer: Hvad med telefonerne, NIMA kald, fungerer det?

E: Man har lyst til og sige ja, men jeg oplever også den ringer på alt muligt. Fx i morges, fik jeg tre alarmer, hvor jeg så gik ned og tjekkede, der var dog ikke en alarm og handle på. Fordi min stue stod tom i nat, og der ikke er nogen der har trykket tom i nat, så har den bare blevet ved med og kalde. Så der er helt sikkert nogen ting der kan forbedres, men hvordan ved jeg ikke.

Interviewer: Så vil man gerne lave det her visuel monitorering, hvor det er ligesom de gamle kameraer, men det kan filme og optag, der er ikke nogen lyd på endnu, hvad tænker du om denne form for monitering?

E: Jeg synes ideen lyder rigtig fin, men jeg kunne godt være lidt kritisk overfor det, i forhold til hvordan man eller s kan bruge det, om man kan gå tilbage of se om der er lavet en fejl, man begynder måske og gå ind og kigge på de forskellige sygeplejersker. Man bruger mistillid til dem, man har jo oplevet før der nogen sygeplejersker der gør ting forkert, og nogen også har gjort det med vilje, men jeg synes bare det giver lidt forkert signal til at man godt kan føle at man bliver overvåget, i forhold til hvordan man gør tingene. Hvis det kan blive optaget, kan ledelsen så bruge det til et eller andet.

Og igen jeg tror ikke det er noget man går og tænker over i det daglige, jeg ville dog bare være bange for at man kan skabe mistillid til personalet, og det synes jeg ikke er så fedt.

Interviewer: Hvordan med patienten, tænker du optagelse af dem kan krænke deres privathed?

E: Jeg tror generelt, det med at vi filmer med, og med opvågning er grænseoverskridende, de er i en rigtig svær situation, og jeg tror også de pårørende, hvis de fandt ud at vi filmede dem det ville ikke være så velset. Fordi det er lidt uetisk i min optik. Fordi de har jo ikke givet samtykke til det, der er selvfølgelig mange ting de ikke har givet samtykke til, men det kræver

også af os at vi værner om dem. Igen er der nogen hvor det giver rigtig god mening og filme, men bestemt ikke alle.

Interviewer: Hvilken patientgruppe tænker du giver god mening og filme?

E: Jeg tror ikke så meget det er en gruppe, jeg tænker mere den enkelte patient, hvis der er en grund hvor det giver god mening.

Interviewer: Tror du at det faglige skøn, kan det blive udvandet?

E: Det faglige skøn, hvor man ser, føler og lytter - det kan du ikke på samme måde hvis du sidder og kigger på overvågning, du kan have en patient der har en høj RF, og hvis denne alarm er slået fra, så ser/hører du det ikke og så kan der ske noget utilsigtet. Fordi man bare har troet for meget på teknologien.

Interviewer: Kan du se nogen fordele ved teknologien?

E: der er helt sikkert fordele ved at du kan trække dig, fx en GB eller det er meget tungt og være derinde, hvis det er en meget ulykkelig situation, pårørende så er det fedt man kan trække sig og samtidige vide hvad der foregår derind. Der er helt sikkert også nogen fordele. Jeg har også selv trukket mig i nattevagter, hvor man sidder ude i basen med kollegaerne og stadig har øjne på hvad der sker. Men det har også været ved patienter der er stabile. Så der er nogen fordele ved det, så man lige får et break.

Interviewer: Designerne siger det kan øge patientsikkerheden, fordi vi allerede trækker fra stuerne.

E: hvis jeg trækker mig fra stuen, så er det forbi jeg skal på toilettet, ud at have mad/drikke, ud og hente medicin, ud og hente ting til patienten. Når jeg nu trækker mig fra stuen, så er det ikke for at gå ud og snakke, men nogle situationer jeg er nødt til. Og i de situationer vil jeg ikke sidde og overvåg dem. Så jeg kan ikke se hvordan den vil øge patientsikkerheden.

Jeg kan se den kan bruges til nogen ting, men jeg vil ikke blive spist af den er patientsikker - der er det bedste at være inde på stuen.

Interviewer: Har du en følelse af at folk går meget ud fra stuerne?

E: Jeg tror det kommer meget an på hvilken patient du har, jeg er vokset op i de her enestuer, og jeg har altid synes det har været rigtig fint, men jeg kan altid lide at der er en ved siden af, så man kan spørge til råd, gå og snakke og om aftenen hvor det er stille have dørene mellem patienterne åbne.

Du kan altid blive inde på stuen, du kan altid optimere et eller andet, så hvor tit trækker du dig egentlig. Man bliver derinde hvis der er noget at lave.

Interviewer: Har du været til nogen workshops?

E: Nej

Interviewer: teknologien bliver implementeret, hvad tænker du sygeplejersker har brug at kende denne her teknologi?

E: Helt klart en introduktion til det. Fordi jeg er ny, så er jeg meget i nattevagter, så måske der også skulle være workshops om aften, så aften/nat får oplæring. Jeg er pt ikke den eneste der ikke kan bruge det der kalde system på stuerne og det var været her siden vi startede, de har prøvet og lavet undervisning i det, men når det bliver halvhjertet, så kan folk stadig ikke finde ud af det, og bruger det ikke.

Sebraen og Roveren, det er nærmest en kamp for at få folk til og bruge det, så måske man bare skal optimere det man har i stedet for at investerer i ny teknologi, apparater, er der så nogen grund til man sætte sig ind i det, hvis det alligevel bliver udskiftet.

Der skal også være nogen nøglepersoner.

Interviewer: Du nævnte at man får nogen kald på telefonen som man ikke helt kan stole på, Roveren virker ikke - har man så en tendens man ikke stoler på teknologien på afd.

E: Jeg tror nogle gange man tænker "nu virker lortet ikke igen".

Interviewer: Når du går ud fra stuen, så stoler du på at teknologien nok skal advare dig om at der foregår noget inde på stuen som ikke skal foregå?

E: Det gør jeg, men samtidig så siger jeg også til min makker, gider du ikke holde et halvt øre, jeg har telefonen. Men det er for ekstra sikkerhed. Jeg har oplevet at der var nogen der havde ringet til mig, men ikke kunne få fat i mig, og der blev jeg rigtig ked af det, at jeg ikke havde tjekket teknologien virker, og jeg blev bange for at det var min skyld, og der var nogen konsekvenser for patienten. Det var der dog slet ikke, men man bliver bare usikkerhed, og tænker man lige skal tjekke telefonen, så derfor tror jeg ikke jeg stoler 100 % på det, men så igen, man stoler jo på sin egen telefon.

Interviewer: Har nogen afsluttende kommentar?

E: Jeg synes det er dejligt med så innovation og man prøver og optimere hele tiden, men så kunen det også være fedt at man fandt på noget der var en kæmpe hjælp.

Interviewer: Fordi du ser ikke overvågning som en nødvendighed?

E: Nej, jeg tror ikke folk ville stole nok på det, og forlade stuen og tænde overvågningen. Jeg tror folk stadig ville sidde hos patienterne. Medmindre de er mega tunge, og den overvågning er der jo i forvejen med kameraer der filmer (ikke optager).
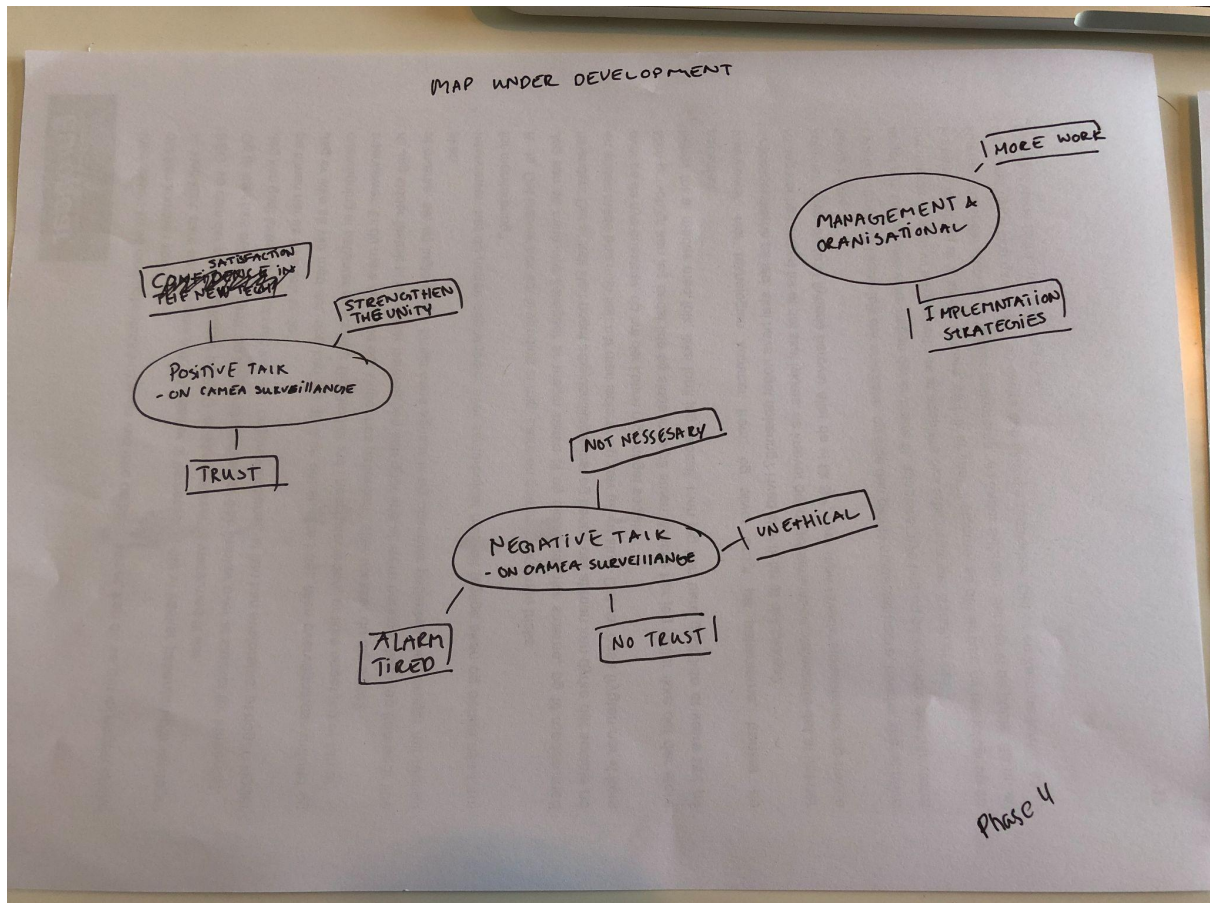
Interviewer: Tak for din tid.

Thematic Analysis

Mind map phase 3
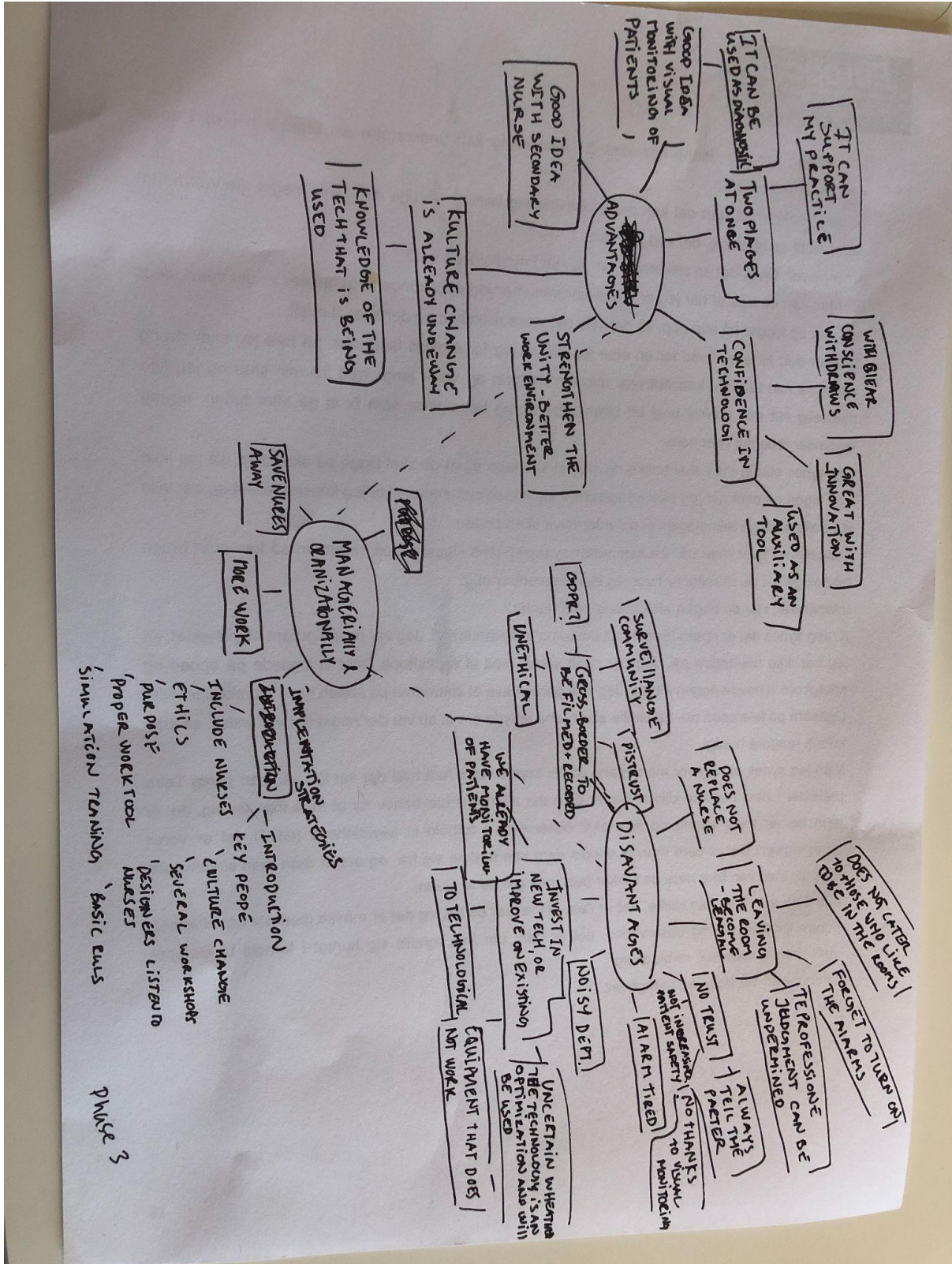
Thematic Analysis

Mind map phase 4

Project description from the ward

Nærhed på distance – MiGo

Baggrund: Hvert år indlægges millioner af patienter på intensivafdelinger verden over til avanceret behandling. Under deres indlæggelse registreres data fra diverse monitoreringsenheder, for at kunne optimere behandlingen. Patienter indlagt på intensivafdelinger kræver konstant overvågning fra en sygeplejerske, hvilket er blevet mere tids- og ressourcekrævende efter overgangen til 1-sengsstuer. For at kunne overvåge patienten, når der er arbejdsopgaver væk fra sengestue, får sygeplejersken alarmer fra respirator, monitor og medicinpumper. Til at kunne optimere denne overvågning af patienterne, arbejdes der på nye teknologier. Med den voksende viden om kunstig intelligens (AI), arbejdes der på udviklingen af kameraovervågning (MiGo) der kan alarmere sygeplejersken på en MiGo-app ved potentielt farlige bevægelser hos patienten.

Formål: Projektets første formål er at teste programmets evne til at fange potentielt farlige bevægelser, ved videooptagelse af patienterne. Der skal løbende arbejdes på algoritmen, for at gøre alarmerne mere nøjagtige.
Projektets andet formål er at sygeplejerskerne, der skal være bruger af MiGo-app'en, tester brugervenligheden og kommer med input til hvordan den kan forbedres.

Praktisk information: MiGo-softwaren sigter efter den bedst mulige anvendelighed fra intensivsygeplejerskerne og de skal efter hver opdatering af MiGo-app'en evaluere softwaren gennem kvalitative og kvantitative interviews af mindst 5 sygeplejersker. Sygeplejerskerne skal inden app'en afprøves ved patienterne, vurdere om den har en brugbarhed, der vil kunne medføre at, de er trygge ved at forlade patienterne, samt om den vil kunne være med til at øge fleksibiliteten i deres arbejdsdag.

Samtykke: Overvågningen påbegyndes når patienten ankommer til en sengestue på afdelingen. Der skal efterfølgende indhentes samtykke, for at få lov til at gemme videooptagelserne til videreudvikling af produktet. Ved patienter der betragtes som inhabile, vil der blive indhentet stedfortrædende samtykke fra de pårørende.
Data omhandlende sygeplejerskernes tilfredshed ved brug af app'en vil være anonymiseret og kræver derfor ikke samtykke.

Inklusionskriterier	Eksklusionskriterier
✔ Sygeplejersker med ansættelse på neurointensiv	✗ Sygeplejersker under oplæring, Sygeplejestuderende, samt sygeplejekursister

Thesis - Antithesis - Synthesis

Thesis

Positive talk
- on camera surveillance

Antithesis

Negative talk
- on camera surveillance

Synthesis

Some ground rules;
For how and on
whom the
technology is used

Antithesis

"Script" for the
technology

**Synthesis
(new thesis)**

There must be more
cooperation
between the various
working groups, and
the nurses must be
consulted and
involved