

**Master thesis**

*The organization of healthcare flex pools in the Netherlands*

by

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## Abstract

The topic of this thesis is flex pools in healthcare. A flex pool includes nurses that are flexible and can be employed at different departments a hospital. The research focuses on the barriers that nurses face during their work in the flex pool and how the flex pools are generally organized. The research question of this thesis is: What barriers do nurses experience when participating in healthcare flex pools and how to overcome these barriers?

To answer the research questions there are conducted ten interviews. Nine interviews were conducted with flex pool nurses and an interview with a flex pool coordinator. The interviews were semi-structured and were conducted online via Microsoft Teams and physically. The interviews were recorded with consent of the respondents and later transcribed and coded to analyse the results.

The interviews revealed that the nurses experience a few barriers during their work in a flex pool. To improve the flex pools in healthcare it is important to have an insight in the barriers that nurses experience when they work in a flex pool. The thesis shows that nurses that work in a flex pool need to be able to adapt to a new situation quickly which can cause stress or anxiety. Furthermore, the lack of communication, the differences in medical terms, organizational structures, and types of guidance are referred to as barriers. Since flex pool nurses do not belong to a team they can feel like an outsider, this is also considered a barrier by some nurses.

There are made three short-term recommendations that flex pools can implement. The first recommendation is that flex pool manager should organize informal meetings with the flex pool nurses to increase the contact between the nurses and managers. The second recommendation is to make information sheets for every department with information about where all the supplies are and important contact information. The third recommendation is to have annual individual meetings with flex pool nurses to discuss their future plans and their experiences in the flex pool.

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# 1. Introduction

## 1.1 Topic

The increase in health care demand results in insufficient bed capacity. To keep up with the health care demand hospitals need to deploy their capacity in an efficient way in order to provide optimal care. Staff shortages in healthcare are also very common (Boswell et al., 2008). Flex pools can be an instrument to handle the increasing healthcare demand and staff shortages by creating a system with qualified nurses that can work on different locations and departments (Boswell et al., 2008). With this system, the transport of patients also decreases. Especially during the Covid-19 pandemic it became clear how important flexible staffing is and that an insufficient bed capacity on certain departments can occur (Spanier et al., 2021). Since staff shortages due to illness of staff was a huge problem (Spanier et al., 2021). Furthermore, more patients needed intensive care, more than the capacity could handle. As stated, flex pools can be a very helpful system for hospitals, however the implementation needs to be done correctly which can be a challenge. This research aims to provide insights in the barriers for nurses to participate in flex pools. In addition, it aims to provide insights in how nurses can be stimulated/ overcome barriers to participate in these flex pools.

Healthcare flex pools can have different advantages for hospitals and nurses. These advantages include higher quality of patient care and cost reduction (Lebanik & Britt, 2015). The work time of nurses can be spread more efficiently between different units and patient assignments. In a flex pool system nurses are deployed when they are most needed, this increases the efficiency and causes cost reduction. Furthermore, the quality of patient care in a flex pool increases since flex pool nurses have knowledge about a lot of different expertise's and they constantly need to adjust their skill set to different patient assignments (Lebanik & Britt, 2015).

## 1.2 Research questions

This research will aim to answer the following research question:

What barriers do nurses experience when participating in healthcare flex pools and how to overcome these barriers?

The independent variable is the barrier for nurses to participate in flex pools since a barrier causes a change in the dependent variable, the participation of nurses in flex pools. The units of analysis are flex pool nurses. The barriers that nurses experience affect the participation of nurses in flex pools. Since barriers can make it harder to participate in flex pools through additional skills that are required for flex pool nurses. The hypothesis is that the existence of

clear communication, transparency, and valuation of flex pool nurses reduces the barriers in flex pools.

There are four sub-questions that will help to answer the research question. The first sub-question gives an oversight of the general organization of flex pools.

**SQ1. How are healthcare flex pools generally organized?**

The second sub-question gives a more specific view of flex pool examples in the Netherlands.

**SQ2. What are examples of healthcare flex pools in the Netherlands?**

The third sub-question concentrates on the barriers that nurses experience while working in flex pools. This question is necessary since this research aims to provide an insight in the different barriers that nurses experience in flex pools. Nurses can identify the barriers best since they have experience in working in flex pools.

**SQ3. What barriers are encountered by nurses in healthcare flex pools?**

The fourth sub-question is about ways to stimulate nurses to work in flex pools. This question is chosen because it needs to be answered in order to be able to stimulate more nurses to participate in a flex pool.

**SQ4. How can nurses be stimulated to participate in flex pools?**



Figure 1 illustrates how the sub-questions are build up to answer the research question and the data collection methods that are used. The data collection method will be described more extensively in chapter 3.

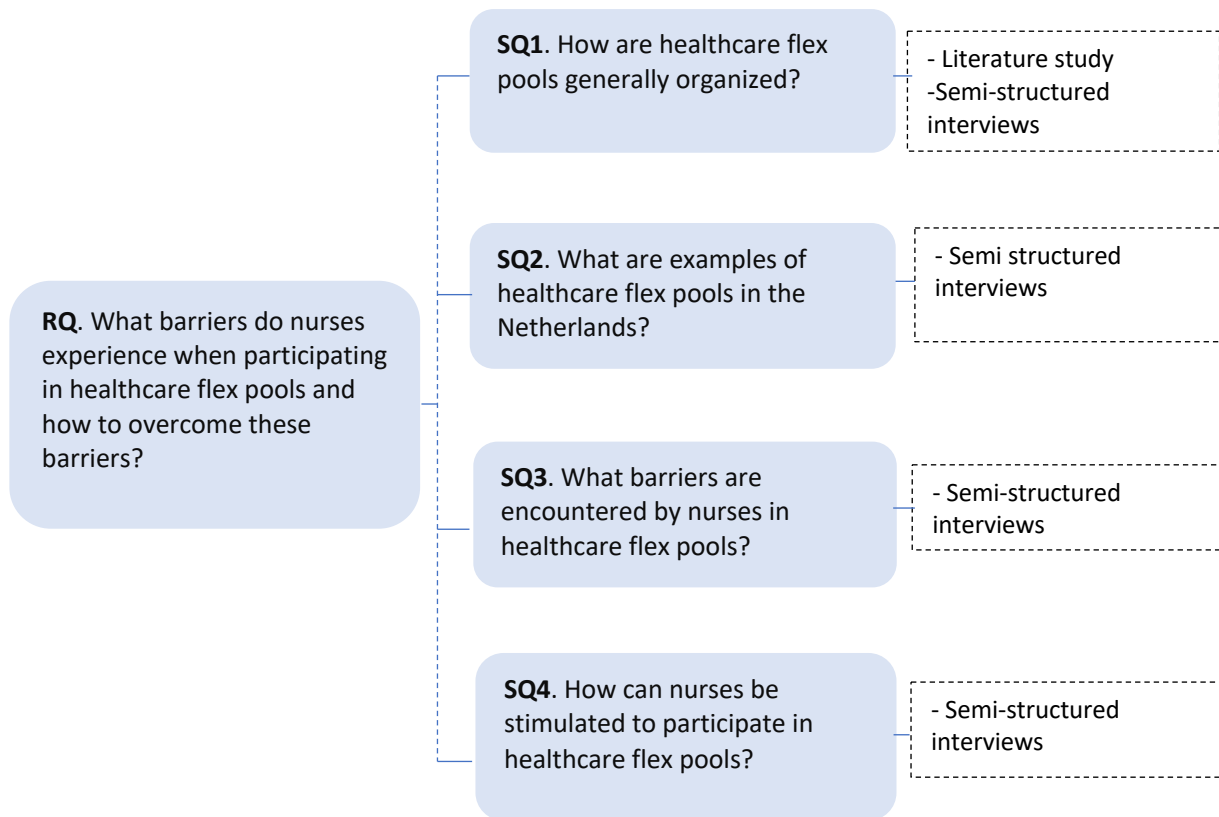


Figure 1 structure of research questions and data collection method

### 1.3 Societal relevance

To be able to keep the staff capacity up with the demand, flex pools are an efficient tool since they reduce costs and improve the quality of patient care (de Leon & Stroot, 2013). This research digs deeper in the barriers that occur when participating in flex pools, this will give an insight in the system of a flex pool and elements that need to be improved. Flex pools also have a positive impact, for example it can reduce labour costs between 2-5% (Lebanik & Britt, 2015). Since flex pools have a positive impact on patient care and reduce labour costs it is societal relevant to investigate how flex pools can be improved. Furthermore, at the moment there is a staff shortage in healthcare therefore flex pools can be a convenient system to reduce the staff shortages on the departments in the hospital. Staff shortages can be reduced when staff can work at different departments (Boswell et al., 2008). Flex pool nurses are assigned to departments where it is most necessary. They are experienced to work at different departments and adapt to a new situation quickly.

This research provides insight in the barriers that nurses experience when working in flex pools. By paying attention to these barriers the work environment for flex pool workers can be improved. This research also includes recommendations on how to adjust the work environment and how to attract more flex pool nurses, which are needed to keep up with the healthcare demand. This research includes a few examples of flex pools with different characteristics. The advantages and disadvantages of these flex pools are described to be able to compare them. This information can be used to adjust existing flex pools and implement new flex pools in hospitals.

#### 1.4 Scientific relevance

The literature about flex pools is limited. Most literature about flex pools describes the advantages, and disadvantages of the flex pools, and the organization of a flex pool. An example of an advantage is labour cost reduction up to 5% (Lebanik & Britt, 2015). A disadvantage of flex pools can be that it jeopardizes patient's safety since flex pool nurses are responsible for patients at different departments and this can lead to more stress and anxiety (O'Connor & Dugan, 2017). This research especially focuses on flex pools in the Netherlands. This research increases the knowledge about the organization of different flex pools in the Netherlands. The healthcare system in the Netherlands is different than in other countries therefore it is unclear whether the results are also true for other systems. However, the types of flex pools that are studied in this thesis generalizable since the flex pool systems could be implemented in every hospital. This research can be used to explain which type of nurse fits which type of flex pool. Furthermore, the research includes characteristics a flex pool must contain to work properly. This research can complement the already existing literature about flex pools by making the information more practical to use.

#### 1.5 Relevance for Public Administration

The access to healthcare is a social aspect and important for the society. The management of healthcare systems is an aspect that falls within the scope of public administration. When the healthcare system is not properly organized it affects the whole society since the access to healthcare is an important factor for the well-being of society. The healthcare policy also falls in the scope of public administrators. Clear policy about the organization of flex pools is very important for a flex pool to work properly.

## 1.6 Reading guide

This thesis starts with an elaboration of the most important literature findings about healthcare flex pools (Chapter 2). The literature focuses on the background of flex pools, different types of flex pools and systems that are used in different healthcare organizations, and the barriers. Furthermore, it focuses on the impact of flex pools on the healthcare systems, the challenges for nurses that work in a flex pool, and the lessons learned of other researches. The next chapter describes the methodology that is used in this thesis (Chapter 3). Firstly, the strategy and design are described (Chapter 3.1), then the operationalisation (Chapter 3.2), then the data collection methods (Chapter 3.3), the data analysis methods (Chapter 3.4), and lastly the ethical aspects are described (Chapter 3.5). The next chapter includes the analysis of the data (Chapter 4). Then, conclusions are made in chapter 5. The next chapter describes the discussion, which includes the limitations of this research and recommendations for further research (Chapter 6). This thesis ends with a list of references that are used in this research and appendices. The appendices include the questionnaires that are used for the interviews (Appendix I and Appendix II). Appendix I is the questionnaire used for the interviews with flex pool nurses and Appendix II is the questionnaire that is used for the interview with the coordinator of a flex pool.

## 2. Literature review

Historically the organization of hospital staff is distributed heterogeneous per department, however there is not paid attention to the inequity of the departments (Briatte et al., 2019). However, there are departments that usually have a lighter workload and some that have a heavier workload, and this can also fluctuate (Briatte et al., 2019). The organization of hospital staff was a segmented model without shared means between different healthcare departments and providers (Briatte et al., 2019). There needed to be found a way to distribute hospital staff more efficient and based on the fluctuation in patient care per department (Briatte et al., 2019).

In order to make the distribution of hospital staff more efficient a flex pool may be introduced, where healthcare workers can be assigned to different units as needed (Briatte et al., 2019). Since nurses make out the largest part of a hospital workforce, they have a lot of influence on the quality of care (Briatte et al., 2019). Briatte et al (2019) concluded in their research that a higher number of nurses results in higher quality of care. However, healthcare organization has even more influence on the quality of care (Briatte et al., 2019). Therefore, it is even more effective to optimize the organization of the healthcare workforce to be able to achieve higher quality of care (Briatte et al., 2019).

To increase the quality of care the scarce resources must be taken into account. Department resources are scarce and therefore hospitals strive to maximize the bed occupancy (Schneider & Van de Vrugt, 2021). The logistics of a hospital mostly depends on the bed occupancy and blocking probability (Schneider & Van de Vrugt, 2021). Blocking probability means the probability that all beds are occupied. To be able to deal with the fluctuating healthcare demand flex pool can be a tool. Another reason for the use of flex pools is the increasing demand for healthcare since the population is aging and due to the developments in healthcare (Winasti et al., 2022).

During the Covid-19 pandemic there was a shortage in bed-capacity in a lot of hospitals, since there needed to be enough capacity for Covid-19 patients while ensuring the continuance of regular care (Spanier et al., 2021). This created a new challenge for hospital staff and the management and distribution of hospital care. In order to act on the increasing demand for care there needed to be more flexibility and transparency (Spanier et al., 2021). Flex pools were a practical tool to be able to handle the increasing demand for healthcare. A lot of Covid-19 patients needed intensive care; therefore, the Intensive Care Unit needed more beds than usual (Spanier et al., 2021).

## 2.1 Types of flex pools

Dziuba-Ellis (2006) elaborates different ways to organize flex pools. Nurses can float between different units and different areas. Furthermore, flex pool nurses can have different assignments, they can be responsible for full patient assignment or can provide temporary assistance in different cases. There are also different types of flex pool nurses, nurses who are part of a flex pool permanently and nurses who are pulled from their usual department to fill in at another department where more staff is needed, they are called pulled nurses (Hoffman & Von Sadowsky, 2018). Nurses working in flex pools are expected to have different kinds of qualities than regular nurses. This flexibility of nurses is necessary since flex pools only work if there is a certain amount of flexibility in the distribution of nurses. Dziuba-Ellis (2006) describes different advantages of flex pools in terms of cost reduction and staff management. Lebanik & Britt (2015) also describe cost reduction as one of the advantages of flex pools. Both Dziuba-Ellis (2006) and Lebanik & Britt (2015) describe the complexity of working in a flex pool since nurses need to adapt to new patient assignment regularly. The researchers mention that flex pool nurses therefore need an additional set of skills to be able to adapt to these ongoing changes.

Schaye et al. (2020) describe a type of flex pool where nurses travel between different facilities as well as between different units. Schaye et al. (2020) mention that effective communication is important when working in crisis situations in ICU's. A clear communication strategy is necessary (Schaye et al. (2020). On the other hand, Lebanik & Britt (2015) point out an improvement of communication while working with flex pools. Nurses attain more skills while working with a broad range of assignments and are still able to retain focus (Lebanik & Britt, 2015). Due to these skills, flex pool nurses have the ability to link a patient with the best-available staff and resources since they have prior experience on different units (Lebanik & Britt, 2015).

When using flex pools, it is also possible to have all the medical staff participate in the flex pool process (Boswell et al., 2008). This can be the case when there are staff shortages and these shortages can be filled in with medical staff from other departments (Boswell et al., 2008). When all the medical staff is used effectively in the flex pool it can lead to cost reduction (Boswell et al., 2008). The system that is recommended in the research of Boswell et al (2008) assigns medical staff in their home unit as supervisors for float nurses, this makes it possible for float nurses to learn about other departments.

Kortbeek et al (2015) discussed in their research the question which number of employees is needed at a specific time and department to be able to assign nurses in the most effective way. To determine how many nurses need to be assigned to a department, the nurse-to-patient ratio is frequently used (Kortbeek et al., 2015). The nurse-to-patient ratio indicates how many patients a nurse can take care of during a shift (Kortbeek et al., 2015). This type of

staffing can be executed in two different ways. The first type is used when the ratios are considered as a mandatory lower bound, which means that there is a legal minimum for nurse-to-patient ratio which secures a high level of patient safety (Kortbeek et al., 2015). However, this means that all beds need to be staffed continuously since there is always the possibility that all beds are occupied, this can therefore lead to overstaffing (Kortbeek et al., 2015). The other possibility to apply nurse-to-patient ratio is to use the ratios as guidelines, in this case, the ratio may be violated sometimes but not for too long (Kortbeek et al., 2015). Kortbeek et al (2015) present in their research a flex pool where nurses are assigned to a department at the start of their working shift depending on the nurse-to-patient ratio. In this type of flex pool, a nurse is assigned to a care unit at the beginning of a shift where the expected nurse-to-patient ratio has the lowest coverage (Kortbeek et al., 2015).

Another type of flex pool is a system where patients are placed at other departments instead of nurses floating between departments, this is called off-service placement. This occurs when the designated department is near or at full-capacity and the patient gets assigned to a bed in a different department (Song et al., 2018). Song et al (2018) describe in their research the effects of off-service placement of patients. Off-service placement can occur since the number of patients fluctuates a lot and can lead to insufficient number of beds for the incoming patients (Song et al., 2018). Off-service placement is considered as a type of capacity pooling since it facilitates remainder beds in a care unit to be used for different services (Song et al., 2018).

The research of Sims et al (2014) describes a form of pooling resources called interprofessional teamwork. This type of pooling consists of professionals sharing knowledge and skills with each other, which results in teamwork between different professionals. Interprofessional teamwork functions because team members know what other members' roles are and what their responsibilities are, which makes it possible to effectively collaborate (Sims et al., 2014). With interprofessional teamwork it is important that team members are in the know of the skills and expertise of their colleagues to assure the continuity of care (Sims et al., 2014).

## 2.2 Positive impact of flex pools

Flex pools have different advantages, for example cost savings, and increased quality of patient care. Firstly, flex pools can reduce between 2% and 5% of labour costs (Lebanik & Britt, 2015). Labour costs (with benefits) consist of the greatest part of hospital costs (Mendez de Leon & Stroot, 2013). This applies when nurses float between different Intensive Care Units in the same hospitals. There is a reduction in costs since the ICU nurses have to travel less between different hospitals (Lebanik & Britt, 2015). Since the labour costs take into account the biggest part of hospital costs it is important to not waste any budget on overstaffing (Kortbeek et al, 2015). However, it is important to maintain a sufficient number of staff to secure high-quality care (Kortbeek et al, 2015). The length of stay and amount of patient

arrivals are both variables that fluctuate a lot, predicting the workloads is important to provide quality-care (Kortbeek et al., 2015).

Flex pool nurses possess valuable knowledge about different units which gives them the opportunity to make a difference within the hospital (Lebanik & Britt, 2015). Schaye et al. (2020) conclude that a uniform strategy and approach is necessary to make a flex pool successful. Furthermore, Schaye et al. (2020) conclude that a collaboration with multiple hospitals is beneficial for patients as well as leaders and staff. The research of Sim et al (2014) describes that flex pool members gained broader knowledge of patients which could lead to more extensive healthcare. Fagefors & Lantz (2021) also mention in their research different advantages of flex pools. Firstly, they mention a reduction in waiting time since there would be a queue for different departments instead of a queue for each department (Fagefors & Lantz, 2021). Second, a higher number of patients can be taken care of with the same or even higher quality (Fagefors & Lantz, 2021).

Another advantage of a flex pool is the improvement of the patient care (Lebanik & Britt, 2015). Lebanik & Britt (2015) describe that flex pool ICU nurses need broad knowledge about different ICU expertise's. Flex pool nurses need to adjust their knowledge and skills to meet the assignments of patients with different medical challenges. Sims et al (2014) mentioned in their research that pooling in healthcare leads to a team of nurses with different types of knowledge and different perspectives on patients due to their individual experience in working with them. The working of a flex pool prominently depends on the communication within the team and between flex pool members (Sims et al., 2014). Besides that, it also depends on the feeling of support and value of the nurses (Sims et al., 2014).

As mentioned, Song et al (2018) describe a type of flex pool called off-service placement. Off-service placement had different benefits. Song et al (2018) mention that off-service placement reduces the wait times and overcrowding in the first aid emergency, which prevents more mortality, morbidity, a decrease in patient satisfaction, longer lengths of stay and increased costs. Furthermore, off-service placement makes it possible for hospitals to increase their revenue since they can use capacity that otherwise probably would not be used (Song et al., 2018).

Spanier et al (2021) mention some lessons learned during the experience of using a flex pool during the Covid-19 pandemic. Spanier et al (2021) argue that solidarity within the medical team is important for the successfulness of the flex pool. Furthermore, communication with the medical staff needs to be proactive since management of a flex pool involves different departments (Spanier et al., 2021). This also involves communication about the successes within the flex pool and transparency about working processes (Spanier et al., 2021). The Covid-19 pandemic showed the importance of a general skill set of medical staff to be able to work in different departments when this is needed (Spanier et al., 2021). Furthermore, the medical workforce should in general be more flexible and integrated in order to be ready when

another phenomenon like Covid-19 happens or comes back causing a lot of healthcare demand (Spanier et al., 2021). Implementing these recommendations can have a positive impact on the flex pool. Dziuba-Ellis (2006) also points out recommendations to improve the organization of flex pools, these consist of improving group dynamics, communication, role clarification, and support. Dziuba-Ellis (2006) also mentions the increasing pressure on the management staff to properly organize a flex pool, since clear communication and role clarification is even more important. Both Spanier et al. (2021) and Dziuba-Ellis (2006) identify communication as an important element in the organization of a flex pool.

### 2.3 Negative impact of flex pools

The benefits of the type of flex pool that is called off-service-placement are mentioned in the paragraph above, however there is also a downside of off-service placement since it can place a burden on healthcare workers, can be inefficient and lengthen the stay of inpatient care (Song et al., 2018). Furthermore, patients that need intensive care can be placed in units that are designated for people that need less intensive care, when this occurs it is called off-level placement (Song et al., 2018). It can also lead to an earlier discharge of Intensive Care Unit (ICU) patients to avoid off-level placement however, this can also lead to more readmissions of those patients (Song et al., 2018). When patients are placed off-level it can result in a longer length of stay and reduction in care quality since they receive a less intensive care (Song et al., 2018).

O'Connor & Dugan (2017) claim that a negative effect of pooling can be that it jeopardizes the safety of patients since nurses have to work with different types of patients and this could lead to more stress and anxiety (O'Connor & Dugan, 2017). However, in their research there are also mentioned a lot of advantages of pooling and why pooling is necessary for a lot of hospitals. O'Connor & Dugan (2017) describe a few elements that hospitals can implement to reduce the risk of jeopardizing the safety of patients. In their research O'Connor & Dugan (2017) argue that the nurses experience working in a flex pool positively since they get to know different departments within the hospital while they learn more skills and get more experience as a nurse. Though, O'Connor & Dugan (2017) also mention the disadvantages of working in a flex pool. For example, it takes flex pool nurses often more time to find out where all the supplies are since they are stored somewhere else on every department, this can take a lot of unnecessary time and distract the nurse from their work (O'Connor & Dugan, 2017). O'Connor & Dugan (2017) argue that this can lead to more stress which can affect the quality of care for the patients. Lebanik & Britt (2015) describe another downside of a flex pool, due to the constant change of assignments float pool nurses are not always recognized for their work.

Another risk can be that a flex pool nurse is not able to answer specific questions of patients and this can jeopardize the credibility of the hospital staff (O'Connor & Dugan, 2017). When flex pool nurses need to ask someone from the department questions this can be hard to find



the right person and they also may be too busy with their own patients to answer their questions (O'Connor & Dugan, 2017). It is important that a patient trust the nurses and doctors in the hospital and that they feel safe, this can be compromised when the patient notices the stress of the flex pool nurse (O'Connor & Dugan, 2017).

To prevent nurses from creating anxiety and stress the nurses need to feel confident in the work they are doing which can be achieved by offering training programs (O'Connor & Dugan, 2017). This can also be achieved when there is a designated flex pool for nurses that do not have a permanent department and are meant to switch departments regularly (O'Connor & Dugan, 2017). A designated flex pool prevents that nurses that are not confident with working on different departments are used to float (O'Connor & Dugan, 2017). In this case only nurses that choose to work in a flex pool are present in the flex pool (O'Connor & Dugan, 2017). They argue that nurses are voluntarily choosing to work in a flex pool are more assertive and could gain more diverse medical knowledge (O'Connor & Dugan, 2017). O'Connor & Dugan (2017) also mention that nurses that just graduated should not be working in a flex pool since this could lead to more stress and uncertainty since they are already new and just starting to gain some experience in practice.

## 2.4 Barriers

Barriers can occur in different phases of a flex pool, when deciding whether or not to participate in a flex pool and when working in a flex pool. A barrier can be described as an obstacle that jeopardizes the working of a flex pool or the nurses that work in a flex pool. Sims et al (2014) mention in their research different aspects that can jeopardize the working of a flex pool. One of these aspects is that the presence of hierarchy within the pool can jeopardize the working since the skills and expertise of a certain group in the pool is in that case more valued than the skills of others (Sims et al., 2014).

Flex pool nurses may need additional training since they require a different set of skills, therefore, they often command a higher pay (Mendez de Leon & Stroot, 2013). However, this does not weigh up against the benefits in quality of care (Mendez de Leon & Stroot, 2013). The quality of a hospital mostly depends on the quality of the nursing staff (Mendez de Leon & Stroot, 2013). Fagefors et al. (2022) mention the different set of skills also as a possible barrier. They describe it as the need for flex pool staff to be competent to work at different departments in the hospital (Fagefors et al., 2022). This means that they may need additional training to learn these skills (Fagefors et al., 2022). Furthermore, the difference in organizational structures between departments is a barrier for flex pool staff (Fagefors et al., 2022).

A barrier can also be experienced when capacity management is decentralized. When this occurs the management of assigning nurses in specific time periods happens within the department (Fagefors & Lantz, 2021). This means that the departments are responsible for

the flexibility in capacity management, these flexibility solutions can be expensive and can possibly cause other problems (Fagefors & Lantz, 2021). A shortage of resources can occur when there is a combination of decentralized capacity management and the occurrence of variations in demand and capacity (Fagefors & Lantz, 2021). Fagefors et al. (2022) mention in their study the fluctuation of healthcare demand as a barrier as well. Fagefors et al. (2022) mention that some changes in the demand are known and should therefore have a place in the process of capacity planning. In their research they also mention the general under capacity of healthcare staff as a barrier (Fagefors et al., 2022). Therefore, attention should be paid to the recruitment of healthcare personnel (Fagefors et al., 2022).

Research of Kox et al. (2020) shows that a lot of nurses quit their job after a few years with different reasons. One of these reasons is the lack of challenge. The high percentage of dropouts can be explained by different reasons. When nurses first start at their job, they sometimes experience a lot of stress and feel like they are not ready to be a nurse in practice (Kox et al., 2020). Another reason is the opposite of this, these nurses feel a lack of challenge and want to achieve for example a management position (Kox et al., 2020). A lack of passion for patient care can also be a reason for dropout (Kox et al., 2020). Kox et al (2020) also mention the lack of job satisfaction in relation to a heavy workload as a reason for early dropout. The reason can also be found outside of the workplace since some nurses drop out due to external factors such as health conditions (Kox et al., 2020). Drop out can also be caused due to negative experiences with colleagues which results in a lack of the feeling of belonging (Kox et al., 2020). To overcome these challenges of early dropouts, capacity building can be a tool.

## 2.5 Conceptual framework

The aim of this research is to find out which barriers nurses experience while working in healthcare flex pools and how these barriers can be taken away. In this research barriers are things that can get in the way of participating in a flex pool or makes it harder for nurses to participate in a flex pool. It is expected that barriers appear when considering working in a flex pool, since it demands a different set of skills than working in a regular department. In addition, nurses could be deterred because working in a flex pool is more intensive and requires flexibility. Lebanik & Britt (2015) describe in their research this particular set of skills that flex pool nurses need to attain, this includes flexibility.

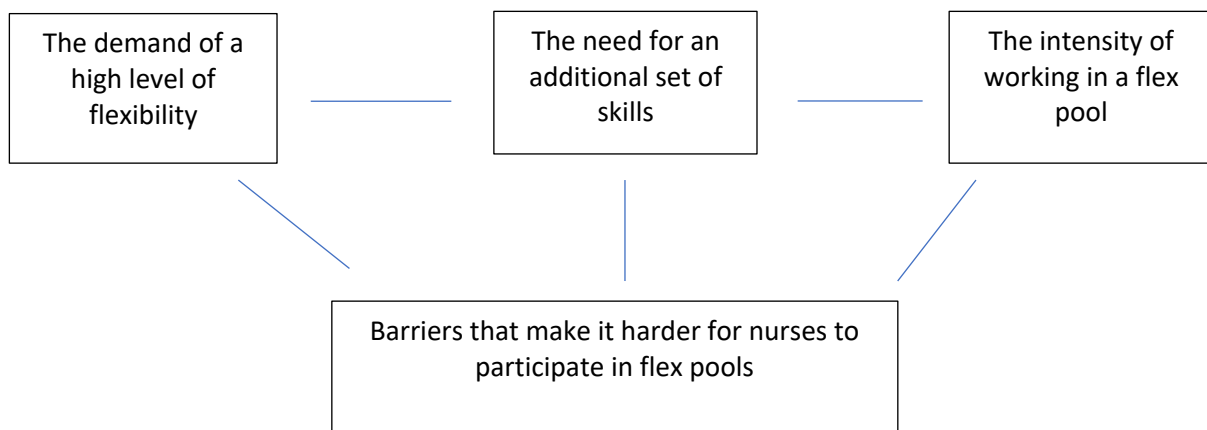


Figure 2 conceptual framework: barriers for participating in flex pools

Figure 2 shows the conceptual framework that consists of elements that make it harder for nurses to participate in flex pools, these elements can be considered as barriers for participating in flex pools. This conceptual framework is based on the information from the literature review. This framework can function as a basis for the interviews with flex pool nurses. The elements of the framework can be adapted or supplemented with the information from the interviews with flex pool nurses. Since flex pool nurses experience the barriers and can confirm the conceptual framework or adjust it.

The three barriers that are mentioned in the conceptual framework are the demand for a high level of flexibility, the need for an additional set of skills and the intensity of working in a flex pool. These three elements are also connected to each other since they have an influence on each other. For example, the high level of flexibility can increase the intensity of working in a flex pool. Furthermore, the need for an extra set of skills can include more flexibility and this additional set of skills increases the intensity of working in a flex pool. This explains why these elements are all connected and that they could be considered as barriers that make it harder to participate in flex pools.

## 3. Methodology

### 3.1 Strategy and design

In this research different views on flex pools will be examined in order to get a broad view of how flex pools are organized and what makes them successful or not. Information from articles about different flex pool examples are analysed. In addition, different nurses and other actors in regional flex pools are interviewed to answer the sub-questions.

The interviews focused on the barriers that nurses experience while participating in healthcare flex pools. Besides that, the interviews focused on how the participation in flex pools by nurses can be improved and stimulated. Since the interviews are transcribed and coded there are found similarities and differences in the interviews, which provided a broad overview of data that made it possible to answer the sub-questions.

### 3.2 Operationalisation

The variables are barriers for nurses to participate in flex pools, and participation of nurses in flex pools. The first variable, barriers for nurses to participate in healthcare flex pools, will be measured by analysing coded interviews with nurses. The analysis will focus on different barriers that nurses experience with participating in healthcare flex pools. The second variable, participation of nurses in flex pools, will also be measured by analysing coded interviews with nurses.

To ensure the validity of the research the interview only included relevant questions that provided answers to the sub-questions. This means questions that include the different variables. To continue, when the interpretation of an answer was unclear, a follow-up question was asked to make sure that the answer of the interviewee was interpreted correctly. Furthermore, nurses with different views on flex pools are interviewed in order to get a representative view of the experiences of nurses in flex pools. The interviews are recorded, transcribed, and coded to be able to find similarities and differences between different interviews and answers.

Research should not be subjective in order to be reliable. To minimize the subjectivity of this research different measures will be taken. For example, the different variables will be defined very clearly to make sure that the variables cannot be interpreted differently. Furthermore, the interviews will be coded, the codes will be clearly categorized in order to be able to make reliable assumptions. Reliability is about choosing the correct code, in order to do that, the transcripts of the interviews will be coded by two people to compare the different codes that are used. The extent to which two coders assign the same codes is the intercoder agreement, the higher this coefficient, the more reliable the coding scheme is.

### 3.3 Data collection methods

This qualitative research contains four sub-questions to be able to answer the research question. The research questions are answered by conducting interviews and a literature study; therefore, it is a qualitative research. There are conducted 10 interviews with nurses and a coordinator from three different hospitals in order to get a broad overview and hear different opinions. These nurses that are selected were working in a flex pool at the moment of the interview.

Flex pool nurses are interviewed since they have the most knowledge about working in flex pools as they experience the barriers and benefits. An expert that deals with the organization of flex pools is also interviewed to get a view of the organization of flex pools in the Netherlands. The interviewees were selected when they have a broad amount of knowledge about flex pools in the Netherlands. Flex pool nurses are selected from different flex pools in different cities in the Netherlands. In this paragraph it will be elaborated how the sub-questions are answered.

#### **SQ1. How are healthcare flex pools generally organized?**

The first question is answered by conducting a literature review. The literature review focused on different cases of flex pools, this gives more insight in how these flex pools are organised why they are or are not successful. The literature review is focused on examples of flex pools from different countries to conduct a broad view of the organization of flex pools.

#### **SQ2. What are examples of healthcare flex pools in the Netherlands?**

This research question is answered by conducting a literature review and by interviewing nurses that work in flex pools in the Netherlands. For this research question a number of cases in the Netherlands is extensively elaborated. There is made a selection of very specific cases from flex pools in different cities in the Netherlands. The flex pools that are selected needed to be actively working. With a literature review the first selection is made to select actively working examples of flex pools in the Netherlands. This information is supplemented with interviews with nurses that work in flex pools and experts that deal with the organization of the selected flex pools.

#### **SQ3. What barriers are encountered by nurses in flex pools?**

The third sub-question is answered with interviews with flex pool nurses. Nurses that have experience in flex pools know what barriers there are and what is hard to arrange. The interviews were semi-structured in order to give the interviewees space to share their own experiences. Furthermore, the semi-structured interview gave the opportunity to dig deeper in specific topics that were mentioned in the interview.

#### **SQ4. How can nurses be stimulated to participate in flex pools?**

To answer sub-question four, the interviews with flex pool nurses are used. The interviews gave insights in what stimulates nurses to participate in flex pools. This question answers the questions what measures there need to be taken to make a flex pool an even more attractive workplace. Furthermore, the interviews will focus on which rewards will stimulate nurses to work in flex pools.

##### 3.3.1 Interviews

It was decided to collect data with interviews because it provides more detailed information about the experience of nurses that work in a flex pool. Besides that, it leaves room for respondents to give more extended and detailed answers and ask follow-up questions. It was planned to ask the respondents questions about processes and organizations which need lengthy explanations and therefore an interview is the best option to collect the data.

To answer the sub-questions of this thesis there are conducted ten interviews. The interviews were semi-structured and consisted of some general questions and questions about the organization of a flex pool, the barriers that nurses experience while working in a flex pool, the benefits of working in a flex pool, the working of a flex pool and positive incentives to stimulate nurses to work in a flex pool. A semi-structured interview is chosen to be able ask follow-up questions and to leave some room for the respondents to elaborate on important topics.

The sample consists of flex pool nurses and coordinator from three different hospitals in the Netherlands. The respondents work in the following hospitals: ZGT, Martini and Rijnstate. The nurses have different backgrounds, some have worked in regular departments in hospitals and moved to a flex pool and some have worked in flex pool since the beginning of their career. Furthermore, there is a difference in years of experience as a nurse, age, and skill set.

The interviews were recorded with consent of the respondents. These recordings are used to make transcriptions of the interviews. Besides the recordings, there were made some notes during the interview to write down the most important or interesting answers. Besides that, the notes were used to write down follow-up questions for a broader explanation of a topic or if something was unclear. The interview questionnaire consisted of 17 questions, and a few follow-up questions were also included when an answer needed more explanation. The questionnaire is included in Appendix I. The interview recordings are stored securely and deleted after finishing the research. For the interview with the flex pool manager a different questionnaire is used that was more focused on the organization of the flex pool at a management level (Appendix 2)

The respondents are approached via the general email-address of the hospitals. Six hospitals were approached and asked if they wanted to participate in the research by delivering

respondents. One hospital could not deliver respondents because they didn't have a flex pool at the moment they were approached. Another hospital could not participate because they didn't employ nurses. One hospital sent the question about participation to the flex pool manager; however, the manager was absent therefore they could not participate. Three hospitals reached out to a group of flex pool nurses with the question if they wanted to participate in an interview, this resulted in nine nurses signing up to participate. The nurses that wanted to participate have been contacted via e-mail to make an appointment for the interview. The coordinator of the flex pool of one hospital in also interviewed to gain information about flex pools from another perspective. Nine out of ten interviews were held online via Microsoft Teams, and one interview was held physical in the hospital where the nurse is employed.

The questionnaire was set up in English using the variables from the research questions. When the questionnaire was finished it was translated to Dutch since the interviews were conducted in Dutch. The interviews are conducted in Dutch since the main language of the respondents is Dutch. The coding scheme, however, is in English. The quotes used from the interviews in this research are translated from Dutch to English.

The interviews were recorded with permission of the respondents, these recordings were transcribed afterwards. The transcribe method used is the intelligent verbatim transcription method. This method means that every sentence is written down without the unnecessary words. With this method some emotions, long pauses, or hesitation about an answer can get lost in the transcriptions, however, the transcription can be read better. After transcribing the interview there were placed open codes on text fragments. The last step in the coding process is axial coding, in this step the codes are compared to each other and placed under a category. The categories are based on the literature review.

Table 1 illustrates the coding scheme that is the result of the coding process. The coding scheme is based on the findings from the literature review that resulted in the research questions. The method of deductive coding is used, which means that there is made use of a predefined set of codes and these codes are assigned to the data. Deductive coding is used since it was already clear which themes were most interesting for this research. The coding scheme focuses on how flex pool nurses experience working in a flex pool. The examples from interviews are translated from Dutch to English by the author. The coding scheme consists of five main categories: the organization of the flex pool (I), the barriers experienced by flex pool nurses (II) benefits of working in a flex pool (III), the successfulness of a flex pool (IV), and positive incentives (V). The categories are then divided into codes.

Table 1 coding scheme based on literature review and author's expectations

Category	Code	Description	Quotes from interviews
<b>Organization (I)</b>	Switching departments	The respondent mentions that the amount of time you work in a department differs a lot.	I have spent a lot of time in one department in the past four weeks and then last week and Monday in another department, so that changes a lot.
	Schedule	The respondent mentions that nurses can make their ideal schedule which is taken into account when they are scheduled.	You make your schedule, and your schedule is simply assigned by the schedulers in the department where you will be working.
	Promotion	The respondent mentions that working in a flex pool could be promoted more actively.	It happens on and off. I think it could be done better since the flex pool really needs more people.
	Invest in returnees	The respondent mentions that the hospital should invest more in nurses that want to return to the hospital since they could be a good asset.	Well, they should also invest in nurses that want to come back to their profession.
	Staff shortages	The respondent mentions that working in a flex pool is beneficial since there is a staff shortage in hospitals this means that there is enough work for flex poolers.	I really wanted a guarantee in hours, well you do not get that of course, but because there is such a staff shortage, I dared to take that risk.



	Training	The respondent mentions that since a couple of years, they can get a training/review in nursing procedures to stay competent	Anything you need to be competent and skilled at, they offer that as training and in recent years that was not the case.
<b>Barriers (II)</b>	Outsider (not a part of the team)	The respondent mentions that the departments have permanent teams, and therefore the respondent sometimes feels like an outsider.	What I just do not like is that you do not really belong to a team.
	Switching teams	The respondent mentions that you have less of a connection with the teams since flex pool nurses switch departments regularly.	Of course, you have more connection with the team if you work permanently within the team, however it also depends on how you act.
	Different departments	The respondent mentions that every department has their own systems and patient categories.	There are different patients on every department and there is a different patient category.
	Communication	The respondent mentions that the communication about switching to another department could be better.	Sometimes colleagues that work in the flex pool get to know their next department very late.
	Asking questions	The respondent experiences asking a lot of questions as a barrier.	I also experienced that as a vlander you come somewhere and that you need to ask a lot of questions.

	Keeping expertise	The respondent mentions that keeping the expertise and routine can be a barrier when the nurse can work less hours.	Keep the routine, keep that expertise.
	Change in protocols	The respondent mentions that sometimes the protocols can change, when a flex pool nurse works less this can influence their work quality.	Protocols change, with face mask, without face mask, well I'm just saying. Then at some point you think; "oh help, am I still up to date, do I remember where everything is, do I know what I should or should not do?".
	Supply storage	The respondent mentions that every department stores their supplies somewhere else this can cost time to search for it.	What you do run into is that you have to look for the supplies you need or when there is an emergency and the doctor asks you things that you cannot find at the time, so that is frustrating, because you want to help that doctor quickly.
	Other guidance	The respondent mentions that the nurses experience other guidance at the different departments.	What we often get back from people is the different types of guidance they experience.

<b>Benefits (III)</b>	Internal vacancies	The respondent mentions that when you are working within the hospital you get access to internal vacancies.	You often also see that there are internal vacancies, and you cannot see them as an outsider, so once you are inside it is easier to apply for another position.
	Knowing the whole hospital	The respondent considers knowing the whole hospital as a benefit of working in a flex pool.	When you work in the flex pool, you get to work at all departments and see a lot.
	Experience	The respondent mentions that nurses learn a lot by getting more experience on different departments.	You gain a lot of experience, because you come everywhere so you are also flexible, you really learn to work independently.
	Skillset	The respondent says that you need to be very flexible as a flex pool nurse and be able to adapt to a new situation quickly.	You need to be very flexible. You can end up everywhere, so you have to be able to stand your ground and indicate when you can't handle something or find it too difficult.
	Flexibility	The respondent mentions that the flexibility of deciding when you want to work is a benefit.	You can work on the days, at the time, and the shifts you want.

<b>Successfulness (IV)</b>	Transparency	The respondent mentions that it is important to be transparent about what you know and what you do not know, especially when you are at a new department.	I am always very transparent to the patient and also the doctors that I am here a day so tell me what to do.
	Communication	The respondent claims that communication within the flex pool is very important.	Communication is especially important to me and I also think it is important that you always have someone to fall back on.
<b>Positive incentives (V)</b>	Appreciation	The respondent experiences a lot of appreciation from their colleagues for helping them out.	The appreciation within the hospital is big.
	Freedom	The respondent mentions that they have more freedom since they can choose which days they want to work.	As a flexer you do have a little more freedom of where you want to work and how much.

### 3.4 Data analysis

In this paragraph the data analysis method that is used is described for each of the four sub-questions. The data analysis of these four sub-questions has eventually provided a basis to answer the research question.

#### **SQ1. How are healthcare flex pools generally organized?**

This sub-question is answered by using information from interviews and a literature study. The type of analysis that is performed is a thematic analysis, with an inductive approach. With this approach the data helped to determine themes. The interviews are transcribed and coded to be able to analyse the different answers. The literature study focused on articles about different examples of flex pools, this provided insights in the organization of regional flex pools. Furthermore, different articles about flex pools are analysed to find differences and similarities between different flex pools.

#### **SQ2. What are examples of healthcare flex pools in the Netherlands?**

This sub-question is answered with information from interviews. Examples of flex pools that will be used needed to be actively working in order to provide relevant information. The coded interviews provided information about different examples of Dutch flex pools and provided specific elements that flex pools consist of in the Netherlands. By analysing these answers there is made a distinction between good qualities of a flex pool and qualities that do not have a good influence on well-functioning flex pools.

#### **SQ3. What barriers are encountered by nurses in flex pools?**

This sub-question is answered with information from interviews. The interviews with nurses working in flex pools and a coordinator provided information about barriers that they experience while working in a flex pool. To analyse the transcripts of the interviews a descriptive analysis is used.

#### **SQ4. How can nurses be stimulated to participate in flex pools?**

The fourth sub-question is answered with information from interviews. The coded interviews are analysed by focussing on barriers that nurses experience for participating in flex pools. These answers in different interviews with nurses are compared. This provided insights in the different barriers that nurses experience and what possible solutions there are to mitigate these barriers. The aim of the interviews was to indicate the interventions that can be used to stimulate more nurses to participate in flex pools.

### 3.5 Ethics

In this research there is voluntary participation since the experts are asked to conduct an interview and had to agree with it. Besides that, the interviewees could also choose to not answer a particular question. Before the interviews the interviewees received information about the aim of the research and could ask questions about the research if they wanted. Furthermore, before every interview the respondent was asked if they agreed with recording the interview. The interview questions are not based on confidential or sensitive information. To continue, the anonymity of the interviewees is assured since identifiable data will be anonymized. After finishing this research, the respondents will receive the final Master thesis. This research is approved by the BMS Ethics Committee on 22 March 2022.

## 4. Results

### 4.1 The organization of healthcare flex pools in general

The first sub-question describes how flex pools can be organized in different ways and that there are different levels of flexibility. This paragraph consists of the answer of the first sub-question. The sub-question is answered using the information from the ten semi-structured interviews with flex pool nurses and a coordinator and a literature study.

Flex pools in healthcare can be organized in different ways. Flex pools can produce a lot of benefits for nurses and management, this depends partly on the type of flex pools that is used. A flex pool can be organized for different departments in one hospital or it can include different hospitals. A flex pool nurse can decide a lot about their working schedule, such as working parttime or full-time and what time and day works best. A flex pool can be organized in different ways, a division can be made in the flexibility of the flex pool and how often nurses are expected to float between teams and departments. In table 2 there is made a distinction of three levels, with level 1 being the least flexible and level 3 the most flexible. A mix of the three levels of flexibility is also possible.

Table 2 *different levels of flexibility in flex pools*

<b>Levels</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Location</b>	Flex pool for one department/team	Flex pool for one location	Flex pool for multiple locations
<b>Schedule</b>	No fixed schedule	No fixed schedule	No fixed schedule
<b>Team</b>	Working within one team/department	Working within one flex pool team	Working in different teams/departments
<b>Participation in schedule</b>	Schedule is made by the department	Creating your own schedule by signing up for shifts	Fill in when other nurses are on leave or there is a change in care demand

The least flexible flex pool can be organised for nurses that one specific department that they want to work on or when they have a specialism that they are most interested in. When this occurs, the nurse would not want to change department but would want to have a flexible work schedule. Hospitals can also have a general flex pool where nurses can work at different departments and switch departments regularly. The number of times a flex pool nurses has to switch departments can differ a lot. Since some hospitals choose to assign a flex pool nurse to a department for a longer period of time. This can occur when a flex pool nurse replaces another nurse that is on maternity leave or has a long-term illness. Some respondents mention

that they are assigned to a department for approximately two to three months. It is also possible to assign flex pool nurses to a department for a short period of time. This can occur when flex pool nurses are deployed when a colleague is on sick leave or when there is not enough staff on a department. A respondent mentioned in the interview that some weeks a flex pool nurse can work at three different departments.

The second level of flexibility can include a flex pool for one hospital, where flex pool nurses can be deployed to different departments. This also included flexibility for the schedule of nurses. Which means that flex pool nurses can create their most ideal schedule and most of the time this schedule can be realised. This type of flex pool can however mean that nurses hear about their next department relatively late, it is not always clear a long time before. This means that the nurses need to be able to adapt to a new situation quickly. A respondent mentions that it is possible to hear only a week before when a nurse has to work. Sometimes it is also possible that nurses get their schedule already for a month or several months ahead. Another respondent for example already has the schedule for four months. This mainly depends on the department that a flex pool nurse is deployed. When the schedule of the department is ready, they most likely know when they need flex pool nurses.

The most flexible pool can be organised for multiple locations. This would mean that nurses would have to travel between hospitals. This can for example be the case if there are only a few nurses that have a certain specialism, and they would need their expertise in multiple hospitals. This type of flex pool would also consist of a flexible schedule since it can't be known which hospital would need the specialist nurses.

A combination of the three levels of flexibility is also possible. Since some nurses for example want to work within one department or specialism but also want to have a flexible schedule. When nurses are trained for a specialism they would want to work only within that specialism. Some hospitals facilitate a flex contract for these nurses. One respondent is an example since this nurse is specialized in one department and only work on this department, however this nurse has a flex contract. This flex contract means that the nurse can indicate their availability and get a notification if there are shifts available for the shifts that the nurse indicated to be available. The nurse then accepts or decline the shift. This system provides a high level of flexibility for the flex pool nurses.

Nurses that work in a flex pool can have different reasons for wanting the flexibility in their work. This can be due to their home situation, if they have someone to care for and therefore could not work with a permanent schedule. Furthermore, this can also occur when a nurse has a different job besides their job in the hospital. A few respondents that participated in this research mentioned that they have a job besides their job in the hospital. They choose to work in a flex pool because they wanted to hold onto their other job. The flex pool is for them a good option to be able to use their medical knowledge in the hospital and also be able to have another job in which they find their passion. Another reason for working in a flex pool that is



mentioned by a respondent is that they also have to care for someone, this can be taking care of their children or other family members. Since nurses can create their own schedule in a flex pool it is possible to take into account their needs.

### **Partial conclusion**

A flex pool can be organized in different ways and with different levels of flexibility. The flexibility of the flex pool depends on different factors. One of the factors is the preference of the nurse since most of the flex pools can be as flexible as the nurse wants. The nurses have a lot of freedom in choosing when they want to work and how many hours per week. This also makes it possible to have more types of nurses within one flex pool since they can most of the time create their own schedule or at least have a lot of input in their schedule. The main reason for nurses to participate in a flex pool is that they can have a lot of input in their schedule and can therefore have other responsibilities besides their work in the hospital. These other responsibilities can be another job, children or other persons they have to care for, or a study. The schedule of flex pool nurses can be customized to fit their life, this makes it appealing.

## 4.2 Examples of healthcare flex pools in the Netherlands

The second sub-question digs deeper in how healthcare flex pools are organized in the Netherlands. In this paragraph there are three different cases of flex pools described. The cases are examples from three different hospitals in the Netherlands. Case 1 describes the flex pool of Hospital Group Twente (ZGT), with locations in Hengelo and Almelo. The second case describes the flex pool of Martini hospital located in Groningen. The third case is the flex pool of Rijnstate hospital which has hospitals located in the region of Arnhem. To answer this sub-question the ten semi-structured interviews with flex pool nurses and a flex pool coordinator that were conducted are used.

### 4.2.1 Case 1

The first case describes the flex pool of Hospital Group Twente (ZGT) called ZGT INZ. The flex pool of the first case mostly consists of nurses that just graduated and want to gain more experience working as a nurse on different departments in a hospital. The nurses that work in the flex pool work at one department for a maximum of four months and then transfer to another department. The amount of time fluctuates per nurse and per department, mostly between two and four months.

To get used to working in the hospital, all nurses get two months to work in at one department. After these two months they stay at the same department for a maximum of four months. The maximum is four months because ZGT INZ wants to give the nurses the opportunity to see a high number of different departments. When flex pool nurses then float to another department, they will not get another two months to work in but will start right away as regular nurse. The amount of time a nurse stays in one department can differ between nurses and department. This depends on how long the flex pool nurse is needed on the department or if needed at another department.

Two respondents mention that they got into the flex pool when they just graduated and are planning to stay a year before they want to start working for a permanent department. These respondents mention that in their experience most of the flex pool nurses stay for one year to get to know the whole hospital and to find out which department they like most. They mention that most flex pool nurses in their hospital are just graduated and work in the flex pool to find out which department they like best. The schedule of the flex pool nurses is made the same way as regular nurses. They can hand in their ideal schedule and the schedule makers take that into account as much as possible. Nurses can also choose to let the schedule makers decide for them to create more flexibility; however, they can still ask for vacation days and days off.

Nurses that work in the flex pool also have to work for six weeks as “vlinder”. “Vlinderen” means that nurses have to work in another department every day since they have to fill in at

the department where a nurse got ill. This so called “Vlinderen” only happens once in the time nurses work in the flex pool, could be more than once when a nurse works in the flex pool for more than one year.

#### 4.2.2 Case 2

Case 2 is the flex pool of Martini hospital called Martini Flex. Martini Flex consists of nurses with different levels of education and specialised nurses. There are more than 250 employees working in the flex pool in different departments. They work with two types of flex pool contracts. One for on-call workers that could work for at least fifty, two hundred or four hundred hours a year. The second one is a permanent contract or 24 hours a week. The nurses that have a permanent contract work in a department for one to six months. The on-call flex pool nurses can work in a different department more regularly, they can also switch departments every day. The on-call workers do not have a fixed number of hours they work per week., this can vary a lot.

The benefits of working in this flex pool is, according to nurses, the possibility to find out which departments fit the best. Furthermore, with the on-call flex pool nurses have a lot of flexibility since they can decide when they want to work and when they want vacation days. The flex pool makes it possible for nurses to find out which departments they like best while getting a lot of experience at different departments. Nurses have eight workdays to adapt to a new department.

A nurse needs to have a half year experience in working in the hospital before they are qualified to work in the flex pool. This includes an internship. This is set because working in a flex pool can be a challenge for a nurse that does not have a lot of experience in working in a hospital. People that want to start working in Martini Hospital get offered the flex pool contract, only nurses that already have more than two years of experience in a hospital or are specialised can get offered a permanent contract directly. After working in the flex pool for one year all nurses get offered a permanent contract. However, nurses can also choose to stay in the flex pool since a permanent contract means that they have less flexibility and are bound to a department.

#### 4.2.3 Case 3

The flex pool of Rijnstate is called Rijnstate select. The flex pool of Rijnstate has around 40 flex pool nurses employed. They are between 25 and 45 years old and have different reasons for working in a flex pool. The nurses can work on-call with a zero-hour contract up to a contract for 32 hours. The flex pool already exists for around 20 years but there has been a reorganization in 2017. The reorganization meant that the flex pool only consisted of nurses and nutrition assistants from then on. The flex pool nurses are deployed for peak moments sick leave, and maternity leave. The flex pool coordinator mentioned in the interview that the

nurses stay in the flex pool for an average of nine months. Most nurses choose to work in a permanent department after that. The flex pool includes all the departments in the hospital except the specialist departments.

The flex pool It is required that nurses that want to work in the flex pool can work at least at four different departments. This is set since it would otherwise not be possible to deliver the hours stated on the contract. Furthermore, it is not beneficial for the flex pool since a nurse that can work at less than four departments is no longer flexible deployable. Rijnstate Select also advises the nurses to alternate the different shift since a day shift and a night shift are very different. To maintain their all-round skillset, it is important to alternate the different shifts. The nurses are also drawn to this by their coordinator.

When nurses start to work in a flex pool, they get a custom training program. The minimal number of weeks of the training program is six weeks. This includes three on a surgical department and three weeks on a diagnostic department. If a nurse needs more time to get used to working in the hospital it can be arranged tailored to the needs of the nurse. On every department the flex pool nurse gets assigned to a mentor. This is a person that works in the department permanently and can answer the questions of the nurse and explain how the department works.

Rijnstate select provides their nurses with a lot of freedom to choose their schedule. Nurses can choose when they want to work and if they want day shifts, evening shifts and/or night shifts. They can also merely choose one of them if they prefer. The flex pool nurses work at different departments within the hospital. The nurses first can fill in their availability in the schedule. Then they receive an Excel file with the available shifts and can sign up for the shifts they want. The excel file consists of shifts at specific departments and shifts that are for flex pool nurses, then they will be placed in a department where they are most needed at that moment. This gives nurses the opportunity to choose in which department they would like to work or to leave it open. This makes it possible for nurses to work with a flexible schedule while still having the opportunity to work at the departments they find the most interesting. When there are still shifts that need to be filled, the flex pools get in contact with the nurses to ask if they can help with these shifts. Flex pool nurses receive their schedule a few weeks in advance.

The flex pool nurses work full-fledged, and independent shifts with their own patients. The nurses get a work in time that is suitable for them. Furthermore, the nurses can grow within the hospital and have the same development and training opportunities as regular nurses. This means that the flex pool managers take into account the needs of the nurses and have regular meetings to discuss the future of the nurses and how they experience the flex pool. The flex pool coordinators also organize an intervision twice a year for all flex pool nurses to talk about their work in an informal setting.

Rijnstate select wants to introduce a new type of guidance, where the employees of Rijnstate select guide new flex poolers. The reason to introduce this is that they are less dependent on the departments and if there is enough staff at the departments to guide new flex poolers. Furthermore, they hope that this will help to create more connections within the flex pool.

### **Partial conclusion**

The cases that are described show that a flex pool can be organized in different ways. Furthermore, the cases also show that different forms of flex pools can exist in one hospital since flex pool nurses have a lot of freedom to discuss their preferences and in how many hours they work, on which days they work and which kind of shifts they want. There are a few differences between the three cases. Case 1 represents a flex pool where newly graduates can experience different departments in a short period of time to find out which department suits them best. In case 1 the nurses stay at one department for a longer period of time, between 1 and four months. Case 2 is a more flexible flex pool where nurses can create their own schedule and can choose whether or not to accept a work shift. In the flex pool of case 3 nurses also have a lot of flexibility to create their own schedule. Each flex pool consists of different types of nurses since they can customize their schedule to fit their lifestyle.

### 4.3 Barriers that nurses experience in healthcare flex pools

There are different barriers that nurses experience when working in a flex pool. These barriers can have an impact on the quality of care the nurse can give and on their well-being. In the interviews with the flex pool nurses from three hospitals different barriers that they encounter are mentioned. The nurses mentioned that most of the barriers appear in the beginning of working in a flex pool since they have to get used to the hospital and the workload. Table 3 illustrates the barriers that are mentioned in the interviews, each barrier is explained in this paragraph.

Table 3 *barriers experienced by flex pool nurses and frequency*

<b>Barriers</b>	<b>Measures of frequency</b>
Learning the organizational method of different departments	2
Differences in medical terms	2
Maintaining (medical) skills	1
Lack of communication	4
Different types of guidance	1
Not a part of the team	4

#### **Learning the organizational method of different departments**

Every department has their own organizational structures, this can be a barrier since flex pool nurses have to learn a new structure every time they arrive at a new department. It can take some time to learn where all the tools are. This can be a barrier since it can be time consuming when nurses have to learn where the tools are and how the system works on every new department they work. One respondent mentions the following: “You have all new colleagues, new syndromes and everything is in a different place” (Respondent C). This barrier can be moved by giving the flex pool nurse an information form with all the important information of the department where they have to work. When nurses need to know something, they can consult the information form and could prevent losing a lot of time to searching.

#### **Differences in medical terms**

Every department uses their own medical terms and abbreviations. One respondent said the following about this: “In some departments to have to google everything the doctors write down” (Respondent B). This can cause a barrier since the information the doctor writes down can be understood incorrectly or it can be time consuming to search everything up.

### **Maintaining (medical) skills**

Some flex pool nurses have another job besides their work in the hospital. Sometimes it can happen that a nurse can work less hours in the flex pool. This can lead to a decline in confidence in their own skills and knowledge. One respondent mentions the following: “Sometimes I do not work two or three weeks and then I feel like I lose a bit of skill” (Respondent E).

### **Lack of communication**

Communication is a very important aspect in the working of flex pools. This includes communication between the managers and nurses of the flex pool as well as the managers and the departments that the nurses work in. Furthermore, this also includes communication between the flex pool nurses and the department they work at that moment. This means that poor communication between the different parties is considered a barrier by some respondents. One respondent mentioned that sometimes the department where a flex pool nurse is scheduled does not know that the nurse would be coming. This can be a result of poor communication between the management of the flex pool and the department the nurse is scheduled. When this occurs the valuable time of the flex pool nurse is wasted since the nurse needs to be placed at a different department or the nurse is placed as reserve when this is not really necessary. Communication therefore is essential for the efficiency of a flex pool.

### **Different types of guidance**

Every department has their own organizational structure and therefore the nurses will be guided in a different way at every department. This means that a nurse gets explanations from different employees at the departments who all have their own way of explaining something. One respondent mentions the following about the different types of guidance: “Then she gets an explanation from another colleague who is just different or does it differently or they get to another department where they do things differently, so that is sometimes difficult for starting nurses” (Respondent J).

### **Not a part of the team**

Flex pool nurses switch departments regularly and therefore also have to work with another team at every department. This can cause a feeling of being an outsider. A respondent mentions the following about this: “In a flex pool you never quite belong. You’re not really part of the team. While they are very involved and sweet, and it’s not like they do not see you, but you are not one of the team” (Respondent E). The nurses mention that the people that work at the department are very welcoming most of the time. However, they still experience some difficulties since they frequently have to ask questions if they do not know something and can feel like they ask too much. The other employees already know exactly how the

system at the department work and are not always happy when a new nurse comes in who needs to be supervised since they are really busy.

### **Partial conclusion**

The barriers that are described are mentioned the most in the interviews. Every nurse experiences the barriers differently. Some nurses are more sensitive to the barriers than others. The nurses that work in a flex pool have also been selected to be able to handle the flexibility well. However, there are still some things that can improve the work environment. Communication is the most important element of a successful flex pool. Most of the barriers are connected to communication. Besides that, transparency is important since flex pool nurses are involved with a lot of departments and people and need to be transparent about what they know and do not know to get the guidance they need from the people at the different departments.



#### 4.4 Stimulating nurses to participate in a healthcare flex pool

This paragraph answers the fourth sub-question. The sub-question is about how working in a flex pool can be promoted to recruit more nurses. There is a staff shortage in hospitals therefore recruiting more flex pool nurses is necessary. The results are based on the ten semi-structured interviews with flex pool nurses and a flex pool coordinator.

To promote working in a flex pool it is important to point out the benefits. Working in with flex pools has a lot of different advantages as pointed out in the interviews. The most important thing for attracting more flex pool nurses is to communicate with potential flex pool nurses about the option to be a flex pool nurse. Not every nurse is informed about the option to work in a flex pool and they do not know the benefits of working in a flex pool. Table 4 illustrates the benefits that are mentioned by the flex pool nurses in the interviews.

Table 4 *benefits of working in a flex pool based on interviews with flex pool nurses*

<b>Benefits of working in a flex pool</b>
A lot of flexibility
Learning a lot of extra skills at different departments in the hospital
Getting to know the whole hospital since flex pool nurses get to work in different departments
Get to know which departments are best suited for a nurse to work permanently
Flex pool nurses are valued by their colleagues since they can bring their expertise to different departments
Flex pool nurses are widely applicable since they have experience in different departments
Flex pool nurses learn how to adapt to a new situation quickly

The benefit that is most frequently mentioned is the possibility to get to know the whole hospital and experience working at different departments. Therefore, promotion of the flex pool should focus on nurses that do not know exactly which departments they like and want to find this out. Another benefit is that flex pool nurses learn a lot of extra skills and are all-round employable due to their experience at different departments. The flex pool is therefore considered a good step into the hospital, especially for starting nurses. Furthermore, the flexibility of having a lot of input in the schedule is appealing for nurses that have other responsibilities next to their work in the hospital. The flex pool can also be promoted to nurses that want to get back to working in a hospital. This target group already has experience in the hospital but worked in another sector for some time. With their experience they can be a good asset for the flex pool.

To be able to attract more nurses for the flex pool it is helpful to have an overview of the disadvantages. This because a flex pool requires a specific type of nurse who can deal with the disadvantages. One characteristic a flex pool nurse must possess is to be able to adapt to a new situation quickly since every department has their own team, technical terms, and organizational system. Flex pool nurses change departments regularly and therefore need to learn the methods of the department every time they start at a new department. Another characteristic a flex pool nurse needs is confidence and the courage to ask questions. A flex pool nurse must feel confident about their knowledge and when they do not know something, they need to be transparent about it.

The interviews revealed that there is not made a lot of promotion for the flex pools. Most of the nurses work in the flex pool because they heard of it once they were already involved with the hospital, such as during an internship or job interview. When a nurse is new in the hospital, they frequently start to work in the flex pool rather than starting at a permanent department directly. Therefore, promotion of the flex pool should focus on starters, recent graduates and people that want to get back to the hospital after working in another field of expertise.

Appreciation of the flex pool nurses is important to keep the flex pool nurses within the hospital. It is important for the flex pool nurses to get that appreciation from the flex pool team. Some respondents mentioned in their interview that they really appreciate the valuation they get from the departments they work in.

### **Partial conclusion**

The promotion of working in the flex pool should focus on three target groups. The starting nurses, returnees, and nurses with other responsibilities besides their work in the hospital. While promoting the flex pool, the benefits must be well presented. In addition, the candidates must have the right qualities. These qualities are confidence, good communication skills, and be able to adapt to a new situation quickly.

## 5. Conclusion and Discussion

This thesis aimed to answer the following research question: What barriers do nurses experience when participating in healthcare flex pools and how to overcome these barriers? To answer the research question, research has been done on the organization of different types of flex pools. These different types of flex pools can have different types of barriers. However, the research showed that most of the barriers described exist in all types of flex pools. By analysing the interviews with flex pool nurses and a coordinator a few barriers are present and experienced by nurses. Flex pool nurses experience the following barriers: learning the organizational method of different departments, learning the different medical terms, maintaining (medical) skills, lack of communication, different types of guidance per department, and not being a part of a team.

To improve the flex pool the barriers, need to be reduced. Every nurse experiences the barriers different and some do not see them as barriers. Therefore, it is important to keep in mind that every nurse is different and has their own work schedule. Nurses need to be confident about their knowledge and skill, this will help them cope better with the ongoing changes in departments. Communication is the most important aspect in flex pools since poor communication can result in a poor performance of services. Communication between the flex pool, the flex pool nurses, and the departments needs to be clear. Clear communication helps the nurses to be confident about what they have to do. Furthermore, flex pool nurses need to know who to ask questions. Besides that, the nurses need to be transparent about what they know and what they do not know in order to guarantee qualitative care.

### 5.1 Results

From the literature it was expected there would be three barriers that nurses would experience. These barriers were expected to be additional skills, high level of flexibility, and the intensity. This study concludes that nurses do not necessarily need additional skills since they can apply their basic nursing knowledge at every department. However, flex pool nurses need to be more flexible since they have to adapt to a new situation and department quickly. Furthermore, based on the interviews it can be concluded that working in a flex pool is generally not considered more intense than working at a permanent department. The flex pool nurses that are interviewed mentioned that the work pressure differs a lot, however this would also be the case if they would work at a permanent department. Therefore, they do not consider working in a flex pool more intense.

It was expected that communication would be the main aspect in a good working flex pool, this is also what is confirmed in the interviews. This includes communication between the flex pool manager(s) and the flex pool nurses as well as between the flex pool manager(s) and the departments the flex pool nurses work. The interviews showed that a close relation between the flex pool manager(s) and the nurses has a positive effect on the experience of the nurses

of the flex pool. It was also expected that flex pool nurses need an additional set of skills. Eventually it turned out that flex pool nurses need to be able to adapt to a new situation quickly since they have to work at a lot of different departments. Furthermore, they need to be transparent about what they know and what they do not know and be able to ask questions since they cannot know everything about every department of the hospital.

It was also expected that flex pool nurses needed a high level of flexibility. It turned out that the nurses that work choose to work in a flex pool because of the flexibility. They consider the flexibility as a benefit. The last expectation was that the work pressure would be high in a flex pool. The results show that the work pressure is considered a barrier since it is expected from the nurses that they can work at different departments while maintaining the same quality of care. This can sometimes put more pressure on the nurses, however the respondents mentioned that they are used to working at different department and therefore do not feel very high work pressure.

The cases that are used in this research show that there are different types of flex pools in the Netherlands. The flex pools consist of different types of flex pool nurses. Since the nurses can have a lot of influence on their schedule it is possible to have nurses with different needs in the flex pool. The different types of flex pools fit different types of nurses.

The first type of flex pool that is discussed in this research is a flex pool where nurses work at a department for a longer period of time up to four months. In this flex pool the schedule of the nurses is available longer in advance. This is possible since the nurses work in a department for a longer period of time. This type of flex pool is attractive for nurses that want to get to know the hospital and get experience at different departments. This is especially appealing for nurses that just graduated and do not know which department suits them best. They can get experience by working at a department for a few months and then switch to another one. This gives them enough time to get to know the department. Furthermore, it is also good for recent graduates to stay in a department a little longer because otherwise the work pressure may become too high when they have to switch more regularly.

The second example is a flex pool where nurses can fill in their availability and then get called if they want to work a shift. In this type of flex pool, the nurses have a lot of freedom to decide whether they want to work or not and when they want to work. However, this also means a lot of uncertainty about available shifts and nurses get to hear if there is a shift available relatively late. Furthermore, nurses have to switch department very often, it is even possible to work at a different department every day in this flex pool. This type of flex pool is especially relevant for people that have another job or other responsibilities besides their work in the hospital. Since both of these types of nurses have other responsibilities and are not totally dependent on the work in the flex pool.

Another type that is described is a flex pool where nurses get their schedule a few weeks in advance and have a lot of influence on it. They can choose at which departments they want to work or leave that to the schedule makers. The nurses can choose if they want to work the day, evening or night shift. This also means that it is possible to work at a different department every day. However, the schedule of the nurses is available a few weeks or even months in advance. This type of flex pool is attractive for nurses that have other responsibilities besides their job or nurses that just graduated. The nurses that work in this flex pool need to be flexible enough to adapt to a new department quickly since they can switch every day. This is necessary because it is common that the nurse hears what their next department will be shortly before their shift.

## 5.2 Limitations

This research is based on interviews and a literature review therefore there are a few limitations. The interviews were held with nurses from three different hospitals that actively work with flex pools. This selection has been made since there are hospitals included from different regions in the Netherlands. It would be possible to have an even broader view on the organization of healthcare flex pools in the Netherlands when more hospitals would be included. In connection with the limited time for writing this thesis the choice has been made to focus only on these three hospitals. Six hospitals were contacted to ask if they would want to participate in the research, however they had different reasons to not participate. One hospital didn't have a flex pool at the time. Another hospital didn't employ nurses directly. A third hospital didn't have a flex pool manager at the moment; therefore, the nurses could not be contacted.

The search for interviewees was therefore harder than expected. This was partly due to the rules of the privacy law. The privacy law makes it harder to contact people since the hospital cannot give the names of nurses without their consent. Furthermore, the contact information of nurses is not publicly available. Furthermore, it was expected that more hospitals that were contacted would want to participate, this was eventually not the case due to different valid reasons. The ten interviews that were held gave enough information to make valid conclusions since theoretical saturation was achieved. In the research proposal the minimum number of interviews was stated on eight interviews, which is achieved.

There is made use of semi-structures interviews to answer the research questions. The questionnaire that was used provided a good basis to get the right information from the respondents to answer the research questions. The results are generalizable since flex pool nurses from different hospitals and with different contracts are interviewed. This gives a broad view of the organization of flex pools in the Netherlands. The sample consists of nurses with different backgrounds and characteristics, which makes the research more valid on the basis of population validity. However, a flex pool can mean different things for every nurse since they have a lot of freedom and flexibility in how they want to organize their own schedule.

This includes on which departments they want to work, how many hours they want to work, and which shifts they want to work.

### 5.3 Recommendations

From this research a few recommendations for hospitals to improve their flex pool can be made. These recommendations can be implemented on a relatively short term.

Flex pool nurses sometimes feel like an outsider since they do not belong to a permanent team in the hospital. Therefore, they feel like they cannot share their experiences of working in a flex pool with peers. The flex pool manager(s) could organize meetings or gatherings with all, or a part of the flex pool nurses to discuss their experiences and struggles. These meetings or gatherings can be organized once every half year or every year. As a result, flex pool nurses know who their colleagues are, and they possibly feel more of a bond with the flex pool.

Another recommendation is to implement making an information sheet for flex pool nurses that come to a department for the first time. This sheet can consist of information about the important phone numbers when there is a problem, information about what is expected from the flex pool nurse while working at the department, and where the nursing supplies can be found. Every department has a different organizational structure and supplies are stored at different locations; therefore, an information sheet can help to reduce spending time looking for the supplies. Furthermore, it would be helpful to let the flex pool nurses know what is expected from them while working in the department to reduce anxiety and stress.

Flex pool managers could organize annual meeting with the nurses to discuss how they experience working in the flex pool and if they have any suggestions to improve the quality of the flex pool. Furthermore, the future plans of the nurses can be discussed; do they want to stay in the flex pool, or do they have other goals? Discussing their experiences can help to improve their experiences can help improve their job satisfaction. It could also reduce the change of anxiety and stress since they can talk about the things that causes it and try to find solutions to prevent it.

### 5.4 Follow-up research

Follow-up research could focus on creating a guide for implementing flex pools in healthcare, in order to make it more accessible for hospitals to implement a flex pool. In this research a few characteristics a flex pool should exist of are mentioned. However, research into how to start a flex pool is not done in this thesis. Therefore, follow-up research could focus on some guidelines for hospitals that want to set up a flex pool.

During the search for flex pools in the Netherlands it became clear that working in a flex pool is not promoted a lot, therefore follow-up research could also focus on how to promote working in flex pool. Since there is still a shortage in healthcare staff it could help to recruit

more nurses to work in flex pools. In this research a few suggestions for promoting flex pools are made. Follow-up research could more extensively focus on the promotion of flex pools in hospitals.

Follow-up research could also focus on the re-entry of nurses in the hospitals. A respondent mentioned that it is difficult to enter the hospital as a nurse when the nurse has been working for different organizations, such as home care. Nurses that want to re-enter the hospital could be a great acquisition since they have the knowledge and the motivation. Especially with the staff shortage in healthcare it would be a great opportunity to pay more attention to returnees. Since most nurses already have experience in other fields of healthcare or already worked as a nurse in a hospital, they would need less time to get used to the medical aspects. However, they would need time to get used to the practical aspects, since the systems the hospital works with change regularly.

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## Appendices

### Appendix 1: Questionnaire flex pool nurses

<i>Thanking the respondent for taking the time to participate in the research</i>	
<i>Introducing the topic</i>	
Category	Questions
Characteristics of the nurse	<ol style="list-style-type: none"> <li>1. In which hospital do you work?</li> <li>2. Do you work parttime or fulltime in the flex pool?</li> <li>3. How long have you been working in the flex pool?</li> <li>4. In which departments do you work?</li> </ol>
General questions	<ol style="list-style-type: none"> <li>5. Why did you choose to work in a flex pool?</li> <li>6. How do you experience the work pressure as a flex pool nurse? Why high/low work pressure?</li> <li>7. Can you describe a general week as a flex pool nurse?</li> <li>8. Do you need more/other skills as a flex pool nurse? If yes, which skills?</li> <li>9. What are the main differences between flex pool nurses and regular nurses?</li> </ol>
Organisation of the flex pool	<ol style="list-style-type: none"> <li>10. How many times do you switch departments in general?</li> <li>11. Do you have input in your schedule? (Preferences)</li> </ol>
Barriers	<ol style="list-style-type: none"> <li>12. Are there elements in your work that you experience as annoying that are related to the flex pool?</li> <li>13. Do you experience any obstacles that influence your work in the flex pool?</li> </ol>
Benefits	<ol style="list-style-type: none"> <li>14. What are the benefits of working in a flex pool?</li> </ol>
Successfulness	<ol style="list-style-type: none"> <li>15. What are important aspects that a flex pool must consist of?</li> </ol>

	(Examples: communication, transparency)
Incentives	<p>16. Are flex pool nurses rewarded enough for the work that they are doing in your opinion?</p> <p>17. Which rewards would stimulate nurses to participate in a flex pool?</p>
<i>Thanking the respondent for participating and asking if they want to receive the thesis.</i>	

Appendix 2: questionnaire flex pool coordinator

<i>Thanking the respondent for taking the time to participate in the research</i>	
<i>Introducing the topic</i>	
Category	Questions
General questions about the flex pool	<ol style="list-style-type: none"> <li>1. In which hospital do you work?</li> <li>2. How many nurses are employed in the flex pool?</li> <li>3. How long does the flex pool exist?</li> </ol>
Organization of the flex pool	<ol style="list-style-type: none"> <li>4. When are flex pool nurses deployed?</li> <li>5. How are flex pool nurses scheduled? Is that done for them or can they do that themselves?</li> <li>6. How many times does a flex pool nurse switch from department?</li> <li>7. Do the flex pool nurses have a work in time before they start switching departments more regularly? If so, how long is the work in time?</li> <li>8. Is every flex pool nurse deployed on every department or can they choose?</li> <li>9. Why was it decided to implement a flex pool?</li> </ol>
Flex pool nurses	<ol style="list-style-type: none"> <li>10. Which skills does a flex pool nurse need?</li> <li>11. What are the main differences between flex pool nurses and regular nurses?</li> <li>12. How long do nurses in general work in the flex pool?</li> </ol>
Barriers	<ol style="list-style-type: none"> <li>13. Do experience any obstacles that influence your work in the flex pool?</li> </ol>
Benefits	<ol style="list-style-type: none"> <li>14. Wat are the benefits of working with a flex pool from a management perspective?</li> </ol>

Successfulness	15. What are important aspects that a flex pool must consist of? (Examples: communication, transparency)
Promotion	16. In which ways is the flex pool promoted within the hospital and to the outside?
<i>Thanking the respondent for participating and asking if they want to receive the thesis.</i>	